

FINAL

Independent Environmental Audit - Summary Report

Hunter Valley Operations South Coal Project

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Prepared for

Coal & Allied Pty Ltd

Prepared by

AECOM Australia Pty Ltd
17 Warabrook Boulevard
Warabrook NSW 2304
T +61 2 4911 4900
www.aecom.com
ABN 20 093 846 925

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Executive Summary

AECOM Australia Pty Limited (AECOM) has been commissioned by Coal & Allied – Rio Tinto Coal Australia to conduct the Independent Environmental Audit (Audit) for the Hunter Valley South Coal Project in accordance with Project Approval 06-0261 (PA 06-0261) dated 24 March 2009 (as modified).

This audit was conducted by Dianne Munro, Heidi Watters and several specialists in the field of noise and air quality, surface water and groundwater and mine rehabilitation. The audit consisted of a detailed desktop review of documentation, interviews with key Coal & Allied staff and a site visit of Hunter Valley Operations South. Additional desktop review was conducted prior to and following the site inspection.

Comments against conditions of PA 06-0261 and other licences and approvals, including non compliances to be addressed are described in **Section 4** of this report.

Various good practices were observed on site including of note the Ground Disturbance process, Aboriginal Cultural Heritage management, the intranet accessible weather monitoring used to determine blasting, waste management and dust management procedures.

This audit has identified some non compliances against PA 06-0261 with minor exceedances of noise, air quality and water management criteria.

At the time of the audit, CNA staff were aware of most of the identified non compliances against conditions of the Project Approval and other licences and approvals and were acting on these, as practical.

Hunter Valley Operations South has in place an ISO14001 certified Environmental Management System which relies upon an environmental policy, a series of regulatory required management plans, a monitoring programme and environmental standards and procedures. The Environmental Management System forms the basis for the observed rigorous and consistent environmental management.

CNA has well documented systems and sound procedures for record keeping relating to environmental activity. A high level of resources is devoted to environmental matters through a competent and well lead environmental and operations team. It was observed that a good standard of environmental management was being applied to the operation of HVO South at the time of the audit as indicated by the field inspection.

1.0 Introduction

1.1 Background

AECOM Australia Pty Limited (AECOM) has been commissioned by Coal & Allied (CNA) – Rio Tinto Coal Australia (Rio Tinto) to conduct the Independent Environmental Audit (Audit) for the Hunter Valley South Coal Project (HVO South) in accordance with Project Approval 06-0261 (PA 06-0261) dated 24 March 2009 (as modified).

1.2 Site Description

CNA operates the Hunter Valley Operations (HVO) mining complex, located approximately 24 km north west of Singleton. HVO has been formed by an amalgamation of several coal mines and is separated by the Hunter River into northern operations (HVO North) and southern operations (HVO South).

Prior to 2009, mining operations at HVO South were regulated by up to 35 development consents and approvals that were obtained for the Lemington, Hunter Valley, Riverview and Cheshunt mining operations and the Lemington Coal Preparation Plant (LCPP).

PA 06-0261 consolidated these development consents associated with HVO South as well as additional activities as outlined below:

- An extension of mining operations at the Riverview, Cheshunt and South Lemington Pits (and subsequently, extensions to the approved disturbance area);
- Mining up to 16 Million tonnes per annum (Mt/pa) utilising a dragline and truck and shovel fleet; and
- The full integration of operations at HVO South through new activities, upgrades and modifications to existing approved operations.
- All previous consents associated with HVO south of the Hunter River are to be surrendered on 24 March 2010 as per Condition 10 of PA 06-0261.

1.3 Scope of Work

This Audit and subsequent report has been prepared pursuant to Schedule 5, Condition 5 of PA 06-0261. **Table 1** lists the requirements of this condition and indicates where each has been addressed in this audit report.

Table 1: Auditing Condition and where each Addressed in this Report

Ref	Condition	Where Addressed in this Report
	By 31 March 2010, and every three years thereafter, unless the Director General directs otherwise, the Proponents shall commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:	
	(a) be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;	Letter from DoP dated 25/02/2010
	(b) include consultation with the relevant agencies;	Section 3.0
	(c) assess the environmental performance of the project and whether it is complying with the relevant requirements in this approval and any relevant mining lease and EPL (including any strategy, plan or program required under these approvals); and	Section 4.0
	(d) review the adequacy of strategies, plans and/or programs required under these approvals; and, if appropriate;	Section 5.0

Ref	Condition	Where Addressed in this 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.	Section 6.0
	Note: This audit team should be led by a suitably qualified auditor, and include experts in the field of noise and air quality, surface water and groundwater and mine rehabilitation.	

