2019 Independent Environmental Audit

Liddell Coal Operations (Development Approval 305-11-01)

March 2019

2019 Independent Environmental Audit

Liddell Coal Operations (Development Approval 305-11-01)

Client: Liddell Coal Operations Pty Ltd

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Prepared by

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26-Mar-2019

Job No.: 60595767

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

Quality Information

Document 2019 Independent Environmental Audit

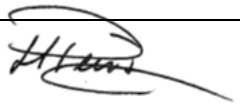
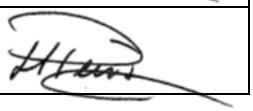
Ref 60595767

Date 26-Mar-2019

Prepared by Kate Michelmore

Reviewed by Ian Richardson

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	15-Mar-2019	Draft Report for Review by Client	Helen Onus Lead Auditor	
1	26-Mar-2019	Final Report	Helen Onus Ian Richardson	

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Abbreviations

Abbreviation	Description
ACHMP	Aboriginal Cultural Heritage Management Plan
AECOM	AECOM Australia Pty Ltd
AQMMP	Air Quality Management and Monitoring Plan
BMP	Biodiversity Management Plan
BOMP	Biodiversity Offset Management Plan
CCC	Community Consultative Committee
CHPP	Coal Handling Preparation Plant
CL	Consolidated Lease
DPE	Department of Planning and Environment
DPI - Water	Department of Primary Industries – Water now Department of Industry – Land and Water.
EA	Environmental Assessment
EC	Electrical Conductivity
E&C	Environment and Community
EMS	Environmental Management System
EPA	Environmental Protection Authority
EPL	Environmental Protection Licence
ESCP	Erosion and Sediment Control Plan
GCAA	Glencore Coal Assets Australia
GDP	Ground Disturbance Permit
GWMP	Groundwater Monitoring Program
Ha	Hectare
IEA	Independent Environmental Audit
INP	Industry Noise Policy
LCO	Liddell Coal Operations
MIA	Mine Infrastructure Area
ML	Mining Lease
MOP	Mining Operations Plan
MOD	Modification to Development Consent
MSC	Muswellbrook Shire Council
Mtpa	Mega Tonnes Per Annum
NMP	Noise Management Plan
OEH	Office of Environment and Heritage
OFI	Opportunity for Improvement
PAD	Potential Archaeological Deposit
RAP	Registered Aboriginal Party

Abbreviation	Description
RMP	Rehabilitation Management Plan
ROM	Run of Mine Coal
RR	DPE, Resource Regulator
SAL	Sensitive Archaeological Landforms
Secretary	Secretary of the Department of Planning and Environment or delegate
SC	Singleton Council
STP	Sewage Treatment Plant
SWB	Site Water Balance
SWMP	Surface Water Monitoring Program
TARP	Trigger Action Response Protocol
WAL	Water Access Licence
WMP	Water Management Plan

Executive Summary

AECOM Australia Pty Ltd (AECOM) was engaged by Liddell Coal Operations (LCO) to conduct an Independent Environmental Audit (IEA) of the Liddell Coal Mine located in the Upper Hunter Valley, New South Wales.

The audit was conducted in accordance with Condition 4 of Schedule 5 of the LCO Development Consent (Development Application (DA)-305-11-01) as issued by the Department of Planning and Environment (DPE) and AECOM proposal dated 20 December 2018.

Condition 4 of Schedule 5 of the Development Consent requires LCO to commission an IEA within a year of the approval of modification application (MOD 5) to DA 305-11-01, and every 3 years thereafter. To meet this requirement AECOM was commissioned prior to the end of December 2018 to conduct the IEA.

The last IEA carried out at the site under Development Consent DA 305-11-01 was conducted for the period of 1 July 2012 to 31 December 2015. The audit period to which this audit applies is inclusive of the period from the completion date of the last IEA (31 December 2015) to the 07 February 2019 (date of last day of audit site inspection). This report presents the findings of this audit.

The IEA methodology included:

- Initial discussions with LCO to organise the audit, including the provision of documentation, the site visit and timing.
- Review of documentation provided by LCO and preparation of compliance assessment checklists that included a list of conditions of key regulatory approvals to be assessed for compliance.
- A four-day site inspection including review of documentation and interviews with key site personnel on 04 – 07 February 2019. The site inspection was attended by the Lead Auditor, Auditor and specialists in the areas of; Rehabilitation, Surface Water and Groundwater.
- Consultation with key government agencies as presented in this report.
- Review of additional documentation provided by LCO after the site inspection
- An assessment of environmental management performance through review of the implementation of key environmental management strategies, plans and programs, non-compliances documented in annual reporting, regulatory actions, incidents and complaints.
- An assessment of compliance was undertaken for each condition within the selected regulatory approvals based on a review of documentation, observations during site inspections, interviews, implementation of management plans, incidents, complaints and regulatory action.
- A review of the adequacy of the environmental management strategies, plans and programs required under the consent.
- Submission of a draft audit report to LCO to provide an opportunity for additional information and / or correction of fact
- Finalisation of the report.

The IEA identified a total of eleven non-compliances against DA 305-11-01, Environmental Protection Licence (EPL) 2094 and mining leases. It is noted that one event / incident may result in multiple non-compliances reported across the various approvals and licenses. In summary non-compliances were identified in the following areas:

- Exceedance of blast criteria
- Exceedance of air quality particulate matter (PM) criteria
- Unauthorised discharge of sediment laden water
- Exceedance of water quality criteria

- Failure to monitor PM10 and meteorological data continuously
- Failure to obtain construction certificates; and
- Failure to report a waste management summary in Annual Reviews.

A summary of the non-compliances identified is provided in the table below:

Table 1 Non-Compliance summary

Approval	Total No. of Non-Compliances	Administrative	Low	Medium	High
DA-350-11-01	6	2	4	0	0
EPL 2094	4	0	4	0	0
ML 1597	1	0	1	0	0
ML 1313	0	0	0	0	0
ML 1552	0	0	0	0	0
CCL 708	0	0	0	0	0

Non-compliances identified against relevant approvals are identified and discussed in Section 9.0. A summary of the LCO's overall environmental performance is summarised in Section 6.0 and 7.0.

1.0 Introduction

1.1 Background

AECOM Australia Pty Ltd (AECOM) was engaged by Liddell Coal Operations (LCO) to conduct an Independent Environmental Audit (IEA) of the Liddell Coal Mine located in the Upper Hunter Valley, New South Wales.

The audit was conducted in accordance with Condition 4 of Schedule 5 of the LCO Development Consent (Development Application (DA)-305-11-01) as issued by the Department of Planning and Environment (DPE) and AECOM proposal dated 20 December 2018.

Condition 4 of Schedule 5 of the LCO Development Consent requires LCO to commission an IEA within a year of the approval of modification application DA 305-11-01 MOD 5, and every 3 years thereafter. To meet this requirement AECOM was commissioned prior to the end of December 2018 to conduct the IEA.

The last IEA carried out at the site under Development Consent DA 305-11-01 was conducted for the period of 1 July 2012 to 31 December 2015. The audit period to which this audit applies is inclusive of the period from the completion date of the last IEA (31 December 2015) to the 07 February 2019 (date of last day of audit site inspection). This report presents the findings of this audit.

1.2 Audit Scope

The requirements for the IEA are set out in Schedule 5 Condition 4 and 5 of the NSW DPE Development Consent 305-11-01 as detailed in Table 2.

Table 2 Development Consent 305-11-01 IEA Conditions

Development Consent Condition	Requirement	IEA Reference
DA 305-11-01 Schedule 5 Condition 4	Within a year of the approval of modification application DA 305-11-01 MOD 5, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:	This Report
DA 305-11-01 Schedule 5 Condition 4 (a)	be conducted by a suitably qualified, experienced, and independent team of experts whose appointment has been endorsed by the Secretary;	Appendix B
DA 305-11-01 Schedule 5 Condition 4(b)	include consultation with relevant agencies;	Section 4.0
DA 305-11-01 Schedule 5 Condition 4(c)	assess the environmental performance of the development, and its effects on the surrounding environment	Section 6.0
DA 305-11-01 Schedule 5 Condition 4(d)	assess whether the development is complying with the relevant standards, performance measures, and statutory requirements;	Appendix A and Section 9.0
DA 305-11-01 Schedule 5 Condition 4(e)	review the adequacy of any strategy/plan/program required under this consent; and, if necessary,	Section 7.0
DA 305-11-01 Schedule 5 Condition 4(f)	recommend measures or actions to improve the environmental performance of the development, and/or any strategy/plan/program required under this consent.	Section 9.0
DA 305-11-01 Schedule 5 Condition 4	Note: This audit team must be led by a suitably qualified auditor and include experts in the field of mine rehabilitation and mine closure.	Appendix B

Development Consent Condition	Requirement	IEA Reference
DA 305-11-01 Schedule 5 Condition 5	Within 6 weeks of completing this audit, or as otherwise agreed by the secretary, the Applicant shall submit a copy of the audit report to the Secretary with a response to any recommendations contained in the audit report.	LCO is required to submit this report along with responses to recommendations made in this report to the DPE.

1.2.1 Approvals and Licences Reviewed

The IEA included a detailed review of the following LCO Licences, Approvals and Leases:

- DA 305-11-01
- EPL 2094
- Mining Lease (ML) 1597
- ML 1313
- ML 1552
- Consolidated Lease (CL) 708.

Checklists addressing each condition from the above documents are provided in Appendix A. In addition the auditors also conducted a review of LCO's sewage treatment plant (STP) approvals. A detailed checklist was not prepared for the (STP) approvals.

1.3 Audit Methodology

The IEA was undertaken in general accordance with:

- Independent Audit Guideline, DPE, 2015;
- AS/NZS ISO 19011:2014 Guidelines for auditing management systems; and
- AECOM's proposal (dated 20 December 2018).

The IEA methodology included:

- Pre Audit;
    - Initial discussions with LCO to organise the audit, including the provision of documentation, the site visit and timing.
    - Review of documentation provided by LCO and their representatives and preparation of compliance assessment checklists that included a list of conditions of key regulatory approvals to be assessed for compliance.
    - Consultation with key government agencies as presented in this report.
- IEA Site Inspection:
    - Four-day site inspection including review of documentation and interviews with key site personnel on 04-07 February 2019.
- IEA Reporting:
    - Review of additional documentation provided by LCO after the site inspection.
    - An assessment of environmental management performance through review of the implementation of key environmental management strategies, plans and programs; non-compliances documented in annual reporting; regulatory actions; incidents; and complaints.

- An assessment of compliance was undertaken for each condition within the selected regulatory approvals based on a review of documentation, observations during site inspections, interviews, implementation of management plans, incidents, complaints and regulatory action.
- A review of the adequacy of the environmental management strategies, plans and programs required under the consent.
- Submission of a draft audit report to LCO to provide an opportunity for additional information and / or correction of fact.
- Finalisation of the report.

This report provides a summary of findings including details of non-compliances identified in the audit, and recommended actions to improve compliance status and / or environmental performance.

2.0 Audit Process

2.1 Audit Program

A summary of the audit programme is provided in Table 3.

Table 3 Audit Programme

Start Date	End Date	Actions
21/01/2019	21/01/2019	Project kick-off meeting between AECOM and LCO
21/01/2019	01/02/2019	Audit Preparation including agency consultation requests
04/02/2019	07/02/2019	IEA site inspection
11/02/2019	15/03/2019	Preparation of IEA draft report
15/03/2019	20/03/2019	LCO review draft report and provide comments
20/03/2019	22/03/2019	Final Report

2.1.1 Pre-audit meeting

A pre-audit project kick off telephone call was held on 21 January 2019 between the AECOM auditor and LCO's Environment and Community Manager.

2.1.2 Document Review

The following documents were provided by LCO and reviewed by the audit team during the audit preparation process:

- Annual Review 2016 and 2017
- Water Access Licences
- Approval Letters from DPE for relevant management plans
- Environmental Management Strategy
- Noise Management Plan
- Blast Management Plan
- Air Quality Management Plan
- Water Management Plan
- Biodiversity Management Plan
- Aboriginal Cultural Heritage Management Plan
- Mining Operations Plan / Rehabilitation Management Plan
- Incident Register
- Incident Investigation Reports
- Complaints Register

2.1.3 Audit Checklist

An audit checklist was prepared prior to the site inspection, based on the requirements of Development Consent DA 305-11-01, EPL 2094 and ML 1597, ML 1313, ML 1552 and CCL 708. The completed checklist is provided in Appendix A.

2.1.4 Site Inspection and Audit Team

A four day site inspection was conducted at LCO between 04 – 07 February 2019. During the site inspection the weather conditions were hot and sunny with the day time temperature ranging from

19ºC in the morning to 35ºC in the afternoons. Rainfall in the region had been below average over the 12 months prior to the audit.

The Audit Team consisted of the following qualified, experienced and independent personnel listed in Table 4.

Table 4 Audit Team

Name	Position	Organisation	Onsite
Helen Onus	Lead Auditor	AECOM	4 – 7 February 2019
Kate Michelmore	Auditor	AECOM	4 – 7 February 2019
Sam Mitchell	Auditor Assistant	AECOM	4 – 7 February 2019
Helen Vickers	Rehabilitation / Mine Closure Specialist	AECOM	4 – 5 February 2019
Amanda Kerr	Surface Water Specialist	AECOM	6 February 2019
Angus McFarland	Groundwater Specialist	AECOM	6 February 2019
Ian Richardson	Peer Review and Verification	AECOM	Did not attend site

Both the Lead Auditor and Auditor are registered Exemplar Global auditors. In addition the audit team, inclusive of specialists, was approved by the DPE to conduct the audit. Refer letter from DPE provided in Appendix B.

2.1.4.1 Opening and Closing Meetings

In accordance with *ISO 19011:2014 Guidelines for auditing management systems* an opening and closing meeting was held during the Site inspection. The meetings were attended by the LCO E&C Department as well as personnel from the senior leadership team.

2.1.5 On-site interviews

Interviews were conducted with key the following personnel:

- Ben de Somer, Environment and Community Manager
- Jarith Young, Environment and Community Coordinator
- Mikayla Henderson, Environment and Community Officer
- Maintenance Manager
- Drill and Blast Engineer's
- Mine Supervisors (OCE's) and Dispatch Operator

2.1.6 Audit Verification Activities

The auditors undertook verification activities to confirm the reliability of audit evidence. This included interviews, data checking, the examination of records, and site inspections. Records were provided in electronic and/or hard copy by site personnel and additional documents were reviewed whilst on site.

Some aspects of the audit process may have relied on information, such as judgements and assumptions where external supporting evidence was unavailable or limited. Where this information was considered, its validity was confirmed to the extent possible prior to use by the auditors and is noted in appropriate areas of the audit checklists.

The majority of information was assessed off-site (e.g. review of management plans). The site inspections concentrated on assessment of the effectiveness of environmental management and adequacy of performance. The extent of audit activities was limited to the time available for the audit site inspections and interviews over three days.

3.0 Liddell Coal Mine Operations Overview

3.1 LCO Overview

LCO is an established open-cut mine located at Ravensworth, approximately 25 kilometres north-west of Singleton in the Upper Hunter Valley of New South Wales (refer Figure 1). LCO is operated and managed by Liddell Coal Operations Pty Limited, a wholly owned subsidiary of Glencore Coal Pty Limited (Glencore), on behalf of a joint venture between Glencore (67.5%) and Mitsui Matsushima Australia (32.5%).

Mining operations at Liddell Coal have been continuous since the 1950s. Operations prior to the 1950s were intermittent, with underground operations commencing in 1923 and open cut operations in 1946. Current open cut operations access the coal reserves previously not mined by the underground operations. The current open cut mining operation has been in operation since 1990.

3.1.1 Approvals History

Development Consent DA 305-11-01 was originally approved on 20 November 2002. The Consent has been modified 5 times since its approval. The approved modifications (MODs) are detailed in Table 5.

Table 5 Development Consent Modification History

Modification	Description	Date Approved
MOD 2	• Increase in the maximum total Run of Mine (ROM) coal production from 4.5 to 8 Mtpa; • Increase in the mining footprint within the approved South and Barrier Pits by 47 hectares. • Construction of a new preparation section of the Coal Handling and Preparation Plant (CHPP) • Establishment of a new supplementary coal stockpile; • Receival and delivery of up to 1.5 million tonnes per annum (Mtpa) of coal to and from Cumnock No. 1 Colliery; • Increase in the maximum transportation rate of reclaimed tailings from 0.3 to 0.5 Mtpa to Macquarie Generation; • Realignment of an already approved access road and services corridor relocation of part of the Old New England Highway; • Relocation and construction of the open cut mining offices, workshops and associated infrastructure to the south eastern portion of the Liddell development consent area; • Construction of a bridge over the Main Northern Railway to provide for more efficient movement of coal and overburden between open cut pits; and • Modifications to the footprint and size of the already approved Dam 13B.	18/07/2007
MOD 3	• Alterations to the approved intersection layout for the Old New England Highway/mine access road intersection; • Minor realignment of the development consent boundary to accommodate the road works; • Reuse of treated effluent from the office/workshop complex; and • Corrections to numbering in the development consent.	07/05/2008

Modification	Description	Date Approved
MOD 4	• Additions to the Mining Infrastructure Area including: • Two additional high machinery workshop bays; • Additional relocatable admin & workshop offices; • Fuel farm extension; • Storage shed and compound.	27/10/2009
MOD 5	• Extension of the South and Entrance Pits to the south east and, upon completion of mining in these pits, the mining of coal resources under the Mine Infrastructure Area (MIA) during which time the MIA will be relocated to temporary facilities. The extension will enable the recovery of an additional approximate 38 million tonnes (Mt) of ROM coal. • The extension of open cut mining activities will lead to an associated extension of the life of mine at LCO from 2023 to 2028. • A tailings emplacement area will be constructed within the final void of the South Pit to dispose of the additional tailings associated with the extension of open cut mining activities. • Minor additional infrastructure including: • Construction and commissioning of a transfer point and conveyor connected to the existing Mt Owen / Glendell / Macquarie Generation conveyor, enabling LCO to send coal to Ravensworth, and receive coal and crushed gravel from Mt Owen, via the existing conveyor system. The new conveyor will deliver/take material to/from a new 50,000 tonne stockpile; and • Infrastructure and ancillary surface disturbance to support the new mining areas will be required, including but not limited to, power lines, water management infrastructure and haul roads.	01/12/2014
MOD 6	• Constructing approximately 11 kilometres of tailings pipeline connecting both the Ravensworth Complex and Liddell Colliery Coal Handling and Preparation Plants to the West Pit Void Ravensworth East. • Constructing a flocculent plant near the West Pit Void at Ravensworth East. • Staged emplacement of tailings generated from Ravensworth and Liddell within the Ravensworth East West Pit Void. • Interim utilisation of the Narama Void as a central water storage facility for the Greater Ravensworth Area.	16/02/2016

3.1.2 Operations

LCO has approval to extract up to 8 million tonnes per annum of ROM coal. Mining operations occur in accordance with the approved Mining Operations Plan (MOP) from the Lemington, Pikes Gully, Arties, Liddell, Barrett and Hebden seams. Mining utilises excavator and truck shovel methods of operation to extract both semi-soft and thermal coal.

Product coal is transported to Newcastle Port by rail via the Hunter Valley Rail Loop and Main Northern Railway Line, for sale to the export market.

The site operates 24 hours a day, 7 days a week with a workforce of up to 360 full time workers and approx. 100 contractors. Major components of LCO include:

- MIA buildings

- Product coal and ROM coal stockpiles
- CHPP
- Water management infrastructure including two STPs and oily water separator
- Rail loading facility
- Active mining pits: Bayswater Pit, Entrance Pit, South Cut Pit, Barrier Pit.
- Rehabilitation areas
- Offset areas

LCO also has approval to process ROM coal produced from Mt Owen coal mine and to transport ROM coal to Ravensworth CHPP for processing. During the audit period all coal was processed from the LCO CHPP and no coal from Mt Owen was processed on site.

In addition to normal mining operations, the following activities were conducted during the audit period:

- Preparation for slope stabilisation and rehabilitation measures to be commenced at Mountain Block in 2019.
- Construction of the tailings pipeline to Mt Own Complex West Pit. The pipeline will be utilised to transport tailings to the West Pit Tailings Emplacement Area at Mt Owen Complex.
- Continued capping of the Antiene Tailings Dam.

3.1.3 Approvals, Licences and Leases

Table 6 lists the current approvals, licences and leases held for LCO. **Table 7** lists the current water licences held for LCO.

