

# LIDDELL COLLIERY

## DEVELOPMENT CONSENT COMPLIANCE AUDIT REPORT

*Prepared by:*

**HANSEN BAILEY**  
6/127-129 John Street  
SINGLETON NSW 2330

11 August 2009

*for:*

**Liddell Coal Operations Pty Limited**  
PMB 8  
SINGLETON NSW 2330

## EXECUTIVE SUMMARY

Hansen Bailey was commissioned by Liddell Coal Pty Limited to conduct a compliance audit against Development Consent DA 305-11-01 and its supporting documentation for the Department of Planning for the period from 1 July 2007 to 30 June 2009.

This audit was conducted by Dianne Munro (RABQSA International Certified Auditor 107622) and Jason Martin from Hansen Bailey along with rehabilitation specialist Mark Burns from Global Soil Systems on 1 July 2009. The audit consisted of a detailed desktop review of documentation, interviews with key Liddell Colliery staff and a field inspection of the mining and rehabilitation areas. The audit was conducted generally consistent with ISO 14010 - Guidelines and General Principles for Environmental Auditing, and ISO 14011 - Procedures for Environmental Auditing.

The field inspection revealed the construction of much of the infrastructure proposed and coal extraction occurring consistent with the Environmental Assessment. The new infrastructure area was tidy, well delineated and managed with significant visual bunding and plantings evident.

No non compliances against criteria for noise or air quality occurred at private receivers for the audit period. An exceedance of the blast criteria of 120 dBA was reported at one private receiver. Complaints have been received from two near neighbours and via a regulator – these were followed through with the complainants. Only minor incidents (none of which were reportable and none were found to cause any material harm) occurred during the reporting period.

A comparison of the proposed coal extraction and rehabilitation between the Mining Operations Plan and Environmental Assessment appeared generally consistent. Actual rehabilitation in the field was noted however to be behind schedule which Liddell Coal Pty Ltd noted was largely delayed due to mine plan changes associated with the new Environmental Assessment. Liddell Coal Pty Ltd is actively progressing rehabilitation in the Mountain Block area with 42 ha predicted to be completed across the site by December 2009. Rehabilitation quality was found to vary across the site with a reinvigorated focus required to improve the overall quality and progress of rehabilitation. A number of recommendations were made by Global Soil Systems in this regard.

This audit identified some non compliances against conditions of Development Consent DA 305-11-01 and other licences and approvals, including non compliances to be addressed as described in **Table 2**, **Table 3** and **Table 4** of this report. This audit has identified that non compliances were largely administrative in nature (with the exception of those related to rehabilitation works). Various recommendations have been made and are summarised in **Section 5**.

This audit has concluded that a good standard of environmental management is being applied to the operation of Liddell Colliery. At the time of the audit, staff were aware of many of the identified non-compliances against Liddell's conditions of licences and approvals and were progressing a number of the issues identified in this report.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b> .....	<b><i>i</i></b>
<b>LIMITATIONS OF REPORT</b> .....	<b><i>iv</i></b>
<b>1 INTRODUCTION</b> .....	<b>1</b>
1.1 BACKGROUND.....	1
1.2 SITE DESCRIPTION .....	1
1.3 REQUIREMENT FOR AUDIT .....	2
1.4 REPORT STRUCTURE.....	3
<b>2 REGULATORY COMPLIANCE TABLES</b> .....	<b>4</b>
2.1 DEVELOPMENT CONSENT.....	4
2.2 OTHER LICENCES & APPROVALS.....	70
<b>3 DISCUSSION</b> .....	<b>76</b>
3.1 DEVELOPMENT CONSENT.....	76
3.2 OTHER LICENCES AND APPROVALS .....	77
3.3 MANAGEMENT PLANS / PROGRAMS / STRATEGIES.....	77
3.4 ENVIRONMENTAL MANAGEMENT & MITIGATION EFFECTIVENESS.....	77
3.4.1 Site Inspection .....	78
3.4.2 Complaints.....	78
3.4.3 Incidents .....	79
3.4.4 Monitoring.....	79
3.4.5 Water Management.....	80
3.4.6 Tailings Management.....	80
<b>4 REHABILITATION</b> .....	<b>81</b>
4.1 COMPLIANCE ASSESSMENT.....	81
4.2 GSS ASSESSMENT .....	82
4.2.1 Discussion .....	82
4.2.2 Recommendations .....	83
<b>5 RECOMMENDATIONS SUMMARY</b> .....	<b>84</b>



## LIST OF TABLES

Table 1	Audit Requirements .....	2
Table 2	Development Consent Compliance .....	4
Table 3	Compliance Against Other Licences & Approvals.....	70
Table 4	Audit Recommendations.....	84

## LIST OF APPENDICES

Appendix A	Opening Meeting Agenda & Audit Itinerary
Appendix B	Regulatory Correspondence
Appendix C	Plates from Site Inspection
Appendix D	Liddell Coal Operations Rehabilitation Audit Report

## LIMITATIONS OF REPORT

In preparing this regulatory compliance audit report, Hansen Bailey has assessed all activities appropriate and necessary to evaluate the environmental status of the site and operations on it. Hansen Bailey has addressed all technical matters which might reasonably be considered to be relevant to such an assessment conducted to standards which apply in New South Wales. Based on observations of the site, interviews with appropriate staff and a review of available documentation, it is Hansen Bailey's opinion that the potential critical environmental issues associated with the site and operations are those discussed in this report. However, Hansen Bailey can only advise on the basis of the information available to them and therefore cannot dismiss absolutely the possibility that parts of the site, or adjacent properties, may give rise to additional issues.

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

Opinions presented in this report apply to the site's conditions and features as they existed at the time of Hansen Bailey's site visit on 1 July 2009, and those reasonably foreseeable. They necessarily cannot apply to conditions and features which Hansen Bailey is unaware of and has not had the opportunity to evaluate.

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

## LIDDELL COLLIERY DEVELOPMENT CONSENT COMPLIANCE AUDIT REPORT

*for*  
**Liddell Coal Operations Pty Limited**

### 1 INTRODUCTION

#### 1.1 BACKGROUND

Hansen Bailey has been commissioned by Liddell Coal Operations Pty Ltd (Liddell) to conduct a compliance audit against Development Consent DA 305-11-01 dated 7 May 2008 for Liddell Colliery. The auditing period that this report applies to is from July 2007 to end of June 2009.

This assessment was conducted by Dianne Munro and Jason Martin from Hansen Bailey along with rehabilitation expert Mark Burns from Global Soil Systems (GSS) on 1 July 2009. The audit consisted of a detailed desktop review of documentation, interviews with key Liddell staff and a field inspection of the mining area and rehabilitation areas in accordance with *ISO 14010 - Guidelines and General Principles for Environmental Auditing*, and *ISO 14011 - Procedures for Environmental Auditing*.

A field inspection was conducted by Dianne Munro and Jason Martin over 2 hours on 1 July. The rehabilitation field inspection was conducted by Mark Burns over approximately 5 hours on 1 July. The weather conditions at the time of the inspection at Jerrys Plains (approximately 14 km to the south west of Liddell) at 2 pm consisted of north north west winds at up to 37 km/h (<http://www.bom.gov.au/climate/dwo/IDCJDW2066.latest.shtml>, 14/7/09). These conditions were consistent with those experienced during the site inspection at Liddell which observed to be very dry with a large amount of ambient dust in the air which had blown from western sources.

Each of an Opening and Closing Meeting was held at site with Environmental staff from Liddell and Hunter Valley Earthmoving (HVE) in attendance. An Agenda for this meeting and itinerary for the site component of the audit (both inclusive of attendees) is included in **Appendix A**.

#### 1.2 SITE DESCRIPTION

Liddell is an open cut mine operated by Liddell Coal Operations Pty Ltd on behalf of the Liddell Joint Venture between Xstrata Coal Australia Pty Ltd (67.5%) (Xstrata) and Mitsui Matsushima Pty Ltd (32.5%) (Mitsui). Liddell is situated approximately 25 km north-west of Singleton in the Upper Hunter Valley of NSW and lies within both the Muswellbrook Shire Council (MSC) and Singleton Shire Council (SSC) Local Government Areas (LGAs).

Liddell has a long history of mining operations commencing with the development of an underground mine in 1923 with open cut operations following in 1946. The current open cut mining operation has been operational since 1990 and primarily utilises the truck and shovel method. Mining activities at Liddell are conducted under contract by HVE.

Liddell has approval to extract up to 8 million tonnes per annum (Mtpa) of Run of Mine (ROM) coal with an additional 0.5 Mtpa of tailings available for transport to Liddell and Bayswater Power Stations. Approval has also be granted to process up to 8 Mtpa of ROM coal at the Liddell Coal Handling Preparation Plant (CHPP) including up to 1.5 Mtpa of ROM coal from Cumnock No. 1 Colliery with the option of transporting 1.5 Mtpa of ROM coal to the Cumnock CHPP for processing. During the site component of the audit it was evident that various recently approved infrastructure items had been constructed including: CHPP, new administration, workshop, entry road, oil/water separator, vehicle washdown and laydown facilities.

In the 2007 - 2008 and the 2008 - 2009 financial years Liddell produced approximately 4.2 Mt and 5.0 Mt of ROM coal respectively. Small amounts of tailings were trucked via internal haul roads for use at Macquarie Generation Power Stations in the 2007 - 2008 financial year however no tailings were transported via truck in the 2008 - 2009 financial year. Liddell had approximately 190 full time employees in 2008.

### 1.3 REQUIREMENT FOR AUDIT

This assessment and subsequent report has been compiled pursuant to Schedule 5 Condition 4 of DA 305-11-01. Each requirement is listed **Table 1** which also lists where each requirement is addressed in this report.

**Table 1**  
**Audit Requirements**

Description	Where Addressed in This Report
Within 2 years of the approval of modification application 06_0327, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:	
(a) Be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;	<b>Appendix B</b>
(b) Assess the environmental performance of the development, and its effects on the surrounding environment;	<b>Section 2 &amp; Section 3</b>
(c) Assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;	<b>Section 3.1 &amp; 3.2</b>
(d) Review the adequacy of any strategy / plan / program required under this approval; and if necessary;	<b>Section 3.3</b>
(e) Recommend measures or actions to improve the environmental performance of the development, and / or any strategy / plan / program required under this approval. Note: This audit team must be led by a suitably qualified auditor and include experts in the field of mine rehabilitation and mine closure.	<b>Section 5</b>

## 1.4 REPORT STRUCTURE

**Section 1** provides an introduction, background, site description and layout of Liddell, describes the requirement for the audit and provides a guide to the structure of the report.

**Section 2** of this report presents a tabular representation of compliance against DA 305-11-01 and other licences and approvals relevant to operations at Liddell. Each table includes details of the specific licence/condition (as appropriate), the current status and relevant comments in relation to compliance status. The status of every licence/condition is described as “Compliant” or “Not Compliant” for each condition and sub-section. Where non-compliances are noted, the reasons for this designation are denoted in **bold** text. Where conditions have not yet been activated (due to activities not being commenced or requests not being made for example), the term “Not Triggered” has been applied.

**Section 3** provides a discussion on the identified non-compliances and status against DA 305-11-01, its supporting documents, management plans and other licences approvals available for review at the time of the audit. General environmental performance is also discussed including monitoring results, complaints and incidents.

**Section 4** provides a review of the rehabilitation at Liddell with a comparison against relevant statutory documents. A summary of the rehabilitation report prepared by GSS including recommendations to improve rehabilitation success are also included. A discussion on existing environmental management plans and strategies is also included.

**Section 5** provides a summary of key recommendations from the audit.

## 2 REGULATORY COMPLIANCE TABLES

### 2.1 DEVELOPMENT CONSENT

**Table 2** presents the conditions of DA 305-11-01 as modified (M2) 18 July 2007 and the modification (M3) dated 7 May 2008 shown in blue and provides comments in relation to the status of each.

**Table 2**  
**Development Consent Compliance**

Section	Sub-section	Requirement	Status	Compliance Status
<b>SCHEDULE 2</b>				
<b>Obligation to Minimise Harm to the Environment</b>	<b>1.0</b>	The Applicant 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.	Compliant	
<b>Terms of Consent</b>	<b>2.0</b>	The Applicant shall carry out the development generally in accordance with the:	Compliant	
		(a) Development application 305-11-2001	Compliant	Viewed development application dated 2/9/01. Viewed letter from Umwelt (Australia) Pty Ltd to DoP dated 31 October 2001 attached to the development application.
		(b) Liddell Colliery Continued Operations Environmental Impact Statement, dated October 2001 and prepared by Umwelt (Australia) Pty Limited;	Compliant	Provided approval for: <ul style="list-style-type: none"> <li>• produce 4.5Mtpa of ROM coal;</li> <li>• mining to be conducted over 1,326 ha;</li> <li>• truck and shovel method of mining with the optional use of a dragline and highwall auger mining;</li> <li>• mining in the Whittingham Coal Measures;</li> <li>• receive up to 300,000tpa of ROM coal</li> </ul>

Section	Sub-section	Requirement	Status	Compliance Status
				<ul style="list-style-type: none"> <li>from Cumnock No.1 Colliery; transport up to 300,000 tpa of tailings for use in Macquarie Generation Power Stations; and</li> </ul> ROM coal processed at Liddell CHPP and transported to the Port of Newcastle via the Hunter Valley Rail Loop.
		(c) Response to NPWS Request for Further Information in Relation to the Archaeological Assessment, Liddell EIS prepared by Umwelt (Australia) Pty Limited and dated December 2001, as supplemented by the additional information dated 20 February 2002;	Compliant	Viewed document clarified archaeological and geomorphic issues. Included additional geomorphic assessment to map clearly the areas of the Holocene/Pleistocene landscape with a potential to include deposits. <b>No impact has occurred to these areas to date.</b>
		(d) correspondence submitted to the Department and SSC in response to the request for addition information from SSC and dated 20 December 2001;	Not Triggered	Viewed letter in response to SSC response to submissions providing additional information works conducted on a section of the Old State Highway and a construction access from Hebden Road to proposed Ravensworth Dam Site in Year 12 of continued operations.

Section	Sub-section	Requirement	Status	Compliance Status
		<p>(e) Response to Submissions Liddell Colliery Environmental Impact Statement, prepared by Umwelt (Australia) Pty Limited and dated March 2002;</p>	Compliant	<p>Fourteen submissions were received. Submissions were received from all six integrated development approval (IDA) bodies for this proposed development. Additional commitments include:</p> <ul style="list-style-type: none"> <li>• Ongoing monitoring will be undertaken to further quantify the rate of groundwater recovery;</li> <li>• Liddell will provide further information relating to proposed road haulage of tailings;</li> <li>• A formal notification process between Liddell Coal, Nardell and Macquarie Generation will be established to maintain the current practice of closing the access road when water levels are high; and</li> <li>• Liddell Coal will construct a box culvert at the location of the crossing on Bayswater Creek with the same hydraulic capacity as the existing watercourse.</li> </ul> <p>All activities have been completed (MH pers comms).</p>
		<p>(f) Response to EPA request for further information Liddell Colliery Continued Operations Environmental Impact Statement prepared by Umwelt (Australia) Pty Limited and dated March 2002;</p>	Compliant	<p>Viewed document which provided a response to a number of issues identified by the EPA including water management and air quality issues. No additional commitments arose as a result of the response.</p>



Section	Sub-section	Requirement	Status	Compliance Status
		(g) Continued Operations of Liddell Colliery – Revised Development Application Area prepared by Umwelt (Australia) Pty Limited and dated 13 March 2002;	<b>Not Compliant</b>	<b>Not available to review at time of audit.</b>
		(h) additional air quality contours provided to the Department by Umwelt (Australia) Pty Limited relating to PM10 concentrations on 7 May 2002;	<b>Not Compliant</b>	<b>Not available to review at time of audit.</b>
		(i) Liddell Colliery Modification to Development Consent Environmental Assessment, prepared by Umwelt (Australia) Pty Limited and dated December 2006;	Compliant	<p>Approved 18 July 2007 for the:</p> <ul style="list-style-type: none"> <li>• Construction of a new CHPP;</li> <li>• Increase production to 8 Mtpa of ROM coal;</li> <li>• Increase mine footprint in three areas totalling additional 47 ha;</li> <li>• Receive or deliver up to 1.5Mtpa of ROM coal to or from Cumnock No. 1 Colliery;</li> <li>• Increase the mining of old tailings up to 0.5 Mtpa;</li> <li>• New stockpile of 450,000t;</li> <li>• Construction of Dam 13 B to 1500ML;</li> <li>• Realignment of Access Road and Services Corridor;</li> <li>• Relocation of open cut mining offices, workshop and storage areas; and</li> <li>• The addition of a new desalinisation unit with the CHPP.</li> </ul> <p>Liddell is operating generally in accordance with the 2006 EA. The construction of the new CHPP, realignment of Access Road and Services Corridor, relocation of offices has</p>

Section	Sub-section	Requirement	Status	Compliance Status
				been completed. Production levels within approved. Dam 13B, new stockpile and desalinisation unit not yet progressed.
		(j) Response to Submissions Environmental Assessment for Liddell Colliery Modification to Development Consent, prepared by Umwelt (Australia) and dated March 2007; and	Compliant	Viewed document which provided a response to several issues raised from regulators including DEC, DNR, NSW Heritage Office, MSC and Hunter Valley CMA on a variety of issues including air, water, noise, blast and vibration, ecology, Aboriginal Heritage, Traffic and Transport, Visual, Socio Economic and rehabilitation and final landform. Outcomes from the document include the placement of additional HVAS monitor to represent residents 4, 5 and 6 along with a review of current monitoring locations to determine relevance. Before construction of the desalinisation unit report detailing the environmental impacts will be provided to DECC and DNR. The control of sediment transfer around construction activities. <b>HVAS monitors have been ordered and discussions have commenced with Macquarie Generation about their location (MH pers comms).</b>

Section	Sub-section	Requirement	Status	Compliance Status
		<p><i>(k) Response to Submissions from the Roads and Traffic Authority and the Hunter Regional Development Committee Environmental Assessment for Liddell Colliery Modification to Development Consent, prepared by Umwelt (Australia) Pty Limited and dated April 2007;</i></p>	Compliant	<p>Viewed document which addresses concerns raised in regard to the intersection of the Old New England Highway and the New England Highway. The traffic assessment concluded that no changes to the geometry of the Old New England Highway/New England Highway intersection required.</p> <p>Liddell will facilitate the installation of appropriate street lighting at the intersection of the Old New England Highway and New England Highway in consultation with the RTA. Viewed Technical report completed by Worley Parsons, Intersection Old New England Highway and New England Highway, Liddell NSW dated 25/2/09 which found that the intersection generally complies with the RTA Road Design Guide and that the current road design is not a hazard to road users and concluded that lighting along with a right hand acceleration lane was not required.</p>
		<p><i>(l) Revised Statement of Commitments for the Liddell Development Consent Modification, prepared by Umwelt (Australia) Pty Limited and dated July 2007 (see Appendix 5);</i></p>	Compliant	<p>See compliance summary Statement of Commitments in <b>Table 2</b> Appendix 5.</p>

Section	Sub-section	Requirement	Status	Compliance Status
		(m) Modification application DA305-11-01 Mod 3 and accompanying Statement of Environmental Effects, titled Liddell Coal Operations Pty Limited Statement of Environmental Effects for Liddell Colliery Modification to Development Consent, prepared by Umwelt Australia Pty Limited and dated February 2008; and	Compliant	SEE dated February 2008 allowed: <ul style="list-style-type: none"> <li>Alter the treatment of effluent from the new workshop and complex area to be placed in Dam 13/13B;</li> <li>Realignment of the DA boundary in three locations;</li> <li>Modifying the Old New England Highway intersection and access road; and</li> <li>The correction of minor numbering errors in the modified consent.</li> </ul> Construction of Dam 13 B has not commenced, other modifications have been completed and have been completed generally in accordance with consent conditions.
		(n) conditions of this consent.	<b>Not Compliant</b>	Liddell operations have occurred generally in accordance with the conditions specified in this consent with <b>Table 2</b> and <b>Table 3</b> detailing any non compliances.
	<b>3.0</b>	If there is any inconsistency between the above documents, the latter document shall prevail over the former to the extent of the inconsistency. However, the conditions of this consent shall prevail over all other documents to the extent of any inconsistency.	Not Triggered	
	<b>4.0</b>	The Applicant shall comply with any reasonable requirement/s of the Director General arising from the Department's assessment of:	Compliant	

Section	Sub-section	Requirement	Status	Compliance Status
		(a) any reports, plans or correspondence that are submitted in accordance with this consent; and		On 4/2/08 amendments to the AQMP were approved for the inclusion of 2 additional HVAS monitors representative of private residents located to the north west of the operation. Samplers for TSP (HVAS 1) and PM <sub>10</sub> (HVAS 2) (ass seen on Figure 4.1 of the AQMP) were due to be installed following the approval of the AQMP from DoP and after approval from residents. HVAS monitors have been ordered and discussions have commenced with Macquarie Generation about their location (MH pers comms).
		(b) the implementation of any actions or measures contained in these reports, plans or correspondence.		No other requests made from DoP (MH pers comms).
<b>Mining, Processing and Transport Limits or Consent</b>	<b>5.0</b>	Mining operations may take place on the site until 31 December 2023. <i>Note: Under this consent, the Applicant is required to rehabilitate the site to the satisfaction of the Director-General and DPI. Consequently this consent 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.</i>	Not Triggered	
	<b>6.0</b>	The Applicant shall not:	Compliant	<b>Recommend reporting these amounts in AEMR where not currently.</b>
		(a) extract more than 8 million tonnes of ROM coal per annum from the site; or	Compliant	Total ROM coal extracted for the 2008 / 2009 period was 4.76 Mt. Table 2.2 of the 07-08 Liddell AEMR states 4.16 Mt ROM coal was extracted.

Section	Sub-section	Requirement	Status	Compliance Status
		(b) process more than 8 million tonnes of ROM coal per annum at the Liddell CHPP, including up to 1.5 million tonnes per year of ROM coal from Cumnock No. 1 Colliery; or	Compliant	Total ROM coal processed at the Liddell CHPP 2008-2009 financial year 4.76 Mt. No ROM coal was received from Cumnock No. 1 in this period as per spreadsheet evidence. Section 2.5 of the 07-08 Liddell AEMR states 3.87 Mt of ROM coal was processed at the Liddell CHPP including ROM coal from Cumnock No. 1 Colliery.
		(c) Transport more than 1.5 million tonnes of ROM coal per annum to Cumnock No 1. Colliery for processing at the Cumnock CHPP; or	Compliant	Total ROM coal transported to Cumnock No. 1 totalled 152,657 t for the 2008-2009 financial year as per spreadsheet evidence.. Section 2.5.2 of the 07-08 Liddell AEMR states 103,904 t transported to Cumnock.
		(d) Extract more than 0.5 million tonnes of coal tailings per annum with residual energy content from the site for transport to Liddell and Bayswater Power Stations.	Compliant	Viewed internal email dated 9 July 2009 confirming that there has been no sale of coal tailings to either Liddell or Bayswater Power Stations since February 2007.
	7.0	The Applicant shall ensure that all product coal from the Liddell CHPP is transported by rail.	Compliant	All product coal produced at the Liddell CHPP is transported by rail to Port of Newcastle (MH pers comms). Total product coal railed to the Port for the 2008-2009 financial year totalled 3.57 Mt. Section 2.5.1 of the 07-08 Liddell AEMR states that 'after processing coal is stockpiled before being railed to the Port of Newcastle'.