1.4 Audit Approach

This Audit was undertaken in general accordance with *AS/NZS ISO 19011:2003 – Guidelines for Quality and/or Environmental Management Systems Auditing*.

This Audit was conducted by the following AECOM staff:

- Dianne Munro (Principal Environmental Scientist) – Lead Auditor; and
- Heidi Watters (Professional Environmental Scientist) – Auditor.

Where required, specialist auditing advice was sought from:

- Graham Taylor (Technical Director/National Practice Leader) – Air Quality;
- Patrick Martinez (Associate Director – Acoustics) – Noise;
- Bruce Withnall (Technical Director Water & Civil Infrastructure) – Surface Water;
- Ainslie Williams (Senior Hydrogeologist) – Groundwater; and
- Peter Horn (Associate Director) – Rehabilitation.

This Audit consisted of a detailed desktop review of documentation, interviews with key HVO South staff and a site visit of the HVO South operations on 17 - 18 March 2010 and 22 March 2010. Attendees at interviews included:

- Carmen Dyer (CD);
- Glenn Cook (GC);
- Mark Nolan (MN);
- Trudie MacDonell (TM);
- Bill Baxter (BB);
- Rod Cameron (RC);
- Rod Scholes (RS);
- Jennifer Anderson (JA);
- Dave Cameron (DC);
- Andrew Speechly (AS);
- Ernie Martin (EM); and
- Tim Veness (TV).

An Opening and Closing Meeting was held at site with Environmental Services staff in attendance.

A general field inspection was undertaken on 18 March 2010 from 11:00 am to 1:00 pm and rehabilitation inspection on 22 March 2010. Weather at the time of the field inspection was warm and sunny, with no cloud cover and a slight easterly breeze.

1.5 Limitations to the Audit

The AECOM audit team received complete cooperation from CNA staff during the audit. However, the following issues arose during the audit, which limited to some extent, its findings:

- Not all documents required to be obtained, retained and/or forwarded to various agencies could be located for review. Various strategy/plans/programs were not yet triggered to be approved at the time of the audit. Where this has impacted on the audit it has been included in the text;
- The adequacy of strategy/ plans/ programs required under the project approval was assessed by reference to acceptance of the strategy/ plan/ program by the relevant government authority. Where improvements were identified they were included in the text;
- Opinions presented in this report apply to the site's conditions and features as they existed at the time of AECOM's site visit in March 2010 and those reasonably foreseeable. They necessarily cannot apply to conditions and features which AECOM is unaware of and has not had the opportunity to evaluate;
- The conclusions presented in this report are professional opinions based solely upon AECOM's visual observations of the site and the immediate site vicinity, and upon AECOM's interpretations of the documentation reviewed, interviews and conversations with personnel knowledgeable about the site and other available information, as referenced in this report. These conclusions are intended exclusively for the purposes stated herein, at the site listed, and for the project indicated; and
- This report does not, and does not purport to, give legal advice on the actual or potential environmental liabilities of any individual or organisation, or to draw conclusions as to whether any particular circumstances constitute a breach of relevant legislation.

1.6 Report Structure

This report is structured generally in accordance with Schedule 5, Condition 5 of PA 06-0261 as follows:

Section 1.0 provides an introduction, background, description and layout of HVO South, describes the requirement for the audit and provides a guide to the structure of the report;

Section 2.0 lists the planning approvals in place at HVO South, provides a description of each and confirms those which have been the subject of this audit;

Section 3.0 provides a summary of consultation with the relevant agencies;

Section 4.0 provides a summary of the compliance status of each approval condition;

Section 5.0 provides a discussion on any non-compliances against the project approval and other licences. It also describes mitigation and the effectiveness of environmental management at HVO South; and

Section 6.0 provides recommendations for measures or actions to improve the environmental performance of HVO South.

2.0 Documents Reviewed

Table 2 describes planning approvals and licences currently held for HVO South. Documents reviewed as part of this audit are indicated with an asterisk (*).