Table 6 Summary of Existing Major Approvals and Licences

Title	Agency	Expiry
Development Consent DA 305-11-01	DPE	31 December 2023
EPBC 2013/6908	DPE	31 December 2044
Mining Lease 1597	NSW Resources Regulator (RR – formerly Department of Resources and Energy DRE)	5 November 2028
Mining Lease 1313	RR	13 October 2023
Mining Lease 1552	RR	10 March 2025
Consolidated Coal Lease	RR	30 December 2023
Environmental Protection Licence (EPL)	Environment Protection Authority (EPA)	30 June (Anniversary Date)
Effluent Treatment Plant (WTA 2006-002)	Muswellbrook Shire Council (MSC)	21 April 2019
Effluent Treatment Plant (OSSM 3916/2008)	Singleton Council (SC)	30 June 2019

Table 7 Water Licences

Locality	Licence No.	Use	Allocation (ML)	Holder
Surface Water Extraction Licences				
Bowmans Creek	WAL 18320	Irrigation	50	Enex Foydell P/L
Bowmans Creek	WAL 18304	Irrigation	32	Enex Foydell P/L
Bowmans Creek	WAL 18218	Irrigation	55	Novacoal Aust P/L
Bowmans Creek	WAL 18306	Industrial	100	Mitsushima Aust P/L Enex Foydell P/L Gabume P/L
Hunter River	WAL 7815	Industrial	20	Liddell Tenements P/L
Groundwater Licences				
Haz 6	20BL168066	Monitoring	N/A	Liddell Tenements P/L
Dur 3	20BL168065	Monitoring	N/A	Liddell Tenements P/L
LC1	20BL168064	Monitoring	N/A	Liddell Tenements P/L
Durham 1	WAL41499	Industrial	6000	Liddell Tenements P/L
8 South 3 & 4	WAL41498	Industrial	6000	Liddell Tenements P/L
Durham 2 & 4	WAL41497	Industrial	1000	Liddell Tenements P/L
Haz 1 & 2	WAL39760	Industrial	5500	Liddell Tenements P/L
ALV1, ALV2, ALV3, ALV4, ALV7, ALV8, ALV9	20BL168053	Test Bore /Monitoring	N/A	LCO P/L
Bowmans Creek Alluvial	WAL18302	Irrigation	5	Liddell Southern Tenements P/L
M49	WAL41493	Dewatering	2500	Liddell Southern Tenements P/L
-	20WA210940	Irrigation	5	Enex Foydell Limited
Mt Owen 1	WAL41493	Stock, domestic farming and test purposes	2500	Mt Owen P/L
Mt Owen 2	20BL169544	Dewatering	2500	Mt Owen P/L
Middell Liddell	WAL41498	Dewatering	6000	LCO P/L

Figure 1 Location of LCO *(Source: LCO 2017 Annual Review)*

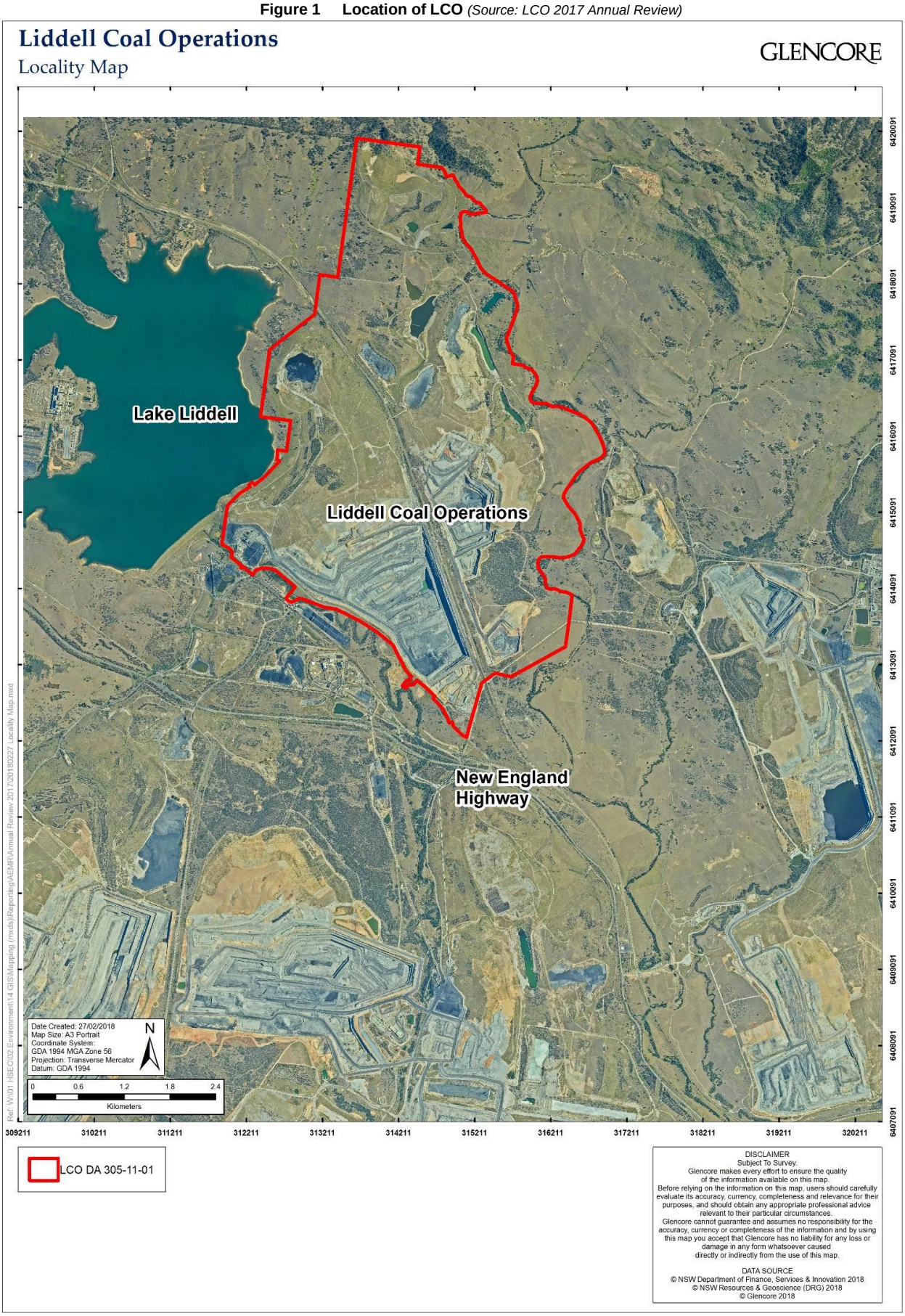
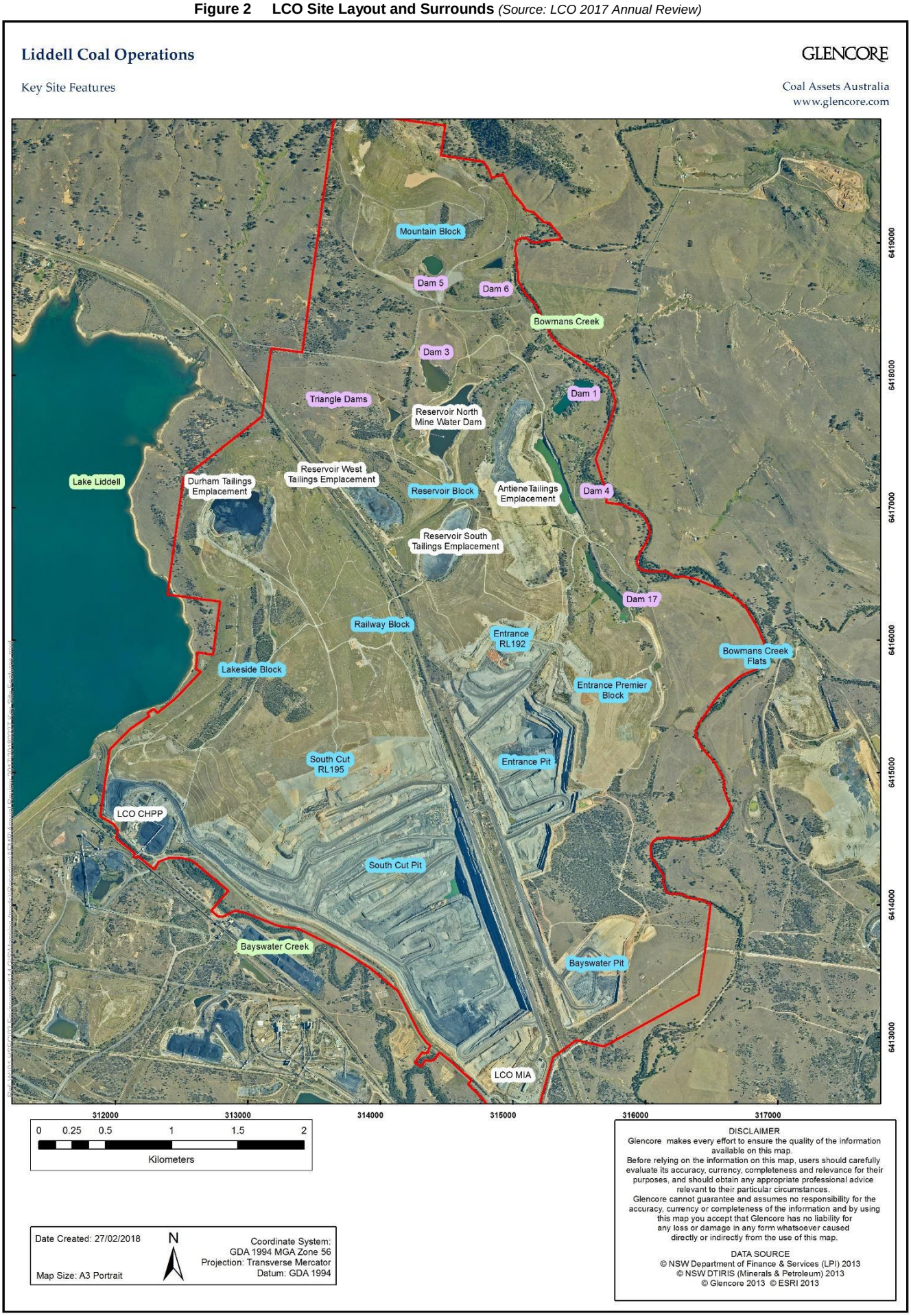


Figure 2 LCO Site Layout and Surrounds *(Source: LCO 2017 Annual Review)*



4.0 Agency Consultation

As part of the audit process, AECOM consulted with key regulatory agencies to discuss the scope of the IEA. Emails were sent to the following agencies on the 11 January 2019:

- Department of Planning and Environment (DPE)
- Environment Protection Authority NSW (EPA)
- DPE, Resource Regulator (RR)
- Office of Environment and Heritage (OEH)
- Natural Resources Access Regulator
- Department of Industry - Lands & Water
- Singleton Council
- Muswellbrook Shire Council
- Liddell Community Consultative Committee (CCC) Chairperson

Feedback obtained from the regulatory agencies has been summarised below.

4.1 Department of Planning and Environment

The Lead Auditor followed up the initial consultation request with a telephone call on the 1 February 2019. The DPE Officer referred to its letter to LCO providing input into the scope of the audit dated 14 December 2018 which indicated the following:

- The inclusion of an expert in Rehabilitation and Mine Closure (as required by Schedule 5, Condition 4)
- In addition, the inclusion of a groundwater and surface water specialist to examine the recent groundwater and surface water trigger value exceedances.
- The expectation that the audit will be conducted in accordance with the Independent Audit Guideline, October 2015 (and not the 2018 Post Approval Requirements for Independent Environmental Audits) and therefore include an assessment of compliance with the site's EPL.

The DPE Officer also confirmed verbally that the audit scope did not need to assess compliance with the EPBC Approval as this is subject to its own independent audit.

The audit team, including specialists was approved by the DPE by letter dated 19 January 2019.

The rehabilitation and biodiversity specialist's findings are provided in Section 8.1.

The ground water specialist's findings (which include a review of trigger value exceedances) are provided in Section 8.1.5.

The surface water specialist's findings (which include a review of trigger value exceedances) are provided in Section 8.4.

An assessment of compliance with the EPL is provided in Appendix A.

4.2 Environment Protection Authority

The Lead Auditor followed up the initial consultation request with a telephone call on the 1 February 2019. The EPA Officer stated that as a rule the EPA did not provide comments into the IEA process. The EPA Officer referred to the EPA's public registers for access to the EPL and any regulatory actions.

4.3 Resource Regulator

Feedback to the initial consultation request was received via email on 4th February 2019. RR requested that the following questions be addressed during the audit:

Audit Component - Desktop

- Is there a current Mining Operations Plan (MOP) in place and has it been approved by The Resources Regulator? ***Refer Appendix A, Mining Lease, Condition 3.***
- Has the MOP been prepared in consultation with the relevant agencies as outlined in the Project Approval? ***Refer Appendix A, Mining Lease, Condition 3.***
- Is the rehabilitation strategy as outlined in the MOP consistent with the Project Approval in terms of progressive rehabilitation schedule; and proposed final land use(s)? ***Discussion of the adequacy and implementation of the MOP is provided in Section 8.1.***
- Has the rehabilitation objectives and completion criteria, as outlined in the MOP, been developed in accordance with the proposed final land(s) as outlined in the Project Approval? ***Refer to Appendix A, Development Consent Schedule 3, Condition 37.***
- Has a rehabilitation monitoring program been developed and implemented to assess performance against the nominated objectives and completion criteria (including subsidence management)? *V**erified by reviewing monitoring reports and rehabilitation inspection records. Refer to Section 8.1.2***

Audit Component - Site Inspection

- Are mining operations being conducted in accordance with the approved MOP (production, mining sequence etc.), including within the designated MOP approval boundary? – to be verified by site plans and site inspection. ***Refer to Section 8.1.2***
- Is rehabilitation progress, including vegetation community types, consistent with the approved MOP as verified by site plans and a site inspection? This should include an evaluation against rehabilitation targets and whether the final landform is being developed in accordance with conceptual final landform in Project Approval. ***Refer to Section 8.1.2***
- Based on a visual inspection, are there any rehabilitation areas that appear to have failed or that have incurred an issue that may result in a delay in achieving the successful rehabilitation? ***Observations from the site inspection by the rehabilitation specialist are provided in Section 8.1.2***
- Are there controls to ensure top soil management is appropriate to achieve nominated final land uses? For example, is the source of a top soil stockpile recorded to ensure it is used to achieve a specified final land use outcome? ***Top soil management is discussed in Section 8.1.2***
- In addition to the above, the audit should note observations where rehabilitation procedures, practices and outcomes represent best industry practice. ***General discussion of rehabilitation practices including examples of good practice are included in Section 8.1.2***

4.4 Office of Environment and Heritage

No feedback to the consultation request was provided by OEH.

4.5 Natural Resources Access Regulator

No feedback to the consultation request was provided by the Natural Resources Access Regulator.

4.6 Department of Industry - Lands & Water

No feedback to the consultation request was provided by the Department of Industry - Lands & Water.

4.7 Singleton Council

No feedback to the consultation request was provided by Singleton Council.

4.8 Muswellbrook Shire Council

Feedback to the initial consultation request was received via email on the 18 January 2019. MSC stated that it expected the audit to diligently examine all aspects of the Liddell Coal Mine operations in accordance with the requirements of Condition 4(b) Schedule 5 of the consent.

MSC requested that the following areas are reviewed in detail as matters of particular interest to Council:

- Rehabilitation performance and planning, Council has a particular interest in the performance of rehabilitation work done to date and the planning carried out in respect of future rehabilitation work necessary to address the rehabilitative requirements of the project approval. Council wishes to ensure that both the planned and implemented mine-site rehabilitation is meeting its requirements, conforms with industry best standards and will be effective in achieving final rehabilitation outcomes. ***Refer to Section 8.1.2.***
- Dust control and air pollution, Council is interested in ensuring that relevant dust suppression plans are being prepared and employed to maximum effect. As a local government area with a large number of operating mines and notable heavy industries air pollution is of significant community interest, and thereby the monitoring and minimisation of air pollution is of importance to Council. Council is keenly interested ensuring that all mine sites including Liddell Coal employ dust control and pollution reduction measures that align with operating plans and industry best standards to maximum effect particularly in the context of the current drought. ***Refer to Appendix A, Development Consent, Schedule 3, Conditions 16 and 18 for discussion of the measures implemented to minimise dust emissions and compliance with impact assessment criteria for particulate matter. Refer also to EPL Condition O3.1 and O3.2.***

4.9 Community Consultative Committee

The CCC chair noted on 28 January 2019 that she could not recall any matters that have not had positive outcomes.

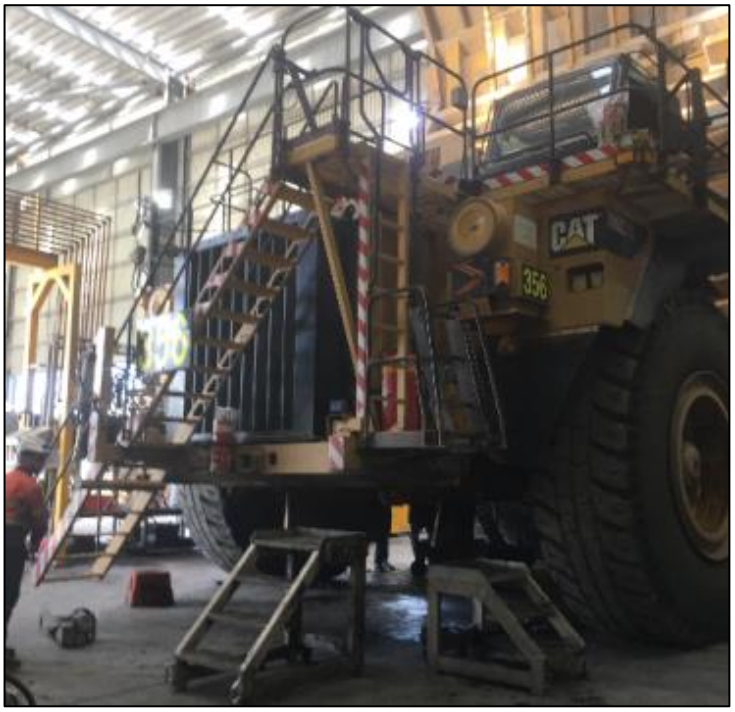
5.0 Site Inspection Observations

The following photographs provide an indication of the general observations made or referenced during the site inspections as detailed in Table 8. Additional photographs are included in each of the specialist areas specific to the observations made by the specialists.

Table 8 Site Inspection Photographs

Ref	Description	Photo
8-1.	Reservoir South Tailings Dam	
8-2.	Water carts sighted in operation	
8-3.	EPL Point 6 – HRSTS discharge point.	

Ref	Description	Photo
8-4.	Blast which occurred in South Pit was observed	
8-5.	Relocatable boundary monitor	
8-6.	CHPP with covered conveyors	

Ref	Description	Photo
8-7.	Noise attenuation on plant	
8-8.	Noise attenuation	

Ref	Description	Photo
8-9.	Heavy Vehicle wash bay	
8-10.	Weather Station	

Ref	Description	Photo
8-11.	Water cart at rear of workshop	
8-12.	Temporary waste tyre storage	
8-13.	Chain of Ponds Inn located on the Old New England Highway	

Ref	Description	Photo
8-14.	Scrap metal waste bin	
8-15.	Waste bins and spill kits at workshop	

6.0 Environmental Performance

This section assesses the requirement of the scope of works to *"assess the environmental performance of the development*". The auditors based the assessment of the environmental performance of the site on the following:

- An assessment of the effectiveness and adequacy of the environmental management plans and programs required under the Development Consent. This is detailed in Section 7.0.
- An Assessment of compliance with the Development Consent DA 305-11-01, EPL and MLs. The findings of this assessment are provided in the compliance checklists presented in Appendix A with the identified non-compliances and associated recommendations summarised in Section 9.0.
- A Review of incidents reported during the audit period (Section 6.1).
- A Review of complaints received during the audit period (Section 6.2).

6.1 Environmental Incident Management

LCO has developed a site specific incident reporting procedure, LIDOC-90533967-656: Hazard & Incident Management to detail how it manages and reports hazards and incidents including environmental incidents. Included in this procedure is an incident report form that is completed by personnel or contractors involved in an incident. The LCO E&C Department reports environmental incidents in CMO, the compliance management tool used by Glencore Coal Assets Australia (GCAA) (discussed further in Section 7.2.2), and determines the appropriate corrective or preventative action using the Incident Cause Analysis Method (ICAM) where required.

LCO define an environmental incident or non-conformance as:

- Any inspection/test result that does not meet the acceptance criteria specified in any environmental approvals or relevant standard or legislation;
- Any notice of non-compliance issued by a government agency with environmental jurisdiction;
- Any non-conformance with identified objectives and targets;
- Any action that causes unapproved environmental harm;
- A community complaint.

A reportable incident is defined in the Development Consent DA 305-11-01 as *an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.*

For internal tracking purposes LCO also includes investigation trigger exceedances in its internal incident register. These trigger exceedances are tracked in CMO for the purpose of recording and tracking the occurrences. A review of the LCO incident register for the audit period indicated the following:

- **2016:** Six incidents occurred in 2016 relating to vibration exceedances, groundwater investigation trigger exceedances and site meteorological station not monitoring continuously.
- **2017:** Six incidents occurred in 2017 relating to blast dust, and surface water and groundwater investigation trigger exceedances.
- **2018:** twenty six (26) incidents occurred in 2018 relating to the following:
    - 10 occurrences where air quality criteria was exceeded
    - 4 occurrences where monitoring of PM10 failed to monitor continuously.
    - 1 blast vibration exceedance occurred.
    - 9 surface and groundwater monitoring investigation triggers occurred

- 1 unauthorised discharge of sediment laden water occurred
- 1 occurrence where the sewage treatment plant failed to meet discharge quality specifications.

Of the 38 incidents which were recorded during the audit period, 15 related to exceedances of performance criteria. These were reported to the DPE as incidents in accordance with Schedule 5, Condition 11, of the Development Consent.

Two incidents were notified to the EPA and relevant agencies in accordance with LCO's Pollution Incident Response Management Pan (PIRMP). The DPE was also notified as per Schedule 5, Condition 11. One of these related to unauthorised discharge of sediment laden water which caused pollution of waters. This is discussed further below. The second related to dust caused by a blast event which travelled offsite towards the New England highway. LCO reported this incident to the EPA and DPE as a precautionary step but did not consider the incident caused or threatened material harm to the environment. Never the less an investigation was carried out and the investigation report provided to the EPA and DPE.

One incident was reported to OEH on 18 May 2018 which involved a surface blast initiated on 07 May 2018 that led to some minor cracking and surface heave within the Liddell Bowman's Creek Sensitive Archaeological Landforms (SAL). LCO reported the event to OEH as a precaution and to ensure transparency of archaeological management. LCO also engaged with their Registered Aboriginal Parties (RAP) on the issue. The incident investigation report concluded that it was very unlikely that the blast event resulted in harm to archaeological artefacts in the area.

No regulatory action, penalty infringements notices or official warnings had been issued during the audit period.

Discharge of sediment laden water – November 2018

On 28 November 2018, LCO recorded a total 35.6mm of rainfall and whilst completing routine high rainfall inspection, a supervisor observed sediment laden run off breaching a containment drain blocked by blast heave. The uncontained run off was observed to combine with run off from undisturbed areas of remnant vegetation and follow existing drainage lines to an isolated and pooled section of Bowman's Creek.

Once the containment failure was identified, actions to control and contain the sediment-laden water commenced including drainage repairs, sampling and reporting. These actions included:

- LCO pumped the sediment-laden water from the isolated pool back into the mine water system
- Deployment of machinery to make repairs of the containment drain to prevent further runoff
- Water quality sampling of the creek pools and runoff water
- Notification of the incident in accordance with LCO's Pollution Incident Response Management Pan (PIRMP)
- Investigation into the incident and reporting to DPE and EPA

Photographs presented in the investigation report, as well as sampling at the time of the incident of the discharged water as well as upstream and downstream pools within Bowman's Creek supported LCO's conclusion that the sediment laden discharge was contained to an isolated pool and returned to the mine water system and that actions were taken to minimise potential environmental harm.

Following this incident, LCO investigated measures to minimise or prevent a re-occurrence of a similar incident and developed an Environment and Community (E&C) Hazard Plan. The E&C Hazard Plan identifies areas of erosion and sedimentation risk. It includes a map of the mine and potential hazards and controls across all areas of the site. The E&C Hazard Plan is intended to assist or inform decisions when planning mining activities, and particularly to highlight risks to ESCP infrastructure. It was reported that the E&C Hazard Plan is discussed during weekly meetings and feeds into the mine's weekly planning activities.

At the time of writing no response to the incident report had been provided by the DPE or EPA.

In general, it was considered that LCO had an effective system in place for recording, investigating and reporting environmental incidents. Investigations into environmental incidents appeared thorough and details including supporting documents were readily available in CMO.

6.2 Complaint Management

LCO has established a Community Complaint & Enquiry Management Procedure (LIDOC-90533967-798) which aligns with the GCAA complaint response protocol, to respond to community complaints.

LCO operates a free Community Complaints and Blasting Information Hotline which operates 24 hours per day, 7 days per week. The number is **1800 037 317**. The auditors called the telephone complaints line at the time of the audit site inspection and verified it was operating at the time of the audit.

The complaints line is managed by external agency Oracle CMS. When a complaint is lodged a text message and email is sent to the E&C Team, Mine Manager, Operations Manager, CHPP Manager, Production Superintendent and OCEs.

The auditors reviewed the complaints register for the audit period and verified that LCO had received only one complaint in the audit period. The complaint was in relation to dust caused by a blast event at 15:40 on 06 October 2016. The complainant asked to remain anonymous.