Section	Sub-section	Requirement	Status	Compliance Status
<b>Structural Adequacy</b>	<b>8.0</b>	<p>The Applicant shall ensure that all new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.</p> <p>Notes:</p> <ul style="list-style-type: none"> <li>Under Part 4A of the EP&amp;A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works.</li> <li>Part 8 of the EP&amp;A Regulation sets out the requirements for the certification of development.</li> </ul>	Compliant	<p>Viewed approved Occupation Certificate for the Liddell Office Complex, Store, Workshop, Bathhouse and Breezeway. Construction Certificate Number CC 07-590 issued on 11 October 2007. The completion of the mention works was approved by Scott McGufficke (Principal Certifying Authority) on 28 April 2008.</p> <p>Viewed Occupation Certificate dated 27 July 2008 for the approval of the Coal Preparation Plant and Control Room (see <b>Plate 9</b>). Construction Certificate Number CN070183.</p>
<b>Demolition</b>	<b>9.0</b>	The Applicant 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.	Not Triggered	<b>The deconstruction of the old Liddell CHPP is due to commence in 2009.</b>
<b>Operation of Plant Equipment</b>	<b>10.0</b>	The Applicant shall ensure that all plant and equipment used at the site is:	Compliant	
		(a) Maintained in a proper and efficient condition; and		Several water carts were viewed on site inspection operating on haul roads in particular.
		(b) Operated in a proper and efficient manner.		

Section	Sub-section	Requirement	Status	Compliance Status
<b>Community Enhancement Program</b>	<b>11.0</b>	By 31 October 2007, or as otherwise agreed by the Director-General, the Applicant shall pay financial contributions to MSC and to SSC that are commensurate with the additional 90 permanent workers and 150 temporary workers expected to be employed by the development as a result of the modifications outlined in the Environmental Assessment noted in condition 2(1) above, and to the satisfaction of the Director-General. Each contribution must be at least equivalent to that arising pursuant to section 94 of the EP&A Act in accordance with the requirements of the relevant Council's Section 94 Contributions Plan.	<b>Not Compliant</b>	Viewed letter from G Farrar to DoP dated 24/09/07 suggesting contribution to MSC. Viewed email to DoP from G Farrar 29/10/07 requesting written confirmation on extension due to ongoing negotiations. Meeting held with DoP on 2/2/07 with D Kitto where he advised a meeting to be held between DoP, MSC and Liddell. Further meetings held with DoP and MSC on 20/05/09, 20/05/09, 15/08/09 and August-September 2009 to develop Memorandum of Understanding with MSC. Xstrata Corporate has undertaken numerous meetings to resolve this issue with MSC and SSC. <b>Ongoing discussions will continue to resolve as soon as practical.</b>
<b>Schedule 3</b>				
<b>NOISE</b>				
<b>Project Specific Noise Impact Assessment Criteria</b>	<b>1.0</b>	The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 1 at any residence on, or on more than 25 percent of, any privately owned land.	Compliant	Noise monitoring at Liddell is conducted twice annually. Section 3.13.2 of the 07-08 Liddell AEMR states that under reasonable weather conditions, noise levels do not exceed criteria.



Section	Sub-section	Requirement	Status	Compliance Status												
		<p><i>Table 1: Noise Impact assessment criteria dB(A)</i></p> <table border="1" data-bbox="577 427 1323 587"> <thead> <tr> <th data-bbox="577 427 846 491">Assigned residential location number</th> <th data-bbox="846 427 1070 491">Noise criteria LAeq(15 minute)</th> <th data-bbox="1070 427 1323 491">Sleep disturbance Noise criteria LA(1min)</th> </tr> </thead> <tbody> <tr> <td data-bbox="577 491 846 523">1,2,4,5,6,7,8,9,10,11,12,</td> <td data-bbox="846 491 1070 523">35dB(A) Day</td> <td data-bbox="1070 491 1323 523"></td> </tr> <tr> <td data-bbox="577 523 846 555">13,14</td> <td data-bbox="846 523 1070 555">35dB(A) Evening</td> <td data-bbox="1070 523 1323 555"></td> </tr> <tr> <td data-bbox="577 555 846 587"></td> <td data-bbox="846 555 1070 587">35dB(A) Night</td> <td data-bbox="1070 555 1323 587">45dB(A) Night</td> </tr> </tbody> </table>	Assigned residential location number	Noise criteria LAeq(15 minute)	Sleep disturbance Noise criteria LA(1min)	1,2,4,5,6,7,8,9,10,11,12,	35dB(A) Day		13,14	35dB(A) Evening			35dB(A) Night	45dB(A) Night		<p>Viewed Spectrum Acoustics Report 4/9/08 stating Liddell had not exceeded any criteria. Results showed during the evening two high results were identified at monitoring locations 3 (Andrews) and 17 (Hazeldene) (both Mine Owned Property Liddell) and results recorded of 37 and 39 dBL were observed. Wind was observed to be greater than 3m/s resulting in noise emission criteria not being applicable.</p>
Assigned residential location number	Noise criteria LAeq(15 minute)	Sleep disturbance Noise criteria LA(1min)														
1,2,4,5,6,7,8,9,10,11,12,	35dB(A) Day															
13,14	35dB(A) Evening															
	35dB(A) Night	45dB(A) Night														
		<p><i>Notes:</i></p> <ul style="list-style-type: none"> <li><i>To determine compliance with the LAeq(15minute) noise limits, noise from the development 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 development is impractical, the DECC 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.</i></li> </ul>		<p>Viewed Spectrum Acoustics Report for attended noise monitoring dated 26/2/09, stating all monitoring conducted on 19 and 20/2/09 was within all criteria at all monitoring locations.</p> <p><b>It is recommended that monitoring locations be modified in consultation with DECC/DoP to nearest non mine owned property or residence.</b></p>												

Section	Sub-section	Requirement	Status	Compliance Status				
		<ul style="list-style-type: none"> <li>To determine compliance with the LA(1 minute) noise limits, noise from the development is to be measured at 1 metre from the dwelling façade. Where it can be demonstrated that direct measurement of noise from the development is impractical, the DECC may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).</li> <li>The noise emission limits identified in the above table apply under meteorological conditions of:                             <ul style="list-style-type: none"> <li>Wind speeds of up to 3 m / s at 10 metres above ground level: or</li> <li>Temperature inversion conditions of up to 3°C / 100m, and wind speeds of up to 2 m / s at 10 metres above ground level.</li> </ul> </li> </ul>		Section 3.13.2 of the 07-08 Liddell AEMR states monitoring consists of unattended continuous noise logging over a minimum of 72 hours and operator attended noise monitoring over 15 minute intervals with both conducted on a bi-annual basis.				
<b>Land Acquisition Criteria</b>	<b>2.0</b>	If the noise generated by the development exceeds the criteria in Table 2, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 10 – 12 of Schedule 4.	Not Triggered	No requests received (MH pers comms)				
		Table 2: Land acquisition criteria dB(A) <table border="1" data-bbox="577 911 1323 1045"> <thead> <tr> <th>Day / Evening / Night LAeq(15 minute)</th> <th>Land</th> </tr> </thead> <tbody> <tr> <td>40</td> <td>Any residence on, or on more than 25 percent of, any privately owned land.</td> </tr> </tbody> </table> <p>Note: Noise generated by the development is to be measured in accordance with the notes to Table 1.</p>	Day / Evening / Night LAeq(15 minute)	Land	40	Any residence on, or on more than 25 percent of, any privately owned land.		
Day / Evening / Night LAeq(15 minute)	Land							
40	Any residence on, or on more than 25 percent of, any privately owned land.							

Section	Sub-section	Requirement	Status	Compliance Status
<b>Cumulative Noise Criteria</b>	<b>3.0</b>	The Applicant shall take all reasonable and feasible measures to ensure that the noise generated by the development combined with the noise generated by other mines does not exceed the following amenity criteria at any residence on, or on more than 25 percent of, any privately owned land: <ul style="list-style-type: none"> <li>• LAeq(11 hour) 50 dB(A) – Day;</li> <li>• LAeq(4 hour) 45 dB(A) – Evening; and</li> <li>• LAeq(9 hour) 40 dB(A) – Night.</li> </ul>	Compliant	Noise generated by the development is below relevant criteria (see Schedule 3, Condition 1)
	<b>4.0</b>	If the noise generated by the development when combined with the noise generated by other mines exceeds the following amenity criteria at any residence on, or on more than 25 percent of, any privately owned land, then upon receiving a written request from the landowner, the Applicant shall acquire the land on as equitable basis as possible with the relevant mines, based on each mine's relative noise contribution to the cumulative noise, in accordance with the procedures in conditions 10 – 12 of Schedule 4: <ul style="list-style-type: none"> <li>• LAeq(11 hour) 53 dB(A) – Day</li> <li>• LAeq(4 hour) 48 dB(A) – Evening; and</li> <li>• LAeq(9 hour) 43 dB(A) – Night.</li> </ul>	Not Triggered	Noise generated by the development is below relevant criteria (see Schedule 3, Condition 1)

Section	Sub-section	Requirement	Status	Compliance Status
<b>Monitoring</b>	<b>5.0</b>	The Applicant shall prepare and implement a Noise Monitoring Program for the development to the satisfaction of the Director-General. This Program must be submitted to the Director-General by 31 January 2008, and must include regular attended monitoring, and a noise monitoring protocol for evaluating compliance with the noise impact assessment and land acquisition criteria in this consent.	Compliant	Viewed Liddell Colliery Noise Monitoring Program (NMP) January 2008. Viewed email from Umwelt dated 31/1/09 16.24 pm submitting the NMP to DoP. Viewed letter from DoP approving NMP dated 4 February 2009. Section 4.0 of the NMP describes the monitoring locations and Section 5.0 describes the monitoring protocol and criteria. <b>During next review, recommend removing requirement for unattended noise monitoring as provides limited value.</b>
<b>BLASTING AND VIBRATION</b>				
<b>Airblast Overpressure Criteria</b>	<b>6.0</b>	The Applicant shall ensure that the airblast overpressure level from blasting at the development does not exceed the criteria in Table 3 at any residence on privately owned land.	Compliant	

Section	Sub-section	Requirement	Status	Compliance Status						
		<p><i>Table 3: Airblast overpressure impact criteria</i></p> <table border="1"> <thead> <tr> <th>Airblast overpressure level (dB(Lin Peak))</th> <th>Allowable exceedence</th> </tr> </thead> <tbody> <tr> <td>115</td> <td>5% of the total number of blasts over a period of 12 months</td> </tr> <tr> <td>120</td> <td>0%</td> </tr> </tbody> </table>	Airblast overpressure level (dB(Lin Peak))	Allowable exceedence	115	5% of the total number of blasts over a period of 12 months	120	0%		<p>During the 2008-09 period four exceedances of airblast overpressure of 115 dBL were identified at the Scriven Residence (unoccupied) however the total remained under 5%. <b>On 27/04/09, a blast of 122.4 dBL was recorded at the Scriven residence (unoccupied) which was the result of a wind gust, This result could have been registered at Resident 2 as shown on Figure 1.3 of the EA.</b> The other 3 results were less than 120 dBL.</p> <p>Section 3.12.1 of the 07-08 Liddell AEMR states that there were no exceedances of the vibration limit or airblast overpressure limit.</p>
Airblast overpressure level (dB(Lin Peak))	Allowable exceedence									
115	5% of the total number of blasts over a period of 12 months									
120	0%									
	7.0	The Applicant shall ensure that the ground vibration level from blasting at the development does not exceed the criteria in Table 4 at any residence on privately owned land.	Compliant	<b>Blast locations need to be reviewed to ensure that closest, private receiver is represented from blast monitoring.</b>						
		<p><i>Table 4: Ground vibration impact assessment criteria</i></p> <table border="1"> <thead> <tr> <th>Peak Particle Velocity (mm/s)</th> <th>Allowable exceedence</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>5% of the total number of blasts over a period of 12 months</td> </tr> <tr> <td>10</td> <td>0%</td> </tr> </tbody> </table>	Peak Particle Velocity (mm/s)	Allowable exceedence	5	5% of the total number of blasts over a period of 12 months	10	0%		<p>Viewed blast monitoring data from 2008-09 no exceedances to ground vibration criteria were observed. Section 3.12.1 of the 07-08 Liddell AEMR states that there were no exceedances of the vibration limit or airblast overpressure limit.</p>
Peak Particle Velocity (mm/s)	Allowable exceedence									
5	5% of the total number of blasts over a period of 12 months									
10	0%									

Section	Sub-section	Requirement	Status	Compliance Status
<b>Chain of Ponds Hotel</b>	<b>8.0</b>	By 31 January 2008, the Applicant shall establish appropriate blast impact assessment criteria for the Chain of Ponds Hotel to the satisfaction of the Director-General. Once these criteria have been established, the Applicant shall ensure that all blasting at the development does not exceed the criteria.	Compliant	Viewed letter dated 4/2/08 from DoP approving the blast criteria of 10 mm/s maximum PPV ground vibration and 133 dBL overpressure and results should be reported in the AEMR. Appendix 5 of the 07-08 AEMR shows no exceedances of the approved criteria. Blast monitoring data from January 2009 to 30 June 2009 where no exceedances to ground vibration or airblast overpressure were observed.
<b>Blasting Hours</b>	<b>9.0</b>	The Applicant shall carry out blasting at the development only between 9 am and 5 pm Monday to Saturday inclusive. No blasting is allowed on Sundays, public holidays, or at any other time without the written approval of the DECC.	Compliant	Viewed blast monitoring data from July 2008 - June 2009. Blasting was conducted between the identified times and days. Section 3.12.3 of the 07-08 Liddell AEMR describes blasting hours of between 0900 and 1700 and on Monday to Saturday.
<b>Blasting Frequency</b>	<b>10.0</b>	The Applicant shall not carry out more than 2 blasts a day at the site without any written approval of the Director-General.	Compliant	Viewed blast monitoring data from July 2008 June 2009. Blasting was conducted no more than twice daily. Section 3.12.3 of the 07-08 Liddell AEMR states that 95 blasts were undertaken during the 07-08 reporting period.
<b>Operating Conditions</b>	<b>11.0</b>	During mining operations, the Applicant shall implement best blasting practise to:	Compliant	Viewed Thiess document <i>Drill and Blast Environmental Management System</i> dated 8 January 2009. Viewed document by HVE called <i>Drill and Blast Work Procedure</i> dated November 2008.

Section	Sub-section	Requirement	Status	Compliance Status
		(a) Ensure the safety of people, property and livestock;		Section 3 Design – States that when designing a blast consideration must be made to minimise the risk of fly rock to persons or property.
		(b) Protect items of cultural heritage significance, including the Chain of Ponds Hotel; and		Section 13 – States the criteria not top be exceeded at the Chain of Ponds Hotel.
		(c) Minimise the dust and fume emissions from blasting, particularly during adverse meteorological conditions to the satisfaction of the Director-General.		Viewed Liddell Airborne Dust Management Plan that describes procedures to minimise dust during drilling and blasting.
<b>Public Notice</b>	<b>12.0</b>	During mining operations, the Applicant shall:	<b>Not Compliant</b>	
		(a) Notify the landowner / occupier of any residence within 2 km of the development that they are entitled to register an interest in being notified of the blasting schedule of the mine;		From Figure 1.3 of the EA, 5 private residents (residents 2, 11, 12, 13 and 14) are within 2 km of the development. <b>Liddell should formally notify residents within 2 km.</b>
		(b) Notify the landowner / occupier of any residence within 2 km of the development of the blasting schedule at the mine, if that landowner / occupier registers an interest in being so notified;		
		(c) Operate a Blasting Hotline, or alternate system agreed to by the Director-General, to enable the public to get up-to-date information on the blasting schedule at the mine; and to the satisfaction of the Director-General.		Section 3.12.1 of the 07-08 Liddell AEMR states that Liddell currently operates a blasting hotline of 1800 037 317.
<b>Property Inspections</b>	<b>13.0</b>	By 31 October 2007, the Applicant shall advise all landowners of privately owned land within 2 km of the development that they are entitled to a structural property inspection.	Compliant	Viewed letter to near neighbours dated 29/10/07 advising them of their rights in relation to property inspections.
	<b>14.0</b>	If the Applicant receives a written request for a structural inspection from any landowner from of privately owned land within 2 km of the development, the Applicant shall within 3 months of receiving this request:	Not Triggered	No written or verbal requests (MH pers comms).

Section	Sub-section	Requirement	Status	Compliance Status
		(a) Commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to inspect the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and		Viewed letter from DoP approving the use of Parsons Brinkerhoff Australia Pty Limited (PB) to undertake property inspections as required.
		(b) Give the landowner a copy of the inspection report		
<b>Property Investigations</b>	<b>15.0</b>	If any landowner of privately owned land within 2 km of the site claims that buildings and / or structures on his / her land have been damaged as a result of blasting at the development, the Applicant shall within 3 months of receiving this request:	Not Triggered	No claims (MH pers comms).
		(a) Commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to investigate the claim; and		
		(b) Give the landowner a copy of the investigation report		
		If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant shall repair the damages to the satisfaction of the Director-General.		
		If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Director-General for resolution.		
		If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 4).		
<b>AIR QUALITY</b>				
<b>Impact Assessment Criteria</b>	<b>16.0</b>	The Applicant shall ensure that the dust emissions generated by the development do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 5, 6, and 7 at any residence on, or more than 25 percent of, any privately owned land.	Compliant	Viewed monitoring data from July 2008 to May 2009. Depositional dust, TSP and PM <sub>10</sub> are within criteria limits at private receivers.



Section	Sub-section	Requirement	Status	Compliance Status									
		<p><i>Table 5: 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/m<sup>3</sup></td> </tr> <tr> <td>Particulate matter &lt;10 µm (PM<sub>10</sub>)</td> <td>Annual</td> <td>30 µg/m<sup>3</sup></td> </tr> </tbody> </table>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>	Particulate matter <10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>	Compliant	<p>Annual average TSP results from HVAS 13 (Ravensworth Farm) (mine owned property) were above annual criteria measuring 94 µg/m<sup>3</sup>. Annual PM<sub>10</sub> remained below annual average criteria. Section 3.4.2.2 of the 07-08 Liddell AEMR states that there were no exceedances of annual TSP or PM<sub>10</sub> criteria.</p>
Pollutant	Averaging period	Criterion											
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>											
Particulate matter <10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>											
		<p><i>Table 6: Short term impact assessment criterion 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 &lt; 10 µm (PM<sub>10</sub>)</td> <td>24 hour</td> <td>50 µg/m<sup>3</sup></td> </tr> </tbody> </table>	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>		<p>TSP 24 hr results at HVAS 13 exceeded 6 times during this period with the highest result on 31 December 2008 measuring 215 µg/m<sup>3</sup>. HVAS 11 (Scriven uninhabited) had no exceedances of 24 hour criteria. PM<sub>10</sub> 24 hour criteria was exceeded five times at HVAS 6 (Ravensworth Farm mine owned property) in the same period with the highest result measuring 79 µg/m<sup>3</sup>. No PM<sub>10</sub> 24 hour criteria exceedances were recorded at HVAS 12 (Scriven uninhabited).</p>			
Pollutant	Averaging period	Criterion											
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>											

Section	Sub-section	Requirement	Status	Compliance Status								
				<p>Section 3.4.2.2 of the 07-08 Liddell AEMR states that there was 1 exceedance of 24 hour TSP of 367 µg/m<sup>3</sup> and 4 PM<sub>10</sub> 24 hour criteria exceedances of (153, 64, 54 and 52 µg/m<sup>3</sup>) were recorded however were on mine owned property and not representative of private residents.</p> <p><b>Recommend HVAS 13 (Rav Farm) moved to nearest non mined owned resident in consultation with DECC and DoP to enable confirmation that no private property was impacted above criteria.</b></p>								
		<p><i>Table 7: Long term impact assessment criteria for deposited dust</i></p> <table border="1" data-bbox="580 863 1296 1075"> <thead> <tr> <th data-bbox="584 866 734 995">Pollutant</th> <th data-bbox="734 866 909 995">Averaging period</th> <th data-bbox="909 866 1108 995">Maximum increase in deposited dust levels</th> <th data-bbox="1108 866 1292 995">Maximum total deposited dust level</th> </tr> </thead> <tbody> <tr> <td data-bbox="584 995 734 1072">Deposited dust</td> <td data-bbox="734 995 909 1072">Annual</td> <td data-bbox="909 995 1108 1072">2 g/m<sup>2</sup>/month</td> <td data-bbox="1108 995 1292 1072">4 g/m<sup>2</sup>/month</td> </tr> </tbody> </table> <p><i>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 Particulate Matter – Deposited Matter – Gravimetric Method.</i></p>	Pollutant	Averaging period	Maximum increase in deposited dust levels	Maximum total deposited dust level	Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month	Compliant	<p>Viewed monitoring data from July 2008 to May 2009. Averages for this period remained below the approved criteria for all monitoring locations representative of private residents D54 and D57 on mine owned land had averages for this period of 5 and 5.4 g/m<sup>2</sup>/month. D62 is the closest monitor to residents and had an annual average result during the reporting period of 2.3.</p> <p>Section 3.4.2.2 of the 07-08 Liddell AEMR states that the annual average remained below the approved criteria for all monitoring locations except for D54. D62 is the closest monitor to residents and had an annual average result during the reporting period of 2.8.</p>
Pollutant	Averaging period	Maximum increase in deposited dust levels	Maximum total deposited dust level									
Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month									

Section	Sub-section	Requirement	Status	Compliance Status															
				<b>Recommend D54 &amp; D57 moved to nearest non mined owned residence in consultation with DECC and DoP to enable confirmation that no private property was impacted above criteria.</b>															
<b>Land Acquisition Criteria</b>	<b>17.0</b>	If the dust emissions generated by the development exceed the criteria in Tables 8, 9 and 10 at any residence on, or more than 25 percent of, any privately owned land, the Applicant shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 10-12 of Schedule 4.	Not Triggered	Not exceeded on more than 25% of privately owned land and no requests made (MH pers comms).															
		<i>Table 8: Long term land acquisition criteria for particulate matter</i>																	
		<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/m<sup>3</sup></td> </tr> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>Annual</td> <td>30 µg/m<sup>3</sup></td> </tr> </tbody> </table>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>	Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>								
Pollutant	Averaging period	Criterion																	
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>																	
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>																	
		<i>Table 9: Short term land acquisition criteria for particulate matter</i>																	
		<table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> <th>Percentile<sup>1</sup></th> <th>Basis</th> </tr> </thead> <tbody> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>24 hour</td> <td>150 µg/m<sup>3</sup></td> <td>99<sup>2</sup></td> <td>Total<sup>3</sup></td> </tr> <tr> <td>Particulate matter &lt; 10 µm (PM<sub>10</sub>)</td> <td>24 hour</td> <td>50 µg/m<sup>3</sup></td> <td>98.6</td> <td>Increment<sup>4</sup></td> </tr> </tbody> </table>	Pollutant	Averaging period	Criterion	Percentile <sup>1</sup>	Basis	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	150 µg/m <sup>3</sup>	99 <sup>2</sup>	Total <sup>3</sup>	Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	98.6	Increment <sup>4</sup>		
Pollutant	Averaging period	Criterion	Percentile <sup>1</sup>	Basis															
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	150 µg/m <sup>3</sup>	99 <sup>2</sup>	Total <sup>3</sup>															
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	98.6	Increment <sup>4</sup>															

Section	Sub-section	Requirement	Status	Compliance Status								
		<sup>1</sup> Based on the number of block 24 hour averages in an annual period. <sup>2</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General in consultation with the DECC. <sup>3</sup> Background PM <sub>10</sub> concentrations due to all other sources plus the increment increase in PM <sub>10</sub> concentrations due to the mine alone. <sup>4</sup> Increment increases in PM <sub>10</sub> concentrations due to the mine alone.										
		Table 10: Long term land acquisition criteria for deposited dust.										
		<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/m<sup>2</sup>/month</td> <td>4 g/m<sup>2</sup>/month</td> </tr> </tbody> </table> <p>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 Particulate Matter – Deposited Matter – Gravimetric Method.</p>	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month		
Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level									
Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month									
<b>Operating Conditions</b>	<b>18.0</b>	The Applicant shall:	Compliant	At the time of the site inspection on 1 July 2009 plant and equipment used was observed to be working efficiently and effectively, although operating in extremely windy and dusty conditions.								