Table 2: Summary of HVO South Environmental Licences & Approvals

Approval Type	Detail	Authority	Expiry
Project Approval	PA 06-0261 *	DoP	24/03/2029
Environmental Protection Licence (EPL)	EPL 640 *	DECCW	26/11/2014
Mining Tenements	ML 1634 *	DII	30/07/2030
	ML1465	DII	21/02/2021
	ML 1582	DII	13/06/2027
	CCL 714	DII	30/08/2010
	CL 327	DII	06/03/2010
	CL 398	DII	04/06/2013
	EL 5292	DII	27/04/2010
	EL 5606	DII	10/08/2014
Water Licences	20AL201254 (Water Access Licence)	NOW	Perpetuity
	20AL201256 (Water Access Licence)	NOW	Perpetuity
	20AL201337 (Water Access Licence)	NOW	Perpetuity
	20AL201500 (Water Access Licence)	NOW	Perpetuity
	20BL170010 (Excavation - Mining)	NOW	26/11/2011
	Bore Licences (various)	NOW	Various
	20CW802613 (Levee)	NOW	05/09/2011
	20CW802603 (Controlled Work)	NOW	26/03/2011
	Pumping Plants (various)	NOW	Various
Dangerous Goods Licence	35/037852	WorkCover	27/09/2010
Radiation Licence	28724	DECCW	15/08/2011

The following principal planning documents were reviewed during the conduct of the audit:

- Project Approval PA06-0261.
 - The Project Approval conditions were generally reflective of the conditions of the other statutory documents in particular the MOP and the mining and coal leases. The MOP has been transferred into the various environmental management plans and programs by HVO. The mining and coal leases have been transferred into project approval conditions and/or environmental management plans or programs by HVO, therefore, compliance status against the consent conditions reflected overall statutory compliance.
- Hunter Valley Operations South Coal Project Environmental Assessment Report (ERM 2008);
- Hunter Valley Operations South Section 75W Modification Raising of Lake James Dam Environmental Assessment (CNA 2009); and
- Hunter Valley Operations Annual Environmental Management Reports 2007 – 2009.

3.0 Agency Consultation

Table 3 provides a summary of the agencies consulted in accordance with Schedule 5, Condition 5(b) of PA06-026.

Table 3: Agency Consultation

Agency	Date(s) contacted	Respondent	Response	Where Addressed in this audit
DECCW	Email (11/03/2010) and telephone (18/03/2010)	No response received	No response received	N/A
DII	Email (11/03/2010)	Greg Summerhayes (email 15/03/2010)	Mine Operation Plan – DII is awaiting completion and submission of the Security Deposit self calculation of rehabilitation costs to complete the MOP assessment and approval process. Landscape Management Plan - The format, content and plan illustration of the draft has been given preliminary acceptance by DII.	Section 4.0
NOW	Email (11/03/2010) and telephone (18/03/2010)	Fergus Hancock (telephone 18/03/2010)	Protection of watercourses – HVO is to ensure that the 150 m buffer zone from the edge of open cut pits and the high bank of the Hunter River and its connected alluvium is retained. Groundwater Contribution from Connected Hunter River Alluvium – accounting for the HVO South area has been proposed but NOW has not yet received this information.	Section 4.0

4.0 Environmental Compliance

4.1 Project Approval & SOC

Table 4 shows non-compliances against the Project approval and SOC.

Table 4: Non-Compliances against Project Approval & SOC

Approval / SoC	Comment
PA 06-0261 3.2	Five Noise Impact Assessment Criteria exceedances between 2007 and 2010
PA 06-0261 3.7	Four Airblast Overpressure Impact Assessment Criteria exceedances between 2007 and 2010
PA 06-0261 3.15	Blasting Hotline was not established until March 2010. The Blasting Hotline number has not been advertised in local newspapers. A weekly blast schedule webpage is not yet available on the CNA website.
PA 06-0261 3.19	There were 14 DECC 24 hours PM10 impact assessment criterion (50 µg/m3) exceedances between 2007 and 2010
PA 06-0261 3.29	No evidence of consultation with DECCW in relation to the preparation of the Biodiversity Offset Strategy
PA 06-0261 4.1	The PA was received by CNA 20/04/2009, leaving four days to comply with this condition. CNA sent a letter to affected landholders dated 30/04/2009 – six days post the one month deadline. DoP was notified.
PA 06-0261 5.10	A summary of monitoring results is provided in the Hunter Valley Operations West Pit Environmental Monitoring Report (1 January – 30 June 2009) and the 2009 AEMR. However, Monitoring results were not updated on the CNA website between June 2009 and December 2009.
SoC – Groundwater – Regional Groundwater Drawdown	The Flora and Fauna Procedure (EP10.2) has not been updated to reflect changes resulting from the HVO South project.