The complaint was recorded in the complaints register which is publically available on the LCO website. Complaints are also recorded in CMO in the form of an incident form which includes corrective actions.

6.3 Community Consultation

LCO has a range of communication methods in place which enables it to share information with the local community. These methods include:

- The Community Consultative Committee (CCC);
- Aboriginal Heritage Meetings;
- The LCO Website http://www.liddellcoal.com.au/en/Pages/home.aspx; and,
- Community Newsletter.

LCO has an established CCC which runs in accordance with the *Community Consultative Committee Guidelines, State Significant Projects*, November 2016. The LCO CCC meets twice a year and consists of representatives from LCO, MSC, SC and the local community. A DPE representative is also invited to the meetings and attends on an ad hoc basis.

Minutes of the CCC meetings were available on the LCO website and a summary of the CCC meetings for the year is provided in the Annual Review. The minutes were noted to include the following:

- A summary of previous action items
- An update on operations and environmental performance
- A summary of any blasts which occurred and any blasts that are planned
- General business
- A summary of new actions
- Regulator update (as required).

A review of the CCC presentations and meeting minutes indicated that:

- Community members have an opportunity at the meetings to raise their concerns and these concerns have been responded to by LCO.

- Communications with the CCC appeared to be transparent and information provided as requested.

Communication with the Chair of the CCC (refer Section 4.9) did not identify any issues.

7.0 Review of Environmental Management

This Section provides an overview of environmental management at LCO and includes a review of the adequacy of the environmental management strategy, plans and programs as required by Condition 4(e), Schedule 5 of the Development Consent. Management plans relating to Water, Biodiversity and Rehabilitation by the specialists and are discussed in Section 8.

7.1 Overview of Environmental Management

LCO has developed an Environmental Management Strategy (EMS) which forms part of the broader Health, Safety, Environment and Community (HSEC) management system at LCO. The EMS outlines how LCO manages environment and community aspects, impacts and performance and provides a framework for the standards, plans and procedures implemented to ensure operations are managed in accordance with the GCAA *11.0 Environmental Standard.*

The EMS is supported by management and monitoring plans and procedures developed to monitor the environmental performance of the project and mitigate its effects on the surrounding environment. A number of these management plans are required by Development Consent conditions (as indicated in Table 9 below) and are reviewed further in Sections 7.3 to 7.6 below.

Table 9 Overview of documents require under DA 305-11-01

Document	Revision Date and Version	Required by Development Consent
Environmental Management Strategy	23/10/2018, Version 11.0	Sch 5, Cond 1
Aboriginal Cultural Heritage Management Plan	05/09/2018, Version 4.0	Sch 3, Cond 31
Air Quality Management and Monitoring Plan	17/10/2018, Version 5.0	Sch 3, Con 19
Biodiversity Management Plan	25/10/2018, Version 9.0	Sch 3, Cond 29
Biodiversity Offset Management Plan	25/10/2018, Version 8.0	Sch 3, Cond 24
Noise Monitoring Program	17/10/2018, Version 8.0	Sch 3, Cond 3
Rehabilitation Management Plan (Mining Operations Plan)	29/11/2017, Version not provided	Sch 3, Cond 39
Water Management Plan	26/10/2018, Version 11.0	Sch 3, Cond 23
Blast Management Plan	26/10/2018, Version 6.0	Sch 3, Cond 15A
Blast Management Strategy – Chain of Ponds Inn	17/10/2018, Version 5.0	Sch 3, Cond 15A
Blast Management Strategy – Newdell Zone Substation	17/10/2018, Version 4.0	Sch 3, Cond 15A

Additional management plans and procedures have been developed by LCO and fall under the site EMS framework. These documents have been developed to assist with implementation of management plans required under DA 305-11-01 and to address specific consent and / or GCAA requirements. These additional plans and procedures are listed below:

- Spontaneous Combustion Management Plan
- Waste Management Plan
- Stakeholder Engagement Strategy
- Pollution Incident Response Management Plan
- Indirect Offset Management Plan

- Waste Management Bioremediation Area
- Community Complaint & Enquiry Management Procedure
- Pipeline Management Procedure
- Water Transfer Offsite
- Lighting Management
- Bushfire Management Procedure
- Noise Management Procedure
- Dust Management Trigger Action Response Plan
- Legal Compliance Procedure
- Communication and Engagement Procedure
- Environmental Reporting Procedure
- Land Clearing and Topsoil Stripping
- Monthly Environmental Inspection Procedure

7.2 Environmental Management Strategy

7.2.1 Overview

The EMS was developed to address the requirements of Schedule 5, Condition 1 as well as integrate the requirements of the GCAA HSEC Management System Framework and GCAA 11.0 Environmental Standard. The EMS is based on the ISO: 14001 principals of "Plan-Do-Check-Act" to facilitate continuous improvement. The EMS:

- Provides the strategic context for environmental management.
- Identifies the legislation and regulatory requirements applicable to LCO.
- Outlines the implementation measures and measurement and evaluation measures that will be implemented. Including the various environmental monitoring programs that are in place to measure the performance of the operation.
- Describes the procedures for stakeholder communication, complaint management and dispute resolution.
- Describes the compliance management process including responding sand reporting of non-compliances.
- Outlines the roles and responsibilities and accountabilities of relevant personnel with regards to environmental management.
- Outlines how the environmental performance will be measured and evaluated through environmental monitoring, audits, inspections, environmental reporting, incidents and corrective actions and EMS review and continuous improvement.

7.2.2 Summary of effectiveness of Environmental Management Strategy

Compliance Monitoring - CMO

GCAA utilise CMO Compliance Software as a management tool across all of its sites. The CMO Compliance Management database system is used to store and track compliance with development consents, leases, licences, and other approvals and their associated conditions. CMO is updated regularly as triggered by actions or the addition of new or modified approvals. CMO is also utilised to assign and complete inspections and to track complaints, actions arising from internal or external consultation practices or actions following an audit.

During the audit site inspection, LCO demonstrated its use of CMO to the auditors. The CMO database included the requirements of the Development Consent, EPL, Mining Leases, STP approvals and the key commitments / requirements of each management plan. The LCO E&C Team used CMO to pull up evidence to demonstrate compliance with specific conditions of consent.

Internal Assurance

GCAA implements an internal audit program which is conducted in accordance with the Glencore corporate procedure for internal and external auditing. The audit program involves internal compliance audits conducted every three years prior to an IEA. The internal compliance audit assesses compliance against the sites Development Consent conditions and associated approval conditions which have been entered into CMO. LCO is required to enter evidence into CMO against each relevant condition to assist with the compliance review process.

The auditors sighted evidence of past internal compliance reviews being undertaken. The action plan from the internal compliance review conducted before this IEA was observed in CMO by the auditors. This action plan included a summary of recommendations, planned actions, accountabilities and due dates for actions to be completed.

Monthly Inspections

The LCO E&C department conducts monthly environmental inspections of the site. The monthly inspections are conducted to:

- Identify any potential non-conformances or environmental incidents that have not been previously identified/reported;
- Maintain a visual presence around the site to promote environmental awareness to mine personnel and contractors;
- Maintain site familiarity by ensuring E&C personnel are aware of any physical changes to operations or processes at the site.

The Monthly Environmental Inspections include a description of general environmental conditions as well as checks of specific areas (South Pit, Entrance Pit, Fuel Storage and Service Bay, Workshop Area and Stores, MIA STP, CHPP and CHPP STP, Rehabilitation Areas, Mountain Block and Priority Erosion and Sediment Controls. The inspections include identified actions, an action category, due date and status and include photos and attachments where relevant. Depending on the category of the action, it may be entered into CMO and tracked.

The auditors sighted examples of completed inspections conducted by the LCO E&C Department. Inspections were observed to be undertaken monthly. The reports were considered to be sufficiently detailed and well completed with appropriate actions identified for issues raised.

In addition to the monthly environmental inspections, the auditors sighted evidence that LCO was undertaking pre and post rainfall inspections. These inspections focused on erosion and sediment control and are required for areas of risk prior to and following rainfall events of >25mm in any 24 hour period.

Ground Disturbance Permit (GDP) Process

LCO implements a work permit system in accordance with the GCAA Work Authorisation and Permit Management procedure. In the event that ground disturbance is identified during the Work Authorisation process (for contractors) or during works planning by LCO employees, a Ground Disturbance Permit (GDP) is required to be completed. The GDP is a risk management tool designed to ensure the proposed works have the required environmental approval and that the person undertaking the works has appropriately managed risks to minimise impacts on the environment and community. The GDP provides a checklist of environmental aspects that must be completed by the employee / contractor initiating the work and approved by the E&C Department prior to the commencement of any work.

The auditors sighted examples of completed GDP forms. Part 1 of the GDP form requires the person requesting the permit to include task details. It includes checks of whether the task area is within approval boundaries and how the boundaries have been identified. It also requests details of topsoil

and/or vegetation removal and whether erosion and sediment control is required (amongst other details). Part 2 of the form requires the E&C representative to visit the work area. Part 3 discusses erosion and sediment control including sediment dam calculations. Parts 4, 5 and 6 are completed by the E&C representative and assess community interaction, cultural heritage and ecology. Part 7 assesses clearing and stockpiles including topsoil management and vegetation management. Part 8 enables the permit issuer to include specific permit conditions. Part 9 is the authority to proceed and includes sign off by the E&C representative, Permit Holder and Permit Issuer. Part 10 includes a boundary check and erosion control sign off. The Permit also includes a list of attachments (e.g. risk assessment, erosion and sediment control plan, pre-clearance survey etc.), a record of planned and unplanned task monitoring and inspections, a section for worker sign on review and re-sign (Part 14), a post-disturbance assessment (completed by the E&C representative on permit completion / cancellation) and a sign off upon permit completion / cancellation. The completed GDP's reviewed (Bayswater Stage 3 clearing - 2017, Bayswater Pit exploration – 2018 and South Cut Strip 24 – 2017) were considered to be well completed. The GDPs included dates and time where E& C inspections were undertaken and relevant attachments.

7.2.3 Environmental Management Strategy Adequacy Review

The EMS was developed to meet the requirements of Schedule 4, Condition 1 of the Development Consent DA 305-11-01. It has been regularly updated, with the most recent amendments made in March 2018 and approved by the DPE in October 2018.

The EMS is considered to adequately address the requirements of Development Consent DA 305-11-01 and EPL 2094. The following Opportunities for Improvement (OFIs) were identified:

2019 IEA OFI 001

Update the Monitoring Plans in Appendix A to reflect current monitoring undertaken e.g. include new groundwater monitoring bore ALV9 and additional real-time monitor (E-BAM) locations.

7.3 Noise Monitoring Program

7.3.1 Noise overview

Noise at LCO is managed in accordance with the Noise Monitoring Program, (October 2018). The NMP details the procedures to minimise and manage noise emissions from the Mine operations and determine compliance with the acoustic requirements established by the noise conditions in the Development Consent. The main sources of noise at LCO include:

- Mine generated noise from heavy vehicles;
- Operations conducted at the CHPP;
- Train Loading - Train loading is scheduled by the Hunter Valley Coal Chain, and occurs concurrently with other generators on the loop to maximise the capacity of the system;
- Construction noise – where and when construction is occurring; and
- Road Traffic Noise – identified by Global Acoustics to be minimal.

7.3.2 Summary of Effectiveness of Noise Monitoring Program

Operational Controls

LCO has in place noise management controls which aim to reduce the site's noise impacts. These included:

- GCAA procurement program includes basic criteria that all plant and equipment must comply with. This is taken into account when purchasing or hiring equipment.
- Sound suppression on key plant.
- Sound power level testing of LCO plant and equipment. This program involves monitoring individual items through the life of each item. The aim is to test each piece of equipment once every 3 years. Global Acoustics have been contracted to conduct ongoing noise monitoring of

all vehicles, plant and equipment. A spreadsheet of noise monitoring results was sighted by the auditors. The spreadsheet outlines each piece of plant, equipment and vehicle along with the EIS limit criteria for that category of plant (dB/dBA) and compares these limits with monitoring results outlining if an exceedance has occurred. If equipment exceeds the EIS limits, the equipment is identified as requiring maintenance and assessed by the LCO Maintenance Department to resolve the non-conformance.

- General induction raises awareness of noise pollution (all people inducted on site, including contractors).
- Dispatch operators have been trained in the management of noise triggers including altering operations and reviewing real time noise levels during the day and night.
- Task Specific training is provided for noise. This outlines the methods for responding to alarms, how to download noise results, play them back and what to do in response. Dispatch Operators receive trigger alarms from Sentinex and are the first responders to these alarms.

Attended Noise Monitoring

Global Acoustics conducted attended compliance monitoring for LCO at four locations on Hebden Road and also at the Liddell Recreation Area between 2010 - 2013. A review of the noise monitoring locations was conducted by Global Acoustics in March 2013 and it was determined that the number of sites could be reduced to two (1246 and 1307 Hebden Road). The Liddell Recreation Area is owned by AGL so is not a privately owned residence and as such, LCO land acquisition criteria do not apply.

The noise monitoring locations were selected to be representative of the local LCO community and likely properties that may be impacted by LCO operational noise. The locations are representative of currently occupied properties identified in the Development Consent DA 305-11-01.

Attended noise monitoring is undertaken once per calendar month at the representative locations in accordance with the EPA 'Industrial Noise Policy' (INP) guidelines and Australian Standard AS 1055 'Acoustics, Description and Measurement of Environmental Noise'. The attended noise monitoring survey is used to quantify and describe the acoustic environment at each monitoring location and assess compliance with the noise impact assessment criteria outlined in Schedule 3, Condition 1 of the Development Consent.

No exceedances of noise criteria limits occurred during the audit period.

Unattended Noise Monitoring

In addition to the attended monitoring outlined above, LCO also maintains a real time (unattended) noise which is used as a noise management tool to proactively manage noise by modifying mining operations as required when a trigger level is reached.

Real-time noise monitoring allows noise levels and local meteorological data to be analysed and compared against compliance modelling. Results may identify operations with the potential to generate elevated noise levels offsite so that these activities can be proactively managed. LCO has a real time, directional noise monitoring unit that is programmed to send an SMS to key operational personnel when a trigger noise level is reached. These trigger level alerts are summarised as either an Amber Alert, greater than 33db(A) or Red Alert greater than 35dB(A). Following the alert, a review of operations and current meteorological conditions is undertaken in order to minimise the risk of noise level exceedances.

Summary

The DPE undertook an unannounced after-hours inspection of LCO in the early hours of Thursday 15 November 2018 to review compliance with noise and dust conditions. The DPE concluded that the site was considered to be operating competently and generally in accordance with the air quality and noise management plans.

No complaints were received in relation to noise emitted from site.

Based on the evidence reviewed the NMP was considered to have been generally implemented at the time of the audit.

7.3.3 Noise Monitoring Program Adequacy Review

The NMP was developed to meet the requirements of Condition 3, Schedule 3 of the Development Consent DA 305-11-01 and was originally submitted to DPE on 14 May 2015. DPE approved the NMP (Version 1.0) on 18 August 2015. The latest revised version (Version 8.0) of the NMP was subsequently approved by DPE on 4 October 2018.

The review of the NMP determined that the Plan adequately addresses the requirements of the Development Consent DA 305-11-01 and EPL 2094.

7.4 Blast Management Plan

7.4.1 Blast overview

Blast management is coordinated in accordance with the LCO Blast Management Plan, (October 2018) as well as the Blast Management Strategy Chain of Ponds Inn and the Blast Management Strategy Newdell Zone Substation. Monitoring of overpressure and vibration associated with blasting activities at LCO is undertaken at two privately owned residences, the Chain of Ponds Inn and the Newdell Zone Substation. EcoTech monitors are in place in accordance with the Blast Management Plan with blast results made available on the LCO website each month.

The Blast Management Plan details the procedures to manage blast induced ground vibration and airblast overpressure levels and minimise these blast emission impacts on the local community, infrastructure, vulnerable micro-bat species and cultural heritage sites to the extent required by the Blast Conditions in Development Consent DA 305-11-01 and EPL 2094.

7.4.2 Summary of Effectiveness of Blast Management Plan

The auditors reviewed raw data obtained from each blast which occurred in the audit period (total of 488) and conducted a review of non-compliances, complaints and incidents. Two exceedances of blast criteria occurred during the audit period. In addition a number of measurements above the overpressure limit were recorded at privately owned residences, however these did not exceed the allowable exceedances criteria outlined in Table 2 of DA 305-11-01.

The two exceedances were in relation to ground vibration measurements recorded at the Newdell zone substation and are summarised below:

- Blast fired on 15/02/2016 resulted in a ground vibration measurement recording of 28.48mm/s at Newdell zone substation. The compliance limit at Newdell zone substation at the time of the blast was 25mm/s. LCO notified the DPE of the exceedance and reported it in the 2016 Annual Review.
- Blast fired on 16/01/2018 resulting in a ground vibration measurement recording of 27.49mm/s at Newdell zone substation. At the time of the exceedance the compliance limit at Newdell zone substation, agreed to by Ausgrid, was a VPPV less than or equal to 26mm/s where the blast frequency is below 12Hz for any individual blast. LCO conducted investigation in to the exceedance and were in the process of agreeing to an increased blast criteria limit at Newdell Zone Substation as detailed below.

Newdell Zone Substation Alternative Criteria

LCO has consulted and reached agreement with Ausgrid for alternative blast criteria for the Newdell zone substation. On 2 November 2017 LCO notified the DPE that it had reached an agreement with Ausgrid to progress an increase of blast vibration limits at the substation effective from 01 November 2017.

The increase in vibration limits has been incremental and based on the effectiveness of mitigation measures as confirmed by the Ausgrid monitoring program. LCO continues to work with Ausgrid to review mitigation measures in place at the substation.

Chain of Ponds Inn Alternative Criteria

The Blast Management Strategy - COPI details that blast vibration levels up to 50mm/s peak particle velocity (PPV) will be acceptable at the COPI. Blast criteria was initially set at up to 20mm/s PPV and

has progressively increased based on a review of blast impacts and mitigation works. LCO has advanced the trigger levels at COPI via the following schedule:

- 10 – 20mm/s PPV: implemented August 2015
- 20 – 30mm/s PPV; implemented April 2016
- 30 – 40mm/s PPV; Implemented June 2016;
- 40 – 50mm/s PPV; not implemented at the time of the audit.

Complaints

One complaint was received via the EPA on the 10 October 2016 for a blast event that occurred on 6 October 2016. The complainant requested to remain anonymous. The complaint was relating to fume and dust witnessed from a blast fired at 3.30pm on 6 October 2016. LCO reported the following in its 2016 Annual Review with regards to the complaint:

There were issues encountered earlier in the week during loading (product runaway) which identified increased blast fume risk. Loading was halted and risk assessment developed to mitigate impacts. The NSW DPE was notified of potential fume risk prior to firing and the controls put in place. The fume generated from the blast was rated as Level 2, and passed over mine owned land, avoiding impact to surrounding residents as planned. LCO related this information to the EPA and supplied further information as requested, including photos. No further action has been required to date (2016 Annual Review).

Summary

Based on the evidence reviewed the Blast Management Plan was considered to have been generally implemented at the time of the audit.

7.4.3 Blast Management Plan Adequacy Review

The Blast Management Plan was developed to comply with the requirements of Condition 15A, Schedule 3 of Development Consent DA 305-11-01 and includes a Blast Management Strategy for the COPI and Newdell Zone Substation. The Blast Management Plan was originally approved by DPE on 26 January 2016. LCO submitted a revised version of the Blast Management Plan, Version 5.0 for approval in 2018. The DPE conditionally approved the Blast Management Plan on 4 October 2018 subject to changes being made to Page 13 of the Plan. The Blast Management Plan was resubmitted to the DPE on 17 October 2018 and subsequently approved by DPE. The updated version (Version 5.0) was also uploaded to the LCO Public Website as per DPEs request.

The review of the Blast Management Plan determined that the Plan adequately addresses the requirements of DA 305-11-01 and EPL 2094.

7.5 Air Quality Management and Monitoring Program

7.5.1 Air Quality overview

The AQMMP (October 2018) outlines the management measures in place to reduce air quality impacts caused by the mine. The main sources / activities with the potential to cause air pollution are:

- Blasting and drilling operations
- Waste rock emplacement
- Coal stockpiles
- Haul roads
- Light vehicle roads
- Topsoil stripping and stockpiling
- General areas disturbed by mining
- Areas where spontaneous combustion is a risk

Air quality management measures include source-specific control measures, including contingency measures implementable in response to adverse conditions, and site-wide management and monitoring measures.

The AQMMP includes air quality management measures with detailed work instructions integrated within relevant site operating procedures, including the LCO Dust Trigger Action Response Plan (TARP).

The air quality monitoring program is discussed in Section 2.11 of the AQMMP. The following air quality monitoring is undertaken:

- Compliance Monitoring – Utilising a network of Total Suspended Particulate (TSP) and PM10 monitors, Real time TEOM monitors and dust deposition gauges.
- Management Monitoring – Real time monitoring utilised for reactive dust management in accordance with the LCO Dust Management TARP (E-BAM monitoring stations).
- Supplementary Boundary Monitoring – relocatable boundary monitoring (E-BAM monitoring stations)

7.5.2 Summary of Effectiveness of Air Quality Management and Monitoring Program

Review of Management Measures

The auditors identified the following management measures in place to minimise odour, fume and dust emissions from site.

Odour poses a low risk from an environmental point of view at LCO. Odour sources are predominately from spontaneous combustion occurrences. Spontaneous combustion is managed in accordance with the Spontaneous Combustion Management Plan falls under the approval AQMMP. Occurrences of spontaneous combustion are localised within the pit. LCO ensures that mine design incorporates the use of benches for sealing off the high wall to minimise the ingress of oxygen, and the flooding of heated areas prior to mining with recycled mining water. In addition coal and overburden stockpiles are cooled and saturated with water where practical to minimise heat and dust generation.

Dust management and contingency measures are triggered by visual monitoring and alerts from the real time operational monitoring and forecast systems as outlined in the LCO Dust Management TARP. The Dust Management TARP contains a number of triggers including monitoring triggers, operational triggers and weather condition alarms.

LCO has a daily meeting at 10am with operational, supervisor, safety and environmental staff which outlines if the dust TARP has or is at risk of being been activated. The auditors attended a 10am shift meeting and verified weather conditions and dust control measures were discussed in the meeting.

The Mining Supervisor completes the Mining Supervisor Inspection Report which includes notes from activities which occurred during each shift. This includes a section which outlines if the dust TARP was activated.

Other dust management measures in place at the time of the audit included:

- Progressive rehabilitation observed on site.
- Major haul roads were maintained in a damp condition by water carts.
- Water sprays in place at CHPP, stockpiles and train loading facility.
- Dust suppressant was being trialled on light vehicle roads.
- Graders were identified in operation to maintain road surfaces.
- Water cart filling stations were observed.
- Speed limit signage was in place on site

A number of exceedances of short term impact criteria were recorded against 24hr PM10 criteria. These were considered by LCO to be as a result of offsite contributions and not caused by LCO operations.