Section	Sub-section	Requirement	Status	Compliance Status
		(a) Ensure any visible air pollution generated by the development is assessed regularly, and that mining operations are relocated, modified, and/or stopped as required to minimise air quality impacts on privately owned land.		Viewed Dust Management Inspection sheet stating that on 15/06/09 excessive dust was observed along haul roads. Water carts were in workshop at the time, result was HVE stopping work and returning to crib hut until water carts were working. Viewed Dust Management Inspection sheet stating that on 30/09/08 severe dust was observed adjacent to the eastern highwall in extremely hot material with no water cart present. Management was informed and the excavator was stopped. HVE reviewed procedure for handling hot material.
		(b) Ensure air quality monitoring for 24-hour average PM <sub>10</sub> and the meteorological monitoring data are assessed regularly, and that mining operations are relocated, modified and/or stopped as required to ensure compliance with the relevant air quality criteria; and		Day of field visit was incredibly dusty due to westerly impacts from inland. Water carts were visible during inspection.
		(c) Implement all practicable measures to minimise the off-site odour and fume emissions generated by any spontaneous combustion at the development, to the satisfaction of the Director-General.		HVE injects water into the works area also water is dribbled down the highwall into buffer rock to cool. Open cut highwall mining is conducted as quickly as possible. Clay and overburden is pushed against coal and heated material to reduce the amount of available oxygen. When mining overburden it is track rolled and covered to minimise height (MH pers comms). The Spontaneous Combustion Management Plan identifies ways to minimise spontaneous combustion.

Section	Sub-section	Requirement	Status	Compliance Status
<b>Monitoring</b>	<b>19.0</b>	The Applicant shall prepare and implement an Air Quality Monitoring Program for the development to the satisfaction of the Director-General. This program must be submitted to the Director-General by 31 January 2008, and must include a combination of high volume samplers and dust deposition gauges to monitor the dust emissions of the development: and an air quality monitoring protocol for evaluating compliance with the air quality impact assessment and land acquisition criteria in this approval.	Compliant	Viewed email from Umwelt dated 31/1/09 at 16.24 pm submitting the AQMP to DoP. Viewed Liddell Colliery Air Quality Monitoring Program dated January 2008. Section 4.0 of the AQMP describes the monitoring locations and types of monitoring undertaken while Section 5.0 describes the monitoring protocol for evaluating compliance.
<b>Meteorological Monitoring</b>	<b>20.0</b>	By 31 January 2008, the Applicant shall ensure that there is a suitable meteorological station operating in the vicinity of the development in accordance with the requirements in Approved Methods for sampling of Air Pollutants in New South Wales, and to the satisfaction of the DECC and the Director-General.	Complaint	Section 3.3 of the 07-08 Liddell AEMR states that approval was granted by DECC and DoP to continue to utilise the Ravensworth and Camberwell meteorological stations until the 08-09 period where a new meteorological station at the new office and workshop complex will be developed. Viewed letter from DoP dated 23/1/09 which approves the use of the Ravensworth and Camberwell meteorological stations until the new meteorological station is installed to 31 December 2008. <b>Recommend describing in AEMR.</b> Viewed email from Carbon Based stating that the Met station located at the office complex was installed on 30 December 2008. Viewed Meteorological data from 30 December 2008 to July 1 2009 confirming its operation.

Section	Sub-section	Requirement	Status	Compliance Status
<b>SURFACE GROUND WATER</b>				
<b>Discharge Limits</b>	<b>21.0</b>	The Applicant shall only discharge water from the development in accordance with the provisions of a DECC Environment Protection Licence or the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002.	<b>Not Compliant</b>	One discharge event outside the 10% error range as required by EPL 2094 Condition M6.3 from Dam 13 in the 07-08 reporting period as a result of low battery. No adverse effects of the non-compliance as a conclusion from investigative report. Reported to DWE and was reprogrammed to log battery voltage. No response from regulators was received to AEMR or Annual Return in relation to the incident. Correspondence was received from DECC regarding an incorrect date in the HRSTS Annual Return. Liddell indicated to DECC that the date was a typographical error. DECC responded by accepting the amended date. No incidents in 08-09 (MH pers comms).
	<b>21a.</b>	The Applicant shall ensure that treated effluent from the wastewater treatment plant does not exceed the discharge limits in Table 11, unless otherwise agreed by the DECC.	Compliant	

Section	Sub-section	Requirement	Status	Compliance Status										
	21b.	The Applicant shall monitor the quality of treated effluent to be discharged from the wastewater treatment plant (by sampling and obtaining results by analysis) as specified in Table 11, or as otherwise agreed by the DECC.	Compliant	Monitor was installed in late 2008 and monitors monthly for criteria described in Table 11 of consent (MH pers comms). Effluent monitoring commenced in October 2008. Viewed Microbiology Final Report s– Certificate of Analysis conducted by Sonic Food and Water Testing conducted on 31/10/08, 27/11/08, 23/1/09, 27/2/09, 26/3//09, 28/4/09 and 29/5/09all reports found that no Escherichia coli was detected.										
		Table 11: Wastewater plant discharge limits												
		<table border="1"> <thead> <tr> <th>Pollutant</th> <th>Units of Measure</th> <th>Frequency</th> <th>Sampling Method</th> <th>Consent-ration Limit (100 percentile)</th> </tr> </thead> <tbody> <tr> <td>Faecal coliforms</td> <td>Colony forming units per 100 millilitres</td> <td>Monthly</td> <td>Representative sample</td> <td>1</td> </tr> </tbody> </table>	Pollutant	Units of Measure	Frequency	Sampling Method	Consent-ration Limit (100 percentile)	Faecal coliforms	Colony forming units per 100 millilitres	Monthly	Representative sample	1		
Pollutant	Units of Measure	Frequency	Sampling Method	Consent-ration Limit (100 percentile)										
Faecal coliforms	Colony forming units per 100 millilitres	Monthly	Representative sample	1										
<b>Desalination Unit</b>	22.0	Prior to the construction of the desalination unit, the Applicant shall conduct investigations and identify options concerning the most appropriate method for the treatment and/or disposal of brine, to the satisfaction of the Director-General, DWE and DECC.	Not Triggered	Desalinisation unit not constructed (MH pers comms).										
<b>Water Management Plan</b>	23.0	The Applicant shall prepare and implement a Water Management Plan for the development to the satisfaction of the Director-General. This Plan must be submitted to the Director-General by 31 January 2008, and must include:	Compliant	Viewed Liddell Colliery Water Management Plan (WMP) dated January 2008. Viewed email from Umwelt dated 31/1/09 at 16.24pm submitting the WMP to DoP.										
		(a) A site water balance;		Section 4.0 of the WMP describes site water balance.										



Section	Sub-section	Requirement	Status	Compliance Status
		(b) An Erosion and Sediment Control Plan;		Section 5.0 of the WMP describes the Liddell Colliery Erosion and Sediment Control Plan dated January 2008. It is provided in Appendix 1 of the WMP.
		(c) A Surface Water Monitoring Program;		Viewed Liddell Colliery Surface Water Monitoring Program dated January 2008. It is provided in Appendix 2 of the WMP.
		(d) A Ground Water Monitoring Program; and		Viewed Liddell Colliery Groundwater Monitoring Program dated January 2008. It is provided in Appendix 3 of the WMP.
		(e) A Surface and Ground Water Response Plan, to address any potential adverse impacts associated with the development.		Viewed Liddell Colliery WMP dated January 2008. Section 7.0 describes surface and groundwater response plan.
<b>Site Water Balance</b>	<b>24.0</b>	The Site Water Balance must:	Compliant	Section 4.0 of the WMP describes the site water balance.
		(a) Include details of;		
		<ul style="list-style-type: none"> <li>• Sources of water;</li> <li>• Reliability of water supply;</li> <li>• Water management system on site;</li> <li>• Water use on site;</li> <li>• Water transfers between the site and surrounding mines;</li> <li>• Reporting procedures; and</li> </ul>		Section 4.1
		(b) Investigate and describe measures to minimise water use by the development.		Section 4.5

Section	Sub-section	Requirement	Status	Compliance Status
<b>Erosion and Sediment Control</b>	<b>25.0</b>	The Applicant shall implement a range of standard erosion and sediment controls at the development, in general accordance with the requirements of the Department of Housing's <i>Managing Urban Stormwater: Soils and Construction</i> manual.	Complaint	Section 5.0 of the WMP describes the Liddell Colliery Erosion and Sediment Control Plan that provides measures to be implemented as a means to control sediment transfer. <b>See discussion in Section 3 in relation to erosion control required.</b>
<b>Surface Water Monitoring</b>	<b>26.0</b>	The Surface Water Management and Monitoring Plan must include:	Compliant	Viewed Liddell Colliery Surface Water Monitoring Program dated January 2008.
		(a) Detailed baseline data on surface water flows and quality in creeks and other water bodies that could be affected by the development;		Section 2.0
		(b) Surface water impact assessment criteria;		Section 3.0
		(c) A program to monitor the impact of the development on surface water flows and quality;		Section 4.0
		(d) Procedures for reporting the results of this monitoring.		Section 6.0
<b>Groundwater Monitoring</b>	<b>27.0</b>	The Applicant shall regularly monitor:	Compliant	Viewed Liddell Colliery Groundwater Monitoring Program dated January 2008.
		(a) The volume of groundwater seeping into the open cut mine workings;		Section 5.0
		(b) Regional groundwater levels and quality in the surrounding coal measures; and		Section 5.0
		(c) The groundwater pressure response in the surrounding coal measures; and		Section 5.0
		(d) Report the result of this monitoring in the AEMR, to the satisfaction of the Director-General.		Section 6.0

Section	Sub-section	Requirement	Status	Compliance Status
<b>LANDSCAPE MANAGEMENT</b>				
<b>Waterbird Habitat</b>	<b>28.0</b>	Prior to the construction of Dam 13B, the Applicant shall undertake habitat enhancement measures to Dam 3 to increase habitat for water birds to the satisfaction of DECC and the Director-General. The applicant shall in addition establish a dam in the Mountain Block area to provide habitat for waterbird species. Where achievable, the habitat enhancement measures for each dam shall include:	Not Triggered	Viewed Liddell Colliery Landscape Management Plan (LMP) dated January 2008. Appendix 2 of LMP contains Blue Billed Duck Management Strategy dated January 2008. <b>Dam 13 B has not yet been constructed</b> however Dam 3 is currently having some depth sounding conducted by engineers at along with relevant signposting for waterbird habitat (MH pers comms).
		(a) A maximum water depth of 5 metres over at least half the surface area;		Section 2.0
		(b) Gently sloping banks (apart from the dam wall) of less than 10 degrees;		Not described. <b>Recommend including as a habitat requirement in next revision of plan.</b>
		(c) Areas of shallow back waters around the dams;		Section 2.0
		(d) Appropriate levels of vegetation; and		Section 2.0
		(e) Appropriate fencing and signposting.		Section 2.0. Also currently being undertaken.
<b>Rehabilitation</b>	<b>29.0</b>	The Applicant shall rehabilitate the site to the satisfaction of the Director-General and DPI.	<b>Not Compliant</b>	Viewed <i>Weed Management Plan 2008/2009</i> dated 18 June 2008. Viewed letter from DoP dated 21/1/09 in response to the 07-08 AEMR stating that DoP was concerned that no rehabilitation was conducted during the reporting period. Viewed letter from T Galvin at Liddell dated 25/2/09 to DoP. <b>Ltr commits to carry over a</b>

Section	Sub-section	Requirement	Status	Compliance Status
				<b>portion of the area not rehabilitated in the 2007/08 AEMR period into the Jan-Dec 2009 MOP period. The aim is to complete up to 42 Ha during Jan-Dec 2009 no rehabilitation completed as at time of audit.</b>
<b>Landscape Management Plan</b>	<b>30.0</b>	The Applicant shall prepare and implement a detailed Landscape Management Plan for the site to the satisfaction of the Director-General and DPI. This plan must:	Compliant	Viewed LMP. Viewed correspondence from last DPI inspection dated 7 February 2008 from DPI reviewing the LMP and stating it satisfies their requirements.
		(a) Be submitted by 31 January 2008 to the Director-General and DPI for approval;		Viewed email from Umwelt dated 31/1/09 at 16.24 pm submitting the LMP to DoP. Viewed letter from DoP approving LMP dated 4 February 2009. Viewed letter from DPI dated 7/2/08 from DPI approving the LMP.
		(b) Be prepared by suitably qualified expert/s whose appointment/s have been endorsed by the Director-General.		Viewed letter to DoP dated 29/11/07 identifying the personnel proposed to compile the LMP. Viewed letter from DoP dated 11/12/07 approving the appointment of Matthew Newton, Travis Peake and Alison Sharp as being suitable to prepare the LMP.
		(c) Be prepared in consultation with DWE, DECC, MSC, SSC and the Rural Fire Service; and		Viewed correspondence to NSW RFS, MSC, DECC, SSC, DWE seeking comments in relation to the document.
		(d) Include a: <ul style="list-style-type: none"> <li>• Rehabilitation Management Plan;</li> <li>• Final Void Management Plan; and</li> <li>• Mine Closure Plan.</li> </ul>		Section 3.0 contains a Mine Closure Plan. Section 4.0 contains a Final Void Management Plan. Section 5.0 contains a Rehabilitation Management Plan.

Section	Sub-section	Requirement	Status	Compliance Status
<b>Rehabilitation Management Plan</b>	<b>31.0</b>	The Rehabilitation Management Plan must include:	Compliant	Viewed Rehabilitation Management Plan (RMP) (Section 5.0) of Landscape Management Plan dated January 2008.
		(a) The rehabilitation objectives for the site;		Section 3.5
		(b) A strategic description of how the rehabilitation of the site would be integrated with land surrounding the site, with a view to improving or enhancing the regional landscape and flora and fauna habitat values;		Section 3.0 and Section 5.0
		(c) A general description of the short, medium and long term measures that would be implemented to rehabilitate the site;		Section 3.0 and Section 5.0
		(d) A detailed description of the measures that would implemented over the next three years to rehabilitate the site, including the measures to be implemented for: <ul style="list-style-type: none"> <li>• Progressively rehabilitating areas disturbed by mining operations on the site;</li> <li>• Managing the remnant vegetation and habitat on site;</li> <li>• Revegetating, monitoring and maintaining the offset area;</li> <li>• Undertaking additional pre-subsidence fauna surveys;</li> <li>• Minimising impacts on threatened fauna;</li> <li>• Minimising visual impacts;</li> <li>• Conserving and reusing topsoil;</li> <li>• Collecting and propagating seeds for rehabilitation works;</li> <li>• Salvaging and reusing material from the site for habitat enhancement;</li> </ul>		<ul style="list-style-type: none"> <li>• Section 5.2.3</li> <li>• Section 5.7.1</li> <li>• Section 5.7</li> <li>• Section 5.0</li> <li>• Section 5.3.2</li> <li>• Section 5.6.3</li> <li>• Section 5.7.1.1</li> <li>• Section 5.6</li> <li>• Section 5.6.5</li> <li>• Section 5.3.5</li> </ul>

Section	Sub-section	Requirement	Status	Compliance Status
		<ul style="list-style-type: none"> <li>Controlling weeds, feral pests, and access;</li> <li>Managing bushfires; and</li> <li>Managing any potential conflicts between the rehabilitation works and Aboriginal cultural heritage.</li> </ul>		
		(e) Detailed performance and completion criteria for the rehabilitation of the site;		Section 5.1
		(f) 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		Section 5.4
		(g) Details of who is responsible for monitoring, reviewing and implementing the plan.		Section 1.3
<b>Final Void Management</b>	<b>32.0</b>	The Final Void Management Plan must describe what actions and measures would be implemented to:	Compliant	Viewed Final Void Management Plan (Section 4.0) of Landscape Management Plan dated January 2008.
		(a) Minimise any potential adverse impacts associated with final voids on the site; and		Section 4.0
		(b) Manage and monitor the potential impacts of final voids over time.		Section 4.0
<b>Mine Closure Plan</b>	<b>33.0</b>	The Mine Closure Plan must:	Compliant	Viewed Mine Closure Plan (Section 3.0) of Landscape Management Plan dated January 2008.
		(a) Define the objectives and criteria for mine closure;		Section 3.5
		(b) Investigate options for the future use of the site, including the final voids;		Section 4.0 and 5.0
		(c) Investigate ways to minimise the adverse socio-economic effects associated with mine closure, including reduction in local and regional employment levels;		Section 2.4

Section	Sub-section	Requirement	Status	Compliance Status
		(d) Describe the measures that would be implemented to minimise or manage the on-going environmental effects of the development; and		Section 3.7.2
		(e) Describe how the performance of these measures would be monitored over time. <i>Note: A conceptual final landform design for the site is shown in Appendix 3.</i>		Section 3.0 and 5.0
<b>Section 90 Consents</b>	<b>34.0</b>	The Applicant shall obtain consents from DECC, under section 90 of the <i>National Parks and Wildlife Act 1974</i> , prior to disturbing any of the following Aboriginal sites and artefacts: LID2, LID3, LID4, LID5, LID23, LID24, LID25, LID27, LID33, SP1, SP2, SP3, and Brayshaw B. <i>Note: These sites are described in Table 6, 18 and Figure 6.9 of the EA.</i>	Complaint	Section 3.15.2 of the 07-08 Liddell AEMR reports that AHIP#2741, AHIP#2896 and AHIP#2883 were granted prior to disturbing any known Aboriginal sites and artefacts. Section 4.3 of the ACHMP consents obtained from DECC.
<b>Management and Monitoring</b>	<b>35.0</b>	By 31 January 2008, the Applicant shall revise its Aboriginal Cultural Heritage Management Plan in consultation with relevant Aboriginal stakeholders and to the satisfaction of the Director-General.	Compliant	Viewed Liddell Aboriginal Cultural Heritage Management Plan (ACHMP) dated January 2008. Viewed email from Umwelt dated 31/1/09 at 16.24pm submitting the ACHMP to DoP. Viewed letter from DoP approving ACHMP dated 4 February 2009. Section 3.15.3 of the 07-08 Liddell AEMR indicates that the ACHMP was approved in consultation with the list of Aboriginal Stakeholders provided. Appendix 1 of ACHMP provides all correspondence to relevant Aboriginal stakeholders and Section 4.0 of ACHMP provides information on Aboriginal stakeholder consultation.
<b>HERITAGE</b>				

Section	Sub-section	Requirement	Status	Compliance Status
Conservation Measures	36.0	By 31 January 2008, the Applicant shall prepare a photographic record of the condition and integrity of the accessible sections of the Chain of Ponds Hotel site, and to update this record every 5 years until the cessation of mining, to the satisfaction of the Director-General.	Not Compliant	Viewed letter from Umwelt to DoP dated 29/1/08 sending the photographic report for Chain of Ponds Hotel. <b>No correspondence received from DoP approving the photographic record.</b>
Archival Record	37.0	The Applicant shall prepare an archival record of the former Police Lock Up precinct, prior to any activity associated with the development that may disturb this site, in accordance with the requirements of the NSW Heritage Office, and to the satisfaction of the Director-General.	Complaint	No activities currently undertaken which would disturb precinct (MH pers comms). Situated on Coal and Allied owned land and was not included in the Chain of Ponds Hotel Report that was provided to DoP on 29/1/08 due to access issues. <b>This work needs to commence in the coming period as blasting moves towards the structure.</b>
<b>TRAFFIC AND TRANSPORT</b>				
Road Transport	38.0	The Applicant shall ensure that:	Compliant	
		(a) Transport of coal tailings by truck along the New England Highway is restricted to old tailings with residual energy content and at a rate of no more than 114 truck movements per day (i.e. 57 loaded trucks), 5 days per week; and		Internal email from Darren Stacey to Renae Mikka dated 10/11/08 stating 11,800 t of coal was trucked up until Feb 07 and none has been hauled up until 10/11/08. No exceedances of 114 truck loads occurred. Viewed internal email dated 9 July 2009 from B Grzanka to MH stating that the last sale of tailings was in February 2007 and has been no sales since, as a result no trucks have been required. <b>This should be reported in the AEMR.</b>



Section	Sub-section	Requirement	Status	Compliance Status
		(b) Transport of ROM coal to and from Cumnock No. 1 Colliery is restricted to internal mine haul roads, Pikes Gully Road and Liddell Station Road.		ROM coal transported to and from Cumnock No. 1 Colliery is restricted to internal mine haul roads, Pikes Gully Road and Liddell Station Road (MH pers comms). <b>Recommend comment be included in AEMR.</b>
<b>Traffic Management</b>	<b>39.0</b>	The Applicant shall prepare and implement a Construction Traffic Management Plan for the development to the satisfaction of the RTA and the Councils. This Plan must be submitted to the RTA and the Councils prior to carrying out any construction which relates to modification application 06_0327.	<b>Not Complaint</b>	Viewed document by PB titled <i>Construction Traffic Management Plan for the Relocation of the Open Cut Mining Infrastructure at Liddell Colliery</i> dated August 2007. Viewed letter from RTA dated 15 October 2007 reviewing Construction Traffic Management Plan. RTA requested the inclusion of street lighting at the Old New England Highway / New England Highway and any non-compliant shoulder widening should be constructed in accordance with RTA's Road Design Guide. A Works Authorisation Deed is also required. <b>No approval from MSC and SSC available to view at time of audit.</b>
<b>Studies of Shared Rail and Road Infrastructure</b>	<b>40.0</b>	The Applicant shall ensure that the Hunter Valley Rail Loop is not used for increased transport of product coal (i.e. above the limits prevailing under the consent prior to the approval of application 06_0327) until:	<b>Compliant</b>	
		(a) Studies have been completed by independent consultants on access to, capacity of, maintenance of and safety of the shared rail infrastructure impacted by the Applicant's proposed increased transport (as outlined in the <i>Liddell Colliery Modification to Development Consent Environmental Assessment</i> ), to the satisfaction of the Director-General;		Viewed draft report titled <i>Shared Rail Infrastructure Study</i> dated April 2009 (Worley Parsons) currently being consulted with Coal & Allied.