4.2 Mining Leases and Environmental Protection Licence

Table 5 provides a summary of the compliance with the primary mining tenement (ML1634) and EPL640 as required by this audit.

Table 5: Non-Compliances against ML1634 and EPL640

Approval	Comment	Compliance status
ML1634	<ul style="list-style-type: none"> Condition 3 – HVO South Mining Operations Plan (October 2009) has been submitted to DII but has not been approved by DII (pers. Comm. BB). The MOP will need to be updated to reflect the consolidation of several mining leases into ML1634. 	Non-compliance
EPL640	<ul style="list-style-type: none"> A2.1 Map HVOEPA -1 does not include the changes to the Project Approval Boundary as per PA06-0261 (as modified). This Map should be filed with this licence to ensure easy review and reference. M1.3 On some occasions time sample taken not recorded. Field sheets have since been updated to capture this information (pers. Comm. CD). 2007: L1 Unapproved water discharges from Dam 16S and Dam 19S between 08/06/2007 and 11/06/2007. This event was due to a storm resulting in a runoff volume which exceeded that of a 1:100 ARI 24 hour design storm. 2008: R4.1 The Annual HRSTS report had errors in the start and stop times reported for Lake James (Point8) discharge point during Block 2008-160. <ul style="list-style-type: none"> E1.1 A slow leak was discovered at the Hunter Valley Operations Lake James discharge point (Point 8) 17/09/2008. During an inspection of the area, mine water was found leaking out of a small diameter (~ 25 mm) hose connected to the sample vessel and exiting the EPL boundary via an ephemeral creek which drains to the Hunter River. Incident report # 108941. E1.1 A slow leak was discovered at the Hunter Valley Operations Lake James discharge point on 05/08/2008. During a routine inspection of the area, mine water was found leaking out of the discharge pipe and collecting behind a concrete weir in the discharge channel just outside the Environmental Protection Licence boundary. Incident report # 108157. 2009: U1.1 Monitoring in accordance with condition U1.1 was reported to the DECC greater than 30 days from the date samples were collected. CNA was not familiar with this condition due to a large gap in time between discharge events and the inability to schedule the reporting requirement due to its event based nature. This condition has since been removed from the EPL. 	Non-compliance

5.0 Environmental Performance

5.1 Environmental Management Strategy

Schedule 5 condition 1 of PA 06-0221 requires the preparation of an Environmental Management Strategy (EMS) for HVO South. The EMS provides the strategic context for environmental management plans (EMPs) and programs prepared for HVO South.

The CNA EMS (dated September 2009) addresses the requirements for the HVO South.

5.2 Environmental Management Plans

Schedule 3 of PA 06-0221 requires the preparation of a number of EMPs for HVO South.

5.2.1 Water Management Plan

Schedule 3 condition 27 of PA 06-0221 requires the preparation of a Water Management Plan. The draft HVO Water Management Plan was prepared by JP Environmental and in consultation with NOW.

The draft HVO Water Management Plan was submitted to DoP for approval on 24 September 2009.

5.2.2 Aboriginal Cultural Heritage Management Plan

Schedule 3 condition 40 of PA 06-0221 requires the preparation of an Aboriginal Cultural Heritage Management Plan (ACHMP). The HVO ACHMP (dated May 2009) was approved by the DoP on 24 February 2010 and addresses the requirements for HVO South.

5.2.3 Other Environmental Management Plans

The following EMPs are required to be completed within 12 months of project approval (i.e. by 24 March 2010) and at the time of the audit had been drafted but not submitted or approved by DoP:

- River Red Gum Restoration Strategy (Schedule 3 Condition 30);
- Landscape Management (Schedule 3 Condition 35), comprising:
 - Rehabilitation and Offset Management Plan (Schedule 3 Condition 36);
 - Final Void Management Plan (Schedule 3 Condition 37); and
 - Mine Closure Plan (Schedule 3 Condition 38).