LCO implements a Post Blast Fume Procedure which is included as an appendix to the Blast Management Plan. During the blast design process the engineers ensure that product selection (low fume product), meteorological conditions and other blast details are aimed at reducing fume.

Following each blast, fume is reviewed by the drill and blast engineer and recorded in the post blast checklist. If fume is identified this is recorded and rated and actions made according to the fume rating. Examples of completed checklists were sighted by the auditors.

Complaints

One complaint was recorded in response to dust and fume generated from a blast event. Refer Section 7.4.2 for further details.

Incidents and Non-Compliances

Ten non compliances were identified in 2018 against the short term impact criteria for PM10 24hr. LCO reported that investigations concluded that monitoring results were either a result of:

- Regional dust events, and therefore fell under 'note d' of Table 3-5; or
- A result of offsite contributions and therefore unlikely that LCO operations caused an exceedance of short term impact assessment criteria.

In reaching the conclusion that LCO activities did not cause the exceedance, LCOs investigation considered the meteorological data (prevailing winds), real-time monitoring results (no alarms had been triggered), boundary monitoring results and Upper Hunter Air Quality Monitoring Network results.

As per note 'a' to Table 3-5, short term impact criteria are applicable to the *Total Impact* i.e. the incremental increase in concentrations due to the development **plus** background contributions due to all other sources. MOD 7 of LCO's DA 305-11-01 was approved on 12 February 2019. The updated consolidated consent has amended the short term PM10 criteria to be subject to note 'b' *Incremental Impact* (i.e. incremental increase in concentrations due to the development on its own). This amended criteria note indicates that the above exceedances would not be considered non-compliant (after the date of approval of MOD 7) as they were considered to be caused by increased background concentrations from other sources.

7.5.3 Air Quality Management and Monitoring Program Adequacy Review

The AQMMP was originally approved by DPE on 13 August 2015 and was developed to comply with the requirements of Condition 19, Schedule 3. The AQMMP was revised and reapproved by the DPE on two occasions during the audit period. The DPE approved the revised AQMMP on 30 May 2017 and 4 October 2018.

LCO notes that it will update the AQMMP following approval of MOD 7 of DA 305-11-01 to address the change in the note applicable to short term PM10 criteria.

The AQMMP was reviewed to assess its adequacy in reducing and controlling dust emission from the site. The LCO AQMMP is a comprehensive document which covers all of the areas required of an AQMMP for a coal mine. The review determined that the AQMMP is generally adequate in addressing the requirements of DA 305-11-01 and EPL 2094. The following OFIs have been identified:

2019 IEA OFI 002

It is recommended that the AQMMP reference the specific requirements of EPL monitoring condition M2.2 and improve the discussion of how LCO are complying with the requirements of this condition, specifically the requirement for continuous monitoring and how this is defined.

2019 IEA OFI 003

It is recommended that the figures in the AQMMP include reference to EPL Monitoring Point numbers (point 9, 10, 11 & 12) or outline clearly the link between the EPA monitoring Point numbers and the LCO unit references (e.g. SX38-D3).

2019 IEA OFI 004

It is recommended that Section 2.11 of the AQMMP, Air Quality Monitoring, is reviewed and updated to improve readability. For example, improvements could be made to the heading level structure to clearly delineate which monitoring method the sub sections are referring to.

7.6 Aboriginal Cultural Heritage Management Plan

7.6.1 Aboriginal Cultural Heritage Overview

The Aboriginal and Cultural Heritage Management Plan (ACHMP), LIDOC-90533967-3607 (LCO, September 2018) outlines the management measures to be implemented to ensure LCO operates in accordance with relevant legislation, in consultation with Registered Aboriginal Parties (RAPs) and to satisfy Development Consent requirements.

The ACHMP Boundary has been subject to extensive Aboriginal archaeological investigations since mining was initiated and early archaeological surveys were conducted by between 1982 and 1991. More recently, archaeological investigations have been completed by Umwelt (in 2001, 2008, 2009, 2010, 2011 and 2013) and OzArk (in 2012, 2013, 2014, 2015, 2016 and 2017). Sites have been recorded over all landforms, the majority, however, being located along the watercourses of Bayswater, Chain of Ponds and Bowmans Creeks as well as their tributaries. A lower number of sites have been recorded on crests somewhat more distant from water.

Aboriginal sites can include a number of site types. Within the ACHMP Boundary, the only site types present include artefact scatters (including those with associated potential archaeological deposit (PAD) and isolated artefacts.

7.6.2 Summary of Effectiveness of Aboriginal Cultural Heritage Management Plan

The main commitments of the ACHMP relate to Aboriginal stakeholder consultation, site surveys, reporting, impact assessment, site assessment, monitoring and management of Aboriginal cultural heritage sites.

New Finds in the Audit Period

LCO contracted OzArk Environmental & Heritage Management (OzArk) to complete Archaeological Due Diligence assessments of biodiversity offset areas to provide for the protection of cultural heritage within these areas. The auditors reviewed the due diligence reports prepared by OzArk in January and July 2017 and verified the following:

- New sites were identified during the due diligence process These include:
    - 9 new Aboriginal sites were recorded during the January 2017 assessment.
    - 10 new Aboriginal sites were recorded in the July 2017 assessment (inclusive of the two Creek Sensitive Archaeological Landforms (SALs) mentioned below).
- During the program two additional isolated find SALs were identified being the Bowmans Coalhole SAL and the Hebden Bowmans Creek SAL.

LCO reported on the new finds in the 2017 Annual Review. An updated map showing all identified Aboriginal heritage sites was provided in the Annual Review and updated in the ACHMP.

Identification of new sites was conducted in accordance with the methodology specified in Section 6.2.1 of the ACHMP.

RAP Consultation

LCO conducts an annual site inspection of Liddell Mine with members from RAPs. The annual inspections comprise a site inspection of Aboriginal artefact sites at LCO as well as a meeting in the LCO offices to discuss any relevant matters, including:

- Consultation requests relating to updates of the ACHMP.
- A review of the blast results and potential impacts to artefacts.
- Discussion regarding the due diligence process for the offset areas.
- Raising any matters of concern that may be held by the RAPs.
- Work conducted by suitably qualified archaeologist that year.

Incidents and Complaints

One incident was reported to OEH on the 18 May 2018 which involved a surface blast initiated on 07 May 2018 that led to some minor cracking and surface heave within the Liddell Bowman's Creek SAL. LCO reported the event to OEH as a precaution and to ensure transparency of archaeological management. LCO also engaged with their RAPs on the issue.

LCO surveyed the extent of the observable blast heave impacts, reviewed AHIMS site cards and historical records for the area and engaged an archaeologist from OzArk to inspect the area to determine whether any harm to the environment as defined under section 86 of the National Parks and Wildlife Act 1974 (NPW Act) had occurred.

The incident investigation report concluded from the nature of the impacts and review of the archaeological context of the SAL that it was very unlikely that harm as defined by the NPW Act had occurred. LCO noted that the blast which caused the incident was the final planned surface blast in that area and that subsequent shots will progress away and utilise free face to the south east. LCO consider that given the location of future planned blasts it is not anticipated that there should be a repeat issue for subsequent blasts.

Ongoing management measures which occurred in response to the incident included a review into lowering the design powder factor which could potentially reduce the blast energy released in future surface blasts. In addition LCO also updated the ACHMP to include ongoing management and mitigation processes for the Bowmans Creek SAL.

No complaints were recorded in relation to aboriginal heritage during the audit period. The review of the ACHMP identified that the plan was generally being implemented during the audit period.

7.6.3 Aboriginal Cultural Heritage Management Plan Adequacy Review

The ACHMP was developed to comply with the requirements of Condition 31, Schedule 3 of Development Consent DA 305-11-01. The ACHMP was approved by the DPE on 16 January 2015 and included the management measures identified in Table 7.16 of the EIS. A revised version was approved during the audit period by DPE on 01 August 2018.

The review of the ACHMP determined that the Plan adequately addresses the requirements of the Development Consent DA 305-11-01.

8.0 Specialist Areas

This section addresses the specialist areas of Mine closure and rehabilitation, groundwater and surface water as required by Condition 10, Schedule 5 of Development Consent SSD-6764.

8.1 Rehabilitation and Biodiversity Management

8.1.1 Rehabilitation and Biodiversity Overview

The broad fauna habitat types of grassland, riparian, woodland/forest and aquatic habitat found within LCO are representative of the habitat types occurring broadly across the Hunter Valley floor. All habitats in the region have been extensively cleared or modified for agriculture, largely for cattle grazing, and mining. The areas surrounding LCO generally comprise fragmented valley floor woodlands and riparian forests, with native and exotic grasslands derived from previous clearing of woodland and forests.

LCO conducts and manages rehabilitation in accordance with the LCO Mining Operations Plan (MOP). The MOP satisfies the requirements of the Rehabilitation Management Plan required by the development consent. Biodiversity on site is generally managed in accordance with the Biodiversity Management Plan (BMP), while the Biodiversity Offset Management Plan (BOMP) was developed to provide direction for the short to long term management and enhancement of the biodiversity values of the LCO biodiversity offset areas, as well as to provide a description of the measures to be implemented to achieve this over the next three years.

The overall objectives of the proposed post-mining land use design at LCO are:

- to contribute to effective native corridors through the area which promote fauna movements between Ravensworth Operations, Mt Owen Complex, Lake Liddell and the Ravensworth Operations Hillcrest Offset Area;
- to maintain and provide additional suitable habitat for the spotted-tailed quoll (*Dasyurus maculatus maculatus*) identified during fauna monitoring programs in 2012, particularly around the Bowmans Creek area;
- to provide opportunities for future agricultural activities such as sustainable grazing;
- to improve the visual amenity of the area; and
- not to preclude other potential post mining land use options should they be determined to be viable and preferable as part of the detailed mine closure planning process that commences at

8.1.2 Summary of Effectiveness of Rehabilitation and Biodiversity Management

Rehabilitation and features of the LCO site were inspected by the Rehabilitation specialist and Lead Auditor on the 4th and 5th of February 2019. Areas inspected included:

- Dam 3 and adjacent Triangle Dams (Blue-billed duck habitat dams)
    - Fencing and signage
- Mountain Block Rehabilitation (inclusive of Bowmans Creek Zone 3, and the void and slope to the north of Zone 3)
    - Fencing and signage
- Mountain Block Offset Area
    - Nestboxes
    - Tiger Orchid translocation
    - Supplementary planting
    - Fencing and signage
- Bowmans Creek Offset Areas (Zones 1 and 2)
    - Supplementary planting

  - Weed control
  - Fencing, signage
- South Cut RL 195 Dump
  - 2015 woodland rehabilitation (topsoil)
  - Older woodland rehabilitation (overburden)
  - Pasture rehabilitation
  - Grazing trials and facilities
  - Recently rehabilitated slope (September 2018)
  - Habitat features (rock and wood piles)
- Bayswater Pit
  - Temporary stabilization of topsoil identified by the ACHMP as requiring separate stockpiling with the intention of re-spreading for rehabilitation in the vicinity of where it was stripped
- Entrance RL192, Western Entrance slope and Eastern Premier Dump
  - Shaped and seeded topsoil stockpiles
  - Recently rehabilitated slope (December 2018)
  - Habitat features (rock and wood piles)

Rehabilitation status

Rehabilitation undertaken during the audit period is documented in the 2016 and 2017 Annual Reviews and outlined in Table 10 below. The 2018 Annual Review was not finalised at the time of writing however figures provided for 2018 indicate a total of 67.4 ha were rehabilitated.

The 2016 and 2017 Annual Reviews indicate that a total of 42 ha were rehabilitated in 2016 whilst a total of 37 hectares (ha) were rehabilitated in 2017. Targets set in the 2015-2022 MOP indicate that the 2016, and 2017 rehabilitation targets were exceeded, whilst the 2018 were almost met (shy of 0.9 ha).

The cumulative total rehabilitation required during the audit period (2016-2018) equates to 121 ha. Throughout this time period, a total of 146.4 ha of rehabilitation were delivered, thereby exceeding the documented requirements.

None of the rehabilitated areas on site have been assessed against the MOP (2015-2022 or 2018-2020) completion criteria for the purpose of formal relinquishment.

Table 10 Site rehabilitation figures during audit period

Year	MOP Requirement (rehab)	Site rehabilitation	Variance
2016	22.7	42	+19.3
2017	30	37	+7
2018	68.3	67.4	-0.9*
Total	**121**	**146.4**	**-**

* The negative variance in 2018 reflected the reduced areas available for rehabilitation due to bringing forward rehabilitation in previous years.

The re-establishment of woodland (including the Central Hunter Box-Ironbark Woodland, Narrow-Leaved Ironbark-Spotted Gum woodland and Narrow-Leaved Ironbark – Bulloak Open Forest) and grassland suitable for grazing for rehabilitated areas is outlined in the 2015 – 2022 and 2018-2020 MOPs (Schedule 3, Conditions 25 and Condition 37).

Maps provided in the 2016 and 2017 Annual Reviews give an indication of the proportion of grassland and woodland revegetation across the site. Further details of the number of hectares of each ecosystem are provided in Appendix H of the Annual Review. ,

LCO is moving towards a new rehabilitation monitoring management system, the Rehabilitation Report Card, to improve the transparency and accuracy of rehabilitation monitoring. This is described in Section 8.1 of the MOP as follows:

- The approach taken is quantitative focusing on indicators that reflect compositional, structural and functional aspects of ecological communities and sustainable and stable landform
- The Rehabilitation Report Card will be completed through the use of a data workbook, rehabilitation calculator, GIS data and rehabilitation monitoring.
- The report card will be used to summarise and track rehabilitation trajectory performance as well as remediation /. maintenance required and facilitate the annual rehabilitation planning process
- The Rehabilitation Report Card result summary uses the following rehabilitation status descriptors and defines the criteria for each status: Rework; Maintenance; Monitor; and Acceptable.

This approach is considered a significant improvement to typical rehabilitation performance tracking.

Rehabilitation Report Card was yet to be implemented at the time of the audit but LCO was progressing towards this reporting system.

Biodiversity Impacts Management

As highlighted in Section 3.3.7 Biodiversity of the 2018-2020 MOP, LCO manages impacts to biodiversity at the site through a range of plans and programs, including the BMP, BOMP and MOP. Active implementation of several of these plans and programs was evident during the field visit and by review of documentation (e.g. weed and pest control programs, rehabilitation trials, GDP process including pre-clearing checks, biodiversity inspections, flora, fauna and habitat assessment monitoring).

Progressive Rehabilitation

Progressive rehabilitation is briefly discussed within the MOP, BMP or BOMP and was clearly being implemented on site. Rehabilitation observed at LCO was of a high standard, with the vast majority of rehabilitation performing the function of providing a safe, stable and non-polluting landform. It is too soon to establish if ecosystem function has been restored as per the requirements of Schedule 3, Condition 37 of DA 305-11-01. Very few areas of bare ground were observed across the site with rehabilitation directly abutting the current mining area providing evidence of progressive rehabilitation.

Clear evidence of progressive rehabilitation was demonstrated across the site. Of particular note was the progressive rehabilitation across the slope shown at Entrance 192 which clearly demonstrated rehabilitation of varying ages (Photo 8-7).

Vegetation communities

Woodland rehabilitation of varying ages was assessed across site. This included woodland rehabilitation sown directly on overburden (Photo 8-1) with a seed mix dominated by canopy species, more recent woodland rehabilitation (Photo 8-2) sown with a soil ameliorant and a more diverse seed mix in addition to recent woodland rehabilitation sown on areas where stockpiled topsoil had been spread. Clear signs of active management were observed amongst older rehabilitation, where high density canopy species had been thinned to allow for greater resource (e.g. light, water) distribution to the mid and groundcover strata. Woody species were in general too young to show signs of regeneration (e.g. seedlings) however, herbaceous species in the understorey were observed to be flowering and seeding. Vegetation appeared to be in good condition and did not show obvious signs of nutrient deficiencies.

Pasture rehabilitation of varying ages was also assessed. This included pasture rehabilitation in which Rhodes grass was present. In more recent rehabilitation, this species has been removed from the

seed mix as other, less competitive pasture species have been found to be suitable for rehabilitation on site. Pasture rehabilitation excluding Rhodes grass was also observed and appeared to be in good condition. Good coverage of introduced grasses was observed across the site with evidence of several species producing seed.

Revegetation established in September (2018) at Entrance RL 192 (Photo 8-4) occurred in conjunction with adequate rainfall resulting in strong initial establishment. In contrast, revegetation established in December (2018) (Photo 8-5) occurred post rainfall and did not (at the time of the site audit) demonstrate successful establishment. It is probable that given appropriate rainfall over the following months, seed will be triggered to germinate and establishment rates will improve.

The ecotone between woodland and pasture rehabilitation was observed at locations across the site. Where some woody species had established in pasture rehabilitation (a desirable occurrence for future grazing and the provision of shade) some intentionally planted stands of eucalypts and ground preparation for shelterbelts for woodland vegetation (with a species mix aligned to the target community) were observed in addition to opportunistic establishment of several acacias throughout pasture areas..

Habitat resources (i.e. stockpiled logs and woody debris and rock piles) were observed across the site (Photo 8-3) throughout varying ages of rehabilitation.

Kangaroos have grazed the edges of some contour banks such that they have become bare, resulting in the potential for erosion. This situation may be exacerbated by current drought conditions. If after drought conditions have eased the vegetation has not re-established, it is recommended that methods to exclude herbivores from these areas are investigated. Furthermore, a collective approach to kangaroo population monitoring with neighbouring properties would facilitate an understanding of the local kangaroo population and provide evidence for the implementation of management strategies if required (e.g. removal of unnecessary artificial water sources, targeted culling, etc.).

2019 IEA OFI 005

Monitor the impacts of grazing by native herbivores (e.g. kangaroos) on vegetation establishment during annual rehabilitation and or biodiversity monitoring and if impacts are identified investigate management strategies to exclude herbivores from impacted areas.

Landform shaping

In general, landforms were progressing in accordance with the design criteria for overburden emplacement presented in the 2018-2020 MOP (e.g. slopes less than 10°, no slumping or movement, no gully or tunnel erosion).

Topsoil management

Evidence of topsoil stockpiles formed in accordance with the stripping and stockpiling procedures were observed (e.g. stockpiles established away from mining areas on level or gently sloping lands, to a height of less than 3m and sown with suitable cover crops). Where stockpiled topsoil had been removed, rehabilitation of these areas was demonstrated. LCO maintains a register of the source, stockpile location and final in-situ location for all topsoil stockpiles. The process of ripping topsoil once in place for rehabilitation was observed across the site. The only clear sign of erosion evident on site related to the Mountain Block offset area which reflects a legacy erosion issue and is actively being managed.

The NSW EPA recently prohibited the use of mixed waste organic material on forestry and mining land until further controls can be considered. LCO was using Organic Growth Medium (OGM), a municipal solid waste compost, as a soil amendment for use in its pasture rehabilitation. The research commissioned by the EPA concluded that there are limited soil benefits from applying mixed waste organic material but there are physical contaminants, such as small pieces of plastic and glass, and potential environmental risks.[1] The EPA contacted LCO and requested information on mixed waste organic material use at the site. LCO provided this information by letter dated 14 November 2018. As

[1] "Mixed Waste Organic Material – Regulatory Change Factsheet EPA October 2018 https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/18p1230-mixed-waste-organic-material-regulatory-change-factsheet.pdf

reported to the EPA, LCO had two stockpiles of OGM, one at the Entrance Pit Dump (approx. 900 tonnes) and one at the South Pit Dump (approx. 100 tonnes). The last load of OGM delivered to the site was on the 17 October 2018. LCO was awaiting feedback from the EPA on how to use / dispose of the material.

Pasture rehabilitation at Entrance RL 192 was prepared without OGM. An ameliorant mix was developed in consultation with an external agronomist and used in lieu of OGM. The success of this ameliorant will continue to be assessed. LCO intend to continually review alternative ameliorant options.

Archaeologically sensitive topsoil was shown to be treated appropriately with signage in place to indicate the significance of the respread topsoil (Photo 6).

Weed control

Evidence of active weed control of Carpet Weed *Galenia pubescens* was observed throughout the site, primarily along roadsides, although weed control is known to occur elsewhere on site. Several other weed species were observed in low density at the site (e.g. Fennel *Foeniculum vulgare*, Golden Wreath Wattle *Acacia saligna*, Castor Oil plant *Ricinus communis,* Coolatai *Hyparrhenia hirta*). Weed control in general appears to be effective.

The extent of Coolatai observed at Mountain Block offset site may pose a risk to rehabilitation and supplementary planting of this area. Spread of this weed into existing pasture rehabilitation through attachment to animals (e.g. grazing cattle) and vehicles may pose a threat to existing rehabilitation and may result in an increased fire risk (due to increased biomass load and potential to survive hot fires).

Rhodes grass (*Chloris gayana*) is no longer being used in the pasture grass seed mix other less competitive pasture species having been found to be adequate for rehabilitation purposes. Interfaces between paddocks where the seed mix has changed may prove challenging for management and are likely to require close monitoring and potential management actions to limit the incursion of Rhodes grass into newer areas of rehabilitation if this is determined to be undesirable.

Incorporation of new weed control techniques into ongoing management plans are the result of internal strategies and trials to control targeted species (e.g. African love grass and Coolatai) in addition to seeking advice from external agronomists and weed contractors.

Trials

No cattle were observed on site during the audit, however evidence of fencing and cattle yards were apparent (Photo 12). The site visit did not specifically identify rehabilitation trials, with the exception of two differing woodland areas sown approximately seven years ago on OGM.

Other additional trials that were not directly sighted, but occur on site include:

- A trial examining the differences in establishment of woodland grown on topsoil with woodland grown on differing rates of OGM.
- A comparison of cattle that have been grazed on rehabilitation on site with adjacent unmined land.
- A trial investigating the benefits of using drones for seeding on ripped surfaces.

Offset areas

Natural regeneration was observed in the Mountain Block offset area assumed to be the result of the successful exclusion of grazing. Supplementary planting of woody species at Mountain Block offset area were observed to have low success rates (Photo 8-8) which may in part be attributed to poor climatic conditions during establishment. A broader monitoring review of assisted revegetation planting areas has indicated supplementary planting to range from ‘unsuccessful’ to ‘successful’. . Nest boxes (Photo 8-10) and the translocated Tiger orchid (Photo 8-11) was also observed at Mountain Block offset area. Active regeneration attempts in the Bowmans creek area were observed however the regeneration here appeared to be of limited success. All offset areas visited during the field audit were well fenced with locked gates and appropriate signage (Photo 8-13).

The legacy erosion and rehabilitation failure at Mountain Block was also observed (Photo 8-9), however a clear plan of how this erosion will be approached was explained by LCO. It should be noted that the area requiring remediation is predominately outside the Mountain Block offset area.

Waterbird habitat (i.e. gently sloping banks of dams, appropriate vegetation) were observed at Dam 3 and the neighbouring Dam. Fences to exclude stock and appropriate signage were also observed.

Signage within the vicinity of potential Spotted-Tailed Quoll habitat was observed.

8.1.3 Rehabilitation Management Plan Adequacy Review

The Liddell Coal Operations MOP March 2015 – March 2022 (2015-2022) and December 2017-December 2020 (2018-2020) has been used to address the requirements of the Rehabilitation Management Plan (RMP) required by Schedule 3, Condition 39.