Section	Sub-section	Requirement	Status	Compliance Status
				4.2 Mt & 4.76 Mt ROM coal mined in the 07/08 and 08/09 financial years respectively. Viewed daily train movements from July 2008 to June 2009. A total of 213 daily train movements on a total of 412 trains transported 3.25 Mt of product coal to the Port of Newcastle. This remained under the 4.5 Mt product coal specified in Section 4.3.1 of the 2001 EIS. <b>Recommend is the report be finalised before production levels exceed 4.5Mt of product coal.</b>
		(b) The outcomes of those studies have been implemented, to the satisfaction of the Director-General.	Not Triggered	
	41.0	The Applicant shall ensure that the privately owned sections of Pikes Gully Road are not used for increased transport of either product coal or ROM coal (i.e. above the limits prevailing under the consent prior to the approval of the application 06_0327) until:	Compliant	Less than 300,000 t of product coal transported along internal haul roads (MH pers comms).
		(a) Studies have been completed by independent consultants on access to, capacity of, maintenance of and safety of the shared road infrastructure impacted by the Applicant's proposed increased transport (as outlined in the <i>Liddell Colliery Modification to Development Consent Environmental Assessment</i> ), to the satisfaction of the Director-General; and		Viewed draft <i>Liddell Colliery Shared Road Infrastructure Study</i> prepared by Parsons Brinckerhoff dated January 2009. Viewed report prepared by Parsons Brinckerhoff titled <i>Liddell Colliery Shared Road Infrastructure Study</i> dated March 2009. Report is still in draft stages and is currently being reviewed by Xstrata personnel before consultation with Coal & Allied.

Section	Sub-section	Requirement	Status	Compliance Status
				During the auditing period, no additional product or ROM coal is transported using privately owned sections of Pikes Gully Road until approval of above document has been received from DoP (MH pers comms).
		(b) The outcomes of those studies have been implemented, to the satisfaction of the Director-General.	Not Triggered	
<b>Old New England Highway / Access Road Intersection</b>	<b>41a.</b>	The Applicant shall construct the realignment of the Old New England Highway and the Old New England Highway / Access Road Intersection to the satisfaction of Singleton Shire Council.	Compliant	Construction of the realignment of the Old New England Highway and Access Road intersection has been completed (MH pers comms). Viewed Certificate of Practical Completion from Singleton Council dated 20/1/09 stating works are complete. Section 2.3.2 of the 07-08 Liddell AEMR states that the intersection was constructed.
<b>Monitoring of Coal Transport</b>	<b>42.0</b>	The Applicant shall:		
		(a) Keep records of the : <ul style="list-style-type: none"> <li>• Amount of coal transported from the site each year; and</li> <li>• Number of coal haulage train movements generated by the development (on a daily basis); and</li> </ul>	Compliant	Viewed daily train movements from July 2008 to June 2009. A total of 213 daily train movements on a total of 412 trains transported 3,344,897 t of product coal to the Port of Newcastle. The 2007/2008 AEMR reports that 422 loaded coal haulage train movements were recorded, transporting 2,759,048 t of product coal to the Port of Newcastle.

Section	Sub-section	Requirement	Status	Compliance Status
		(b) Include these records in the AEMR.	Compliant	Section 2.5.3 of the 07-08 Liddell AEMR state that approximately 3.87 Mt of ROM coal was processed at the Liddell CHPP with 2.76 Mt of product coal being transported from site with 422 loaded train movements generated.
<b>VISUAL IMPACT</b>				
<b>Visual Amenity</b>	<b>43.0</b>	The Applicant shall implement measures to mitigate the visual impacts, including the design and construction of development infrastructure in a manner that minimises visual contrasts, to the satisfaction of the Director-General.	Compliant	The field inspection revealed that the construction of the workshop and office complex are green to be neutral in the environment, also visual bunds and strategically planted trees along the Access Road were designed to reduce the visual impact. The plantings along the Access Road were observed to be healthy and will provide an appealing visual bund as they mature. The office complex and workshop are not visible from the Old New England Highway due to the visual bund (see <b>Plate 6</b> and <b>Plate 7</b> ) or any private residences.
<b>Lighting Emissions</b>	<b>44.0</b>	The Applicant shall:	Compliant	
		(a) Take all practicable measures to mitigate off-site lighting impacts from the development; and		Viewed HVE document called <i>Standard Work Procedure – Moving &amp; Setting Up Lighting Plants</i> dated 20/11/08. The document describes safety procedures and measures to ensure lighting remains on site.

Section	Sub-section	Requirement	Status	Compliance Status
		(b) Ensure that all external lighting associated with the development complies with Australian Standard AS4282 (INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting, to the satisfaction of the Director-General.		No complaints received in relation to lighting during the auditing period.
<b>GREENHOUSE GAS</b>				
<b>Energy Savings Action Plan</b>	<b>45.0</b>	The Applicant shall prepare and implement an Energy Savings Action Plan for the development, in accordance with the requirements and guidelines of DWE, and to the satisfaction of the Director-General. The plan shall be submitted to the Director-General by 31 January 2008.	Compliant	Viewed Liddell Colliery Energy Savings Action Plan (ESAP) dated Jan 08. Viewed email from Umwelt dated 31/1/09 at 16.24 pm submitting the ESAP to DoP. Viewed letter from DoP approving ESAP dated 4/2/09.
<b>Monitoring and Reporting</b>	<b>46.0</b>	The Applicant shall:	Compliant	
		(a) Monitor the greenhouse gas emissions generated by the development;		Viewed Liddell greenhouse gas emissions from methane emitted from stockpiled coal for 2008 totalled 365.7 t and from the period January 2009 to April 2009 methane emitted from stockpiles totals 3181t. Section 3.20 of the 07-08 Liddell AEMR states Liddell's greenhouse gas emissions.
		(b) Investigate ways to reduce greenhouse gas emissions generated by the development; and		Section 3.20 of the 07-08 Liddell AEMR identifies ways at which Liddell is working towards minimising greenhouse gas emissions.
		(c) Report on greenhouse gas monitoring and abatement measures in the AEMR. To the satisfaction of the Director-General.		Section 3.20 of the 07-08 Liddell AEMR states Liddell's greenhouse gas emissions and abatement measures.

Section	Sub-section	Requirement	Status	Compliance Status
Waste Minimisation	47.0	The Applicant shall:	Compliant	Viewed Liddell Colliery Environmental Management Strategy dated Jan 08 under which waste is monitored.
		(a) Monitor the amount of waste generated by the development:		Viewed KPI waste data for the period January 2007 to March 2009. Both general waste and recycled waste is monitored during this period. Waste oil, scrap metal and oily water is also monitored monthly. Waste monitoring results for Q1 2009 were viewed and revealed more detailed monitoring has been conducted for both Liddell and HVE operations with additional items including solvents, filters, rags, hazardous waste not including oil, recycled waste oil, drums, truck tyres, vehicle tyres and batteries recorded. During the site inspection the waste segregation areas was observed as being operational with pallets placed in a separate bin and recycling bins in place (see <b>Plate 4</b> ).
		(b) Investigate ways to minimise waste generated by the development;		<b>Suggest this is reported in the AEMR.</b>
		(c) Implement reasonable and feasible measures to minimise waste generated by the development;		<b>Suggest this is reported in the AEMR.</b>
		(d) Ensure irrigation of treated wastewater is undertaken in accordance with DECC's <i>Environmental Guideline for the Utilisation of Treated Effluent</i> ; and		Wastewater system viewed during site audit and working well.

Section	Sub-section	Requirement	Status	Compliance Status
		(e) Report on waste management and minimise in the AEMR, to the satisfaction of the Director-General.		Section 2.6 of the 07-08 Liddell AEMR states waste managed in accordance with the Waste Management Plan.
<b>ADDITIONAL PROCEDURES FOR AIR QUALITY &amp; NOISE MANAGEMENT</b>				
<b>Schedule 4</b>				
<b>Notification of Landowners</b>	<b>1.0</b>	By 31 October 2007, the Applicant shall notify the landowners of the land listed in Table 1 that they have the right to an independent review in accordance with the Condition 4 of Schedule 4 if they consider that the development is exceeding the relevant impact assessment criteria at any stage during the life of the development.	Compliant	Viewed letters dated 29/10/07 to 11 neighbours providing them a copy of the Development Consent and informing them of their right for an independent review at their discretion. No approaches (MH pers comms).
	<b>2.0</b>	If the results of the monitoring required in <a href="#">Schedule 3</a> identify that impacts generated by the development are greater than the impact assessment criteria in <a href="#">Schedule 3</a> , except where this is predicted in the EA, and except where a negotiated agreement has been entered into in relation to that impact, then the Applicant shall notify the Director-General and the affected landowners and/or existing or future tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the development is complying with the criteria in <a href="#">Schedule 3</a> .	Not Triggered	Results not greater than the impact assessment criteria outlined in Schedule 3.

Section	Sub-section	Requirement	Status	Compliance Status
	3.0	The Applicant shall develop a brochure to advise landowners and/or existing or future tenants (including tenants of mine owned properties) of the possible health and amenity impacts associated with exposure to particulate matter, to the satisfaction of the Director-General. The brochure shall be prepared in consultation with NSW Health, and be submitted to the Director-General by 31 January 2008.	Compliant	Viewed NSW Minerals Council brochure ' <i>Mine Dust and You</i> ' dated January 2006 and endorsed by NSW Health. Viewed letter to DoP dated 7/1/08 providing existing ' <i>Mine Dust and You</i> ' brochure that was endorsed by NSW Health. Viewed letter from DoP dated 15/1/08 approving the use of the existing brochure to inform existing and future tenants of the possible health related effects of particulate matter. Viewed letter dated 26/6/09 to residents of the properties Ravensworth Homestead, Hazeldene and Emerton (mine owned tenants) providing brochure.
		The Applicant shall review relevant human health studies and update this brochure every 3 years, to the satisfaction of the Director-General.		<b>Needs to be undertaken in late 2009 to meet future requirement.</b>
		The Applicant shall provide this brochure (and associated updates) to all landowners and/or existing or future tenants (including tenants of mine owned properties) of properties where:		
		(a) The predictions in the EA identify that the dust emissions generated by the development are likely to be greater than the air quality land acquisition criteria in <a href="#">Schedule 3</a> ; and		
		(b) Monitoring results identify that the mine is exceeding the air quality land acquisition criteria in <a href="#">Schedule 3</a> .		
<b>Independent Review</b>	4.0	If a landowner considers the development to be exceeding the impact assessment criteria in <a href="#">Schedule 3</a> , except where this is predicted in the EA, then he/she may ask the Director-General in writing for an independent review of the impacts of the development on his/her land.	Not Triggered	



Section	Sub-section	Requirement	Status	Compliance Status
		If the Director-General is satisfied that an independent review is warranted, the Applicant shall within 3 months of the Director-General advising that an independent review is warranted:		
		(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 development is complying with the relevant impact assessment criteria in <a href="#">Schedule 3</a> , and identify the source(s) and scale of any impact on the land, and the development's contribution to this impact; and		
		(c) Give the Director-General and landowner a copy of the independent review.		
	5.0	If the independent review determines that the development is complying with the relevant impact assessment criteria in <a href="#">Schedule 3</a> , then the Applicant may discontinue the independent review with the approval of the Director-General.	Not Triggered	
	6.0	If the independent review determines that the development is not complying with the relevant impact assessment criteria in <a href="#">Schedule 3</a> , and that the development is primarily responsible for this non-compliance, then the Applicant shall:	Not Triggered	
		(a) Take all reasonable and feasible measures, in consultation with the landowner, to ensure that the development complies with the relevant criteria; and		
		(b) Conduct further monitoring to determine whether these measures ensure compliance; or		
		(c) Secure a written agreement with the landowner to allow exceedances of the criteria in <a href="#">Schedule 3</a> , to the satisfaction of the Director-General.		

Section	Sub-section	Requirement	Status	Compliance Status
		If the additional monitoring referred to above subsequently determines that the development is complying with the relevant criteria in <a href="#">Schedule 3</a> , then the Applicant may discontinue the independent review with the approval of the Director-General.		
		If the Applicant is unable to finalise an agreement with the landowner, then the Applicant or landowner may refer the matter to the Director-General for resolution.		
		If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 4).		
		If the measures referred to in (a) do not achieve compliance in air quality and/or noise land acquisition criteria in <a href="#">Schedule 3</a> , and the Applicant cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then the Applicant shall, upon receiving a written request from the landowner, acquire all or part of the landowner's land in accordance with the procedures in condition 10-12 below.		
	<b>7.0</b>	If the independent review determines that the relevant criteria in <a href="#">Schedule 3</a> are being exceeded, but that more than one mine is responsible for this non-compliance, then the Applicant shall, together with the relevant mine/s:	Not Triggered	
		(a) Take all reasonable and feasible measures, in consultation with the landowner, to ensure that the relevant criteria are complied with; and		
		(b) Conduct further monitoring to determine whether these measures ensure compliance; or		
		(c) Secure a written agreement with the landowner and other relevant mines to allow exceedances of the criteria in <a href="#">Schedule 3</a> , to the satisfaction of the Director-General.		

Section	Sub-section	Requirement	Status	Compliance Status
		If the additional monitoring referred to above subsequently determines that the developments are complying with the relevant criteria in <a href="#">Schedule 3</a> , then the Applicant may discontinue the independent review with the approval of the Director-General.		
		If the Applicant is unable to finalise an agreement with landowner and/or other mine/s, then the Applicant or landowner may refer the matter to the Director-General for resolution.		
		If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process (see Appendix 4).		
		If the measures referred to in (a) do not achieve compliance with the air quality and/or noise land acquisition criteria in <a href="#">Schedule 3</a> , and the Applicant together with the relevant mine/s cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then upon receiving a written request from the landowner, the Applicant shall acquire all or part of the landowner's land on as equitable a basis as possible with the relevant mine/s, in accordance with the procedures in condition 10-12 below.		
	<b>8.0</b>	If the landowner disputes the results of the independent review, either the Applicant or the landowner may refer the matter to Director-General for resolution.	Not Triggered	
		If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.		
	<b>9.0</b>	If, following the Independent Dispute Resolution Process, the Director-General decides that the Applicant shall acquire all or part of the landowner's land, then the Applicant shall acquire this land in accordance with procedures in condition 10-12 below.	Not Triggered	

Section	Sub-section	Requirement	Status	Compliance Status
<b>Land Acquisition</b>	<b>10.0</b>	Within 3 months of receiving a written request from a landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on:	Not Triggered	
		(a) The current market value of the landowner's interest in the property at the date of this written request, as if the property as unaffected by the development the subject of the development application, having regard to the: <ul style="list-style-type: none"> <li>• Existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and</li> <li>• 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;</li> </ul>		
		(b) The reasonable costs associated with: <ul style="list-style-type: none"> <li>• Relocating within the Singleton or Muswellbrook local government area, or to any other local government area determined by the Director-General;</li> <li>• Obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and</li> </ul>		
		(c) Reasonable compensation for any disturbance caused by the land acquisition process.		
		However, if at the end of this period, the Applicant 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.		

Section	Sub-section	Requirement	Status	Compliance Status
		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 or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.		
		Within 14 days of receiving the independent valuer's determination, the Applicant shall make a written offer to purchase the land at a price not less than the independent valuer's determination.		
		If the landowner refuses to accept this offer within 6 months of the date of the Applicant's offer, the Applicant's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.		
	11.0	The Applicant shall bear the costs of any valuation or survey assessment requested by the independent valuer, or the Director-General and the costs of determination referred to above.	Not Triggered	
	12.0	If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant 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.	Not Triggered	
<b>Schedule 5</b>				
<b>ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING &amp; REPORTING</b>				
<b>Environmental Management Strategy</b>	1.0	The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Director-General. This strategy must be submitted to the Director-General by 31 January 2008, and:	Compliant	Viewed EMS. Viewed email from Umwelt dated 31/1/09 at 16.24 pm submitting the EMS to Howard Reed at DoP. Viewed letter from DoP approving EMS dated 4/1/09.

Section	Sub-section	Requirement	Status	Compliance Status
		(a) Provide the strategic context for environmental management of the development;		Section 2.0
		(b) Identify the statutory requirements that apply to the development;		Section 3.2
		(c) Describe in general how the environmental performance of the development would be monitored and managed;		Sections 3.0, 4.0 and 5.0
		(d) Describe the procedures that would be implemented to: <ul style="list-style-type: none"> <li>• Keep the local community and relevant agencies informed about the operation and environmental performance of the development;</li> <li>• Receive, handle, respond to, and record complaints;</li> <li>• Resolve any disputed that may arise during the course of the development;</li> <li>• Respond to any non-compliance;</li> <li>• Manage cumulative impacts; and</li> <li>• Respond to emergencies; and</li> </ul>		Sections 4.3, 4.4, 4.6, 4.7 and 5.3
		(e) Describe the role, responsibility, authority, and accountability of all key personnel involved in environmental management of the development.		Section 4.1
<b>Environmental Monitoring Program</b>	<b>2.0</b>	The Applicant shall prepare and implement an Environmental Monitoring Program for the development to the satisfaction of the Director-General. This program must be submitted to the Director-General by 31 January 2008, and consolidate the various monitoring requirements in <a href="#">Schedule 3</a> of this consent into a single document.	Compliant	Viewed EMP dated January 2008. Viewed email from Umwelt dated 31/1/09 at 16.24pm submitting the EMP to DoP. Viewed letter from DoP approving EMP dated 4/2/09.
<b>Annual Reporting</b>	<b>3.0</b>	Each year, the Applicant shall prepare an AEMR to the satisfaction of the Director-General. This report must:	Compliant	Viewed Liddell Colliery AEMR for the period 1 July 2007 to 30 June 2008. Viewed letter from DoP dated 21 January 2009 in response to the 07-08 AEMR (see Condition 29).

Section	Sub-section	Requirement	Status	Compliance Status
		(a) Identify the standards and performance measures that apply to the development;		Section 3.0
		(b) Describe the works carried out in the last 12 months;		Section 2.0
		(c) Describe the works that will be carried out in the next 12 months;		Section 6.1
		(d) Include a summary of the complaints received during the past year, and compare this to the complaints received in the previous 5 years;		Section 4.2
		(e) Include a summary of the monitoring results on the development during the past year,		Section 3.0
		(f) Include an analysis of these monitoring results against the relevant: <ul style="list-style-type: none"> <li>• Limits / criteria in this consent;</li> </ul>		Section 3.0
		<ul style="list-style-type: none"> <li>• Monitoring results from previous years; and</li> </ul>		Monitoring results are not provided for comparison against previous years. <b>Recommend including at least the previous years data as part of a table or graph in the next 08-09 AEMR.</b>
		<ul style="list-style-type: none"> <li>• Predictions in the EA noted in condition 2(i) of Schedule 3;</li> </ul>		<b>No predictions against EA. Need to comment in relation to predictions of the EA in the 08-09 AEMR.</b>
		(g) Identify any trends in the monitoring over the life of the development;		No trends identified or discussed. <b>Recommend including previous years monitoring results to identify potential trends.</b>
		(h) Identify and discuss any non-compliance during the previous year; and		Section 3.0
		(i) Describe what actions were, or are being, taken to ensure compliance.		Section 6.1 identifies targets for the next reporting period including continual performance review.

Section	Sub-section	Requirement	Status	Compliance Status
<b>Independent Environmental Audit</b>	<b>4.0</b>	Within 2 years of the approval of modification application 06_0327, and every 3 years thereafter, unless the Director-General directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:	Compliant	Modification to DA 305-11-01 dated 18 July 2007. Audit and site inspection was conducted on 1 July 2009.
		(a) Be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Director-General;		Letter & email from DoP endorsing Hansen Bailey and GSS to conduct the audit ( <b>Appendix B</b> ).
		(b) Assess the environmental performance of the development, and its effects on the surrounding environment;		This report
		(c) Assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;		This report
		(d) Review the adequacy of any strategy / plan / program required under this approval; and if necessary,		This report
		(e) Recommend measures or actions to improve the environmental performance of the development, and / or any strategy / plan / program required under this approval. Note: This audit team must be led by a suitably qualified auditor and include experts in the field of mine rehabilitation and mine closure.		This report. Audit was conducted by Dianne Munro (RABQSA International Certified Auditor 107622) and Jason Martin. The associated rehabilitation report was prepared by rehabilitation expert Mark Burns from GSS (see <b>Appendix D</b> ).
	<b>5.0</b>	Within 6 weeks of completing this audit, or as otherwise agreed by the Director-General, the Applicant shall submit a copy of the audit report to the Director-General with a response to any recommendations contained in the audit report.	Not Triggered	<b>Audit to be provided consistent with condition upon completion.</b>
	<b>6.0</b>	Within 3 months of submitting the audit report to the Director-General, the Applicant shall review and if necessary revise the strategies / plans / programs required under this approval, to the satisfaction of the Director-General.	Not Triggered	<b>Audit to be provided consistent with condition upon completion.</b>



Section	Sub-section	Requirement	Status	Compliance Status
<b>Community Consultative Committee</b>	<b>7.0</b>	The Applicant shall maintain a Community Consultative Committee for the development. This committee shall:	Compliant	Viewed CCC minutes for the meeting held on the 12/5/09.
		(a) Be comprised of: <ul style="list-style-type: none"> <li>• 2 representatives from the Applicant, including the person responsible for environmental management at the mine;</li> <li>• At least 1 representative from each of MSC and SSC (if available); and</li> <li>• At least 3 (or as otherwise agreed with the Director-General) representatives from the local community whose appointment has been approved by the Director-General;</li> </ul>		Two representatives from Liddell Colliery including MH the person responsible for environmental monitoring at the mine. Three community representatives have now been appointed. The representative from SSC, Colby Crane, was the independent chairperson however has now left the SSC and Liddell are waiting for the appointment of a replacement to fill the current vacancy. Section 4.1 of the 07-08 Liddell AEMR identifies CCC members. MH mentions that there had previously been a problem gaining community representatives, however now has three representatives.
		(b) Be chaired by an independent chairperson, whose appointment has been approved by the Director-General;		The representative from SSC, Colby Crane, was the independent chairperson however has now left the SSC and Liddell are waiting for the appointment of a replacement to fill the current vacancy by the time of the next CCC meeting (MH pers comms).
		(c) Meet at least twice during the construction phase for the new Liddell CHPP, and thereafter at least twice per year;		CCC met in October 2008 and May 2009. CCC meets twice annually (MH pers comms). Section 4.1 of the 07-08 Liddell AEMR identifies the CCC met twice, on 7 December 07 and 11 April 08

Section	Sub-section	Requirement	Status	Compliance Status
		(d) Review the Applicant's performance with respect to environmental management and community relations;		Section 4.1 of the 07-08 Liddell AEMR describes the issues discussed.
		(e) Undertake regular inspections of the mining operations;		Colby Crane attended field inspection after the May 2009 CCC meeting. Field inspections are available after each meeting (MH pers comms). Section 4.1 of the 07-08 Liddell AEMR states a site visit was conducted on both occasions for those interested.
		(f) Review community concerns or complaints about the mine operations, and the Applicant's complaints handling procedures;		Section 4.1 of the 07-08 Liddell AEMR identifies that community involvement was discussed. Section 6.2 of the May 2009 CCC minutes discusses a noise complaint received from a CCC representative and resident. MH explained how operations have been modified and Sentinex monitoring is conducted at her house with strategy to build a noise bund .
		(g) Provide advice to: <ul style="list-style-type: none"> <li>• The Applicant on improved environmental management and community relations, including the provision of information to the community and the identification of community initiatives to which the Applicant could contribute;</li> <li>• The Department regarding the conditions of this consent; and</li> <li>• The general community on the performance of the mine with respect to environmental management and community relations; and</li> </ul>		Some advice has been adopted including suggestion to upgrade the power supply at the local RFS situated at Hebden.
		(h) Be operated generally in accordance with any guidelines the Department may publish in regard to the operation of Community Consultative Committees for mining projects.		