The following EMP is required to be completed within six months prior to the commencement of mining in the Riverview South East Extension Area and at the time of the audit was not triggered as mining has not commenced in that area:

- Amenity Management Plan (Schedule 3 Condition 49).

5.3 Environmental Monitoring Programmes

The HVO Environmental Monitoring Programme was reviewed in September 2009 and submitted to DoP for approval on 24 September 2009, however has not yet been approved by DoP. Each is discussed further below.

The monitoring programme (developed under the requirements of Schedule 3 of PA 06-0261) comprises:

- Noise Monitoring Programme (Schedule 3 Condition 6);
- Blast Monitoring Programme (Schedule 3 Condition 18);
- Air Quality Monitoring Programme (Schedule 3 Condition 23);
- Surface Water Monitoring Programme (Schedule 3 Condition 27); and
- Ground Water Monitoring Programme (Schedule 3 Condition 27).

5.3.1 Noise Monitoring Programme

The HVO Noise Monitoring Programme details the program for CNA to manage noise emissions from the operations and determine noise compliance with the noise criteria established in PA 06-0261 and EPL640 condition L6.1.

Noise surveys conducted quarterly by Global Acoustics (February 2009, May 2009, August 2009, November 2009 and February 2010) were sighted during the audit. The noise surveys have indicated that HVO complies with the EPL noise criteria at the monitored locations under prevailing meteorological conditions.

An analysis and summary of noise monitoring results are reported in the AEMR. During the audit period, a total of four noise exceedances were recorded. Investigations were undertaken to determine factors for these exceedances. In addition, 11 complaints related to noise were received. Mitigation measures to address noise at HVO South include:

- Site visits to affected residents;
- Annual monitoring of mobile plant and ancillary plant sound power levels;
- Designation of dumps for night time and day time use; and
- Ongoing operator education is carried out to improve awareness of noise issues.

5.3.2 Blast Monitoring Programme

The HVO Blast Monitoring Programme involves the monitoring of Airblast Overpressure and Vibration at eight locations around HVO. The revised HVO Air Quality Monitoring Programme was reviewed in consultation with Datamasters in 2009.

Blasts are monitored with the Datamasters V6 Blast Monitoring System. This system consists of blast monitoring stations in the field that are connected by wireless technology to an automated management system based at the Datamasters factory. The monitoring stations are designed, operated, maintained and calibrated by Datamasters in accordance with manufacturer's requirements and the requirements of AS 2187.2- 2006 'Storage and Use of Explosives'.

Blast results are automatically retrieved from the field stations, collated, reviewed and published to Datamasters web site where they are accessed by CNA.

An analysis and summary of blast monitoring results are reported in the AEMR. During the audit period, a total of four blasts exceeded 120dBL. As a result of independent investigations undertaken to determine factors for these exceedances, meteorological model for predicting inversions has been implemented and incorporated into blasting procedures to reduce the risk of a recurrence. 14 complaints related to blasting were received during the audit period. On each occasion, the Environmental Officer met with each complainant and provided the results of the blast and discussed the blasting process.

5.3.3 Air Quality Monitoring Programme

The HVO Air Quality Monitoring Programme involves the monitoring of dust deposition, Total Suspended Particulate (TSP), PM10 levels and meteorological conditions.

The monitoring programme includes each of the monitoring sites identified in EPL condition P1.1, plus an additional dust deposition gauge installed by CNA in 2009.

The HVO Air Quality Monitoring Programme (which was reviewed in consultation with PAEHolmes) was updated in 2009 to include the installation of three Tapered Element Oscillating Mass Balance (TEOM) real-time PM10 monitors at 'Knodler's Lane', the Hunter Valley Gliding Club (HVGC) and at the 'Kilburnie South' environment hut. Additionally two new High Volume Air Samplers (HVAS) have been added to the monitoring programme at 'Knodler's Lane' and Long Point Rd.