Both MOPs discuss rehabilitation planning, management, performance indicators, implementation, monitoring, research and intervention and adaptive management options. The 2018-2020 MOP includes a series of plans that show the annual sequence of mining and rehabilitation over the MOP term including 2018 (Plan 3 A), 2019 (Plan 3B) and 2020 (Plan 3C). Whilst a cursory assessment of the 2015-2022 MOP has been undertaken where relevant, the focus of this review has been the 2018-2020 MOP.

Table 6.1 of the BMP includes Years 4-6 Performance Indicators and Completion Criteria and includes items relating to fencing, topsoil management, seed collection, vegetation clearing, weed control, habitat enhancement etc. This table refers to the MOP for criteria relating to 'Rehabilitation Works'.

The MOP includes completion criteria for each Domain, including 'Domain C – Rehabilitation Area – Grassland' and 'Domain D – Rehabilitation Woodland'. The completion criteria within these domains are specific, for example: grassland ground cover – at least 80% vegetative cover over a minimum of 95% of areas treated after one year; woodland rehabilitation monitoring confirms the presence of at least 2 overstorey and 2 understorey species at all ages; minimum total tree/shrub densities for seeded areas to be Year 1 – 1,000 stems/ha, Year 5 – 500 stems/ha, Year 10 – 400 stems/ha). The TARP for rehabilitation included within the MOP has very high level triggers and responses that don't directly link to the completion criteria or include a measurable timeframe for responses, for example for revegetation, the amber trigger is that 'vegetation is not on a timely trajectory' of developing ground cover and the response is 'review procedures where required to increase vegetation cover'.

It is not clearly documented when a TARP is triggered in response to failed revegetation. It is assumed that this is the result of a combination of bi-monthly biodiversity inspections, monthly environment inspections and annual rehabilitation and biodiversity monitoring, however this is not clearly documented within the MOP.

2019 IEA OFI 006

Include further details in the MOP of how the TARP is used as a tool to track progress towards meeting the rehabilitation completion criteria. This could better reflect the input from the annual rehabilitation monitoring, biodiversity monitoring and biodiversity offset monitoring and the recommendations made in these monitoring reports by the specialist ecologists.

8.1.4 Biodiversity Management Plan Adequacy Review

The Biodiversity Management Plan, LIDOC-90533967-3687 (LCO, October 2018) was developed to comply with the requirements of Condition 29, Schedule 3. The Biodiversity Management Plan was revised during the audit period and approved by the DPE on 10 October 2018.

While the Biodiversity Management Plan was considered generally be adequate, a number of OFI's have been made by the rehabilitation and mine closure specialist.

Flora monitoring utilises the Braun-Blanquet cover abundance scale for all vascular flora. The Braun-Blanquet is a course methodology which does not provide a precise estimate of percent cover and can restrict the statistical analysis capabilities of the data collected. Alternate methodologies are available which provide more precise estimates of cover which can be categorised for comparison with historical Braun-Blanquet data.

2018 IEA OFI 007

It is recommended that LCO review its flora monitoring methodology and analysis with contemporary methods. Any changes adopted should be documented within the BMP.

2018 IEA OFI 008

Section 3.3.4 Introduced Species. This Section would benefit from including the species Hyparrhenia hirta (Coolatai) given its prevalence at nearby offset sites and invasive capability.

2018 IEA OFI 009

Section 4.3 Topsoil Management. This section could benefit from a statement that explains that stockpiled soil will be used as soon as practicable to minimise loss of seed store. In addition, this section of the BMP could be enhanced with a statement that indicates that a register detailing the location of topsoil removal and deposition is kept.

2018 IEA OFI 010

Include discussion of vehicle weed hygiene management within the BMP and BOMP.

2018 IEA OFI 011

Section 4.10 Remnant Vegetation and Habitat Management, this Section could benefit from referencing the Bushfire Management Plan or including information from the Bushfire Management Plan relating to ecological burns and fire intervals for the different communities.

2018 IEA OFI 012

Section 4.11.1 Post-Mining Land Use Design Objectives. This section refers to the rehabilitation strategy which aims to emulate the pre-mining grazing areas yet does not discuss what these pre-mining grazing areas were like. For example, it does not indicate if these pre-mining grazing areas were dominated by native or exotic pastures. It is recommended reference to 'pre-mining grazing' areas should be removed and the objective of establishing pasture (native or exotic) suitable for grazing stated.

8.1.5 Rehabilitation Photographs

The following photographs (Table 11) provide an indication of the observations made or referenced by the Rehabilitation specialist during the site inspections.

Table 11 Site Inspection Photographs – Rehabilitation Specialist

Photo #	Comment	Photo
11-1.	Younger woodland rehabilitation (on topsoil)	

Photo #	Comment	Photo
11-2.	Older woodland rehabilitation (on spoil) showing evidence of thinning.	
11-3.	Habitat resources in the form of wood piles observed throughout rehabilitated sites	
11-4.	Pasture rehabilitation sown in September 2018 at Entrance Pit RL180 showing good strike rate.	

Photo #	Comment	Photo
11-5.	Rehabilitation sown in December 2018 at Entrance Pit RL192 showing limited germination	
11-6.	Signage indicating archaeological soils stockpiled	
11-7.	Evidence of progressive rehabilitation	

Photo #	Comment	Photo
11-8.	Evidence of supplementary planting at the Mountain Block offset area.	
11-9.	Evidence of erosion and failed rehabilitation as viewed from the Bowmans Creek Offset Area	
11-10.	Nest boxes observed at Mountain Block offset area	

Photo #	Comment	Photo
11-11.	Successful translocation of Tiger Orchid to Mountain Block offset area	
11-12.	Evidence of grazing infrastructure	
11-13.	Fencing and signage to Bowmans Creek offset area	

8.2 Water Management Plan

The Water Management Plan (WMP) was developed to comply with the requirements of Condition 23, Schedule 3 of Development Consent DA 305-11-01. The WMP incorporates the following:

- Site Water Balance (Condition 23(c)(i), Schedule 3 of DA 305-11-01) – refer Section 8.2.1
- Erosion and Sediment Control Plan (Condition 23(c)(ii), Schedule 3 of DA 305-11-01) – refer Section 8.2.2
- Groundwater Management Plan (Condition 23(c)(iv), Schedule 3 of DA 305-11-01) – refer Section 8.3
- Surface Water Management Plan (Condition 23(c)(iii), Schedule 3 of DA 305-11-01) – refer Section 8.4

In accordance with Schedule 3, Condition 23(a) of DA 305-11-01, the WMP was prepared by suitably qualified and experienced persons from SLR Consulting whose appointment was approved by the Secretary on 22 January 2015. Appendix D to the WMP includes this approval.

8.2.1 Site Water Balance

Section 7 of the WMP discusses the Site Water Balance (SWB). It describes the Life of Mine water balance model that was developed for LCO and since been integrated with the two neighbouring Glencore mines (Ravensworth Operations and the Mt Owen Complex). It provides an overview of the model and a summary of the model results. The detailed SWB Model (Goldsim) has been developed for LCO and the Greater Ravensworth Area.

Groundwater inflows to the mine operations are monitored by measuring the water pumped from the mine pits and tracked in the site water balance and compared to the rates predicted in the groundwater model.

The SWB did not identify any water supply shortfalls in any of the climatic scenarios simulated for the remaining mine life, implying a high level of water supply security. LCO monitors the mine water balance periodically. For example a Water Inventory report is prepared monthly which includes the current water inventory and 12 month prediction. These inventory reports include levels at which action should be taken. Predictions include both 5th percentile, median and 95th percentile to guide decisions on water inventory (i.e. reduction or site water inventory, normal conditions, etc.).

Evidence that the water balance model was being reviewed and calibrated was sighted including:

- Model Calibration undertaken by Hydro Engineering & Consulting Pty Ltd (HEC) initially in 2016 and again in 2017 following collection of additional data.
- Dashboard/ interface and monthly status update “Water Balance Tool”.

A summary of the water balance results is provided in the LCO Annual Review.

8.2.2 Erosion and Sediment Control Plan

The Erosion and Sediment Control Plan (ESCP) is outlined in Section 8 of the WMP. LCO identifies the following potential erosion and sedimentation impacts which may result from LCOs mining operations and related activities:

- increased runoff volumes and velocities from the removal of vegetation, land disturbance and the introduction of impervious surfaces on the hard stand areas;
- increased potential for sedimentation to occur from increased erosion and runoff associated with open cut mining, stockpiling of material and the construction of surface facilities, access roads/tracks and exploration drilling;
- potential decline in water quality and degradation of local amenities through increased potential for transfer of sediment and dust to nearby watercourses; and
- potential for changes in discharge volumes and quality under the LCO discharge licence.

The ESCP provides control measures appropriate for these activities in order to prevent adverse impacts on surrounding catchment areas and receiving waters.

The ESCP must be consistent with the requirements of 'Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004 (Landcom), or its latest version' (referred herein as the Blue Book). The surface water specialist identified that the ESCP was generally consistent with the requirements of the Blue book with the exception of the proposed design of sediment basins (refer WMP Section 8.6.4). The specialist made the following comments:

- The WMP proposes that Type C soil design methods are appropriate due to the 'coarse-grained, non-dispersive soils', which contradicts earlier statements in Section 3.52 and 3.53 of the WMP with respect to presence of dispersive and sodic soils.
- Section 8.6.4 of the WMP provides design criteria for sizing of sediment basins (nominates a 1 in 20 year ARI sizing) which is not consistent with Blue Book Volume 2E which nominates a 95% design five day storm event and one in 100 year event for embankment and spillway design.
- Observed practices on site (including sediment dam calculation sheets for the MIA, and Ground Disturbance Permit GD-17-06-06-12-11, 6 June 2017) indicate that procedures for Type F/D are being adopted, which is appropriate.

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Update Section 8.6.4 of the WMP - Ensure consistency with regards to soil type and more clearly detail the design standards LCO adopts demonstrating it is consistent with the Managing Urban Stormwater Soil and Construction, Volume 2E: Mines and Quarries.

The ESCP was considered to be well implemented. Evidence sighted during the audit to demonstrate this included examples of monthly environmental inspection reports, pre and post rainfall inspection reports, completed Ground Disturbance Permits, and sediment basin calculations.

The audit site inspection observed that drains, water management controls, and erosion and sediment controls were typically in well-maintained order, with the exception of a redundant sediment fence on Bowmans Creek alluvial plain which was disintegrating. Its placement was also redundant as the disturbance works were completed and remediated and as such the sediment fence can be removed.

8.3 Groundwater Management

8.3.1 Groundwater Overview

LCO is located within the Hunter Coalfield of the Permian and Triassic Sydney Basin. The mine lease is underlain by the Wittingham Coal Measures of the Singleton Supergroup. The Permian strata is overlain by alluvial deposits along the nearby watercourses of Bayswater Creek and Bowmans Creek which are tributaries of the Hunter River.

Located within the project area there are two aquifer systems:

- Alluvial sediments associated with Bayswater Creek and Bowmans Creek. These aquifers will be shallow localised deposits that are unconsolidated deposits of silts, sands and gravels with variable permeability and yield. They are discontinuously connected to the shallow weathered bedrock.
- Regional hard rock aquifer of the coal seams within the Wittingham Coal Measures. The permeability of the coal measures varies considerable with the coal seams having the highest and the siltstones and mudstones being considerably lower.

Groundwater Management System

In accordance with condition 23 (c)(iv) of DA 305-11-01 the Groundwater Monitoring Program (GMP) was developed to monitor:

- groundwater inflows to the mining operations;
- seepage/leachate from water storages, emplacements and final voids;

- background changes in groundwater yield/quality against mine-induced changes;
- impacts of the development on:
    - regional and local (including alluvial) aquifers;
    - groundwater dependant ecosystems and riparian vegetation;
    - the seepage/leachate from water storages, emplacements, backfilled voids and final voids;
    - any impacts on the Bowmans Creek alluvial aquifer.

Water at LCO is managed through the Integrated Water Management System (IWMS) which incorporates groundwater, surface runoff, mine water from the two open cut operations (South Pit and Entrance Pit), several former underground mining areas, and decant from the CHPP tailings storages. The open cuts have and are advancing from north to south with overburden placement behind (i.e. to the north of) active mining operations. The groundwater component is made up of groundwater bores that target the alluvial aquifers associated with Bayswater and Bowmans Creeks, the shallow (weathered) bedrock, overburden, Pikes Gully Seams and the Hazeldene (Liddell) workings.

Potential groundwater dependant environmental receptors that may be affected by mining operations at LCO include aquatic and riparian ecosystems associated with Bowmans and Bayswater Creeks, and in particular the Bowmans Creek alluvial aquifer.

8.3.2 Summary of Effectiveness of Groundwater Management

A site inspection was conducted and included interviews with key LCO staff and review of monitoring data. The site inspection identified that the following groundwater management measures and controls were in place and being operated appropriately at the time of the audit:

- Groundwater monitoring including level and water quality was being conducted routinely and in an appropriate manner.
- The management systems in place to capture, store and evaluate data is an efficient tool to enable incident response management

The groundwater monitoring network comprises a network of 18 piezometers located across the site that target both the surrounding alluvial aquifer associated with Bowmans Creek and the regional hard rock aquifer associated with the coal measures. Groundwater level and limited water quality (EC and pH) monitoring is undertaken monthly and water chemistry samples collected twice a year. The purpose of the monitoring is to limit the impact on surface and groundwater resources from the project.

Groundwater Trigger Response Action Plan

If an exceedance is observed in the groundwater data, a Trigger Action Response Plan (TARP) is followed. Investigations into potential impacts are conducted if there are three consecutive exceedances of the nominated triggers. Should this occur an investigation trigger will include:

- Assessment of the extent of drawdown from mining operations and whether the piezometers triggered are within the drawdown area;
- Any potential seepage sources. If necessary further water quality sampling to characterise the anions and cations to assess if the groundwater has been impacted by mine affected water;
- Review of the cumulative rainfall deficit to determine if water levels are responding to climatic variations or if the piezometers that have exceeded the trigger limits are anomalous to general trends; and
- If any exceedances are outside the maximum ranges recorded or would impact down gradient beneficial uses.

Review of Groundwater Trigger Exceedances

The groundwater specialist conducted a review of instances where groundwater quality and level has exceeded the trigger values outlined in Section 10 of the WMP on at least three consecutive occasions. A summary is provided in Table 12 along with a description of the cause of the exceedance.

Table 12 Summary of TARP exceedances and investigation results

Bore(s)	Date	Exceedances	Cause
ALV3S	May – December 2016 Feb, March and April 2016	EC	Recharge event in response to rainfall which mobilised salt within the shallow bedrock
PGW5L	October – December 2016	EC	Natural climatic variations causing fluctuating vertical hydraulic gradient.
PGW5L	April – June 2017	EC	Natural climatic variations
ALV2S	October -December 2017	EC	As rainfall has declined so has the recharge of the alluvium from the underlying shallow bedrock causing a rise in EC
ALV4L	October 2017 – September 2018	Level	Prolonged dry climatic period
ALV8S and ALV8L	June – August 2017	EC	Prolonged dry climatic period accompanied with high rates of evaporation
ALV8L	October – December 2017	EC	Prolonged dry climatic period accompanied with high rates of evaporation
ALV3S and ALV3L	December 2017 – February 2018	Level	Prolonged dry climatic period accompanied with high rates of evaporation
ALV1L, ALV4L and ALV3S	January – March 2018	Level (ALV1L, ALV4L) and EC (ALV3S)	Prolonged dry climatic period accompanied with high rates of evaporation
ALV7S, ALV7L and ALV8S	February – April 2018	Level	Dewatering of a fracture horizon that is unconnected to the underground workings
ALV1L, ALV3L and ALV3S	August – October 2018	Level	As rainfall has declined so has the recharge of the alluvium from the underlying shallow bedrock
ALV2S and ALV7S	August – October 2018	EC	As rainfall has declined so has the recharge of the alluvium from the underlying shallow bedrock thus increasing EC over time
ALV4S and LBH	September – November 2018	Level	Prolonged dry climatic period

Initial investigations were undertaken by groundwater specialists from Jacobs. Jacobs later developed a framework and report template which would allow LCO to undertake the investigations internally and have them reviewed by LCO's in house water specialist. The framework incorporates the following steps:

- Establish the area in question and identify which level of exceedance has been breached
- State the background of the event
- Outlines the monitoring program and the specific triggers values used and the response plan
- Analysis and presentation of relevant data and template for plotting/ tabling the data up
- Provide a summary and conclusion as to what has occurred and what may have been the contributing factors

All events except the ALV7S, ALV7L and ALV8S February to April 2018 event have been in response to climate driven factors that have resulted in either a recharge event after prolonged dry periods causing salt to be mobilised or declining rainfall leading to increasing levels of EC. The ALV7S, ALV7L and ALV8S event has been caused by a change in the storage mechanisms for the shallow bedrock aquifer. This change was not seen in the overlying alluvium or the underground working indicating poor connectivity to either. Although evidence suggests that the cause is not mining related, the true cause has not been identified.

In all instances LCO has conducted thorough review into the cause and trends associated with each groundwater incident. Review of the incident reports prepared for each exceedance confirmed that the groundwater investigation includes consideration of the following:

- Monitoring results that triggered the investigation
- Monitoring results of other piezometers
- Historic monitoring results
- Predictions made in the EIS and EAs (EIS modelling)
- Regional groundwater elevations
- Meteorological records from LCO's weather station and regional weather statistics
- Streamflow monitoring of Bowman's Creek

Following investigation of each incident the investigation report proposes one or more of the following as an ongoing measure:

- Continue monitoring in accordance with WMP.
- Subsequent investigations shall be undertaken to confirm the exceedance remains unrelated to mining activity if exceedances continue to occur for a period of time
- LCO expect the current behaviours of the groundwater quality to continue and they do not consider it necessary to undertake future investigation if the current exceedance continues.
- Continuation of monitoring is required to verify that results are trending back to within the trigger limits.
- Conduct further investigation if groundwater quality significantly exceeds the historical maximum.

Review of groundwater management at LCO concludes that operations on site are well organised and effective management tools are in place to capture monitoring data, identify exceedance events and respond in an efficient manner. Events have been investigated with robust data in a methodical manner. It is noted that groundwater exceedances are summarised in Section 7.3.2 of the Annual Reviews.

During the preparation of the 2018 Annual Review, LCO became aware of a data error within its internal water management tool which resulted in a trigger investigation for monitoring location ALV2S not being reported within the timeframe identified in the approved WMP. The depth to water trigger level at ALV2S was exceeded for seven consecutive months. LCO consider that based on the findings of previous investigations to date and the results observed, it is unlikely that the measurements are the results of a mining related impact and more likely monitoring is reflecting the declining shallow hard rock aquifer due to prolonged drought conditions as seen at other locations within the system. Notification of this investigation trigger exceedance was provided to the DPI-Water, DPE and DoE on the 22 March 2019. Given this discovery occurred outside the audit period and the investigation was yet to be completed, it is recommended this trigger exceedance is reviewed in future audits.

Trigger Value Review

During August 2017, LCO consulted with DoE, DPE and DPI Water regarding revising the trigger levels to utilise an increased period of background reference data as the original reference data was during a period of relative stability and short duration. The WMP (including the revised trigger levels) was approved in August 2017.

8.3.3 Groundwater Monitoring Program Adequacy Review

The GMP details LCO's requirements and methodology for monitoring the bore network in a clear and efficient manner, as well the response measures should an exceedance of trigger levels for water level and groundwater quality occur. It is noted that the text of frequency of monitoring for groundwater quality in Section 9.2.1 refers to groundwater monitoring at least every two months whereas Table 9.6 commits to monthly monitoring. It is understood the wording of undertaking monitoring 'at least every two months' arises from the EPBC approval.

8.3.4 Groundwater Photographs

The following photographs provide an indication of the observations made or referenced by the Surface Water specialist during the site inspections as detailed in Table 13.

Table 13 Site Inspection Photographs – Groundwater Specialist

Photo #	Comment	Photo
13-1.	Pumping bore, including flow monitoring	

8.4 Surface Water Management

8.4.1 Surface Water Overview

Site context

LCO is located within the Hunter River catchment, with the LCO surface water catchment flows either to Lake Liddell to the northwest, Bowmans Creek to the east, or Bayswater Creek to the southwest. Bayswater and Bowmans Creek drain to the Hunter River approximately 10-15 km downstream of LCO.

Bayswater and Bowmans Creek are natural watercourses with catchment areas of 96 km^2 and 265 km^2 respectively. Bayswater Creek flows from Lake Liddell in a southerly direction along the upper portion of the LCO boundary. Chain of Ponds Creek, a tributary of Bayswater Creek also flows in a southerly direction through the southern tip of LCO to its confluence with Bayswater Creek approximately 150 m to the south of LCO.

Lake Liddell is an artificial lake constructed by damning Bayswater Creek, whilst the Chain of Ponds Creek catchment has also been substantially reduced by mining. As a result, Bayswater Creek and Chain of Ponds are ephemeral, whilst Bowmans Creek is ephemeral adjacent to the project, however is perennial a short distance downstream of the project site (downstream of its confluence with Bayswater Creek and the New England Highway). The landform associated with Bowmans Creek includes an associated floodplain and alluvial deposits and associated alluvial aquifer which is likely to contribute to base flows within Bowmans Creek during periods of low rainfall.

Mine water management system

Water at LCO is managed through the IWMS as previously discussed. The surface water management components include interlinked storage dams, open cuts, tailings storage voids, former underground mines (with dewatering bores), CHPP and associated water reticulation systems.

Water is sourced from groundwater in former underground workings, and surface water that accumulates in above ground mine storages including open cut sumps and tailings decant. Water intercepted by the mining operations meets the site raw water supply requirement. Surplus water onsite can either be discharged under the Hunter River Salinity Trading Scheme or pumped back into the underground workings. Water can also be transferred offsite to the Mt Owen Complex, Hunter Valley Operation and Ravensworth Operations.

As the mining area progresses new water management structures are constructed and/or decommissioned, as required, to ensure containment of mine affected water. The IWMS enables pumping of water around the site, typically from the Reservoir North Dam as the central storage for the site.

The Reservoir North Dam supplies the LCO CHPP, and occasionally Ravensworth CHPP, Hunter Valley Operation Howick and Newdell CHPPs, and the Mt Owen Complex. In order to prevent water inflow to the open cut pits (from former underground workings) from disrupting the open cut operations, water is extracted from the former underground workings and transferred primarily to the Reservoir North Dam, via a number of staging dams and pumps. Surface water runoff collected in both open cut pits and other dams can also be pumped to the Reservoir North Dam.

It is noted that the Development Consent includes construction of a desalination unit on site. However, LCO has yet to commence planning or investigation for this facility (potentially not needed). Therefore this condition has not been triggered.

Sewage generated by the MIA complex is treated by a waste water treatment system to meet a concentration of <100 CFU of E.coli per 100mL as per the requirements Condition L.2.4 of EPL 2094 and Schedule 4 Condition 21C of the Development Consent. The treated effluent is pumped to the mine's dirty water containment system (Reservoir North dam) via LDP5 for re-use in the IWMS.