Section	Sub-section	Requirement	Status	Compliance Status
		<i>Note: The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent.</i>		
	<b>8.0</b>	The Applicant shall, at its own expense:	Compliant	
		(a) Ensure that 2 of its representatives attend CCC meetings;		See Condition 7(a).
		(b) Provide the CCC with regular information on the environmental performance of the development;		MH provided a review of Liddell's operations including environmental performance.
		(c) Provide meeting facilities for the CCC;		Meeting held in Liddell Colliery's Boardroom (MH pers comms).
		(d) Arrange site inspections for the CCC, if necessary;		Minutes of the May CCC meeting gave the chance for a site visit. Section 4.1 of the 07-08 Liddell AEMR indicates that site visits were conducted at the conclusion of each meeting.
		(e) Respond to any advice or recommendations the CCC may have in relation to environmental management or community relations;		See Schedule 4 condition 7 (g).
		(f) Take minutes of the CCC meetings;		Viewed CCC minutes from May 09, October 08, April 2008 and December 2007.
		(g) Forward a copy of these minutes to the Director-General; and		Viewed letters to DoP dated 9 and 15 April 2008 providing CCC minutes from 11 April and 7 December 2007 respectively. Viewed letter to DoP dated 5 January 2009 and 5 August 2009 providing CCC meeting minutes from 28 October 2008 and 12 May 2009 respectively.
		(h) Put a copy these minutes on its website		Viewed website on 7/7/08 and most recent CCC minutes from May 2009 were available for viewing.

Section	Sub-section	Requirement	Status	Compliance Status
Access to Information	9.0	By 31 January 2008, the Applicant shall establish a website to provide access to information as outlined in Schedule 5 throughout the life of the mine.	Compliant	Viewed letter from G Farrar to DoP stating that the website was commissioned on 22/1/08. Viewed website <a href="http://www.liddellcoal.com.au/">http://www.liddellcoal.com.au/</a> on 30 June 2009.
	10.0	Within 3 months of the approval of any plan / strategy / program required under this consent (or any subsequent revision of these plan / strategies / programs), or the completion of the audits or AEMRs required under this consent, the Applicant shall:	Compliant	Viewed email dated 12 March from Xstrata's corporate office confirming that the website contained all plans, strategies and programs on 12 March 2009.
		(a) Provide a copy of the relevant document/s to the relevant agencies;		Viewed letter dated 15 April 2009 providing all revised management plans to CMA, EPA, DECC, DPI, DWE, MSC, NSW Heritage, RFS and SSC.
		(b) Ensure that a copy of the relevant document/s is made publicly available at the mine; and		Any plan, strategy, program, audit or AEMR is publicly available at the mine site (MH pers comms).
		(c) Put a copy of the relevant document/s on its website.		Viewed website on 30/6/09 and the following management plans were available for viewing: EMP, AQMP, NMP, ESAP, ACHMP, LMP, WMP and EMS. In addition the 06-07 and the 07-08 Liddell AEMR along with CCC minutes for previous six years, Liddell Colliery Community Newsletter and a Dust Health Brochure titled 'Mine Dust and You' were all available for viewing.
	11.0	During the life of the development, the Applicant shall:	Not Compliant	
		(a) Make a summary of monitoring results required under this consent publicly available at the mine and on its website; and		Monitoring results are available for public viewing as provided in the 2006/07 and 2007/08 AEMRs.

Section	Sub-section	Requirement	Status	Compliance Status
		(b) Update these results on a regular basis (at least every three months)		<b>Update noise, blast, air quality surface and groundwater results on website each 3 months.</b>
<b>APPENDIX 5</b>				
<b>STATEMENT OF COMMITMENTS</b>				
	<b>1.1</b>	The Applicant will carry out the existing operations and the Liddell Development Consent Modification project application generally in accordance with the: <ul style="list-style-type: none"> <li>Existing development consent (DA 305-11-01) as modified by the Part 3A project application and supporting EA, including the following commitments, for the Liddell Development Consent Modification project; and</li> <li>The Part 3A project application and supporting EA.</li> </ul>	Compliant	See Schedule 2 Condition 2.
<b>Period of Approval</b>	<b>1.2</b>	The project approval life will continue to be 21 years from the date of the current development consent (DA 305-11-01). Closure and rehabilitation activities may continue beyond the project approval period if undertaken in accordance with an approved Mining Operations Plan.	Not Triggered	The original DA 305-11-01 was approved on 20 November 2002. Mining operations may take place until 31 December 2023. See Schedule 2 Condition 5.
<b>Limits on Production</b>	<b>1.3</b>	ROM coal production from the Project shall not exceed 8 Mtpa. Up to 1.5 Mtpa of ROM coal produced from the Project can be delivered to the Cumnock No. 1 Colliery for processing.	Compliant	See Schedule 2 Condition 6.
	<b>1.4</b>	Processing of ROM coal at Liddell Coal Preparation Plant and Rail Loading Facility shall not 8Mtpa of ROM coal. This may include the processing of up to 1.5 Mtpa of coal from Cumnock No. 1 Colliery.	Compliant	See Schedule 2 Condition 6.

Section	Sub-section	Requirement	Status	Compliance Status
	1.5	<p>The proposed increased use of the Hunter Valley Rail Loop from the approved 127 loading days to a maximum of 220 loading days will not be undertaken until:</p> <ul style="list-style-type: none"> <li>A jointly commissioned study is completed by an independent consultant on the adequacy of, capacity of and access to, and safety of rail infrastructure impacted by Liddell Coal's increased use from its proposed extension, is completed to the satisfaction of the Director-General; and</li> <li>The outcomes of this joint study are implemented to the satisfaction of the Director-General</li> </ul>	Compliant	<p>Viewed daily train movements from July 2008 to June 2009. A total of 213 daily train movements on a total of 412 trains transporting 3,344,897 t of product coal to the Port of Newcastle.                      See Schedule 3 Condition 40.</p>
	1.6	<p>The proposed increased use of Pikes Gully Road for the transportation of ROM coal from the approved 0.3 Mtpa to 1.5 Mtpa will not be undertaken until:</p> <ul style="list-style-type: none"> <li>A jointly commissioned study is completed by an independent consultant on the adequacy of, capacity of and access to, and safety of, the shared road infrastructure impacted by Liddell Coal's increased use from its proposed extension, is completed to the satisfaction of the Director-General; and</li> <li>The outcomes of this completed joint study are implemented to the satisfaction of the Director-General</li> </ul>	Compliant	<p>See Schedule 3 Condition 41</p>
<b>Traffic and Transport</b>	1.7	<p>The Application shall ensure that all product coal from the Liddell CHPP is transported by rail.</p>	Compliant	<p>See Schedule 2 Condition 7.</p>
	1.8	<p>Liddell ROM coal processed at Cumnock No. 1 Colliery will be despatched by Cumnock No. 1 Colliery's approved method or be returned to Liddell for despatch via rail.</p>	Compliant	<p>See Schedule 2 Condition 6.</p>
	1.9	<p>Up to 0.5 Mtpa of tailings material will be transported via road to Macquarie Generation power stations in the local area.</p>	Compliant	<p>See Schedule 2 Condition 6.</p>

Section	Sub-section	Requirement	Status	Compliance Status
	1.10	<p>Liddell will facilitate the installation of appropriate street lighting at the intersection of the Old New England Highway and New England Highway in consultation with the RTA as part of the Construction Traffic Management Plan.</p> <p>Liddell's financial contribution to the installation of street lighting at the intersection of the Old New England Highway and New England Highway will be proportional to the traffic contribution of other road users and will be determined in consultation with the RTA and Singleton Council and to the satisfaction of the Director General.</p>	<p><b>Not Compliant</b></p>	<p>Viewed letter from RTA dated 15 October 2007 providing response to the Construction Traffic Management Plan. RTA required that at a minimum street lighting and any non-compliant shoulder widening should be constructed at the Old New England Highway / New England highway.</p> <p>Viewed Technical report completed by Worley Parsons, Intersection Old New England Highway and New England Highway, Liddell NSW dated 25/2/09 which found that the intersection generally complies with the RTA Road Design Guide and that the current road design is not a hazard to road users and that the current road design is not a hazard to road users and concluded that lighting along with a right hand acceleration lane was not required. No evidence of any requirement or necessity to undertake any work; nor that the existing situation is dangerous or a hazard to any vehicle using either of the subject road carriageways was identified.</p> <p><b>No correspondence available from SSC or DoP view at time of audit. Report should be provided to SSC and DoP for approval to ensure compliance with this condition.</b></p>

Section	Sub-section	Requirement	Status	Compliance Status
<b>Environmental Management Plans and Strategies</b>	1.11	Key commitments from the following existing management plans will be integrated into the Liddell Environmental Management System as operational procedures: <ul style="list-style-type: none"> <li>• Spontaneous Combustion Management Plan</li> <li>• Lighting Management Plan</li> <li>• Public Road Management Plan</li> </ul>		Viewed Spontaneous Combustion Management Plan for Liddell Open Cut Mine dated 15 April 2009. Viewed HVE Moving and Setting Up Light Plants dated 20 November 2008. . Viewed Liddell Coal Operations – Public Road Management Plan dated August 2003.
	1.12	The Flora and Fauna Management Plan, Bushfire Management Plan, Landscape and Revegetation Management Plan and Land Management Plan will be integrated into a single Biodiversity and Land Management Plan.	Compliant	Landscape Management Plan has been developed (January 2009) and provides a single document incorporating all the plans into a single document.
<b>Heritage Assessment, Management and Monitoring</b>		Liddell will update the Aboriginal Cultural Heritage Management Plan to include the outcomes provided in <b>Section 6.6</b> of the EA.	Compliant	Viewed Liddell Aboriginal Cultural Heritage Management Plan (ACHMP) dated January 2008. Has been revised to incorporate outcomes from the EA.
	1.13	The Aboriginal Cultural Heritage Management Plan will be revised in consultation with the relevant Aboriginal stakeholders and the DECC to formulate a strategy to mitigate and manage the impacts of the proposal on Aboriginal cultural heritage. The plan will include procedures for ongoing Aboriginal consultation and involvement, management of recorded sites within the investigation area, further archaeological investigation prior to mining, management of previously unrecorded sites (including skeletal remains) and the management of artefacts collected / salvaged from the sites to be impacted by works for this project. The plan will be regularly reviewed to establish that it is functioning as proposed and to the standard required by DECC.	Compliant	See Schedule 3 Condition 35 Section 3.15.3 of the 07-08 Liddell AEMR indicates that the ACHMP was approved in consultation with the list of Aboriginal Stakeholders provided. Appendix 1 of ACHMP provides all correspondence to relevant Aboriginal stakeholders and Section 4.0 of ACHMP provides information on Aboriginal stakeholder consultation. The ACHMP will be reviewed every three years or following any modification to DA 305-11-01.



Section	Sub-section	Requirement	Status	Compliance Status
	1.14	Liddell will seek Section 90 Consent under the National Parks and Wildlife Act 1974 for LID 2, LID3, LID4, LID5, LID33, LID 23, LID24, LID25, LID27, SP1, SP2, SP3, and Brayshaw B. The section 90 consent Application process will be undertaken in consultation with the Aboriginal stakeholder groups and the DECC.	Compliant	See Schedule 3 Condition 34
	1.15	Unless the relevant permit is in place, if, during the course of evacuation, Liddell discovers, or disturbs archaeological relics, all work likely to affect the material must cease immediately and the Heritage Office consulted about the appropriate course of action prior to recommencement of work to the satisfaction of the Director-General.	Not Triggered	
Site Rehabilitation	1.16	Liddell will develop a Final Void Management Plan as part of the Landscape Management Plan and review and update the Final Void Management Plan at least five years prior to the cessation of mining.	Compliant	See Schedule 3 Condition 30 and 32
Ecological Management	1.17	Liddell will undertake habitat enhancement actions at Dam 3 (where achievable) and the Mountain Blok Dam as described in <b>Section 6.5.3.3</b> of the EA to provide potential habitat for the blue-billed duck. This will include dam design to enable a maximum water depth of five (5) metres to be maintained over at least half of the maximum surface area of the dams.	Compliant	See Schedule 3 Condition 28
	1.18	Liddell will engage a suitably qualified ecologist to advise on the wetland habitat of the blue-billed duck and develop a strategy (for implementation by Liddell) that will provide an acceptable intensity and extent of coverage of approximate vegetation species. The success of emergent vegetation establishment and the need for additional plantings of emergent plant species will be assessed as part of the monitoring program listed in Section 6.5.3.3 of the EA.	Compliant	See Schedule 3 Condition 28
	1.19	Liddell will incorporate the management outcomes provided in Section 6.5 of this EA into the Biodiversity and Land Management Plan.	Compliant	See Schedule 3 Condition 30

Section	Sub-section	Requirement	Status	Compliance Status
	1.20	The appointed ecologist will select the appropriate nature and species of tree, the height and aspect of nest box installation sites (which may vary across the target species) and the spacing between nest boxes. The number and design of the nest boxes required will be determined by the appointed ecologist during clearing activities following assessment of the number and type of tree hollows removed during clearing.	Compliant	Nest boxes have been installed (MH pers comms).
<b>Relocation of Services</b>	1.21	Liddell will consult with Energy Australia as to the final alignment of the proposed electrical transmission lines.	Compliant	Viewed preliminary plan for the easement of electricity transmission lines dated 27 April 2004. Viewed dxf. of the easement.
	1.22	Liddell will to the satisfaction of Energy Australia and at its own cost undertake the relocation and/or construction of any electrical transmission line which are required as a result of the modifications outlined in the EA.	Compliant	Viewed preliminary plan for the easement of electricity transmission lines dated 27 April 2004. Viewed dxf. of the easement.
	1.23	Liddell will revise the existing protocol with Telstra to incorporate any changes as a result of the modifications outlined in the EA.	Not Triggered	The telephone lines on site are Liddell owned and are not subject to Telstra requirements (MH pers comms).
<b>Waste Management</b>	1.24	Liddell will continue with implementation of the current waste management system.	Compliant	See Schedule 3 Condition 47
<b>Air Quality</b>	1.25	Ongoing air quality controls will include : <ul style="list-style-type: none"> <li>Disturbance of only the minimum area necessary for construction. Landscape / rehabilitate completed areas as soon as practicable after the completion of construction works.</li> </ul>	Compliant	In accordance with the <i>Rehabilitation Management Plan January 2008</i> and <i>Airborne Dust Management Plan</i> dated 14 May 2009.
		<ul style="list-style-type: none"> <li>Maintain coal-handling areas / stockpiles in a moist condition to minimise wind-blown and traffic-generated dust.</li> </ul>	Compliant	In accordance with the <i>Rehabilitation Management Plan January 2008</i>

Section	Sub-section	Requirement	Status	Compliance Status
		<ul style="list-style-type: none"> <li>Provide water sprays on ROM coal stockpiles and use sprays to reduce airborne dust, as required.</li> </ul>	Compliant	Conducted in accordance with the HVE <i>Airborne Dust Management Plan</i> (ADMP) Table 5.2 describes the use of water carts on ROM stockpiles for the prevention of airborne dust. <b>Water sprays were not visibly working on the ROM stockpile areas on the day of the audit although no visible dust was being generated from them.</b>
		<ul style="list-style-type: none"> <li>All active roads and trafficked areas will be watered using water carts to minimise the generation of dust as required and/or where practicable agglomeration agents will be utilised to minimise dust emissions.</li> </ul>	Compliant	Conducted in accordance with the ADMP applies to all areas excluding the Liddell CHPP. Viewed active water cart on the day of site inspection on haul roads to CHPP (see <b>Plate 5</b> ) and obviously watered roads were observed along Lakeside Drive.
		<ul style="list-style-type: none"> <li>All unsealed roads will be surfaced with selected hard, non-friable material as required to reduce dust generation.</li> </ul>	Compliant	Observed roads to be hard on day of site inspection.
		<ul style="list-style-type: none"> <li>All roads will have edges clearly defined with marker posts or equivalent to control their locations and prevent vehicle deviations.</li> </ul>	Compliant	Roads were observed to have marker posts during site inspection.
		<ul style="list-style-type: none"> <li>Obsolete roads will be ripped and revegetated.</li> </ul>	Not Triggered	
		<ul style="list-style-type: none"> <li>Development of construction roads will be limited and the locations of these will be clearly defined as required.</li> </ul>	Compliant	Only roads necessary will be constructed (MH pers comms).
		<ul style="list-style-type: none"> <li>Tracks used by topsoil stripping equipment during their loading and unloading cycle will be watered.</li> </ul>	Compliant	Confirmed occurs although not observed one day of audit (MH pers comms).

Section	Sub-section	Requirement	Status	Compliance Status
		<ul style="list-style-type: none"> <li>Long term topsoil stockpiles, not planned to be used for a period exceeding twelve months, will be revegetated.</li> </ul>	<b>Not Compliant</b>	See rehabilitation comments in <b>Section 4</b> .
		<ul style="list-style-type: none"> <li>Spoil excavation or tipping activities will be relocated or temporarily halted, where necessary, during periods of high wind.</li> </ul>	Compliant	Confirmed occurs although not observed on day of audit (MH pers comms).
		<ul style="list-style-type: none"> <li>Overburden emplacement areas will be progressively rehabilitated, where practicable, and seeded to minimise dust emissions.</li> </ul>	<b>Not Compliant</b>	See rehabilitation comments in <b>Section 4</b> .
		<ul style="list-style-type: none"> <li>During hot, dry or windy conditions drill patterns will be watered as required.</li> </ul>	Compliant	Confirmed occurs although not observed on day of audit (MH pers comms).
		<ul style="list-style-type: none"> <li>Dust aprons will be lowered during drilling.</li> </ul>	Compliant	During site visit aprons appeared to be lowered during drilling.
		<ul style="list-style-type: none"> <li>Drills will be equipped with dust extraction cyclones and water injection / spray systems.</li> </ul>	Compliant	Conducted in accordance with the ADMP. Table 5.2 describes the use of dust extraction cyclones or water injection spray systems are used.
		<ul style="list-style-type: none"> <li>Water injection or dust suppression will be used on drills when high levels of dust are being generated.</li> </ul>	Compliant	Conducted in accordance with the ADMP. Section 5.1 describes down hole and under deck water sprays are used on drill rigs to prevent dust creation.
		<ul style="list-style-type: none"> <li>Adequate stemming will be used at all times.</li> </ul>	Compliant	No blast complaints received.
		<ul style="list-style-type: none"> <li>All equipment will be maintained in a good working order to limit exhaust fumes.</li> </ul>	Compliant	Field visit showed limited fumes at time of audit.
		<ul style="list-style-type: none"> <li>Controls used to manage spontaneous combustion will be integrated with operational procedures.</li> </ul>	Compliant	Viewed Spontaneous Combustion Management Plan for Liddell Open Cut Mine.
		<ul style="list-style-type: none"> <li>The existing Liddell Colliery Spontaneous Combustion Management Plan will be integrated in to the Liddell environmental management system as a procedure and implemented and updated, as required.</li> </ul>	Compliant	Viewed Spontaneous Combustion Management Plan for Liddell Open Cut Mine. HVE update for each high risk mining block (MH pers comms)..

Section	Sub-section	Requirement	Status	Compliance Status
		<ul style="list-style-type: none"> <li>All construction vehicle operators will be made aware by signage (where applicable) and the induction process of speed limits that apply at Liddell Colliery.</li> </ul>	Compliant	Speed limits visible on roads around operation.
		<ul style="list-style-type: none"> <li>Dust screens and stabilising agents will be used on construction material stockpiles containing fine material as required.</li> </ul>	Not Triggered	No construction material stockpiles containing fine material present (MH pers comms).
		<ul style="list-style-type: none"> <li>Excess mud will be removed from vehicles before entering public roads from the site.</li> </ul>	Compliant	During an inspection of workshop and lay down area, a washdown bay for both heavy and light vehicles was observed to be operational (see <b>Plate 2</b> ).
	1.26	Liddell will continue to monitor dust concentration and dust deposition through the existing air quality monitoring system comprising four (4) High Volume Air Samplers and ten (10) dust depositional gauges.	Compliant	See Schedule 3 Conditions 15 – 19.
	1.27	All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises will be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.	Complaint	Conducted in accordance with the HVE <i>Airborne Dust Management Plan</i> .
<b>NOISE</b>				
<b>Noise Impact Assessment Criteria</b>	1.28	Where it can be demonstrated that direct measurement of noise from the premises is impractical, alternative means of determining compliance outlined in Chapter 11 of the NSW Industrial Noise Policy may be utilised.	Not Triggered	
<b>Noise Management</b>	1.29	Liddell Coal will develop a Noise Monitoring Program to replace the existing Noise Management Plan in relation to the noise assessment contained in <b>Section 6.3</b> and <b>Appendix 5</b> of the EA.	Compliant	See Schedule 3 Condition 5.
	1.30	Liddell will continue to undertake bi-annual noise monitoring in accordance with the approved Noise Management Program at five locations including residences 2, 3, 6, 17 and 23.	Compliant	See Schedule 3 Condition 5.

Section	Sub-section	Requirement	Status	Compliance Status
<b>Blasting</b>	1.31	Liddell will develop a Blast and Vibration Monitoring Program in place of the existing Blast and Vibration Management Plan. This program includes a regular monitoring program to assess potential blast impacts at critical structures. These management measures will be maintained and regularly reviewed throughout the proposed mining operation.	Compliant	Blast & Vibration within Monitoring Program. Viewed HVE Drill and Blast Work Procedure, reviewed in November 2008.
		If Liddell Coal has negotiated a written blast overpressure and ground vibration agreement with any landowner and a copy of this agreement has been forwarded to DoP and DECC, the relevant blast overpressure and ground vibration criteria levels from the project may exceed the relevant criteria, in accordance with the agreement.	Not Triggered	
	1.32	Liddell will continue to monitor ground vibration levels at the Chain of Ponds Hotel and continue to undertake further assessment to determine appropriate vibration criteria.	Compliant	See Schedule 3 Condition 8
	1.33	Where required during construction phase for development relating to application No. 06-0327 sediment and erosion controls will be designed and implemented in accordance with Managing Stormwater: Soils and Construction (Landcom, 2004).	Compliant	No incidents during construction (MH pers comms).
	1.34	Liddell will develop a revised Water Management Plan to incorporate existing mining operations with development relating to application No. 06-0327.	Compliant	See Schedule 3 Condition 23
	1.35	Soil and water management controls will minimise soil erosion and discharge of sediment and other pollutants to lands and/or waters during construction activities relating to application No. 06-0327 in accordance with the requirements outlined in Managing Urban Stormwater: Soils and Construction (available from the Department of Housing).	Compliant	

Section	Sub-section	Requirement	Status	Compliance Status
	1.36	Following the construction phase of development relating to application No. 06-0327, stormwater management measures will be implemented to mitigate the impacts of stormwater run-off from and within the facilities area in a manner that is consistent with the Stormwater Management Plan for the catchment. Where a Stormwater Management Plan has not yet been prepared the measures will be consistent with the guidance contained in Managing Urban Stormwater: Council Handbook (available from the DECC).	Compliant	<b>Note comments in relation to rehabilitation from GSS.</b>
<b>Pollution of Waters</b>	1.37	Except as may be expressly provided by a licence issued under the Protection of Environment Operations Act 1997 in relation to the development, section 120 of the Protection of the Environment Operations Act 1997 must be complied with in and in connection with the carrying out of the development.	Compliant	See Table 2 EPL 2094
	1.38	Modifications to dam 13B will prevent external catchment runoff draining into the dam.	Not Triggered	Dam construction not commenced (MH pers comms).