An analysis and summary of air quality monitoring results are reported in the AEMR. During the audit period, a total of 12 air quality exceedances (all for results greater than the DECC 24 hours PM10 impact assessment criterion ($50 \mu\text{g}/\text{m}^3$) were recorded. Elevated results are investigated by qualified air quality specialists, as per the Protocol for Evaluating Air Quality Compliance (Air Quality Monitoring Programme). Seven complaints related to air quality were also received during the audit period. Mitigation measures to address air quality are detailed in CNA EMS Environmental Procedure 8.1 Dust Management CHPP and Environmental Procedure 8.2 Dust Management – Mobile Equipment and include:

- The use of water carts to deliver water to active mining areas, active spoil emplacement areas, coal stockpiles, haul roads and other areas that are subject to frequent vehicle movements;
- Topsoil stripping is confined to periods when there is sufficient moisture contained in the soil to minimise dust generation; and
- Operations are restricted during windy and dry weather.

5.3.4 Surface Water Monitoring Programme

Surface water quality is monitored on and surrounding the mine site in accordance with the HVO Surface Water Monitoring Program and the requirements of EPL640 condition P1.2.

Surface water is sampled on the following basis:

- Watercourses – Two-monthly, quarterly and /or special (e.g. after 40mm of rain in 24 hours);
- Mine site dams – Monthly, two-monthly or quarterly; and
- Discharge points – during HRSTS discharge events.

Surface water quality is evaluated by assessment of pH, Electrical Conductivity (EC) and Total Suspended Solids (TSS). Pertinent surface water sites were also sampled for comprehensive analysis annually.

Surface water sampling is conducted in accordance with Australian Standard AS 5667.1:1998 Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples and the New South Wales Department of Environment, Climate Change and Water (DECCW) 'Approved method for the Sampling and Analysis of Water Pollutants in New South Wales' guideline.

The surface water quality results for the samples collected for the monthly program and following trigger events have indicated that water quality was generally consistent with the ANZECC Guidelines for Freshwater and Marine Water Quality and EPL criteria. The results for surface water quality from the monitoring program developed for HVO South, did not demonstrate any significant deterioration over the audit period.

An analysis and summary of surface water monitoring results are reported in the AEMR.

5.3.5 Ground Water Monitoring Programme

Ground water quality is monitored on and surrounding the mine site in accordance with the HVO Ground Water Monitoring Program. Ground water is sampled and analysed on the on a two-monthly, quarterly or six-monthly basis and evaluated through the parameters of pH, EC, and Standing Water Level (SWL).

Groundwater sampling is conducted in accordance with Australian Standard AS 5667.1:1998 Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples and the New South Wales Department of Environment, Climate Change and Water (DECCW) 'Approved method for the Sampling and Analysis of Water Pollutants in New South Wales' guideline.

An analysis and summary of ground water monitoring results are reported in the AEMR.

A Groundwater Impacts Report (NTEC Environmental Technology) was also prepared as per Schedule 3 Condition 28 of PA06-0261. This brief review of monitoring data concluded that drawdown near Cheshunt Pit, Barry's Pit and South Lemington Pit 1 is generally consistent with Environmental Assessment predictions.

5.4 Rehabilitation

5.4.1 General

The rehabilitation at HVO South was reviewed by a site inspection conducted by Peter Horn of AECOM on 22 March 2010. Rehabilitation was viewed in a number of areas that had been treated since DA 06-0261 was granted.

Rehabilitation was progressing across the site generally consistent with that presented in the Mining Operations Plan (not yet approved) and Figure 19.2 of the EA. Areas recently rehabilitated appeared to have reasonable grass cover and soil movement was minimal. Drainage structures were intact and showed no signs of failure.

Bill Baxter RTCA - CNA Rehabilitation Specialist, accompanied the auditor on the site inspection. Mr Baxter recounted a change in philosophy for rehabilitation progress whereby a staged approach was in place with distinct end points for each stage that were required to be met before progressing to the next stage. Most of the rehabilitation was either rough shaped or in the early stages or soil stabilisation with vegetative cover. Little tree growth was evident in the areas sown to trees and shrubs at the time of the inspection but CNA anticipate the vegetative cover will continue to develop during the next year.