Sewage generated by the CHPP and associated infrastructure is collected in the CHPP sewage treatment tanks, and pumped to the aerated sewage treatment plant prior to disposal at the designated effluent irrigation area.

8.4.2 Summary of Effectiveness of Surface Water Management

A review of the surface water management measures in place at LCO was conducted by the Surface Water Specialist. This involved physical validation of management measures via a site inspection, interviews with key LCO staff and review of monitoring data. The following observations were made:

- Water management measures and controls were in place and being operated appropriately, including:
    - Catch drains / diversion drains were in place to separate clean and dirty water, and direct dirty water to the site water management system
    - Sediment basins were managed to maintain low water levels, in readiness for future runoff events, with pumping infrastructure in place to capture dirty water within the mine water management system.
- Previous construction works across the Bowmans Creek alluvial flats for the a pipeline (as part of the Greater Ravensworth Water Management framework) showed evidence of controls being in place.

Incidents and Non-Compliances

A review of incidents and non-compliances with regards to surface water was conducted as part of the IEA. Two non-compliances were identified with regards to surface water events. This included an unauthorised discharge of sediment laden water from site and an exceedance of E.coli criteria from the MIA Sewage Treatment Plant (STP). The incident relating to unauthorised discharge of sediment laden water is discussed in detail in Section 6.1. The exceedances are discussed below.

Exceedance of Water Quality Criteria

In June/July 2018 treated effluent from the MIA waste water treatment system exceeded the E.coli concentration limit of 100 CFU/100 ml at the discharge point. It is noted treated effluent from the plant undergoes UV disinfection and is recycled into the mine dirty water system and contained onsite.

LCO implemented the TARP outlined in the WMP and undertook resampling to determine if the result was representative. The second sample was also in exceedance of the limit. In response LCO engaged a maintenance and wastewater treatment plant contractor to investigate the exceedance. Maintenance work was undertaken including replacing a pump, float switch sensors and blower fan. Following this work, ongoing monitoring indicated the STP was performing adequately and E.coli levels have been within the limits since 23 July 2018. The internal LCO investigation looked at the root cause of the exceedance and explored whether the float sensors needed to be on a different maintenance regime. Consultation with the maintenance and electrical team indicated there was no reason to change the regime as measures were in place to identify issues (alarm initiates on Citec panel display in dispatch) and the risk for potential environmental harm low.

Surface Water Trigger Levels

The WMP (Table 9-7) nominates EC, pH, TSS and TDS surface water quality trigger levels for Bowmans and Bayswater Creeks, based on five years of statistical baseline water quality data. Trigger levels are also dependent on the presence of stream flow, at the flow gauging stations, at the time of sampling as follows:

- If stream flow is present – nominated water quality trigger level is 90th percentile concentration
- If no stream flow is present – maximum recorded water quality limit across the whole creek.

The WMP (Table 10-1) defines the following as surface water quality exceedances:

- Investigation trigger: when a nominated trigger value is exceeded three times or more consecutively.
- Management / mitigation trigger: occurs when a trigger value is exceeded three or more times consecutively and determined to be mining related, or due to an incident where environmental harm has occurred, or has potential to occur.

Surface Water Trigger Exceedance Investigation

Exceedances of water quality trigger values under the WMP have occurred throughout the audit period, at two monitoring locations on Bowmans Creek (BCK1A and BCK4) for pH, electrical conductivity (EC) and total dissolved solids (TDS).

The audit included review of the following investigation reports (Table 14):

Table 14 Surface Water Investigation Reports Summary

Trigger Exceedance	Summary
Surface water investigation TARP BCK4 – pH & TSS, dated 11 April 2017, including copy of email demonstrating the investigation report was submitted to the DPE, and Department of Industry – Land and Water. The report was also reportedly submitted to the DoE.	pH trigger was exceeded at BCK4 (midstream along the LCO project boundary) for three consecutive months in December 2016, January 2017 and February 2017, with TSS trigger limits exceeded in January, February and March 2017. The investigation including a site inspection, review of trends in water quality both at BCK4 and other surface water and nearby groundwater monitoring locations with a focus on identifying if a release of site water or leakage had occurred from mining water storages. The investigation concluded that the water quality exceedances were within the natural water quality variations for Bowmans Creek, that mining activities had not cause the observed levels, and that the observed levels were likely the result of local climatic variations which has resulted in slow to no flow along the creek.
Surface water investigation TARP BCK1A – EC & TDS, dated 24 August 2018, including copies of emails showing notification of the exceedance was reported via email on 13 August 2018 and that the investigation report was submitted via email to DPE, DoE and Department of Industry – Land and Water	EC and TDS triggers were exceeded for three consecutive months, May-June-July 2018 at BCK1A (upper section of Bowmans Creek as it flows past the LCO site). Data presented by the investigation report outlines how flow conditions in the creek were very low, and that disconnected pools of stagnant water were forming along the relevant stream length. The investigation report concluded that water quality at BCK1A was declining due to the influence of factors unrelated to mining, including the presence of sodic soils, evaporation on isolated pools, climatic impacts on the underlying alluvial system, and impacts of adjoining land use (cattle grazing).
Surface water investigation TARP BCK1A – EC & TDS, dated 14 December 2018, including copies of emails showing notification of the exceedance was reported via email on 15 November 2018 and that the investigation report was submitted via email to DPE, DoE and Department of Industry – Land and Water	EC and TDS trigger levels continuing to be exceeded across August, September and October 2018 (six continuous months) at BCK1A. Due to this exceedance continuing beyond the previous investigation (as above), LCO implemented addition review and investigation in accordance with the response plan outlined in the WMP.
	Follow-up site inspection, further review of stream flow conditions, and a review of trends in water quality both at BCK1A and other surface water and nearby groundwater monitoring locations, were conducted by LCO. Further field testing was conducted at BCK1A, Dam6, as well as pooled water up and downstream (all isolated pools) to further characterise water composition, particularly cations and anions. This sampling was designed to identify if leakage had occurred from mine site water storages.
	The review of water quality for BCK1A and comparison against the other Bowmans Creek monitoring locations shows a correlation between low flow and increasing trends in EC and TDS. The increasing or elevated trends for EC and TDS have not been observed at other monitoring locations in the system, supporting LCOs conclusion that climatic conditions and localised influences are affecting water quality.

Water quality summary data tables up to and including December 2018 indicate that water quality at BCK1A for EC and TDS have continued to exceed the WMP trigger levels for November and December 2018. The audit site inspection noted that pools within Bowmans Creek continue to remain isolated. Water quality at other monitoring locations had not exceeded nominated trigger limits.

Overall, the conclusions contained in the incident and water management trigger investigation reports appear valid, and the water quality levels and extent are not at a level to cause environmental harm downstream.

Oil water separators and Bioremediation

Water from the MIA drains to oil and water separators located to the east of the workshop laydown area. Solids collected from the oil and water separators are tested regularly and if the results of testing indicate the solids are above the limits for in pit disposal they are transported to the bioremediation area for treatment. Following treatment in the bioremediation area solids are reused in the onsite overburden emplacements.

The Bioremediation area was constructed and commissioned in 2014. It is discussed in the 2014 Annual Environmental Management Report. LCO has developed a Waste Management Bioremediation Area Procedure in consultation with the EPA which was submitted to the DPE and RR to outline how the area is managed. This procedure was not reviewed.

The auditors viewed the bioremediation area and leachate sums during the audit site inspection. No water pooling was observed in the leachate sumps, as identified in the 2016 IEA and in general the bioremediation area appeared to be adequately maintained.

The WMP does not include discussion of the oil water separator and how the water and solids are managed.

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Include discussion in the WMP of the oil water separator and the management of the treated water and waste solids. This could reference the Waste Management Bioremediation Area Procedure.

Tailings Pipeline

Tailings from the CHPP are currently pumped to the onsite Durham Tailings Void. Runoff in the CHPP area is contained in a local sump and then recycled into the CHPP for use as process water.

During 2018, a tailings pipeline was constructed to transfer tailings to the West Pit Tailings Emplacement Area at Mt Owen Complex as approved by DA 305-11-01 MOD 6. The construction activities were undertaken in the pipeline corridor route previously developed by Ravensworth Operations in line with their concurrent approval. The tailings pipeline had not been completed at the time of the audit.

The transfer of tailings to Mt Owen is aimed at improving the tailings management strategy by removing the need for tailings cells to be constructed in the South Pit overburden dumps. Emplacement in the Durham Void and the South Pit void is anticipated to be completed during 2020.

Measures to mitigate potential risks associated with the tailings pipeline include:

- Pipeline laid in trench
- Scour dams with flow level detection installed at intervals
- Higher risk sections (creek crossings, culverts under roads etc) were double sleeved
- Deferential flow meters installed to facilitate leak detection

Summary

Operations on site appear to manage water effectively with clear site procedures and resources in place to identify, assess and manage risk of off-site transport of dirty water. Sufficient evidence was provided during the audit to indicate that LCO has clear procedures for managing risks to surface water, and actively implement these, including:

- Surface water quality monitoring, and evidence to support regular checking of results against trigger values and timely implementation of the response plan under the WMP.
- Procedures for managing the potential impact of site activities, including the preparation and approval of Ground Disturbance Permits.
- Regular inspection and documentation of surface water management and ESCP infrastructure to ensure required controls are in place and are well maintained, including a system to record and action non-conformances.
- Timely response and notification of environmental incidents, and associated investigative reporting.

With the continuing operations, and given the similar topography in the remaining active mining area, the risk of offsite transport of sediment laden water from pre-clearance activities remains, however it is noted that LCO has implemented additional layers of control to respond and mitigate this risk. This includes:

- Ongoing implementation of the Glencore Ground Disturbance Permit procedure and approvals process,
- Addition of erosion and sediment control risks / hazards, to the Environment & Community Hazard Plans, which are used to inform site planning and operations activities.

8.4.3 Surface Water Management Plan Adequacy Review

The SWMP provides a baseline on surface water quality in potentially affected waterbodies, description of the water management system, performance criteria, monitoring program and response plan in the event of exceedances.

The SWMP is considered to be generally adequate at addressing the requirements of DA 305-11-01 and EPL 2094. It is noted that the location of the majority of surface water monitoring locations is depicted on Figure 9-1 of the WMP, however location of the Licensed Discharge Points is not depicted, and location of Dam 6 also not nominated (however is referenced in the text).

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Update Figure 9-1 to include the location of the Licensed Discharge Points (LDP 5 and LDP 6) and also show Dam 6.

8.4.4 Surface Water Photographs

The following photographs provide an indication of the observations made or referenced by the Surface Water specialist during the site inspections as detailed in Table 15.

Table 15 Site Inspection Photographs – Surface Water Specialist

Photo #	Comment	Photo
15-1	Sediment basin – eastern extent of LCO near Bowmans Creek alluvial flats – pumping infrastructure, water levels and sediment levels low.	
15-2	Sediment basin – eastern extent of LCO near Bowmans Creek alluvial flats (as above)	

Photo #	Comment	Photo
15-3.	Sediment basin – eastern extent of LCO near Bowmans Creek alluvial flats (as above) – showing vegetated external batters, rock rip rap protection of spillway and downslope sedimentation fence.	
15-4.	Eastern extent of LCO, near current stripping / pre-clearing area (looking south). Demonstrates use of external catch drain to direct sediment laden water to sediment basin to contain dirty water on site.	

Photo #	Comment	Photo
15-5.	Bowmans Creek – isolated pool previously subject to environmental incident – received sediment laden water on 26 November 2018.	
15-6.	LCO rehabilitation area – sediment basin and pumping infrastructure	

Photo #	Comment	Photo
15-7.	Pipeline for tailings management in the background (eclipsed by conveyor belt line)	
15-8.	Water transfer line for dewatering adjacent sediment storage and transfer line for water transfer from pit to main water surface storages.	

Photo #	Comment	Photo
15-9.	EPL Point 6 – HRSTS	
15-10.	Oil water separator	

Photo #	Comment	Photo
15-11.	Oil water separator	
15-12.	EPL Point 5 – MIA STP	
15-13.	EPL Point 5 – MIA STP	

Photo #	Comment	Photo
15-14.	MIA STP	
15-15.	CHPP STP	
15-16.	CHPP STP faded signage ***2019 IEA OFI 017*** *Replace faded signage at the CHPP STP*	

Photo #	Comment	Photo
15-17.	Irrigation Area (CHPP STP Wastewater)	
15-18.	Bioremediation area in foreground	

9.0 Compliance Summary and Recommendations

The findings of the IEA compliance assessment for conditions within the Development Consent 305-11-01, EPL and Mining Leases are presented in this section.

The compliance status was assessed by application of the criteria in accordance with the Independent Audit Post Approval Requirements (DPE, October 2015) provided in Table 16 below.

Table 16 Performance Category Assessment Criteria

Performance Category	Colour code	Definition	
Compliant		Currently in compliance. Sufficient verifiable evidence was available to demonstrate that the intent and all elements of the requirement of the regulatory instrument had been complied with within the scope of the audit.	
Non-compliant		High: Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence	Currently not in compliance. Sufficient verifiable evidence was available to demonstrate that the intent of one or more specific elements of the regulatory instrument have not been complied with within the scope of the audit.
		Medium: Non-compliance with: – potential for serious environmental consequences, but is unlikely to occur; or – potential for moderate environmental consequences, but is likely to occur	
		Low: Non-compliance with: – potential for moderate environmental consequences, but is unlikely to occur; or – potential for low environmental consequences, but is likely to occur	
Administrative Non-compliance		A technical non-compliance with a condition of the consent that would not impact on performance and that is considered minor in nature (e.g. report submitted but not on the due date, failed monitor or late monitoring session). This would not apply to performance related aspects (e.g. exceedance of a noise limit) or where a condition had not been met at all (e.g. noise management plan not prepared and submitted for approval).	
Not Verified		It has not been possible to determine whether compliance exists. Sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory instrument have been complied with within the scope of the audit was not available.	
Not Triggered		Condition not applicable at time of audit or had not been triggered	
Observation		The identified issue(s) of concern do not strictly relate to the scope of the audit or assessment of compliance. Further observations are considered to be indicators of potential non-compliances or areas where performance may be improved.	
Noted		A statement or fact, where no assessment of compliance is required.	

Performance Category	Colour code	Definition
Completed		The requirement of the condition was completed and assessed as compliant outside of the audit period and there are no ongoing requirements associated with this condition.

Comments are listed beside each condition to explain aspects of the audit review.

In general, no specific or rigorous assessment of documents required as part of meeting the Development Consent has been undertaken during the assessment, particularly where they have been signed off by other parties.

The non-compliances and corresponding recommendations are summarised in Section 9.0 and detailed in Appendix A.

9.1 Response to 2016 IEA Audit Recommendations

The IEA conducted a reviewed against the recommendations made in the 2016 IEA conducted by Hansen Bailey. The findings from this review have been provided in Appendix C.

9.2 Non-Compliant Conditions

9.2.1 Development Consent 305-11-01

Table 17 Summary of Non-Compliances against Development Consent 305-11-01

Reference	Summary of Condition Requirement	Summary of Audit Finding and Recommendation
Schedule 2, Condition 8	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: (a) the relevant requirements of the BCA; (b) the relevant requirements of AS3959-2009 Construction of buildings in bushfire-prone areas; and (c) any additional requirements of the MSB. Notes: • Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. • Part 8 of the EP&A Regulation sets out the requirements for the certification of development.	**Administrative Non-Compliance:** It was reported that there were additions made to the Workshop Office building during the audit period. This work involved demountable additions to the workshop offices. At the time of the audit LCO stated that it was in the process of gaining the required certificates with the local certifier. The auditors could not verify if the building additions had been constructed in accordance with the requirements of Condition 8, Schedule 2. As such, an administrative non-compliance has been made. No other buildings or structures were constructed during the audit period. No other alterations or additions to existing buildings had occurred at the time of the audit. **2019 IEA REC 001**: Obtain building certificates which verify the building was constructed in accordance with the requirements of condition 8, schedule 2.
Schedule 3, Condition 4	The Applicant shall ensure that blasts on site do not exceed the criteria in Table 2.	**Non-Compliance (low):** Two exceedances of blast criteria occurred during the audit period. These exceedances were in relation to ground vibration measurements recorded at the Newdell zone substation. On the basis of the two exceedances at the Newdell zone substation, this condition has been assessed as non-compliant. However no recommendations are considered necessary as LCO has since implemented measures to address these exceedances in line with the approved blast management strategy.
Schedule 3, Condition 16	The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate emissions generated by the development do not exceed the air quality impact assessment criteria listed in Tables 3, 4, and 5 at any residence on privately-owned land.	**Non-Compliance (low):** Compliance monitoring results were reviewed by the auditors. 10 exceedances occurred of the short term impact criteria for PM10 24hr in 2018. The exceedances were either a result of regional dust events, and therefore fell under 'note d' of Table 3-5 or a result of offsite contributions and therefore unlikely that LCO operations caused an exceedance of short term impact assessment criteria. This condition is found to be non-compliant due to the exceedances which have been recorded against PM10 short term criteria. As a result of MOD 7 being approved future exceedances of this nature would not be considered a non-compliance if investigations conclude they are a result of increased background concentrations from other sources and not LCO operations. As a result, no recommendation is considered required.

Reference	Summary of Condition Requirement	Summary of Audit Finding and Recommendation
Schedule 3, Condition 21A	Unless an EPL or the EPA authorises otherwise, the Applicant shall comply with Section 120 of the POEO Act and the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002.	**Non-Compliance (low):** An incident occurred on 28 November 2018 in which sediment laden run-off breached a containment drain and flowed into an isolated pool within Bowman's Creek. The incident was reported to the EPA and other agencies in accordance with the PIRMP and WMP. The DPE attended site for an inspection on the 29 November and requested an investigation report into the incident. LCO's investigation concluded that the incident did not cause or threaten material harm to the environment. The auditors consider that whilst the incident response minimised potential impacts to the environment and LCO's conclusion that the incident did not cause material harm to the environment appears reasonable, LCO is non-compliant with this condition as a pollutant (sediment) entered waters (Bowman's Creek). LCO has since implemented further system improvements to mitigate the likelihood of similar event reoccurrences. Therefore no further recommendations are made.
Schedule 3, Condition 21B	The Applicant shall ensure that treated effluent from the wastewater treatment plant does not exceed the discharge limits in Table 6, unless otherwise agreed by the EPA.	**Non-Compliance (low):** In June/July 2018 the MIA STP treated effluent exceeded the E.coli concentration limit of 100 CFU/100 ml at the discharge. It is noted treated effluent from the plant undergoes UV disinfection and is recycled into the mine dirty water system and contained onsite. In response to the exceedance LCO engaged a maintenance and wastewater treatment plant contractor to investigate the exceedance and undertake maintenance work. Given the response and thorough investigation into the exceedance no further recommendations are provided.
Schedule 3, Condition 35	The Applicant shall: (e) report on waste management and minimisation in the Annual Review	**Administrative Non-Compliance**: Waste management and minimisation was reported in the previous Annual Environmental Management Reports which were prepared prior to 2015. Since 2015 LCO has been preparing Annual Reviews in accordance with the post-approval requirements for State Significant Mining Developments Annual Review Guideline released by the DPE in October 2015. This guideline does not require the inclusion of waste reporting. Waste management and waste minimisation was not reported in the LCO 2015, 2016 and 2017 Annual Reviews and on this basis, this condition is considered non-compliant. **2019 IEA REC 002:** Report on waste management and minimisation in the Annual Review

9.2.2 Environmental Protection Licence 2094

Table 18 Summary of Non-Compliances against EPL 2094

<table>
<tr><th>Reference</th><th>Condition Requirement Summary</th><th>Audit Finding and Recommendation</th></tr>
<tr><td>L1.1</td><td>Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.</td><td>Non-Compliance (low): An incident occurred on 28 November 2018 in which sediment laden run-off breached a containment drain and flowed into an isolated pool within Bowman’s Creek. The incident was reported to the EPA and other agencies in accordance with the PIRMP and WMP. The DPE attended site for an inspection on the 29 November and requested an investigation report into the incident. LCO’s investigation concluded that the incident did not cause or threaten material harm to the environment.

The auditors consider that whilst the incident response minimised potential impacts to the environment and LCO’s conclusion that the incident did not cause material harm to the environment appears reasonable, LCO is non-compliant with this condition as a pollutant (sediment) entered waters (Bowman’s Creek).

LCO has since implemented further system improvements to mitigate the likelihood of similar event reoccurrences. Therefore no further recommendations are made.</td></tr>
<tr><td>L2.4</td><td>Water and/or Land Concentration Limits
POINT 5
<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentile concentration limit</th><th>90 percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>E. coli</td><td>colony forming units per 100 millilitres</td><td></td><td></td><td></td><td>100</td></tr></table></td><td>**Non-Compliance (low):** On 18 June 2018 a sample taken from EPA monitoring point 5 measured a faecal coliform concentration of 120 CFU/100ml. This is an exceedance of LCOs licenced discharge criteria of 100CFU/100ml. It is noted treated effluent from the plant undergoes UV disinfection and is recycled into the mine dirty water system and contained onsite.

In response to the exceedance LCO engaged a maintenance and wastewater treatment plant contractor to investigate the exceedance and undertake maintenance work. Given the response and thorough investigation into the exceedance no further recommendations are provided.</td></tr>
<tr><td>M2.2</td><td>Air Monitoring Requirements
POINT 9,10,11,12
<table><tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>PM10</td><td>micrograms per cubic metre</td><td>Continuous</td><td>Special Method 1</td></tr></table></td><td>**Non-Compliance (low):** PM10 was not monitored continuously over the audit period; as a result this condition has been assessed as non-compliant. Despite working towards a continuous data availability target of 90%, LCO reported all instances where a valid 24 hour average was not available due to less than 75% availability of data as a non-compliance with the requirement for continuous monitoring.

2019 IEA REC 003: Seek clarification from the EPA on an appropriate data availability target for continuous monitoring to factor in a reasonable period of monitor downtime. This could be in the form of a variation to the EPL to include a minimum percentage of time on line (e.g. 90%) for the continuous monitors.</td></tr>
</table>

Reference	Condition Requirement Summary	Audit Finding and Recommendation
M4.1	At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.	**Non-Compliance (low):** LCO reported that weather monitoring was not captured continuously throughout the audit period. Based on LCO's investigations and follow up actions being implemented the auditors did not make any further recommendations.

9.2.3 Mining Leases

Table 19 Summary of Non-Compliances against LCOs Mining Leases

Reference	Condition Requirement Summary	Audit Finding and Recommendation
Condition 18 ML 1597	Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwater's. The lease holder must observe and perform any instructions given by the Director-General in this regard.	**Non-Compliance (low):** Refer evidence against Development Consent Checklist Schedule 3, Condition 21A (Non-Compliance).

9.3 Additional Opportunities for Improvement

The following table has been reproduced from Appendix A. For details on the requirement, and for further discussion of the issue, refer directly to the tables in Appendix A. Many of the opportunities for improvement detailed in Table 20 are based around continuous improvement opportunities identified during the audit and do not necessary represent immediate potential non-compliance issues.