## 2.2 OTHER LICENCES & APPROVALS

**Table 3** lists all of the other licences and approvals that Liddell requires and provides comments in relation to the status of each.

**Table 3  
 Compliance Against Other Licences & Approvals**

Ref	Name	Detail	Expiry	Status	Compliance Status
1	Mining Lease 1597	For the purpose of prospecting and mining for coal over approximately 2,065 ha.	05/11/2028	<b>Not Compliant</b>	<p>Viewed Security Certificate for Xstrata Coal Pty Limited on behalf of Liddell Tenements Pty Limited dated 5 October 2007.</p> <p>Liddell operated primarily under this Mining Lease approved November 2007.</p> <p>Condition 1 - Viewed letter dated 31/1/08 to Glendell Tenants, MSC, SC, TransGrid, Australian Rail Track Corporation, Energy Australia, Lake Liddell Trust and Department of Lands providing notification of the consolidated ML1597 on 5 November 2007.</p> <p>Condition 5 requires the AEMR to provide the status of rehabilitation in relation to predictions made in the MOP, <b>Section 5.2 of the 07-08 AEMR reports rehabilitation is currently behind the schedule outlined in the MOP.</b></p> <p>Condition 9 (MH confirmed) at least 83 people are employed and that expenditure on operations is no less than \$1,452,500 pa.</p> <p>Condition 17 no evidence was available at time of audit to confirm that <b>DECC was notified at least 28 days prior to the commencement of exploratory drilling.</b></p> <p>Condition 29A Mining has occurred within the notification of the dams subject to conditions below.</p> <p>Liddell Cooing Dam - Viewed letter from DPI dated 7 November 2008 endorsing the requirements imposed by the DSC within the Liddell Notification Area subject to conditions; approval covers area within the Liddell Cooling Water Dam but is exclusive of the Liddell 1 approval. Viewed letter from DSC approving the minor variation to extend the open cut mining area, and to vary the monitoring locations in the Notification Area of Liddell Cooling Water Dam (Lake Liddell) dated 2 November 1999. This approval gives permission to mine within 1 km of the spillway.</p>



Ref	Name	Detail	Expiry	Status	Compliance Status
					<p>Antiene Lease Tailings Dam - Viewed letter dated 25 December 2008 from DPI agreeing with the DSC regard the approval to mine within the Antiene Lease Tailings Dam subject to conditions.</p> <p>Chain of Ponds 13B not yet constructed.</p> <p><b>29B Liddell is unable to Demonstrate that 12 months notice was provided to the Minister for Liddell Cooling Water Dam and Antiene Lease Tailings Dam. .</b></p> <p>Condition 30 no mining is conducted within 30 m either side of the easement of the Main Northern Railway (MH pers comms).</p> <p>Condition 32 Underground water reserves are estimated greater than 2,000 mega litres (MH pers comms).</p>
2	Mining Lease 1313	Prospecting and mining for coal over an approximately 379 ha.	13/10/2023	Not Triggered	No activity occurring under this lease. Antiene Lease Tailings Dam notification area under ML1313. All mining within this notification area was undertaken under ML1597.
3	Environmental Protection Licence 2094	Issued under POEO Act 1997 for Coal Mining at Liddell Coal Operations	1 July	<b>Not Compliant</b>	<p>A2.1: The EPL applies to Liddell Colliery Holding. <b>Recommend changing to EA Boundary for consistency.</b></p> <p>P1.1 Monitoring conducted at representative areas of residents and meteorological conditions representative of prevailing conditions. <b>Suggest rationalisation of dust, blast and noise locations in consultation with DECC to ensure closest private residence monitored.</b></p> <p>P1.3 HRSTS discharge monitoring location provided on a figure shown spillway of Dam 13.</p> <p>L3.3 and L3.4 Confirmation of discharge quantities during discharge did not exceed 100 mega litres/day is currently being prepared (MH pers comms).</p> <p>L7 Blasting is conducted as per Development Consent Schedule 3 Conditions 6 – 15.</p> <p>O2 Equipment is maintained in proper and efficient condition (MH pers comms).</p> <p>O3 Dust on the day of the site inspection (1 July 2009) was widespread in the Hunter Valley due to north-west winds bringing in particulate matter from dry western areas.</p> <p>Liddell was observed as having adequate dust measures in place and water carts were observed in use and roads were watered.</p> <p>M1.2 Viewed monitoring data dating back to 2005 within previous AEMRs. M4 Viewed</p>

Ref	Name	Detail	Expiry	Status	Compliance Status
					<p>record of complaints and all contained detailed records of the complaint and actions arising. M5 Liddell operates a complaints handling hotline as per consent conditions Schedule 5 Conditions 1 and 3.</p> <p><b>M6.3 On 5 – 7 June 08 water was discharged from Discharge Point 2 discharge flow measurements were found to lie outside the 10% margin of error under the HRSTS due to low battery readings. Results were gathered using manual readings and photographic records taken, DWE was informed and a detailed report was prepared by a HRSTS maintenance contractor with results indicating was within limits specified in EPL 2094. As a result site data logger was reprogrammed to log battery voltage and 240 volt mains power supply was connected.</b></p> <p>M7.2 Blast monitoring is conducted as per Schedule 3 Conditions 6 to 15. Blast monitoring is conducted at the 'Scrivens' property however not lived in, <b>recommend moving to nearest habited residence. Four monitoring occasions in 07-08 where blast monitoring was not conducted due to SMS failure.</b> New blast monitoring system installed in June 2008 and the removal of SMS transmission to commence monitoring.</p> <p>M8 Meteorological monitoring samples all the parameters specified in Point 4 (MH pers comms).</p> <p>R1.1 Viewed EPL 2094 Annual Return from 30 June 2007 to 29 June 2008.</p> <p>R5.1 Viewed letter and accompanying Annual HRSTS Discharge Record Sheet to EPA dated 22 August 2008. Report details the discharge event from 5-7 June 2008 from Dam 13 as described in M6.3.</p> <p>R6.1 Viewed EPL 2094 Annual Return from 30 June 2007 to 29 June 2008 with Blast report attached as an appendix.</p>
4	Water Licence 20AL201227	Regulated River (High Security)	1/07/06	Compliant	Viewed document dated 12 October 2005 from DNR stating that licence 20SL044239 had been replaced by 20SL201227.
5	Water Licence 20BL020923	Bore (Irrigation)	Perpetuity	Compliant	Licence limit 5 ML. Volume extracted for 2007-08 was 0.0 ML. Volume extracted 2008-09 was 0 ML.

Ref	Name	Detail	Expiry	Status	Compliance Status
6	Water Licence 20BL020924	Bore (Irrigation)	Perpetuity	Compliant	Licence limit 5 ML. Volume extracted for 2007-08 was 0.0 ML. Total volume extracted 2008/2009 0.0 ML.
7	Water Licence 20BL168053	Bore (Test Bore)	Perpetuity	N/A	Extraction volumes are not required on test bores where samples are only taken for monitoring purposes.
8	Water Licence 20BL168060	Bore (Industrial)	21/09/2009	Compliant	Licence limit 5,500 ML. Total water pumped in 2008/2009 into this bore was 28.52ML. Total volume extracted for 2007/08 was 246.65 ML.
9	Water Licence 20BL168061	Bore (Industrial)	21/09/2009	Compliant	Licence limit 1,000 ML. Total volume extracted for 2007/08 was 0.0 ML. Total volume extracted for 2008/2009 was 0.0ML
10	Water Licence 20BL168062	Bore (Industrial)	21/09/2009	Compliant	Licence limit 6,000 ML. Total volume extracted for 2008/2009 was 2516.57 ML. Total volume extracted for 2007/08 was 1,317.52 ML.
11	Water Licence 20BL168063	Bore (Industrial)	21/09/2009	Compliant	Licence limit 6,000 ML. Total volume extracted for 2007/08 and 2008/09 was 0.0 ML.
12	Water Licence 20BL168064	Monitoring Bore	Perpetuity	N/A	Extraction volumes are not required on test bores where samples are only taken for monitoring purposes.
13	Water Licence 20BL168065	Monitoring Bore	Perpetuity	Compliant	The 2007/2008 AEMR reports that the licence is now redundant due to mining operations. Extraction volumes are not required on test bores where samples are only taken for monitoring purposes.
14	Water Licence 20BL168066	Monitoring Bore	Perpetuity	Compliant	Extraction volumes are not required on test bores where samples are only taken for monitoring purposes.
15	Water Licence 20BL168209	Groundwater		Compliant	Licence limit 2,500 ML. Total volume extracted for 2008/2009 was 836.27 ML. Total volume extracted for 2007/08 was 252.45 ML.
16	Water Licence 20BL171092	Monitoring Bore	Perpetuity	Compliant	Extraction volumes are not required on test bores where samples are only taken for monitoring purposes.
17	Water Licence	Monitoring Bore	Perpetuity	Compliant	Extraction volumes are not required on test bores where samples are only taken for

Ref	Name	Detail	Expiry	Status	Compliance Status
	20BL171092				monitoring purposes.
18	Water Licence 20SL034454	Irrigation (Centrifugal Pump)	05/04/2012	Compliant	Annual Allocation 50 ML. No irrigation was undertaken during 07/08 and 08/09.
19	Water Licence 20SL038644	Industrial (Centrifugal Pump)	05/11/2006	Compliant	Annual Allocation 100 ML. Total volume extracted for 2007/08 and 2008/09 was 0.0 ML.
20	Water Licence 20WA200742	Pumping Plant	21/01/2019	Compliant	Was previously Licence 20SL060513 now superseded by the current licence. Annual Allocation is for 20ML. Total volume extracted for 2007/08 and 2008/09 was 0.0 ML.
21	Water Licence 20BL169544	Bore (Mining)	23/02/2010	Compliant	Licence limit 2,500 ML. Total volume extracted for 2008/2009 was 446.01 ML. Total volume extracted for 2007/08 was 0 ML.
22	Fixed Radiation Gauge Reg #1258	Cs-137 Serial Number 9127GG	23/06/2010	Compliant	Viewed radiation gauge inspections reports for the 13 May 2008 and 23 January 2009 conducted by the EPA. Reports met DECC requirements at the time of inspection. Viewed letter from Liddell to DECC dated 3 December 2008 providing notification to dispose of Radiation Gauge 1258 and 1262. Viewed response from DECC dated 5 February 2009 providing approval to dispose of Radiation Gauge 1258 and 1262.
23	Fixed Radiation Gauge Reg #1259	Am-241 Serial Number 2338LG	23/06/2010	Compliant	Liddell has radiation officers under the Radiation Control Act 1990 that provide training in relation to radiation and monitoring of radiation gauges is conducted every six months (MH pers comms). Viewed radiation gauge inspections reports for the 13 May 2008, 5 November 2008, 23 January 2009 conducted by the EPA. All reports met DECC requirements at the time of inspection.
24	Fixed Radiation Gauge Reg #1260	Cs-137 Serial Number FL542	23/06/2010	Compliant	Viewed Radiation Survey Report dated 12 June 2007 conducted by R&X Nuclear Services Pty Ltd stating that Radiation Gauge 1260 was compliant with the code of practice and were in satisfactory condition. Viewed radiation gauge inspections reports for the 13 May 2008 and 23 January 2009 conducted by the EPA. Reports met DECC requirements at the time of inspection.
25	Fixed Radiation Gauge Reg #1262	Cs-137 Serial Number 9123GG	23/06/2010	Compliant	Viewed inspections reports for 13/5/08 and 23/1/09 conducted by the EPA. Reports met DECC requirements at the time of inspection. Viewed letter from Liddell to DECC dated 3/12/08 providing notification to dispose of Radiation Gauge 1258 and 1262. Viewed response from DECC dated 5/2/09 providing approval to dispose of Gauge 1258 and 1262.

Ref	Name	Detail	Expiry	Status	Compliance Status
26	Licence to Sell / Possess No 28136	Licence to sell / possess radioactive substances	24/06/2011	Compliant	Viewed Licence to Sell / Possess No 28136.
27	Section 87 Aboriginal Heritage Impact Permit #2741	Permit to disturb or move Aboriginal items		Compliant	Was granted on 14 August 2007 in relation to the land to be disturbed by the construction of the office and workshop complex, including site LID33. A salvage collection was conducted in this area on 17 August 2007 and a total of four artefacts were salvaged. Viewed letter to DECC from Umwelt dated 18 March 2009 to satisfy Condition 25 of the AHIP. The report summarises the consultation, methodology and results of the salvage undertaken.
28	Section 87 Aboriginal Heritage Impact Permit #2883	Permit to disturb or move Aboriginal items	08/02/2010	Compliant	Was granted to enable test excavation within Bayswater Creek site area. Viewed letter from DEC dated 18 April 2008 stating that the permit 2883 involved the archaeological investigations of PA1 and PA2. The excavations revealed no significant sites. A high density of sites within PA1 was identified and the salvage conducted on 19 March to 3 April focused on this area. A total of 747 stone artefacts were discovered from PA1 and 17 from PA2. Viewed letter from DECC dated 20 March 2008 stating that a report must be provided to DECC within 18 months of the work being conducted. <b>Recommend salvage report be finalised and provided to DECC by September 2009.</b>
29	Section 90 Aboriginal Heritage Impact Permit #2896	Permit to disturb or move Aboriginal items	18/03/2010	Compliant	Approval from DECC on 18 March 2008. Concurrent with the test excavations conducted under AHIP#2883 a series of salvage activities were undertaken under AHIP#2896 from 19 March to the 3 April 2008. This allowed the sub-surface salvage within PA1 and deconstruction of PA2 without further sub-surface salvage. Resulting in the discovery of a number of stone artefacts. Viewed letter from Liddell Operations to DECC dated 14 April 2008 providing a summary of the recovery of sites PA1 and PA2 to allow for a variation to AHIP 2896 for a final salvage of PA1 and PA2. Liddell requested a variation to allow for the subsurface salvage of Brayshaw B in PA1 and deconstruction of Brayshaw A in PA2 without subsurface salvage using the methodology provided on 9 January 2008. Viewed letter dated 18 April 2008 from DECC providing a variation to AHIP#2896. The variation to AHIP#2896 to enable surface collection of LHP1 on 17 August 2008. The surface collection was conducted on 22 September 2008. Condition 26 states that the report must be provided in triplicate to DECC within 18 months of completion of the project. <b>Recommend salvage report be provided to DECC by September 2009.</b>

### 3 DISCUSSION

This section provides a discussion on the identified non-compliances and status against DA 305-11-01, its supporting documents, management plans and other licences approvals available for review at the time of the audit. Each is discussed further below.

#### 3.1 DEVELOPMENT CONSENT

The non-compliances in relation to DA 305-11-01 and its EIS, EA, SEE and other supporting documents as provided in **Section 2** are summarised below:

- Schedule 2
  - Condition 2 – Two supporting documents were not available to view at the time of the audit to confirm compliance ;and
  - Condition 11 –Section 94 contributions to council are still in the process of being negotiated but not resolved by the required date. A Memorandum of Understanding with MSC is currently being progressed and Xstrata Corporate has attended numerous meetings to resolve this issue with MSC and SSC.
- Schedule 3
  - Condition 12 – no evidence was available at the time of the audit that landowners and occupiers within 2 km of the ‘approved mining footprint’ as shown on Figure 1.3 of the EA were provided information in relation to their entitlement to register for a blast schedule at Liddell;
  - Condition 21 – A battery failed which affecting monitoring of a discharge event under the HRSTS;
  - Condition 29 – rehabilitation of the site is currently not to the satisfaction of DoP as described in **Section 2** of this audit;
  - Condition 36 – Although a photographic record of the Chain of Ponds Hotel was sent to DoP, no approval had been received as at the date of the audit; and
  - Condition 39 – Although a Traffic Management Plan was forwarded to RTA and approved as such, approval was not received from MSC and SSC to view at the date of the audit.
- Schedule 5 Environmental Management, Monitoring, Auditing & Reporting
  - Condition 11 – monitoring results were not available on a three monthly basis on the Liddell website at the date of the audit.
- Appendix 5 Statement of Commitments
  - Statement 1.10 – No correspondence available from SSC or DoP in relation to acceptance of the Worley report in relation to street lighting at the intersection of the New England Highway to view at the time of the audit.

### 3.2 OTHER LICENCES AND APPROVALS

**Table 3** lists the non compliances identified against Liddell's other licences and approvals. A number of non compliances against the EPL and other licences and approvals which have been self-reported and/or reported in the Annual Returns and AEMR's and include:

- Mining Leases
  - Rehabilitation currently behind schedule to that presented in MOP; and
  - Notifications in relation to drilling not always completed.
- Environment Protection Licence 2094
  - M6.3 water discharge not in accordance with HRSTS due to low battery. Full reporting to DECC occurred with no follow-up action required.

### 3.3 MANAGEMENT PLANS / PROGRAMS / STRATEGIES

Liddell is required to complete the following management plans/strategies under DA305-11-01:

- Environmental Management Strategy;
- Landscape Management Plan;
- Aboriginal Cultural Heritage Management Plan;
- Water Management Plan;
- Environmental Monitoring Program; and
- Energy Savings Action Plan.

The Rehabilitation Management Plan should be reviewed to incorporate the recommendations of GSSE as discussed in **Section 4**.

A review of the Environmental Monitoring Program should be undertaken to confirm that monitoring is being conducted as receivers representative of non-mine owned residents.

### 3.4 ENVIRONMENTAL MANAGEMENT & MITIGATION EFFECTIVENESS

This section provides a review of management and mitigation effectiveness at site. It provides a discussion on key issues including general environmental management, findings of the site inspection, complaints and incidents summary, monitoring, tailings management and water management.

A review of Liddell's Environmental Management Strategy (EMS) has confirmed that it meets the requirements of the development consent. The purpose of the strategy is to define the environmental management objectives for Liddell and to provide effective management of all activities, products and services in order to maintain or enhance human and environmental health.

### 3.4.1 Site Inspection

The site inspection was conducted on the same day as the audit (1 July 2009) with staff from both Liddell and HVE present. The inspection involved a walk through of the workshop and hardstand area followed by a drive to various areas around the site including the CHPP, Lakeside Drive, tailings area, rail load out infrastructure and open cut viewing platform. The recently completed office complex and workshop was in excellent condition and aesthetically pleasing with the construction of visual bund and tree plantings along the Access Road making the site very neutral to the surroundings.

The site inspection revealed the hardstand areas around the workshop to be utilised for the storage of mining equipment which is currently not in use. The area was extremely tidy and organised with the wash down bay observed to be in use and functioning effectively. Spill kits were observed in the vicinity of the refuelling bay and appropriate bunding and contouring was visible to adequately contain dirty surface water runoff from the area (see **Plate 1** and **Plate 3**). During inspection of the operations area water carts were observed on haul roads (see **Plate 5**) around the pit and along Lakeside Drive as a means of reducing dust on what was a windy day.

Meteorological conditions at the time of the site inspection consisted of strong north westerly winds that had continued for several hours leading up to the site inspection. As a result of the strong winds (as detailed in **Section 1**) a large amount of dust was visible in the vicinity of Liddell. It was later discovered to be the result of soil transported from dry windy areas located in western NSW and Liddell was not the cause of the widespread dusty conditions. Liddell had modified operations to limit its impact by having water carts active on haul roads in addition proposed blast that had been planned to take place was delayed in order to limit the amount of additional dust in the area.

### 3.4.2 Complaints

Community concerns are being well managed and are being recorded within Liddell's Environment and Community Database. Liddell continues to operate a 24 hour complaints and enquiries line where concerns can be raised with the Environment and Community Coordinator for the site.

Two community concerns were received during 2007 / 2008 with eight concerns raised in 2008 / 2009 and the period up until the site inspection.

Two of the community concerns received during 2007 were in relation to the amount of smoke and dust as a result of hot material in a stockpile with the other the result of a call from a near neighbour regarding operational noise at night. These complaints were followed up and addressed with the complainant with the actions taken being reported within the 2007/2008 AEMR.



During 2008/2009 six of the complaints were the result of two separate local residents complaining about the amount of operational noise produced at night time and their inability to sleep. A mobile noise monitoring unit was set up at their property upon their approval and results recorded were below assessment criteria. In the long term a noise bund is progressively being constructed to limit the amount of operational noise directed to local residents. One of the other complaints was in relation to excessive dust observed at Camberwell and a meeting was held with DECC to discuss Liddell's Dust Management. Another complaint involved the allegation of several oil spills occurring over a number of years. Liddell staff were notified and HVE provided a written report into the management of hydrocarbons during services.

### **3.4.3 Incidents**

A review of incidents at Liddell between July 2007 and June 2009 indicated that 31 environmental incidents were recorded. Of the 31 incidents only one was a Category 2 (Minor, reversible environmental impact requiring minor remediation) incident involving a Quickfill hose being left attached to a D11 before driving off resulting in a diesel spillage. Of the remaining 30 incidents, 15 were Category 1 (Negligible reversible environmental impact, requiring very minor or no remediation) and 15 were Nil Category (below Category 1).

All incidents were recorded along with a description of what happened and reported in the AEMR. Any follow up or remedial action planned or taken as a result of the incident was also recorded to reduce the likelihood of further occurrences.

### **3.4.4 Monitoring**

Depositional dust results from the 2007 / 2008 period indicate that three monthly depositional dust results observed were representative of a non mine owned residents. Annual averages at non mine owned residents remained below criteria in this period. Depositional dust results for 2008 - 2009 show two annual averages above criteria however not at locations representative of private residents.

HVAS monitoring is conducted at two monitoring locations for both PM<sub>10</sub> and TSP. TSP and PM<sub>10</sub> monitoring during the 2007 - 2008 period indicated that 24 hr impact assessment criteria was exceeded at Ravensworth Farm on five occasions however it is a mine owned residence. Annual particulate matter averages remained below criteria in the same period. During 2008 - 2009 HVAS monitoring for TSP at Ravensworth Farm annual average was above the assessment criteria however as mentioned is a mine owned resident. PM<sub>10</sub> annual averages at both monitoring locations remained below criteria while 24 hour criteria was exceeded on five occasions however was not representative of non mined owned residents. No exceedances of PM<sub>10</sub> and TSP criteria at any residence.

Noise monitoring was undertaken once in the 2007 - 2008 period and twice in the 2008 - 2009 period in accordance with the Noise Monitoring Program. Noise monitoring results presented in the AEMR and Spectrum Acoustics reports conclude that noise levels are compliant with all criteria and noise levels remain within the regulatory required levels at all monitoring locations.

During the 2008 - 2009 period no exceedances of blast criteria occurred. One result at Scrivens property (private although uninhabited) on the 27 April 2009 of 122.4 dBL was reported to DECC who agreed with the finding that it was wind affected. Three other results were recorded between 115 - 120 dBL which remained within the 5% allowable.

### **3.4.5 Water Management**

Water management at Liddell is designed to mitigate the impact of the development on the surrounding environment. Water is managed in accordance to the framework described in the Water Management Plan. Where possible, water is contained in one of the on-site dams for use in the Liddell CHPP or on the haul roads and stockpiles for dust suppression.

Clean water is diverted away from disturbed areas using diversion banks and sediment ponds providing a segregated system for handling both clean and dirty water. Any sediment laden runoff is collected in pit floors or small dams and transferred to Dam 13.