5.4.2 Biodiversity Offset – Archerfield

The site inspection also reviewed progress towards development of the offset area at the Archerfield property. The Biodiversity Offset Strategy (BOS) included the protection and enhancement of existing remnant vegetation and the protection of two populations of Coast Banksias with the aim of restoring a functioning Warkworth Sands Woodland community. The landscape and soil at Archerfield appears ideal for the re-establishment of Warkworth Sands Woodland community with the presence of Aeolian sands and some remnant vegetation (though in poor condition from a biodiversity perspective).

Whilst the implementation of the BOS is in its infancy, there has been significant progress towards the goals and objectives including:

- Fencing of all BOS areas to exclude cattle grazing;
- Establishment of trial plots to test vegetation reestablishment strategies in conjunction with the University of New England;
- The application of weed and pest control strategies to the BOS site; and
- Identification of seed collection requirements and strategies.

5.5 Additional Regulators Issues

DECCW, DII and NOW were consulted consistent with Schedule 5 Condition 5(b), as shown in **Table 3**. This section provides a description of each issue raised by the regulators and how is been addressed by CNA.

- DII:
 - Mine Operation Plan
 - The MOP has been submitted to DII, but has not yet been approved as DII is awaiting completion and submission of the Security Deposit self calculation of rehabilitation costs to complete the MOP assessment and approval process. As of the date of this audit, CNA had not completed this calculation.
 - Landscape Management Plan
 - As of the date of this audit, the Landscape Management Plan was in the process of being drafted. In preparing the draft plan, CNA had consulted with DII to discuss the draft plan and had gained verbal preliminary approval of the plan. The Landscape Management Plan was due to be submitted on 24 March 2010.

- NOW:
 - Protection of watercourses and the 150 metre buffer zone
 - CNA confirmed that the 150 metre buffer zone from the edge of open cut pits and the high bank of the Hunter River and its connected alluvium has not been impacted to date. Although the buffer zone is not identified on the ground, it is identified in CNA's Ground Disturbance Permit procedure and mine planning is well aware of the limitation.
 - Groundwater Contribution from Connected Hunter River Alluvium
 - A Groundwater Impact Report was provided in the AEMR outlining these contributions. However, NOW is still awaiting data relating to the accounting for the HVO South groundwater contribution. As of the date of this audit, CNA had not completed this calculation. Further discussions in relation to how this can be practically calculated need to be held with NOW.

6.0 Recommendations

Table 6 presents the recommendations from this audit in relation to the Project approval, other licences and approvals reviewed as part of this audit and from the field inspection. CNA should work to resolve any non-compliances as identified in **Table 4** and **Table 5** with relevant regulators as far as practical.

Table 6: Audit Recommendations

Reference	Recommendation
PA 06-0261 SoC Noise	When next a modification is sought to the project approval, the following issues should be modified as practical: <ul style="list-style-type: none"> PA Table 2 and SOC table 22.1 noise criteria are inconsistent. The SOC criteria should be removed from Appendix 3. <p><i>Note: CNA sought to modify this condition in the 2009 modification; however the modification to this condition was not undertaken.</i></p>
PA 06-0261 2.11	Although not yet triggered, prior to demolition of any buildings, ensure that licensed contractor(s) are engaged to demolish Cheshunt bathhouse and facilities in accordance with Australian Standards and in consultation with Singleton Council.
PA 06-0261 3.6, 3.18, 3.23, 3.27, 3.29	The environmental monitoring programs have been submitted to DoP, but no response has been received. CNA should follow up with DoP to obtain written response to its submission of revised environmental monitoring programmes.
PA 06-0261 3.14	Provide the revised Road Closure Management Plan (1/07/2010 - 30/06/2011) to DII for review and approval.
PA 06-0261 3.15	The Blasting Hotline number should be advertised in local newspapers and on the CNA website. The weekly blast schedule should be available on the CNA website.
PA 06-0261 3.19	Air quality results to continue to be reviewed by an independent air quality specialist to assess effectiveness of air quality controls at HVO South and reported in AEMR.
PA 06-0261 3.20	Based on results to date PM10 is approaching the short term land acquisition criteria and should be closely monitored.
PA 06-0261 3.27	Sediment and erosion control measures has been incorporated into the Water Management Plan (September 2009). However, 3.27(c) requires a sediment and erosion control plan to be included in the Water Management Plan.
PA 06-0261 3.30	Revised timetable for the implementation the HVO River Red Gum Strategy for the Hunter River and Wollombi Brook river red gum populations should be provided to NOW and DECCW for comment within the 12 month timeframe.
PA 06-0261 3.34	The final height of Redbank Pit as shown on the MOP plans appears 5 m higher than defined in EA and should be revised.
PA 06-0261 3.39	Although not yet triggered, payment of Conservation and Biodiversity Offset Implementation Bond needs to be made within 3 months of approval of the Landscape Management Plan.
PA 06-0261 3.50	Conduct a visual lighting audit by appropriately qualified persons to confirm all external lighting associated with the project complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting.
PA 06-0261 3.60	The CNA Bushfire Management Plan is dated 2005 and it is suggested this be reviewed and updated during 2010 to ensure it is contemporary and relevant.
PA 06-0261 5.1	The revised Environmental Management Strategy has been submitted to DoP, but no response has been received. CNA should follow up with DoP as soon as possible to obtain written response to the submission of the revised Environmental Management Strategy.