Table 20 Summary of Opportunities for Improvement not relating to non-compliances

Reference	OFI #	OFI
Environmental Management Strategy	**2019 IEA OFI 001**	Update the Monitoring Plans in Appendix A of the Environmental Management Strategy to reflect current monitoring undertaken e.g. include new groundwater monitoring bore ALV9 and additional real-time monitor (E-BAM) locations.
Air Quality Management and Monitoring Program	**2019 IEA OFI 002**	It is recommended that the AQMMP reference the specific requirements of EPL monitoring condition M2.2 and improve the discussion of how LCO are complying with the requirements of this condition, specifically the requirement for continuous monitoring and how this is defined.
	2019 IEA OFI 003	It is recommended that the figures in the AQMMP include reference to EPL Monitoring Point numbers (point 9, 10, 11 & 12) or outline clearly the link between the EPA monitoring Point numbers and the LCO unit references (e.g. SX38-D3).
	2019 IEA OFI 004	It is recommended that Section 2.11 of the AQMMP, Air Quality Monitoring, is reviewed and updated to improve readability. For example, improvements could be made to the heading level structure to clearly delineate which monitoring method the sub sections are referring to.
Biodiversity - General	**2019 IEA OFI 005**	Monitor the impacts of grazing by native herbivores (e.g. kangaroos) on vegetation establishment during annual rehabilitation and or biodiversity monitoring and if impacts are identified investigate management strategies to exclude herbivores from impacted areas.
Rehabilitation Management Plan	**2019 IEA OFI 006**	Include further details in the MOP of how the TARP is used as a tool to track progress towards meeting the rehabilitation completion criteria. This could better reflect the input from the annual rehabilitation monitoring, biodiversity monitoring and biodiversity offset monitoring and the recommendations made in these monitoring reports by the specialist ecologists.
Biodiversity Management Plan	**2018 IEA OFI 007**	It is recommended that LCO review its flora monitoring methodology and analysis with contemporary methods. Any changes adopted should be documented within the BMP.
	2018 IEA OFI 008	Biodiversity Management Plan Section 3.3.4 Introduced Species. This Section would benefit from including the species Hyparrhenia hirta (Coolatai) given its prevalence at nearby offset sites and invasive capability.

Reference	OFI #	OFI
	2018 IEA OFI 009	Biodiversity Management Plan Section 4.3 Topsoil Management. This section could benefit from a statement that explains that stockpiled soil will be used as soon as practicable to minimise loss of seed store. In addition, this section of the BMP could be enhanced with a statement that indicates that a register detailing the location of topsoil removal and deposition is kept.
	2018 IEA OFI 010	Include discussion of vehicle weed hygiene management within the BMP and BOMP.
	2018 IEA OFI 011	Biodiversity Management Plan Section 4.10 Remnant Vegetation and Habitat Management, this Section could benefit from referencing the Bushfire Management Plan or including information from the Bushfire Management Plan relating to ecological burns and fire intervals for the different communities.
	2018 IEA OFI 012	Biodiversity Management Plan Section 4.11.1 Post-Mining Land Use Design Objectives. This section refers to the rehabilitation strategy which aims to emulate the pre-mining grazing areas yet does not discuss what these pre-mining grazing areas were like.For example, it does not indicate if these pre-mining grazing areas were dominated by native or exotic pastures. It is recommended reference to 'pre-mining grazing' areas should be removed and the objective of establishing pasture (native or exotic) suitable for grazing stated.
Erosion and Sediment Control Plan	**2018 IEA OFI 013**	Update Section 8.6.4 of the WMP – Ensure consistency with regards to soil type and more clearly detail the design standards LCO adopts demonstrating it is consistent with the Managing Urban Stormwater Soil and Construction, Volume 2E: Mines and Quarries.
Surface Water - General	**2018 IEA OFI 014**	Include discussion in the WMP of the oil water separator and the management of the treated water and waste solids. This could reference the Waste Management Bioremediation Area Procedure.
Surface Water Management Plan	**2019 IEA OFI 015**	Update Figure 9-1, in the WMP, to include the location of the Licensed Discharge Points (LDP 5 and LDP 6) and also show Dam 6.
	2019 IEA OFI 016	Change reference to LCO Rehabilitation Plan in WMP to reference the MOP
STP - General	**2019 IEA OFI 017**	Replace faded signage at the CHPP STP
Biodiversity Offset Management Strategy	**2019 IEA OFI 018**	Biodiversity Offset Strategy Section 3.4 Grazing Management is predominantly focussed on grazing by stock and has limited discussion on the potential impacts of overgrazing by native species (e.g. kangaroos). The BOMP could benefit from some discussion on potential management strategies for overabundant native species.
EPL 2094 Condition U1.1	**2019 IEA OFI 019**	With the next EPL Variation, request that the completed PRPs and Special Conditions are removed from the Licence

Reference	OFI #	OFI
ML 1552 Condition 5	**2019 IEA OFI 020**	Update the PIRMP to reflect the requirement of ML 1552 to report environmental incidents to the RR.

10.0 Limitations

AECOM Australia Pty Limited (AECOM) has prepared this report in accordance with the usual care and thoroughness of the consulting profession for the use of LCO and only those third parties who have been authorised in writing by AECOM to rely on this Report.

It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this Report.

It is prepared in accordance with the scope of work and for the purpose outlined in AECOM's proposal dated 20 December 2018. Where this report indicates that information has been provided to AECOM by third parties, AECOM has made no independent verification of this information except as expressly stated in the Report. AECOM assumes no liability for any inaccuracies in or omissions to that information.

This Report was prepared between 08 February 2019 and 25 March 2019 and is based on the conditions encountered and information reviewed at the time of preparation. AECOM disclaims responsibility for any changes that may have occurred after this time.

This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

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Appendix A

Compliance Checklist

Appendix A1 – Development Approval 305-11-01

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 2 ADMINISTRATIVE CONDITIONS					
Obligations to minimise harm to the environment					
Schedule 2, Condition 1	In addition to meeting the specific performance criteria established under this consent, the Applicant shall implement all reasonable and feasible measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.		The auditors and specialists conducted a review of incident occurrences at the mine during the audit period, complaints received, as well as a review of the general environmental performance of the site with LCO's various environmental management plans. Other than where issues have been identified, in general LCO appeared to be compliant with its obligation to minimise harm to the environment. The Environmental Management Strategy and associated management plans and procedures have been established and generally implemented to identify, plan for and manage environmental impacts related to the operation of the Liddell coal mine.	Compliant	
Terms of Consent					
Schedule 2, Condition 2	The Applicant shall: (a) carry out the development generally in accordance with the EIS, MOD 1 EA, MOD 2 EA, MOD 3 EA, MOD 4 EA, MOD 5 EA and MOD 6 EA; and (b) comply with the conditions of this consent and the Development Layout Plans. Notes: The Development Layout Plans are shown in Appendix 2.		LCO's EMS and associated management plans were revised following the approval of each modification to the Development Consent. This review involved incorporation of the controls detailed in the modification EAs into the respective management plans. Based on a high level review of these documents, LCO is considered to be carrying out operations in general accordance with the EIS, Modification EAs and conditions of this consent and the development layout plans.	Compliant	
Schedule 2, Condition 3	If there is any inconsistency between the documents in condition 2(a), the most recent documents shall prevail to the extent of the inconsistency. The conditions of this consent shall prevail over documents in condition 2(a) to the extent of any inconsistency.		This is noted.	Noted	
Schedule 2, Condition 4	The Applicant shall comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of: (a) any strategies, programs, reviews, audits, reports, plans or correspondence that are submitted in accordance with this consent; (b) any reports, reviews or audits commissioned by the Department regarding compliance with this consent; and (c) the implementation of any actions or measures contained in these reports, plans or correspondence.		Requirements arising from the Annual Reviews and inspections are discussed under Condition 3, Schedule 5. Requirements arising from the assessment of strategies, plans and audits are discussed underneath the specific requirement relating to the plan, strategy or audit.	Compliant	
Mining, Processing and Transport Limits on Consent					
Schedule 2, Condition 5	Mining operations may take place on the site until 31 December 2028. *Note: Under this consent, the Applicant is required to rehabilitate the site to the satisfaction of either the Secretary or DRE. 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.*		This is noted.	Noted	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 2, Condition 6	The Applicant shall not: (a) extract more than 8 million tonnes of ROM coal per annum from the site; or (b) process more than 8 million tonnes of ROM coal per annum at the Liddell CHPP, including up to 2 million tonnes per year of ROM coal from Mt Owen; or (c) transport more than 1.5 million tonnes of ROM coal per annum to Ravensworth Central Coal Processing Facility for processing; or (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.	• Interview with LCO personnel • Production Summary Spreadsheet titled "2018 Production Physicals" • Annual Review 2016, dated 30/03/2017 • Annual Review 2017, dated 28/03/2018	Tracking of coal production is managed by the Tech Services Department. The auditors sighted the Production Summary spreadsheet for 2018. Production figures detailed in this spreadsheet are reproduced in the Annual Review each year. Interviews with relevant personnel and review of the production summary spreadsheet and Annual Reviews indicated the following: (a) ROM Coal extracted includes: • **2016:** 5,940,742 tonnes extracted • **2017:** 4,259,086 tonnes extracted • **2018**: 5,933,351 tonnes extracted (b) All coal processed by LCO has been processed on site at the Liddell CHPP. No coal from Mt Owen was processed at the Liddell CHPP during the audit period. The following tonnes of ROM coal were processed at the CHPP: • **2016:** 5,962,752 • **2017:** 4,309,484 • **2018:** 6,018,772 tonnes (c) It was reported that no coal was transported to Ravensworth for processing during the audit period. (d) No coal tailings were extracted from the site. No coal tailings was transported to Liddell or Bayswater Power Stations during the audit period.	Compliant	
Schedule 2, Condition 7	The Applicant shall ensure that all product coal from the site is transported by rail.	• Interview with LCO personnel	Site inspection and data reviewed indicated that all coal was being transported from site by rail east to the Port of Newcastle for export.	Compliant	
Structural Adequacy					
Schedule 2, Condition 8	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: (a) the relevant requirements of the BCA; (b) the relevant requirements of AS3959-2009 Construction of buildings in bushfire-prone areas; and (c) any additional requirements of the MSB. Notes: • Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. • Part 8 of the EP&A Regulation sets out the requirements for the certification of development.	• Site Inspection • Interviews with LCO Staff	It was reported that there were additions made to the Workshop Office building during the audit period. This work involved demountable additions to the workshop offices. At the time of the audit LCO stated that it was in the process of gaining the required certificates with the local certifier. The auditors could not verify if the building additions had been constructed in accordance with the requirements of Condition 8, Schedule 2. As such, an administrative non-compliance has been made. No other buildings or structures were constructed during the audit period. No other alterations or additions to existing buildings had occurred at the time of the audit.	Administrative Non-Compliance	***2019 IEA REC 001**: Obtain building certificates which verify the building was constructed in accordance with the requirements of condition 8, schedule 2.*
Demolition					
Schedule 2, Condition 9	The Applicant shall ensure that all demolition work is carried out in accordance with Australian Standard AS 2601-2001: The Demolition of Structures, or its latest version.	• Site Inspection • Interviews with LCO Staff	No demolition work has occurred during the audit period.	Not Triggered	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Operation of Plant and Equipment					
Schedule 2, Condition 10	The Applicant shall ensure that all plant and equipment used at the site, and equipment used off-site to monitor the performance of the project is: (a) maintained in a proper and efficient condition; and (b) operated in a proper and efficient manner.	• LCO weekly maintenance schedule 02/02/2019 • Sentinex Noise Unit Field Service Report conducted by Novecom (Dated 15/10/2018) for Sentinex 37 (SX37) • Sentinex Dust Unit Maintenance and Calibration Report DM D2 (28/6/2018) three monthly planned maintenance report. • Blast monitor inspection report, 20/7/2018 by Ecotech • Meteorological Station Annual inspection and calibration certificate, 16/3/2018 CBased Environmental Pty Limits. • Point 6 monitoring point calibration certificate, 10/09/2018 Hydrometric Consulting Services • Liddell Environmental Awareness Package, Doc ID 852847014-1935 • E&C Training Needs Analysis Procedure. Doc Ref: LIDOC-90533967-3392	(a) <u>Maintenance of plant and equipment</u> The site uses a computer maintenance system, SAP, to manage maintenance requirements for all mining equipment and plant. SAP is managed by the workshop, coal handling and preparation plant and maintenance personnel. The system generates work orders for maintenance as required by the equipment or plant maintenance requirements. Mobile plant is serviced based on the amount of hours operated. Stationary plant and equipment is serviced based on a calendar schedule. The auditors conducted a review of maintenance of equipment related to environmental management of the site and noted the following: • Glencore Corporate has a group contract with Novecom to supply, inspect and maintain the real time monitoring network (noise and dust monitors) at all Glencore mines in New South Wales. Novecom implements the inspection and maintenance schedule in accordance with the relevant Australian standard (sighted examples of calibration certificates and service reports). • The dust and noise monitors are a connected network which will report should a monitor not be working properly. In the event that a monitor is not operating properly the Environment and Community Team along with additional operational personnel would receive a text and email to alert them to the fact that no data has been collected. • Maintenance report for noise monitor sighted. Maintenance conducted by Novecom. • Maintenance report for TEOM D2 sighted. The report noted that a pump seal was broken. This was replaced at the time of inspection. Maintenance conducted by Novecom. • Blast monitors are maintained by Ecotech .Quarterly inspection report and calibration certificate sighted. • The Meteorological Station is maintained by CBased Environmental. Annual inspection and calibration certificate sighted • EPL Point 6 monitoring point is maintained and calibrated by Hydrometric Consulting Services. Calibration certificate sighted. • Two oily water separators were observed on site. One in proximity to the workshop and one at the CHPP. The auditors reviewed the maintenance schedule for the site's main oily water separator. LCO stated that the oily water separator was being maintained and serviced in accordance with manufacturer's specifications. • Waste and spill containment equipment was maintained by J.R Richards.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		(18/12/18) • Task Specific Training Package – Dust Alarm Response • Export from Scenario (March 2018)	(b) <u>Operation of plant and equipment</u> A General Environmental Awareness Package is offered to all personnel who are inducted to work on site. This is a part of the site familiarisation package. The induction package includes reference to the sites approvals and licences and outlines workers environmental responsibilities. Incident reporting and key environmental risks and mitigation measures are also outlined. Job specific training packages are provided by the E&C Team to relevant personnel who may be responsible for responding to a trigger alarm. This is outlined in the E&C Training Needs Analysis (TNA) Procedure. These packages include: • Dust Alarm Response Training Package • Dust TARP Training Package • Noise Alarm Training Package • Aboriginal Cultural Heritage Training Package • Pump / High Risk Flow Pipeline Training Package • PIRMP Response Training Package The auditors sighted the TNA personnel register which is maintained in the web based platform Scenario. This contained a list of personnel who have conducted environment training. TNA sets the training requirements and frequency required for each person. Only qualified and inducted personnel are permitted to operate specific plant and equipment on site. LCO maintains a stringent training and approval process with regards to operating light vehicles in the pit area and operation of mine specific vehicles and plant i.e. dozers, excavators, trucks etc.		
Schedule 2, Condition 11	Unless the Applicant and the applicable authority agree otherwise, the Applicant shall: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and (b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development, however this condition does not apply where the Applicant has entered into an agreement with the owner of such public infrastructure that covers the repair and/or maintenance of the infrastructure.	• Interviews with LCO Staff	(a) It was reported that no damage to public Infrastructure had occurred during the audit period. (b) It was reported that no relocation of public infrastructure was required during the audit period.	Not Triggered	
Updating and Staging of Strategies, Plans or Programs					

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 2, Condition 12	With the approval of the Secretary, the Applicant may submit any strategies, plans or programs required by this consent on a progressive basis. To ensure the strategies, plans or programs under the conditions of this consent are updated on a regular basis, the Applicant may at any time submit revised strategies, plans or programs to the Secretary for approval. With the agreement of the Secretary, the Applicant may prepare any revised strategy, plan or program without undertaking consultation with all parties under the applicable condition of this consent. Notes: • While any strategy, plan or program may be submitted on a progressive basis, the Applicant must ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times; and • If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.	• Interviews with LCO Staff	No staged submission of any strategies, plans or programs was required during the audit period.	Not Triggered	
Planning Agreements					
Schedule 2, Condition 13	By the end of May 2015, or as otherwise agreed by the Secretary, the Applicant shall enter into a planning agreement with Singleton Council (SC) in accordance with the general terms in Appendix 8	• VPA as executed, dated 5/12/15 • Payment confirmation to Singleton Council. Dated 24/12/15 • Email from Singleton Council regarding Final payment, dated 21/01/2019	LCO entered into a planning agreement with Singleton Council in 2015, prior to the commencement of the audit period. Appendix 8 requires LCO to make the following contributions: • Hebden Hall/ Rural Halls: $200,000 initiated following approvals • Lake St Clair Recreational Park: $75,000 per annum for the first two years and $50,000 per annum for the next three years • Rose Point Netball Amenities Upgrade: $80,000 Payments for the Hebden Hall and Rose point Netball Amenities were complete at the time of the audit. The auditors sighted email correspondence between LCO and Singleton Council with regards to the Lake St Clair recreational park which verified the following: • Invoice for year 3 payment towards loan repayments for Lake St Clair works was submitted by council on 4/01/2018 • Notice for year 4 payment towards loan repayments for Lake St Clair recreational park submitted to LCO on 21/09/2018 • LCO sent an email on 21/01/2019 following up on the year 4 invoice which was yet to be sent by council • Singleton Council stated in email dated 21/01/2019 that it would be raising an invoice that week for the year 4 payment for the Lake St Clair recreational park. • LCO reported that all payments had been made to council with regards to the first four payments required for the Lake St Clair recreational park. • Singleton Council noted in an email dated 21/01/2019 that it will invoice the final 5th payment for the Lake St Clair recreational park in July 2019.	Compliant	

<table>
<tr><th colspan="6">APPENDIX A AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td>Schedule 2, Condition 14</td><td>By the end of May 2015, or as otherwise agreed by the Secretary, the Applicant shall enter into a planning agreement with Muswellbrook Shire Council (MSC) in accordance with the general terms in Appendix 9.</td><td>• VPA as executed, dated 4/06/17
• Payment Confirmation to Muswellbrook Shire Council, dated 30/09/2014
• Muswellbrook Council invoice for instalment 1, dated 24/06/2015
• Muswellbrook Council invoice for instalment 2, dated 13/04/2016</td><td>LCO entered into a planning agreement with Muswellbrook Shire Council in 2014, prior to the commencement of the audit period
Appendix 9 requires LCO make the following contribution:
• $320,000 in two annual instalments within 2 years of Mod 5 (Dec 2014)
The planning agreement was complete at the time of the audit site inspection with payments completed in April 2016.
The auditors sighted tax invoices from Muswellbrook Council and verified that payment 1 was submitted on 24/06/2015 and payment 2 was submitted on 13/04/ 2016.</td><td>Compliant</td><td></td></tr>
<tr><td colspan="6">Schedule 3 SPECIFIC ENVIRONMENTAL CONDITIONS</td></tr>
<tr><td colspan="5">NOISE</td><td></td></tr>
<tr><td>Schedule 3, Condition 1</td><td>Impact Assessment Criteria
The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table 1 at any residence.
Table 1: Noise impact assessment criteria dB(A)
<table><tr><th>Assigned residential location number</th><th>Day ($L_{Aeq\ (15min)}$)</th><th>Evening ($L_{Aeq\ (15min)}$)</th><th>Night ($L_{Aeq\ (15min)}$)</th><th>Night ($L_{A\ (1min)}$)</th></tr><tr><td>1,5,6,7,8,9,10,11,12,14</td><td>35</td><td>35</td><td>35</td><td>45</td></tr><tr><td>2</td><td>35</td><td>35</td><td>36</td><td>45</td></tr><tr><td>3</td><td>36</td><td>35</td><td>37</td><td>45</td></tr><tr><td>4</td><td>36</td><td>35</td><td>36</td><td>45</td></tr><tr><td>All other privately-owned land</td><td>35</td><td>35</td><td>35</td><td>45</td></tr></table>Note: To interpret the locations referred to in Table 1, see Appendix 5
Noise generated at the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy. Appendix 6 sets out the meteorological conditions under which these criteria apply and the requirements for evaluating compliance with these criteria.
However, these criteria do not apply if the Applicant has an agreement with the owner(s) of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>• Sentinex System Data 04/02/2019
• Global Acoustics Reports titled “Environmental Noise Monitoring” 2016 - 2018
• LCO Noise Monitoring Program (LIDOC-90533967-1114) dated 17/10/2018</td><td>LCO has engaged Global Acoustics to undertake monthly attended noise monitoring at two approved locations in close proximity to the assigned residential locations specified in Table 1. The number of attended noise monitoring locations was reduced in 2013 following a review conducted by Global Acoustics and subsequent Regulator approval. Monitoring locations are representative of currently occupied properties identified in Table 1 of the Development Consent and include:
• 1317 Hebden Road
• 1246 Hebden Road
The attended noise monitoring results indicated that the noise criteria were being met during the audit period.
LCO’s noise monitoring program (NMP) outlines that attended noise monitoring results are utilised to determine compliance with development consent criteria.
LCO also maintains a real time noise monitor. This unattended monitoring is used as a noise management tool to proactively manage noise by modifying mining operations as required when a trigger level is reached.
The approach to using attended noise monitoring for assessing compliance with criteria and unattended real time monitoring as a management tool is widely accepted and used by industry. In addition, this approach is clearly documented within the NMP which the EPA was consulted on and was approved by the DPE. Additionally, Appendix 6 of the Development Consent: Noise Compliance Assessment. States under item 3 and 4 that “Attended monitoring is to be used to evaluate compliance. This monitoring must be carried out at least once a month (but at least two weeks apart), unless the Secretary directs otherwise”. Attended noise monitoring is conducted monthly (once per calendar month) in</td><td>Compliant</td><td></td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			accordance with EPA industrial noise policy guidelines and Australian Standard AS1055 (Global Acoustics Reports section 3.1).		
Schedule 3, Condition 2	**Operating Conditions** The Applicant shall: (a) implement all reasonable and feasible measures to minimise the construction, operational, road and rail noise of the development; (b) operate a noise management system on site that uses attended noise monitoring data to ensure compliance with the relevant conditions of consent; (c) evaluate the effectiveness of the noise management system; (d) minimise the noise impacts of the development during meteorological conditions when the noise criteria in this consent does not apply (see Appendix 6); and (e) monitor and report on compliance with the relevant noise conditions of this consent, to the satisfaction of the Secretary.	• 2018 SPL Testing spreadsheet, Global Acoustics • Global Acoustics reports for noise testing – sound power testing • LCO Noise Management Procedure (LIDOC-90533967-746), dated 21/01/2019 • Plan Task Observations – Noise Management (two examples sighted) • Interviews with Mine Supervisors and Dispatch Personnel • Attended Noise Monitoring response form, completed by Global Acoustics during monitoring events, dated 6/12/18 • Jacobs daily dust forecast report, 05/02/2019 • Annual Review 2016, dated 30/03/2017 • Annual Review 2017, dated 28/03/2018 • Mining Supervisor Daily Inspection Report 29/01/19, 30/01/19, 05/02/19	(a) LCO operates a comprehensive Noise Management System that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations. LCO has in place an internal Noise Management Procedure which complements the Noise Monitoring Plan and outlines the specific management measures and exceedance response protocols in place. The real time noise monitor (Sentinex) provide a daily summary of noise monitoring data to selected personnel including the E&C team and key operational staff. SMS triggers are sent when a measured noise level is reached. LCO has developed a Noise Management Procedure to be followed in the event an Amber or Red alarm is triggered. The auditors sighted the Mining Supervisor Daily Inspection Report which details if an 'Amber' or 'Red' alarm had occurred. Sentinex noise profiles were viewed by the auditors. Should an exceedance occur the site conducts the following: • Listen to noise recording from noise monitor • Noise exceedance noted on morning of 4/2/19. Notes in Sentinex against this exceedance reported "Bird and traffic noise can be heard on monitor. Shift change to occur not long after this alarm received and to be monitored. The auditors considered that the mine operational staff had a competent level of knowledge with regards to noise trigger responses. LCO has in place additional controls which aim to reduce the sites noise impacts These included: • Glencore company procurement program has basic criteria that all plant and equipment must comply with. This is taken into account when purchasing or hiring equipment. • Sound power level testing of LCO plant and equipment. This program involves testing individual items through the life of each item. The aim is to test each piece of equipment once every 3 years. Global Acoustics have been contracted to conduct ongoing noise testing of all vehicles, plant and equipment. A spreadsheet of noise testing results was sighted by the auditors. The spreadsheet outlines each piece of plant, equipment and vehicle along with the EIS limit criteria for that category of plant (dB/dBA) and compares these limits with monitoring results outlining if an exceedance has occurred. If equipment exceeds the EIS limits applied the equipment is identified as requiring maintenance where by the mechanics will assess the reason for the noise exceedance. • General induction raises awareness of noise pollution (all people inducted on site, including contractors).	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• Dedicated resources have been employed for monitoring real time noise levels during the day and night (interviewed Dispatch Operator) • Task Specific training is provided for noise. This outlines the methods for responding to alarms, how to download noise results, play them back and what to do in response. Dispatch receives trigger alarms from Sentinex and are the first responders to these alarms. (b) As stated under Condition 1 of Schedule 3, LCO uses attended monitoring to assess compliance with the noise criteria. LCO had not exceeded noise criteria limits during the audit period. The E&C team conduct regular review of the noise monitoring program following the submission of the annual reviews each year. (c) LCO evaluates the effectiveness of the noise management system through the review of monitoring results, trigger action responses and complaints. In addition, LCO conducts Planned Task Observations (PTO) quarterly. These PTOs involve a staff member conducting a review of particular topics, as assigned by the E&C department. Past PTOs on noise were reviewed by the audit team. The PTOs for noise require the person conducting it to confirm: • Noise monitoring is conducted • Noise monitoring results are published • That noise results are communicated to Liddell CCC every 6 months. • That noise monitoring checklists have been completed accurately. • That any 'Red' noise alarms have been actioned appropriately. The PTOs are an effective means at reviewing measures implemented by the E&C department, verifying the competency of operational staff at implementing controls and keeping senior leadership informed in the compliance requirements and associated management measures of the site. (d) LCO monitors weather conditions via the on-site meteorological station and have engaged a third party provider, Jacobs, to provide a daily weather forecasting service to assist operations in the prediction of likely adverse meteorological conditions that have the potential to exacerbate noise levels. These daily forecast reports are reviewed and discussed daily during the 10am Production review meetings held with staff. (e) As detailed above LCO conducts attended and non-attended monitoring of noise produced at the site. Results of compliance monitoring are reported monthly on the LCO Public Website. In addition LCO summarise noise monitoring results in the LCO Annual Review. **Assessing DPE Satisfaction**		