The majority of water is stored from within the underground workings and storages in Dam 13 which provides a central storage facility for the site and can be pumped to a number of other operations including Howick, Newdell, other allied operations and the Cumnock CHPP's. Alternatively water can be pumped back into underground workings or discharged from Dam 13 into the Chain of Ponds Creek under the HRSTS at a maximum rate of 100 ML/day.

### **3.4.6 Tailings Management**

Tailings produced from the Liddell CHPP average approximately 12% of total ROM production. Tailings are currently disposed of in the prescribed Antiene tailings dam with the dam meeting the requirements of the NSW Dams Safety Committee.

According to the MOP, the Antiene tailings dam has sufficient volume until approximately June 2010. Once capacity has been reached tailings will be disposed of in the Reservoir South tailings dam. An appropriate section 100 approval under the *Coal Mine Health & Safety Act 2002* is currently being developed in consultation with the DPI. Upon reaching capacity tailings will then be disposed of in the Reservoir West tailings dam, Reservoir North tailings dam and the Railway Fines tailings dam in accordance with the approved MOP and as shown in the EA.

## 4 REHABILITATION

### 4.1 COMPLIANCE ASSESSMENT

In accordance with Schedule 3 Condition 29 rehabilitation must be undertaken to the satisfaction of DoP and DPI. A review of key documents including the EA, EIS, MOP, AEMR and Rehabilitation Management Plan revealed that rehabilitation has not progressed in recent years which has largely been as a result of the approval of a new MOP and major geotechnical slip in the Mountain Block area as discussed below.

Rehabilitation was observed to be generally consistent with that provided in Figure 3.1 of the EA as at Year 1 Conceptual Mine Plan. Actual rehabilitation in the field however, is behind in relation to the current MOP for years 2008-2009 however Liddell is currently progressing with rehabilitation in the Mountain Block area with 42 ha predicted to be completed by December 2009. The completion of 42 ha of rehabilitation is approximately double the estimated rehabilitation in the MOP for the January to December 2009 period of operations. This additional rehabilitation carries over the land not rehabilitated in the 2007/2008 AEMR reporting period and would bring total rehabilitation performed in line with the currently approved MOP.

Liddell was granted DA 305-11-01 (M2) in July 2007 and was working to the MOP that expired in June 2008. A new MOP was approved by the DPI on 11 April 2008 to align with the revised operations approved as part of the modification to DA 305-11-01 (M3) which was approved on 7 May 2008. In addition the rehabilitation program for 2007/08 was disrupted due to the period of time required for gaining approvals for the modified mining operations and the preparation and approval of the new MOP. Liddell did not want to commence rehabilitation of areas in accordance with the former MOP, when these areas may be disturbed at a later date in line with the new MOP which was not approved until 11 April 2008 (MH pers comms).

Rehabilitation in the Mountain Block was originally planned to consist of 18 hectares in 2008. Due to geotechnical issues which included a major slip failure in the area planned for rehabilitation, works were unable to commence as planned. A full geotechnical review of the area was undertaken in 2008 by a qualified consultant to assess the long term stability of the area, and rehabilitation activities recommenced in March 2009 and GSS observed work in the area on the site inspection. This area involves major cut and fill operations to strict geotechnical guidelines to ensure long term stability of the slope.

A number of internal rehabilitation procedures and reports have been prepared by GSS to assist Liddell formalise and progress rehabilitation at the site and quantitatively assess its success including:

- Liddell Coal Operations Rehabilitation Assessment Report. April 2009;
- Topsoil Management Procedures for Liddell Coal Mine. April 2009;
- Liddell Coal Operations Rehabilitation Maintenance and Remedial Action Program. Item 13 in Quarter 2, 2008 – Summary Report. April 2009;

- Liddell Coal Operations Rehabilitation Monitoring Strategy (Including Completion Criteria). Items 4 and 11 Respectively in Summary of Rehabilitation Recommendations from Quarter 2, 2008 – Summary Report Liddell. April 2009; and
- Seed Collection Methodology and Verification (Item 3 Summary of Rehabilitation Recommendations from Quarter 2, 2008 – Summary Report Liddell. April 2009.

Key commitments from the above documents should be incorporated into the existing site Rehabilitation Management Plan with progress reported in the AEMR. In particular, by developing completion criteria across the site ongoing rehabilitation can be measured and its performance assessed against this criteria and best practice can be developed at Liddell.

## 4.2 GSS ASSESSMENT

### 4.2.1 Discussion

As a requirement of DA 305-11-01 Schedule 5 Condition 4 the Director General requested an expert in the field of mine rehabilitation be included in the audit to assess the performance and status of rehabilitation carried out at Liddell and compare its progress against various documents including the MOP and EA.

Mark Burns from GSS was commissioned by Hansen Bailey to conduct a survey of rehabilitation at Liddell as part of the Development Consent compliance audit. The rehabilitation audit was undertaken on 1 July 2009 in conjunction with the Development Consent compliance audit with key Liddell staff present at both.

GSS described the state of the rehabilitation at Liddell as being both satisfactory and unsatisfactory, with some areas showing exceptional performance including areas along Lakeside Drive and Antiene East. Other rehabilitated areas on the eastern side of the mine, including Entrance Block / Barrier Pit and sections of the Reservoir Block, were considered unsatisfactory and will require substantial effort to increase their status. In addition, a small number of sites located in Lakeside Drive, Reservoir Block, Mountain Block and Antiene East, will require remedial erosion control treatment, maintenance, or development of a rehabilitation strategy.

Successful rehabilitation was viewed along Lakeside Drive and consists of a good balance of healthy grass swards and rapidly growing tree stands (see **Plate 8**). Treed areas in this domain show good species diversity and demonstrate excellent wind break (for future grazing), and wildlife corridor establishment. It is understood that the mine proposes to enhance connectivity by widening tree stands to enhance rehabilitation benefits in this (and other) area(s).

Rehabilitation was identified as unsatisfactory in limited areas located in Entrance Block / Barrier Pit, and sections of the Reservoir Block. Pasture areas identified as unsatisfactory will require scalping and weed control, ripping, reseeding and follow-up fertilising. Failed treed areas are generally dominated by *Acacia saligna* and will need to be cleared, ameliorated, ripped and reseeded with tree seed. While the Mountain Block had previously been rehabilitated, subsequent partial slope failure has resulted in current reshaping and stabilisation of affected sections. Disturbed areas will then be re-seeded.

#### 4.2.2 Recommendations

A significant factor in determining the outcome of rehabilitation is the amount of topsoil available for capping overburden emplacement areas prior to revegetation. Liddell has a long history of mining and in earlier days, topsoil was either not effectively recovered, or was contaminated with other overburden material. This has led to a topsoil shortage across the site and has frequently resulted in seeding occurring directly into raw overburden. It is recommended that where limited topsoil is available, overburden amelioration should be undertaken. This should include the application of a high rate of biosoils together with gypsum (10t/ha) in order to improve soil structure, vegetation success and long term sustainability.

Several rehabilitated areas, including the southern end of Entrance Block, were identified as being nutrient deficient, and should be fertilised to improve soil structure, build up nutrient levels and improve organic levels. A fertilising regime applied at ages 2, 4 and 6 years would significantly improve the quality of most existing revegetated areas.

Rehabilitation at Liddell is considered fragmented and some revegetated areas are separated by large tracts of unshaped or bare land. In order to improve connectivity it is recommended an effort be made to rehabilitate these intermittent areas, and to generally tidy up the mine. As already mentioned, enhancement and linking of tree corridors should be undertaken as part of this process.

Weed control is currently being conducted at Liddell, particularly for *Galenia* and Pampas Grass. It is recommended that this program be continued and expanded in order to reduce the presence of key weed species across the site. In this context the development of a comprehensive and long term weed maintenance program is strongly recommended (if not already in place).

Liddell has developed completion criteria for determining the success of rehabilitation across the site. While limited monitoring of rehabilitated sites is currently undertaken, it is recommended that this program be expanded to encompass representative areas in all domains. Assessing compliance with completion criteria within a formal monitoring program will result in the collection of quantitative data. This will facilitate continuous improvement, allow an assessment of the progress of rehabilitated areas, and will encourage the smoother relinquishment of rehabilitated land at the completion of mining.

## 5 RECOMMENDATIONS SUMMARY

The key recommendations from this compliance audit are summarised in **Table 4**.

**Table 4**  
**Audit Recommendations**

Description
<ul style="list-style-type: none"><li>Liddell should progress discussions with the relevant regulatory authorities and resolve all of the non-compliance matters identified by this audit detailed in <b>Section 3</b>.</li></ul>
<ul style="list-style-type: none"><li>When next modified, an application to remove from the consent the supporting documents (which the exception for the EIS, EA &amp; SEE) should be made after ensuring relevant commitments in the 'responses to submissions' and additional correspondence is included in the SEE supporting the modification.</li></ul>
<ul style="list-style-type: none"><li>A review of monitoring locations should be undertaken in consultation with relevant regulatory agencies to ensure that an appropriate level of monitoring is undertaken at the closest representative private receivers. The Environmental Monitoring Plan and EPL monitoring plan should be updated to reflect this and ensure consistency.</li></ul>
<ul style="list-style-type: none"><li>Update the Rehabilitation Management Plan for and implementation of recommendations as proposed by GSS in <b>Section 4</b> and report against the same in the AEMR.</li></ul>
<ul style="list-style-type: none"><li>Contribute towards an update to NSW Minerals Council 2006 health brochure.</li></ul>
<ul style="list-style-type: none"><li>Inclusion of updates of various consent requirements in AEMR including: installation of meteorological station, transport of tailings by truck, transport of ROM by road, update on studies by independent consultants on rail haulage, waste generation activities, activities to minimise waste, comparison of monitoring results to previous years / EA predictions and trends.</li></ul>
<ul style="list-style-type: none"><li>Ensure monitoring results are provided 3 monthly on website for public access.</li></ul>
<ul style="list-style-type: none"><li>Ensure former police precinct recording requirements are undertaken prior to blasting potentially impacting on buildings.</li></ul>
<ul style="list-style-type: none"><li>Ensure that various requirements for Dam 13B are met prior to construction in future.</li></ul>
<ul style="list-style-type: none"><li>For the next audit, it is recommended that a two month extension be granted to enable consistency with the AEMR period and to assist with compilation of monitoring data.</li></ul>
<ul style="list-style-type: none"><li>Actively pursue an increased level of progressive rehabilitation consistent with EA and MOP predictions during the next auditing period.</li></ul>

\*

\*

\*

for

**HANSEN BAILEY**



Dianne Munro  
Principal



James Bailey  
Director

***APPENDIX A***

***Opening Meeting Agenda &  
Audit Itinerary***

**Liddell Coal Operations  
Department of Planning Development Consent Compliance Audit**

**OPENING MEETING AGENDA**

**To be held Wednesday, 1 July 2009  
Commencing 8:30 am at Liddell Boardroom**

**Invitees**

Tony Galvin (TG)	Liddell Colliery	Operations Manager
Mark Howes (MH)	Liddell Colliery	Environment & Community Coordinator
Jane Hetherington (JH)	Liddell Colliery	Environmental Graduate
Linda Dunn (LD)	Hunter Valley Earthmoving	Environmental Specialist
Dianne Munro (DM)	Hansen Bailey	Lead Auditor
Jason Martin (JM)	Hansen Bailey	Auditor
Mark Burns (MB)	Global Soil Systems	Lead Auditor – Rehabilitation

---

**Items For Discussion**

- |    |   |    |
|----|---|----|
| 1. | Introductions   | DM |
| 2. | Confirmation of Purpose of Audit                            | DM |
| 3. | Description of Audit Process & Confidentiality Arrangements | DM |
| 4. | Presentation on Current Mining Operations                   | MH |
| 5. | Confirmation of Pre-arranged Meetings                       | DM |
| 6. | Confirmation of Rehabilitation Site Inspection              | MB |
| 7. | Confirmation of Arrangements & Attendance at Exit Meeting   | DM |

Meeting Close 9:00 am



**Liddell Coal Operations  
Department of Planning Development Consent Compliance Audit**

**ITINERARY**

**To be held Wednesday, 1 July 2009**

**Invitees**

Tony Galvin (TG)	Liddell Colliery	Operations Manager
Mark Howes (MH)	Liddell Colliery	Environment & Community Coordinator
Jane Hetherington (JH)	Liddell Colliery	Environment & Community Graduate
Linda Dunn (LD)	Hunter Valley Earthmoving	Environmental Specialist
Dianne Munro (DM)	Hansen Bailey	Lead Auditor
Jason Martin (JM)	Hansen Bailey	Auditor
Mark Burns (MB)	Global Soil Systems	Lead Auditor Rehabilitation

Time	Description	Location	Required Attendees
8:30 am	<b>Opening Meeting</b> (see Agenda)	Boardroom	All
9:00 am	<b>Mark Burns Field Inspection</b>	Field	MB, JH
9:00 am	<b>Environment Discussion</b> <ul style="list-style-type: none"> <li>• Regulatory Documentation</li> <li>• Rehabilitation &amp; Monitoring</li> <li>• Water Management</li> <li>• Erosion &amp; Sediment Control</li> <li>• Waste Management</li> <li>• Closure Planning</li> <li>• Cultural Heritage</li> <li>• Flora &amp; Fauna</li> <li>• MOP / EIS Interaction</li> <li>• Complaints &amp; Incidents</li> </ul>	Boardroom	MH, LD, DM, JM
10:30 am	<b>Mining / Technical Discussion</b> <ul style="list-style-type: none"> <li>• Production</li> <li>• Water Management</li> <li>• Mining Operations</li> <li>• Rehabilitation</li> <li>• Dust &amp; Noise Management</li> <li>• Training &amp; Communications</li> <li>• Operator Interview</li> </ul>	Boardroom	MH, LD, DM, JM
12:00 pm	<b>Lunch</b>	Boardroom	All

<b>Time</b>	<b>Description</b>	<b>Location</b>	<b>Required Attendees</b>
12:15 pm	<b>Maintenance / CHPP Discussion</b> <ul style="list-style-type: none"><li>• Production</li><li>• Waste Management</li><li>• Noise &amp; Dust</li><li>• Water Management</li><li>• Training &amp; Communications</li><li>• Operator Interview</li></ul>	Maintenance	MH, LD, DM, JM
12.30 pm	<b>Field Inspection</b>	Field	All
3:00 pm	<b>Auditors Revision (including rehabilitation conclusions)</b>	Boardroom	DM, MB, JM
4:00 pm	<b>Closeout Meeting</b>	Boardroom	All

***APPENDIX B***

***Regulatory  
Correspondence***



NSW GOVERNMENT  
**Department of Planning**

Contact: Rohan Tayler  
Phone: 02 9228 6465  
Fax: 02 9228 6466  
Email: [rohan.tayler@planning.nsw.gov.au](mailto:rohan.tayler@planning.nsw.gov.au)  
Our ref: S02/02698-18  
Your ref:

25 JUN 2009

Mr Tony Galvin  
Operations Manager  
Liddell Coal Operations Pty Ltd  
PO Box 7  
SINGLETON NSW 2330

Dear Tony

**Liddell Coal**

**Independent Environmental Audit**

I refer to your letter of 25 May 2009 and the email from Mr Mark Howes dated 19 June 2009, including the attached audit itinerary, regarding the independent environmental audit of Liddell coal mine, as required under condition 4 of schedule 5 of the Minister's approval (DA 305-11-01).

The Department has reviewed the information supplied and is satisfied that the proposed auditing team consisting of Ms Dianne Munro and Mr James Martin of Hansen Bailey and Mr Mark Burns of Global Soil Systems is suitably qualified and experienced to undertake the audit.

Consequently, I can advise you that the Director-General endorses their appointment to undertake the independent environmental audit of Liddell coal mine.

Should you wish to discuss this matter further, please contact Rohan Tayler.

Yours sincerely

A handwritten signature in blue ink that reads "Howard Reed".

Howard Reed 22.6.09  
**A/Manager**  
**Mining**  
As Delegate for the Director-General

***APPENDIX C***

***Plates from Site Inspection***

***1 July 2009***



**Plate 1**  
**Bunded hydrocarbon facility in the Liddell workshop**



**Plate 2**  
**Liddell new light vehicle wash down bay**



**Plate 3**  
**Liddell hydrocarbon storage areas and emergency spill kit**



**Plate 4**  
**Liddell waste segregation areas**





**Plate 5**  
**Active dust suppression - watercart on the haul road**



**Plate 6**  
**Liddell Access Road**





**Plate 7**  
**Liddell visual bund on Access Road showing tree plantings**



**Plate 8**  
**View from Lakeside Drive looking north across existing rehabilitation**



**Plate 9**  
**New Liddell CHPP**

***APPENDIX D***

***Liddell Coal Operations Rehabilitation  
Audit Report***

# LIDDELL COAL OPERATIONS REHABILITATION AUDIT REPORT JULY 2009



Prepared for: Hansen Bailey Pty Ltd

Prepared by:  
Global Soil Systems



July 2009

# **LIDDELL COAL OPERATIONS REHABILITATION AUDIT REPORT**

## **July 2009**

Prepared for:  
Hansen Bailey Pty Ltd

Prepared by:

---

Mark Burns  
*Director*  
Global Soil Systems  
1<sup>st</sup> July 2009

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1.0 INTRODUCTION.....</b>	<b>3</b>
<b>2.0 REHABILITATION OBJECTIVES AND COMPLETION CRITERIA.....</b>	<b>3</b>
2.1 What has been agreed to?.....	3
2.2 The Audit in Context.....	4
2.3 Specific Standards Applied to this Audit.....	4
<b>3.0 ASSESSMENT METHODOLOGY.....</b>	<b>6</b>
<b>4.0 ASSESSMENT RESULTS .....</b>	<b>8</b>
<b>5.0 REFERENCES.....</b>	<b>8</b>

## **FIGURE**

---

Figure 1. Location of Sites of Interest – Hansen and Bailey Audit -Liddell Mine – 1<sup>st</sup> July 20097

## **TABLE**

---

Table 1 - Reporting Forms ..... 9

## **APPENDIX**

---

Appendix A - PLATES ..... 14

.....



## EXECUTIVE SUMMARY

Liddell Mine contains examples of both satisfactory and unsatisfactory rehabilitation. The best examples of good practice are found in the Lakeside Drive Domain (see **Front Cover** and **Plate 5**). This domain generally contains a good balance of healthy grass swards and rapidly growing tree stands. Treed areas in this domain generally have better species diversity and growth rates (compared to tree stands in other domains). Treed areas in this domain are also more continuous and, as such, provide more effective wildlife corridors. It is understood that further widening of tree corridors in this and other domains is proposed in accordance with the MOP. Generally, there is currently minimal linkage of tree areas across the site.

Less successful but still satisfactory examples of rehabilitation can be found in the Reservoir Block (**Plate 13**), Mountain Block (**Plate 23**) and older (southern) sections of the Entrance Block (**Plate 17**). While adequate, most of these areas still require maintenance such as weed control, fertilizing and minor repair work, in order to improve the quality of the vegetation cover.

Unsatisfactory examples of rehabilitation are generally located on poor quality overburden material on the eastern side of the mine (Entrance Block/Barrier Pit), and in sections of the Reservoir Block. Failed pasture areas generally require re-ripping and re-seeding (pasture). Failed tree areas are largely dominated by *Acacia saligna* and will need to be cleared, ameliorated, ripped and reseeded (trees).

While a number of small and isolated 'action' sites were identified in the audit (see **Figure 1** and **Table 1**), the main factors responsible for unsatisfactory rehabilitation relate to larger issues. In particular, the lack of suitable quality topsoil is the main factor responsible for rehabilitation failure at Liddell. As a result of this shortage, both tree and pasture establishment has often been undertaken directly into raw overburden. Where overburden physical and chemical characteristics are less hostile e.g. on the western side of the pit, vegetation quality has been reasonable. However, on the eastern side of the pit both tree and pasture results have been generally poor due to more hostile overburden conditions. Other rehabilitated areas, in other domains generally reflect a result somewhere between these two extremes.

As the mine currently has negligible topsoil reserves (and little likelihood of acquiring more), remediation of **all** overburden material prior to seeding is strongly recommended. Where no (or suitable) topsoil is available, recommended amelioration includes the spreading of both gypsum and a high rate of biosolids prior to ripping and seeding. For consistently good vegetation results to be achieved this will need to become a standard and routine practice. However, doing this does not negate the need to maximize the recovery and utilization of all suitable topsoil and subsoil material. To this effect, a topsoil stripping, stockpiling and general management plan should be implemented as soon as possible.

It is also recommended that a routine fertilizer program be implemented for all areas during the first six years following establishment. As a result of the general absence of topsoil, the implementation of such a program becomes even more important. Aerial fertilising of rehabilitated areas at ages 2, 4 and 6 years is recommended as a minimum requirement in order to build up soil nutrient and organic levels. This will lead to the development of healthier and more robust pasture swards and tree stands. Older areas, (eg. pasture swards at the southern end of the Entrance Block (**Plate 17**)) are one example of areas currently in decline due to lack of nutrients.

The third major observation of the audit is the fragmented nature of many rehabilitated areas. This is obviously a legacy of long term historical mining patterns, but none the less requires a co-ordinated action plan to rehabilitate intermediate 'no-mans-land' areas, and to connect up existing isolated pockets of rehabilitation. The linking of tree corridor components according to the Synoptic Plan is further motivation for achieving greater connectivity.

The fourth major issue is weed control. A regular weed spraying program has been active for some time, and weed reduction in treated areas has been substantial. However, there is still widespread *Galenia* (and other weeds) across the mine. It is recommended that the weed maintenance program be expanded and that simple weed hygiene measures be put in place (eg. washing down earthmoving equipment prior to entering new sites, and scalping weeds off topsoil dumps prior to topsoil recovery and spreading).

One final comment relates to monitoring. While the mine has been the subject of repeated audits (such as this), there is only one monitoring plot at the Mountain Block rehabilitation area. Collection of quantitative data will be important in measuring the mines compliance with agreed completion criteria, and in achieving successful relinquishment of rehabilitated areas at mine closure. Liddell is currently developing completion criteria with additional data collection and monitoring programs in rehabilitated areas.

While the above are important issues that need to be addressed, it should be acknowledged that the mine is currently aware of the above issues, and is actively working towards addressing these.



## 1.0 INTRODUCTION

Global Soil Systems (GSS) have been commissioned by Hansen and Bailey Pty Ltd to undertake a rehabilitation audit of Liddell Mine as one component of a larger environmental audit. This audit was undertaken on 1<sup>st</sup> July 2009 (in conjunction with Liddell staff) and results are contained in the following report.

With reference to standards applied to this audit there has been minimal prescriptive detail on rehabilitation standards generally for mines in the Hunter Valley, although there has been a long history of rehabilitation development which has been progressively guided by regulators and the practical experience of others. From this background has come commonly accepted standards for revegetation, and erosion and sediment control works. Stability, the return of agreed land capability, and long term sustainability are principles firmly embedded within these standards. These commonly accepted standards have been generally applied to this assessment and are summarised in Section 2 of this report.

This report is not intended to comprehensively address closure criteria issues, although the identification and remediation of rehabilitation problems (**Table 1**) is an important step in the mines progression towards acceptable standards at closure. As such, and in the context of the mines overall monitoring program, this report forms one part of the monitoring and continuous improvement feedback process. However, it does not obviate the need for a more detailed monitoring program using fixed rehabilitation monitoring plots and agreed completion criteria (e.g. as per Nichols 2005).