Reference	Recommendation
PA 06-0261 5.4	Although the 2009 AEMR included a comparison to EA prediction, CNA needs to ensure the future AEMR includes a comparison to EA predictions for each environmental parameter (e.g. air quality, noise, surface water and ground water).
PA 06-0261 5.9	All approved management plans should be made available on the CNA website within three months of the approval (e.g. ACHMP).
PA 06-0261 5.10	A quarterly summary of monitoring results required under this approval should be made publicly available on the CNA website as soon as possible.
SOC Groundwater Groundwater Flow To and From Rivers	Protocols for monitoring and reporting of NOW stream gauge results to clearly record any reductions in flows that are attributed to mining should be incorporated into the Water Management Plan and Groundwater Monitoring Programme. Should the locations of the NOW gauges be inappropriate, CNA to consider, in consultation with NOW, installation of level sensors and / or use of monthly Hunter River survey results.
SOC Groundwater Regional Groundwater Drawdown	The CNA EMS procedure for Flora and Fauna should be updated to reflect HVO South commitments, including monitoring the health of the River Red Gums located on the Hunter River and Wollombi Brook alluvium as identified in Chapter 11 (Figure 11.2) of the EA. The monitoring programme should include details on frequency of monitoring, reporting and corrective actions.
SOC Deep Cheshunt Final Void	<p>Although not triggered, CNA should ensure planning for the Deep Cheshunt Final Void addresses this commitment including:</p> <ul style="list-style-type: none"> • Deep Cheshunt Pit final void will be designed to intercept leachate from overburden emplacements and minimise discharge of saline groundwater. Deep Cheshunt Pit final void design will be reviewed at least three years prior to anticipated mine closure; • Deep Cheshunt Pit Final Void Management Plan will include future use options including investigation of feasibility to use the Deep Cheshunt Pit final void as a water storage that could be used as a buffer in times of flood flows in the Hunter River and as a supplementary water supply at times of scarce water supply. This would include additional investigations to refine predictions of final void water chemistry; • A post closure monitoring programme will be developed as part of the Deep Cheshunt Pit Final Void Management Plan for water quality monitoring of the final void; and • Mine plan will be further reviewed with a view to minimise the area of the Deep Cheshunt Pit final void as much as practicable.
SOC Water Supply	CNA to liaise with NOW to determine additional information required in 2010 to meet NOW's requirements in relation to water accounting, monitoring and recording of abstraction quantities.
SOC Historic Heritage	A targeted field assessment should be undertaken by an historic heritage professional to supplement existing information to report on the relative significance of the additional sites identified on CNA land including a derelict bridge structure over an unnamed ephemeral creek and the cockatoo fence and recommend additional management measures.
ML 1634 Condition 3	The HVO South Mining Operations Plan (October 2009) has been submitted but has not been approved by DII. CNA should contact DII to obtain early written approval of the MOP.
EPL640 A2.1	Map HVOEPA-1 should be updated to include the changes to the Project Approval Boundary as per PA06-0261 (as modified). Monitoring maps should also be reviewed to ensure they are consistent with actual monitored sites. These maps should be filed with this licence to ensure easy review and reference.
EPL640	CNA should ensure that all actions reported in the Annual Return are undertaken as proposed to prevent reoccurrence of non-compliances (e.g. Investigation of a permanent lighting setup at the Lake James discharge point).