In addition to highlighting issues needing attention, this report also contains examples of good practice (**Table 1**) in order to provide a balanced view of the mines performance, and to encourage further good practice.

## 2.0 REHABILITATION OBJECTIVES AND COMPLETION CRITERIA

### 2.1 What has been agreed to?

Most mines in the Hunter Valley have minimal prescriptive requirements in terms of rehabilitation objectives or agreed completion criteria. This is a consequence of many factors, not the least of which is age and hence the legislative framework most mines were approved under, along with the location of most mines in degraded and cleared grazing country. As is the case at Liddell, the later is often associated with either a shortage of topsoil, or poor quality topsoil.

The absence of prescriptive rehabilitation techniques and targets also reflects the variable nature of soils and overburdens at these mines and the often harsh climatic conditions under which mines are expected to rehabilitate.

## 2.2 The Audit in Context

As previously discussed, there are different levels of auditing and monitoring rehabilitated areas. This audit is at the simpler end of the scale and consisted of a walk-through of rehabilitated areas with a view to assessing the need for remedial action in the above areas. This is a valid and effective means of identifying problems and repairing these in a timely manner and is described in Nichols (2005). Earlier comments on the need for collection of more quantitative data should be noted.

## 2.3 Specific Standards Applied to this Audit

The following general objectives were adopted for this audit:

- Landform - Generally stable landforms that are appropriately drained with minimum erosion and soil movement in most areas.
- Vegetation - Adequate pasture swards and tree stands relevant to their age, which are resilient to reasonable extremes of climate. For pasture areas, the ability to support long term appropriately managed grazing.
- Weeds - Minimum presence of key weed species such as *Galenia*.
- Rock - Acceptable levels of rock according to regulatory and land capability standards (particularly in pasture areas).

The above general objectives were interpreted in more detail as follows:

### Native Vegetation

A minimum of 400 stems per hectare after two years and containing at least two native tree and one native shrub species.

### Pasture

A minimum ground cover of 70%, 12 months after sowing within any one hectare area.

### Weeds

A maximum cover of 5 m<sup>2</sup> of *Galenia secunda* within any 100 m<sup>2</sup> area. All weed species to be controlled such that remnant pasture/trees are not significantly impaired.

### Fencing

There is currently no stock grazing on Liddell mine at this point in time and fencing is largely confined to fencing around the mine's perimeter.

### Rock

Current DPI policy generally allows some rock on Class 6 treed areas, and rock up to various diameters on other classes of land.

The DPI rural land capability assessment system consists of eight classes which classified land on the basis of an increasing soil erosion hazard and decreasing versatility of use. It recognises the following three types of land uses:

- Land suitable for cultivation;
- Land suitable for grazing; and
- Land not suitable for rural production.

These capability classifications identify the limitations to the use of land as a result of the interaction between the physical resources and specific land use. The principal limitation recognised by these capability classifications is the stability of the soil mantle. The method of land capability assessment takes into account a range of factors including climate, soils, geology, geomorphology, soil erosion, topography and the effects of past land uses. The presence and size of surface rock is one consideration in the above.

As an example most trees areas are categorised as **Class 6** due to their limited use for grazing.

### Surface Water Management

The integrity and stability of surface drainage structures are generally self evident, particularly as they age. Dams were assessed on the basis of the stability of inlets, outlets, wall integrity and water holding capacity. Contour banks were assessed on their integrity although, as sites age and become heavily vegetated, the need for contour banks decline. As such, breached contour banks have only been recommended for repair if there is potential for erosion and instability.

### Surface Erosion

Exposed gullying or unacceptable erosion on slopes has been commented upon. Any unacceptable depressions that may present a safety hazard to stock or people were also noted and action recommended.

### Long Term Sustainability

There are no fixed or agreed criteria for sustainability for mines in the Hunter Valley although at least one research project has recently addressed this issue. At this stage, an area is considered sustainable if the above categories are favourably disposed, and if the system is stable with minimal (reducing) input.

**Owens and Foot (2002)** propose that ideally, a comprehensive monitoring program for mine rehabilitation should be based on the requirements of an ISO 14001 compatible EMS. It should include:

- Consultation with key internal and external stakeholders.
- Clearly defined objectives for both the monitoring program and rehabilitation itself, so that the 'success' of rehabilitation can be objectively determined.
- Sound statistical design, to enable cost effective monitoring and provide unambiguous outcomes.
- Measurement of clearly defined key indicators, such as presence/absence or density of particular species, or other parameters.
- A clearly defined feedback loop so that stakeholders such as managers and rehabilitation operators receive the information they require to implement continual improvement.
- Sound QA/QC procedures.

#### Maintenance of Revegetated Areas

Regular fertilizer addition, weed control and resowing/planting in the first six years constitutes the main maintenance requirement for rehabilitated areas.

### **3.0 ASSESSMENT METHODOLOGY**

This assessment was undertaken on the 1<sup>st</sup> July 2009.

The following domains were assessed:

Lakeside Drive.

Railway Block.

Old Rehab Legacy Area North of Daracon Fines Area.

Entrance Block/Barrier Pit.

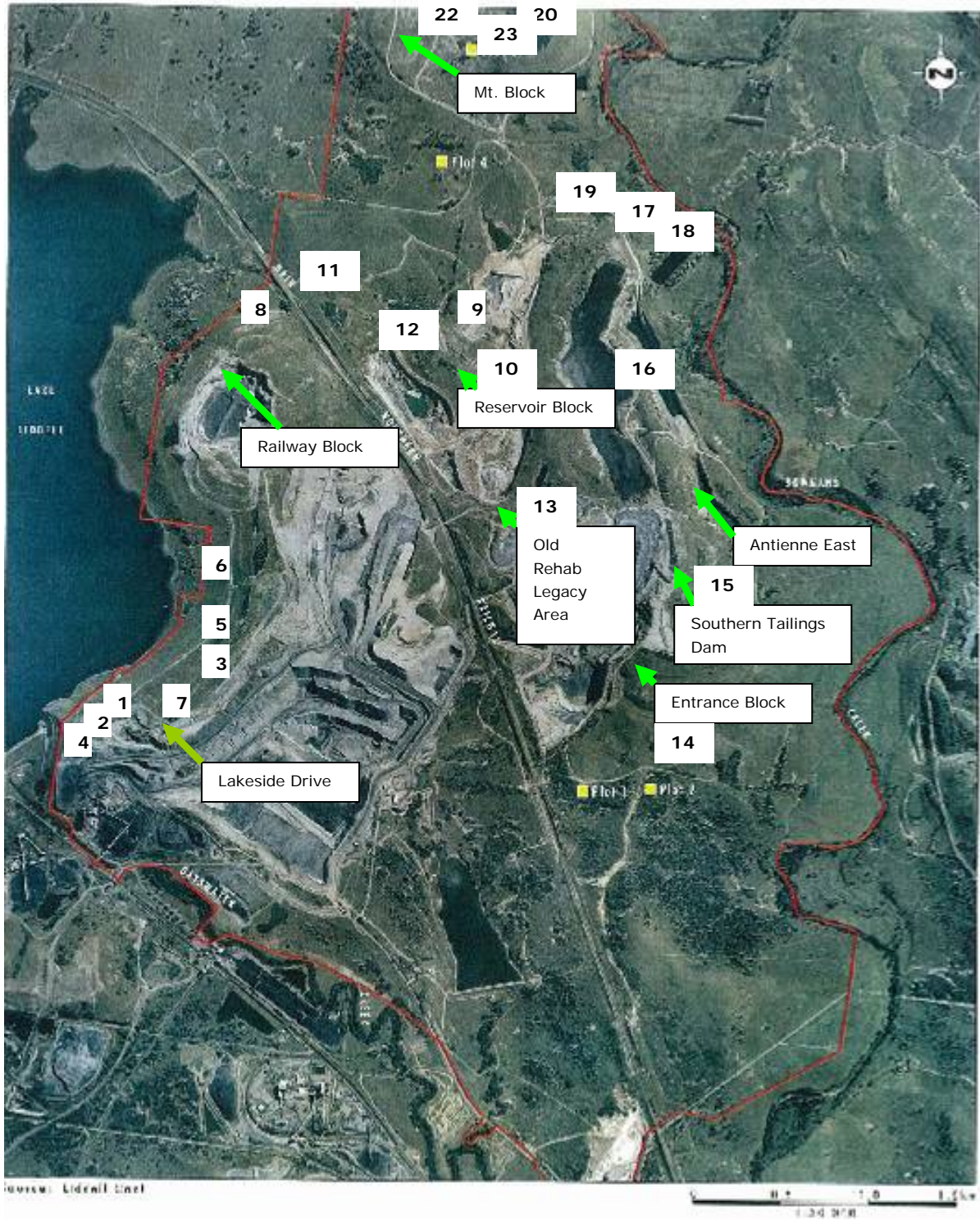
South Tailings Dam.

Antienne East.

Mountain Block.

Reservoir Block.

Within each domain specific sites requiring remedial action have been noted and given a specific number e.g. Lakeside Drive Site 3. The location of each site is shown in **Figure 1** and co-ordinates listed in **Table 1**. The nature of each problem/issue, together with recommended remedial action for each site, is also described in **Table 1** (Reporting Forms).

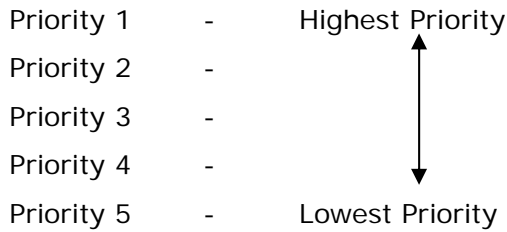


**Legend**

- Liddell Colliery Development Consent Boundary

**Figure 1. Location of Sites of Interest – Hansen and Bailey Audit - Liddell Mine – 1<sup>st</sup> July 2009**

Action priorities have been listed on the spreadsheet and are graded:



Where examples of good practice occur, these have also been included in **Table 1** and have been given a consecutive site number. The intention here is to encourage further good practice and to provide a balanced perspective on the mines performance.

All areas were accessed by four wheel drive, or by foot where practical. It was generally possible to view most areas either at close quarters or at a distance. On some sites, where the need for remedial action was either recurring or occurred across large areas, a general site number has been allocated to the area.

#### 4.0 ASSESSMENT RESULTS

Assessment results are presented in the following.

- **Figure 1** shows the location of sites where specific or general remedial work is required, or where examples of good practice are found.
- **Table 1** (reporting forms) contains site specific recommendations matching sites shown in **Figure 1**.
- **Appendix A** (Plates) contains photos showing the condition of each specific site at this point in time (July 2009).

#### 5.0 REFERENCES

Nichols, O. (2005). Development of rehabilitation completion criteria for native ecosystem establishment on coal mines in the Hunter Valley. ACARP Project C13048.

# **Table 1**

## **Reporting Forms**

---

Location Name (Mine/Pit)	Site No.	Photo No.	Easting (MGA 94)	Northing (MGA 94)	Task / Problem	Action Recommended	Action Priority (1 – 5)	Due Date	Completion Status	Comments
<b>LAKESIDE DRIVE</b>										
	1	1 2 3	56325701	6415371	* Large rocks. * Clumps of <i>Galenia</i> and isolated Box Thorn and prickly pear. * Failed pasture areas (small patches).	* Remove Rock. * Spray (weed control). * Rip and reseed.	3 3 2			
	2	4	56312256	6415302	* Lots of weeds resulting from failed vegetation and past disturbance.	* Spray weeds, rip and reseed.	2			
	3	5	General		* Good balance of trees and pasture.	* Example of good practice. However, entire domain needs maintenance fertiliser and further weed spraying.	2			
	4	6	56312058	6415271	* Thick clumps of <i>Galenia</i> and isolated Box Thorn bushes.	* Spray (weed control).	3			
	5	7	56312702	6415834	* Eroded entry into sediment dam. * Good Macrophyte population in dam.	* Repair and vegetate. Example of good practice.	1			
	6	8	56312653	6416581	* Weeds – mainly castor oil or <i>Galenia</i> on windrow.	Spray.	3			
	7	9	56312530	6415283	* Patches of miscellaneous weeds including castor oil, skeleton weed and Bathurst burr	Spray.	3			
		10			* Good tree corridor.	Example of good practice.				



Location Name (Mine/Pit)	Site No.	Photo No.	Easting (MGA 94)	Northing (MGA 94)	Task / Problem	Action Recommended	Action Priority (1 – 5)	Due Date	Completion Status	Comments
<b>RAILWAY BLOCK</b>										
	8	11	56312822	6417296	<ul style="list-style-type: none"> <li>* Scattered bare areas.</li> <li>* Grass cover patchy and generally poor.</li> <li>* <i>Galenia</i> clumps.</li> </ul>	<ul style="list-style-type: none"> <li>* Rip and reseed with pasture.</li> <li>* Fertiliser all areas.</li> <li>* Spray.</li> </ul>				
<b>RESERVOIR BLOCK</b>										
	9	12	56314304	6417719	<ul style="list-style-type: none"> <li>* Topsoil stockpile has generally been lost due to collapse into pit.</li> </ul>	<ul style="list-style-type: none"> <li>* Construct access and use remnants on next rehabilitation area before further loss occurs.</li> </ul>	1			
	10	13	General		<ul style="list-style-type: none"> <li>* Pasture cover poor and patchy.</li> <li>* <i>Galenia</i> clumps.</li> </ul>	<ul style="list-style-type: none"> <li>* Fertilize.</li> <li>* Spray weeds.</li> </ul>	2 3			
	11	14	563135510	6417652	<ul style="list-style-type: none"> <li>* Isolated and remote (forgotten?) topsoil dump covered in weeds.</li> </ul>	<ul style="list-style-type: none"> <li>* Construct access and use topsoil on next rehabilitation job.</li> <li>* Spray weeds (Roundup and scalp off before use.</li> </ul>	1 1			
	12	15	General		<ul style="list-style-type: none"> <li>* Several tree stands in this domain contain only <i>Acacia saligna</i>.</li> </ul>	<ul style="list-style-type: none"> <li>* Scalp-off existing tree cover, rip and reseed.</li> </ul>				
Daracon Fines Area	13	16	56314727	6416420	<ul style="list-style-type: none"> <li>* Coarse coal reject dumping completed.</li> </ul>	<ul style="list-style-type: none"> <li>* Develop rehabilitation plan and implement as soon as possible including capping, landform design, amelioration, site preparation and revegetation. Test quality of overburden capping before revegetation.</li> </ul>	1			

Location Name (Mine/Pit)	Site No.	Photo No.	Easting (MGA 94)	Northing (MGA 94)	Task / Problem	Action Recommended	Action Priority (1 – 5)	Due Date	Completion Status	Comments
<b>ENTRANCE/BARRIER BLOCKS</b>										
Large and old rehabilitation area in Southern section.	14	17	General (South)		Very patchy pasture cover – nutrient deficient.	* Fertilise entire area (include light pasture seed mix).	2			
Northern Area – (Relatively New Rehabilitation)	15	18	General (North)		* Failed tree plots (no topsoil).	* Clear, ameliorate, rip and reseed.	2			
					* Poor pasture areas (hostile overburden material).	* Ameliorate, rip and reseed.	2			
<b>ANTIENNE EAST</b>										
	16	19	56315349	6417006	* Good slope stabilisation around water.	* Example of good pasture.				
	17	20	56315090		* Healthy tree stand and harmonious landform design.	* Example of good practice.				
	18	21	56315627	6417973	* Dam bank collapse blocking access track (also safety hazard).	* Infill slump, revegetate, re-establish access track.	1			
Hebden Slot	19	22	56314806	6418182	* Final contours are complete. * Scattered overburden dumps. Area untidy.	* Ameliorate and seed. * Develop rehabilitation plan for entire area – link rehabilitated areas.				

## MOUNTAIN BLOCK

	20	23	General (all rehabilitation area)		<ul style="list-style-type: none"> <li>* Pasture and tree areas nutrient deficient.</li> <li>* Weed clumps (mainly <i>Galenia</i> and Pampas Grass).</li> </ul>	<ul style="list-style-type: none"> <li>* Fertilise (include light pasture mix).</li> <li>* Develop ongoing and regular weed spraying program.</li> </ul>	3			
Northern (Main) Batter Slope	21	24	General (for this slope)		<ul style="list-style-type: none"> <li>* Slope being recontoured.</li> </ul>	<ul style="list-style-type: none"> <li>* Revegetate prepared areas with mix of pasture and tree seed.</li> </ul>	2			
	22	25	56313684	6420020	<ul style="list-style-type: none"> <li>* Failure of sediment dams (several) in this vicinity.</li> </ul>	<ul style="list-style-type: none"> <li>* Design, repair and revegetate.</li> </ul>	1			
	23	26	56314065	6419128	<ul style="list-style-type: none"> <li>* Old road poorly vegetated.</li> <li>* Sink holes in this vicinity. (Safety hazard)</li> </ul>	<ul style="list-style-type: none"> <li>* Deep rip and seed.</li> <li>* Locate, fill and seed.</li> </ul>	2 2			

# Appendix A

## PLATES

---





**Plate 1.** Lakeside Drive. Remove large rocks.



**Plate 2.** Lakeside Drive. Spray *Galenia* and boxthorn and dig out Prickly Pear.





**Plate 3.** Lakeside Drive. Rip and reseed bare (failed) areas.



**Plate 4.** Lakeside Drive. Spray weeds, rip and reseed.





**Plate 5.** Lakeside Drive. This domain has achieved a good balance of tree and pasture areas which are located on a relatively harmonious landform.



**Plate 6.** Lakeside Drive. Thick patches of *Galenia* are scattered in pasture areas across the Lakeside Drive domain.





**Plate 7.** Lakeside Drive. Eroded entry into sediment dam needs repair. Good macrophyte development in dam.



**Plate 8.** Lakeside Drive. Spray dense Castor oil and other weeds.





**Plate 9.** Lakeside Drive. Patches of miscellaneous weeds below tree plot require spraying (Grazon).



**Plate 10.** Lakeside Drive. Good tree corridor along top of ridge.





**Plate 11.** Railway block. Bare failed areas need ripping and reseeded. Entire domain needs fertilising to improve health of pasture sward. Spray *Galenia* patches.



**Plate 12.** Reservoir Block. Topsoil stockpile largely lost into pit. Recover remnant soil and improve topsoil recovery and management generally across mine.





**Plate 13.** Reservoir Block (background). Pasture and tree areas in the Reservoir Block domain are nutrient deficient and require fertilising.



**Plate 14.** To west of Reservoir Block. This topsoil dump is isolated and has no access. Spray weeds and establish access track, recover and use on next rehabilitation area.





**Plate 15.** Reservoir Block. Single species (*Acacia saligna*) tree stands. Where no eucalypts present clear existing wattles, rip and reseed.



**Plate 16.** Reservoir Block - Daracon Fines Area. Coarse reject dumping completed. Develop and implement rehabilitation plan.





**Plate 17.** Entrance Block (South). Large patches of poor pasture cover in this domain (see slopes) are a result of nutrient deficiency and heavy kangaroo grazing. Implement regular maintenance program and cull roos.



**Plate 18.** Entrance Block (North). Poor pasture establishment on slopes and largely single species tree stands due to unfavourable spoil material. Recommend amelioration, ripping and reseeding.





**Plate 19.** Antienne East. Example of good pasture cover and slope stabilization on difficult area around dam. A good pasture cover reduces potential for weed invasion (particularly Pampas grass in these areas).



**Plate 20.** Antienne East. Example of good practice. Healthy tree stand and harmonious landform in this domain.





**Plate 21.** Antienne East. Collapsed dam wall and road. A safety hazard. Repair and re-establish.

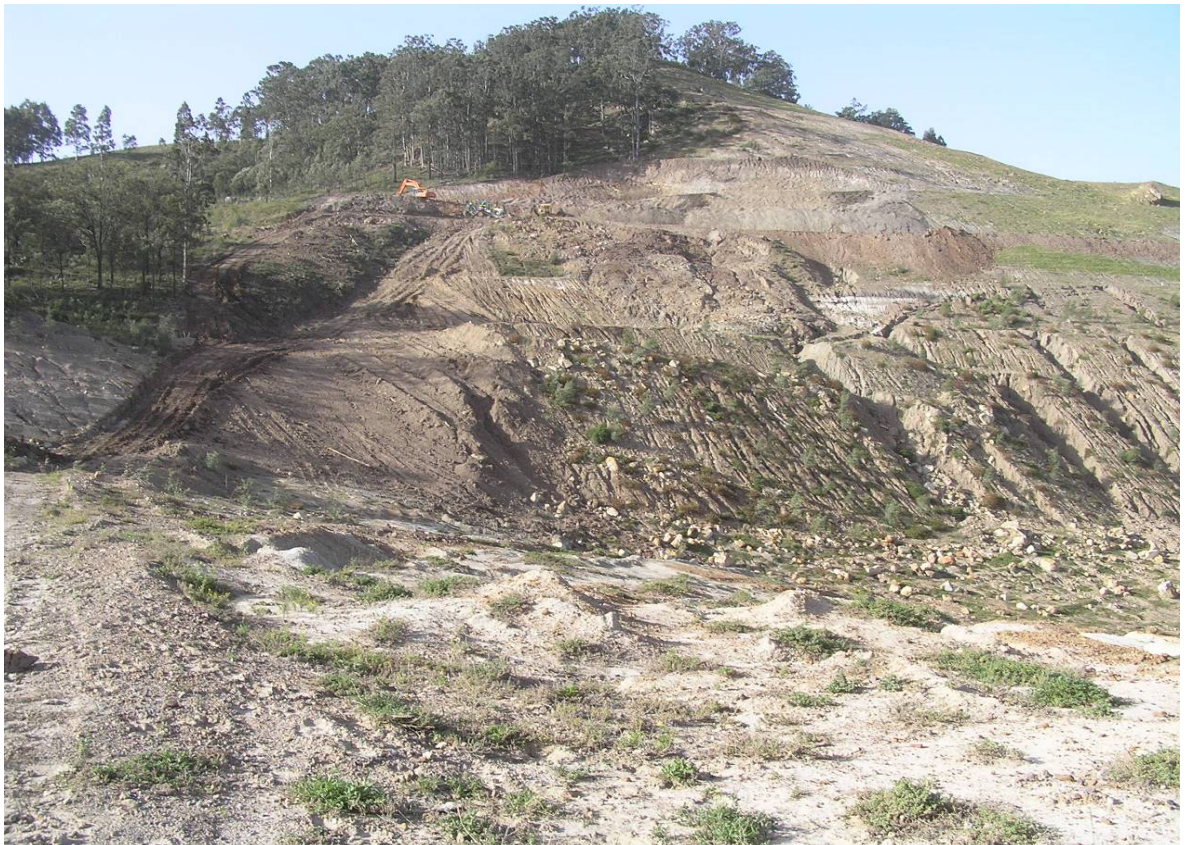


**Plate 22.** Antienne East – Hebden Slot. Final contouring completed. Develop and implement rehabilitation strategy.





**Plate 23.** Mountain Block. Pasture and tree areas in this domain would benefit from weed control and maintenance fertilizer



**Plate 24.** Steep slope on Mountain Block currently being recut and stabilized. Rehabilitation strategy is currently being prepared.





**Plate 25.** Mountain Block. Repair failed sediment dam walls (several dams in this vicinity).



**Plate 26.** Mountain Block. Decompact and seed old haul road. Locate and infill sink holes (mostly around dam) in this vicinity.