<table>
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<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td></td><td></td><td></td><td>DPE stated that they were satisfied that the NMP adequately addressed the sites consent conditions on 04/10/2018.

LCO reports its environmental performance with regards to noise in its Annual Review which is submitted to the DPE.

DPE undertook an unannounced after-hours inspection of LCO in the early hours of Thursday 15 Nov 2018. The auditors sighted an email from the DP&E inspector summarising the visit. The visit focused on noise and dust. The DP&E concluded that the site was considered to be operating competently and generally in accordance with the air quality and noise management plan.</td><td></td><td></td></tr>
<tr><td>Schedule 3, Condition 3</td><td>Monitoring Program
The Applicant shall update and subsequently implement the Noise Monitoring Program for the development to the satisfaction of the Secretary. This program must be submitted to the Secretary by the end of May 2015, and must include regular attended monitoring in accordance with Appendix 6, and a noise monitoring protocol for evaluating compliance with the noise impact assessment criteria in this consent.</td><td>• Global Acoustics monitoring checklist
• LCO Noise Monitoring Program, V8.0, LICOD-90533967-114 (17/10/2018)
• Letter from DPE approving the NMP, dated 04/10/2018
• Global Acoustics Monthly Attended Monitoring Reports (2016-2018), as available on LCO Website.</td><td>The Noise Monitoring Program (NMP) was submitted to DPE on 14/05/2015. DPE approved the NMP (Version 1.0) on 18/08/2015. The latest revised version (Version 8.0) of the NMP was subsequently approved by DPE on 4/10/2018.

Attended noise monitoring is conducted by Global Acoustics Consultants. LCO has provided a noise monitoring checklist which is completed by Global Acoustics during unannounced attended monitoring events.

Monitoring takes into account the applicable meteorological conditions and is conducted monthly, as evidenced by monthly monitoring reports available on the LCO Public Website. Monitoring reports reference the NSW Industrial Noise Policy.

The auditors conclude based on the audit evidence outlined against Schedule 3, Conditions 1 and 2 that the NMP contains the required content and was adequately implemented during the audit period.</td><td>Compliant</td><td></td></tr>
<tr><td colspan="6">BLASTING AND VIBRATION</td></tr>
<tr><td>Schedule 3, Condition 4</td><td>Impact Assessment Criteria

The Applicant shall ensure that blasts on site do not exceed the criteria in Table 2.

Table 2: Blasting impact assessment criteria
<table><tr><th>Location</th><th>Airblast overpressure level (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr><tr><td rowspan="2">Residence on privately-owned land</td><td>115</td><td>5</td><td>5% of the total number of blasts over a period of 12 months</td></tr><tr><td>120</td><td>10</td><td>0%</td></tr><tr><td rowspan="2">Newdell zone substation</td><td>-</td><td>20 (interim)</td><td>10% of the total number of blasts over a period of 12 months</td></tr><tr><td>-</td><td>25 (interim)</td><td>0%</td></tr><tr><td>Other public infrastructure</td><td>-</td><td>50</td><td>0%</td></tr></table>
However these criteria do not apply if the Applicant has:</td><td>• Blast Vibration Mitigation Works - Practical Completion Letter (Ausgrid to LCO)
• Letter from Ausgrid to LCO advising of the increase in vibration criteria at Newdell (dated 01/11/17)
• Blast Data Spreadsheet 2016 - 2018
• Blast Risk Assessment, LCO and ARTC, dated 08/08/2018</td><td>Blast monitoring is undertaken at two privately owned residences, the Chain of Ponds Inn and the Newdell Zone Substation. Ecotech monitors are in place in accordance with the Blast Management Plan with blast results made available on the LCO website each month. The auditors reviewed raw data obtained from each blast which occurred in the audit period. In summary 488 blasts occurred during the audit period this included:

• 2018 - 146 blasts
• 2017 - 179 blasts
• 2016 - 163 blasts

Two exceedances of blast criteria occurred during the audit period. These exceedances were in relation to ground vibration measurements recorded at the Newdell zone substation. Details are provided below:

• Blast fired on 15/02/2016 resulted in a ground vibration measurement recording of 28.48mm/s at Newdell zone substation. The compliance limit at Newdell zone substation at the time of the blast was 20mm/s. LCO notified the DPE of the</td><td>Non-Compliance (low)</td><td>Not required</td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	(a) a written agreement with the relevant owner to exceed these criteria, and has advised the Department in writing of the terms of this agreement; or (b) in the event that the Applicant is unable to secure a written agreement with an infrastructure owner, demonstrated to the satisfaction of the Secretary that blasting can be carried out at levels in excess of the criteria without causing any damage to the infrastructure. *Notes:* *• The interim criteria for the Newdell zone substation are based on consultation with the substation owner (Ausgrid). It is acknowledged that alternative criteria may be agreed as part of the blast management strategy for the substation (see condition 15A).* *• An alternate limit for public infrastructure may be agreed to by the Secretary if it can be justified in accordance with the structural design methodology in AS2187.2-2006, or another methodology agreed to by the Secretary.*	• Email from LCO to DPE notifying of vibration limit increase, dated 2/11/2017 • Blast Management Plan (LIDOC-90533967-3742), Version 6.0, dated 26/10/2018 • Blast Vibration Investigation report 16/01/2018 • Letter from Ausgrid dated 3/04/2018 re blast exceedance event close out	exceedance and reported it in the 2016 Annual Review. As outlined in the 2016 Annual Review, Ausgrid completed a detailed inspection and analysis of the substation infrastructure and no immediate damage was found nor was there any indicator of long term degradation to infrastructure / equipment. • Blast fired on 16/01/2018 resulting in a ground vibration measurement recording of 27.49mm/s at Newdell zone substation. At the time of the exceedance the compliance limit at Newdell zone substation, agreed to by Ausgrid, was a VPPV less than or equal to 26mm/s where the blast frequency is below 12Hz for any individual blast. LCO conducted investigation in to the exceedance and produced a Blast Vibration Investigation Report. The report outlined that Ausgrid carried out visual inspections of the substation on the morning of the 18/01/18 and did not identify any damage to infrastructure at the substation as a result of the exceedance. A letter from Ausgrid dated 3/04/18 included discussion of the testing of oil from the transformers and stated that Ausgrid consider the investigation complete and closed out. . A number of measurements above the ground vibration limit were recorded at privately owned residence. However these did not exceed the allowable exceedances criteria outlined in Table 2. **<u>Alternative Blast Criteria</u>** LCO has undertaken a consultation process and reached agreement with Ausgrid for alternative blast criteria for the Newdell zone substation. On 2/11/2017 LCO notified the DPE that they had reached an agreement with Ausgrid to progress an increase of blast vibration limits at the substation from 1/11/2017. The increase in vibration limits has been incremental and based on the effectiveness of mitigation measures as confirmed by the Ausgrid monitoring program. LCO continues to work with Ausgrid to review mitigation measures in place at the substation. The approved limits as agreed with Ausgrid and notified to the DPE were: • VPPV less than or equal to 30mm/s where the blast frequency is above 12Hz for any individual blast, • VPPV less than or equal to 26mm/s where the blast frequency is below 12Hz for any individual blast. A temporary allowance to increase blast criteria for a maximum of two blasts was also approved on 07/09/2018. Ausgrid accepted the temporary increase to the maximum limit above 12Hz for ground vibration to allow LCO to address possible exceedances that may be experienced in targeting the existing limits. LCO notified the DPE on 21/09/2018 of this temporary agreement and confirmed that this agreement would be complete by 08/11/2018. No exceedances were noted in the blast register for blasts occurring during this allowance period. LCO and Ausgrid have executed several agreements related to blasting in proximity to Newdell Zone Substation these include: • Design and installation of various mitigation measures for		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			substation infrastructure – notice of practical completion received 13 December 2016. • Collection of baseline data to assess mitigation performance – complete February 2017. • Design and installation of blast vibration monitoring to validate mitigation performance – complete May 2017. • Design and installation of further mitigation measures based on validation program – complete September 2017. It is noted that the Letter from Ausgrid to LCO advising of the increase in vibration criteria at Newdell references 25mm/s. This is a typo and should read 26mm/s as detailed in the official agreement between Ausgrid and LCO. LCO were consulting with ARTC at the time of the audit to revise the vibration limits in place for the rail line in the future. No approved increase to vibration criteria was in place and LCO was still operating with a limit of 50mm/s at the time of the audit. On the basis of the two exceedances at the Newdell zone substation, this condition has been assessed as non-compliant. However no recommendations are considered necessary as LCO has since implemented measures to address these exceedances in line with the approved blast management strategy.		
Schedule 3, Condition 5	**Chain of Ponds** The Applicant shall ensure that blasting at the development does not cause any exceedances of the following performance measures at the Chain of Ponds Inn, to the satisfaction of the Secretary: (a) negligible loss of heritage value; and (b) negligible impact on structural integrity of the internal and external fabric of the Inn, having regard to the existing condition and structural integrity of the Inn at November 2014. *Notes:* *a) The Applicant will be required to define more detailed performance indicators (including impact assessment criteria) in the Blast Management Plan.* *b) Measurement and/or monitoring of compliance with performance measures and indicators is to be undertaken using generally accepted methods that are appropriate for the heritage item. These methods are to be fully described in the Blast Management Plan.* *c) The requirements of this condition only apply to the impacts and consequences of mining operations undertaken following the date that consent is granted to DA 305-11-01 MOD 5.*	• Chain of Ponds Inn Annual Report, dated 08/06/2018 • Blast Exceedance Incident Report - Chain of Ponds Inn, dated 11/03/2016 • Correspondence regarding damage identified in visual inspections • CCC Meeting Presentation reporting damage identified in Inn; dated 12/06.2016, 29/05/2017, 12/11/2018. • Email from heritage office receipting annual report, dated 08/06/18 • Former COPI & Outbuildings Continuing Dilapidation	The Chain of Ponds Inn (COPI) Complex is under the ownership and management of the Hunter Valley Operations Joint Venture and is listed on the NSW State Heritage Register. LCO has developed a Blast Management Strategy – Chain of Ponds Inn (17/10/18) with a stated objective of ensuring that blasting at LCO does not cause loss of heritage value and / or have a negligible impact on the structural integrity of the external fabric of the Inn compared to its 2014 condition. The Blast Management Strategy includes: • Targets and blast design triggers. • Monitoring and evaluation requirements. The Blast Management Strategy was approved by the DPE on the 17/10/ 2018. **<u>Management Measures at COPI</u>** LCO has implemented a series of mitigation works at the COPI. This included works conducted prior to the commencement of the audit period such as adding support structures to the chimney. No additional mitigation works were required during the audit period. In addition various monitoring and reporting requirements were implemented during the audit period, including: • Strict protocols in place to ensure blast design, loading and events are well controlled when within 350 meters of the Inn. This includes monitoring conducted by a structural engineer - Bill Jordan & Associates (structural and conservation engineers) - at each blast event.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		reports, dated 10/02/2016 and 27/06/2016 • Blast Management Strategy - Chain of Ponds Inn (LIDOC-90533967-3636), dated 17/10/18 • Letter from DPE titled 'notification of increase in PPV limit – COPI', approving the increase of trigger levels, dated 23/3/2016 • Incident Report dated 11/03/2016 • Email to DPE notifying of loose plaster floor, dated 11/05/2017 • Email from C&A, dated 30/05/2017 • COPI Annual Report 2017, dated 09/06/2017	• Introduction of trigger levels for monitoring. • Quarterly monitoring conducted by Bill Jordan & Associates. • Management of flyrock via the Terrock flyrock model. • Monthly report conducted on vibration results. • Annual reports for the COPI were sent to the building owner (HVO) and NSW Heritage Office on 8 June 2018 and 09 June 2017. These reports summarised the blast monitoring, mitigation measures and analysed results against the predictions made in the EA. **Blast Criteria at COPI** The Blast Management Strategy for the COPI details that blast vibration levels up to 50mm/s peak particle velocity (PPV) will be acceptable at the COPI. Blast criteria was initially set at up to 20mm/s PPV and has progressively increased based on a review of blast impacts and mitigation works. LCO has advanced the trigger levels at COPI via the following schedule: • 10 – 20mm/s PPV: implemented August 2015 • 20 – 30mm/s PPV; implemented April 2016 • 30 – 40mm/s PPV; Implemented June 2016; • 40 – 50mm/s PPV; not implemented at the time of the audit. Emails to the DPE notifying of an increase in PPV limit in 2015 and 2016 were sighted. Letters from the DPE approving the increase in trigger level criteria were also sighted by the auditors. **Blast Results** Review of the LCO blast register indicated that one exceedance of blast vibration criteria occurred at COPI during the audit period. A blast fired on 24/02/2016 resulted in a ground vibration measurement recording of 21.04mm/s at the Chain of Ponds Inn. The approved limit at the Chain of Ponds Inn at the time of the blast was 20mm/s. The building response to blast vibration was being monitored at the time in line with the Blast Management Strategy and this indicated no adverse impact to the Inn complex had occurred at the time of the blast. LCO notified the DPE of the exceedance and provided the DPE with an investigation report. The investigation report found that the vibration level measured may have been elevated or erroneous due to the resonance of a loose coupling block between the earth and geophone. It also found that there were some errors made in the execution of the blast design on the ground. In response, the ground coupling was repaired and further training for Drill and Blast Crews completed. It is noted the ground vibration limit has since been increased to up to 40 mm/s PPV. The 2017 and 2018 Annual reports for the COPI concluded that the programme of building monitoring, coupled with blast design for frequency control have been effective in ensuring there has been negligible loss of heritage value and no impact on structural integrity. **Non blasting related Impacts to the Chain of Ponds Inn** On 11/05/2017 LCO notified the DPE that on 10/05/2017 following a		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			post blast inspection at the COPI some loose and dislodged plaster fragments from the ground floor archway were identified. LCO's structural engineer conducted a post blast event monitoring report and concluded that no structural impacts caused by blast events were identified. LCO stated that identified damage to the Inn did not coincide with a blast event and the contracted structural engineer concluded that this damage was unlikely to be caused by a blast event. The structural engineer recommended that repair of this section of the formwork should be deferred until addressed by a long term conservation program as blasting was moving further away from the COPI. On 30/50/2017 the COPI owner, Coal and Allied, stated they were satisfied with LCOs approach to delay repair of the archway. Other damage to the COPI identified by LCO and not considered to be blasting related, includes: • Existing and ongoing damage caused by white ants has previously been identified at the COPI. • A visual inspection identified that wall cladding had come away from the wall. This was determined to have been unrelated to blasting activities. **Conclusion** Based on the evidence reviewed including the mitigation measures implemented and monitoring results provided by structural engineers from Bill Jordan & Associates, the auditors consider that the performance measures of negligible loss of heritage value and negligible impact on the structural integrity of the internal and external fabric of the Inn are being achieved.		
Schedule 3, Condition 6	DELETED.			Noted	
Schedule 3, Condition 7	DELETED.			Noted	
Schedule 3, Condition 8	DELETED.			Noted	
Schedule 3, Condition 9	**Blasting Hours** 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 Secretary.	• LCO Blast Tracking Spreadsheet 2016 - 2018	The auditors viewed the LCO Blast Tracking Spreadsheet which includes all blast events from 2016, 2017 and 2018. No blasts were identified to have occurred before 9am or after 5pm. The earliest blast recorded during the audit period occurred at 09:01am, the latest blast recorded during the audit period occurred at 04:25pm. No blasts were identified to have occurred on a Sunday or Public Holiday.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 10	**Blasting Frequency**The Applicant may carry out a maximum of: (a) 3 blasts a day; and (b) 8 blasts a week, average over a calendar year on the site. This condition does not apply to blasts that generate ground vibration of 0.5mm/s or less at any residence on privately-owned land, blast misfires or blasts required to ensure the safety of the mine, its workers or the general public. *Note: For the purposes of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.*	• LCO Blast Tracking Spreadsheet 2016 - 2018	The auditors viewed the LCO Blast Tracking Spreadsheet which includes all blast events from 2016, 2017 and 2018. A sample of data from each year was analysed by the auditors. No instances of blast events occurring at a frequency exceeding 3 blasts a day or 8 blasts a week (on average) were noted. The Drill and Blast team were aware of the blast frequency limits and tracked blast occurrences to ensure compliance.	Compliant	
Schedule 3, Condition 11	**Operating Conditions** During mining operations, the Applicant shall: (a) implement all reasonable and feasible management measures to: • protect the safety of people and livestock in the area surrounding blasting operations; • protect public or private infrastructure/property in the area surrounding blasting operations from blasting damage; and • minimise the dust and fume emissions from blasting at the mine; (b) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site; and (c) monitor and report on compliance with the relevant blasting conditions in this consent, to the satisfaction of the Secretary.	Screen Shot from The Singleton Argus newspaper outlining that a road closure will be in place. Notice dated 18/9/2018 Drill & Blast Engineer Pre & Post Blast Checklist (LIDOC-90533967-104) Road Closure Checklist	(a) Blast management measures were implemented in accordance with the LCO Blast Management Plan and associated sub plans. Section 4.1 of the Blast Management plan outlines the blast management practices that will be implemented over the life of the project. Refer evidence against Schedule 3, Condition 15A. Based on the evidence reviewed the Blast Management Plan was considered to have been adequately implemented at the time of the audit. (b) LCO utilises the following methods to provide the public with up to date information on proposed blasting: • LCO operates a free call Community Response and Blasting Information Line operating 24 hours per day, 7 days per week. The number (1800 037 317) was dialled by the auditors on the 6/02/2019 and a voice recording of the next scheduled blast was heard. • A blast notification sign was observed at the entrance to LCO. • LCO sends notification emails, phone calls or text messages to the potentially impacted residences or business on the day of each blast event. • LCO places notices in the local paper when a blast requires a road closure (sighted example). (c) Blast monitoring and reporting on compliance was being undertaken. Refer evidence against Schedule 3, Condition 15A. DPE satisfaction is provided via the DPEs approval of the following: • Blast Management Plan – approved on 04/10/2018 • Annual Reviews – refer Schedule 5, Condition 3 • Attendance at CCC meetings which include summary of blast events and mitigations employed. • Incident Investigation for exceedances of blast criteria, dust generated by blast event and non-blasting related impacts at the Chain of Ponds Inn. • Agreement to support LCOs justification to increase blast vibration criteria at Newdell Zone Substation and Chain of Ponds Inn.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 11A	The Applicant shall not undertake blasting on site within 500 metres of any public road or any land outside the site that is not owned by the Applicant unless the Applicant has: (a) demonstrated to the satisfaction of the Secretary that the blasting can be carried out closer to the infrastructure or land without comprising the safety of people or livestock or damaging the infrastructure and/or other buildings and structures; and (b) updated the Blast Management Plan to include specific measures that would be implemented while blasting is being carried out within 500 metres of infrastructure or land; or (c) a written agreement with the relevant landowner to allow blasting to be carried out closer to the infrastructure or land, and the Applicant has advised the Department in writing of the terms of this agreement.	• Blast Management Plan (LIDOC-90533967-103), Version 8.0, dated 24/08/2017 • Letter by DPE approving Blast Management Strategy dated 28/01/16	The DPE confirmed by letter dated 28/01/16 approving the Blast Management Plan that it is satisfied that Liddell Coal has demonstrated that blasting can be carried out as per Condition 11A(a) and that the Blast Management Plan includes specific measures as required by Condition 11A(b). The letter goes on to note that given the satisfaction of the above conditions, there is no requirement for Liddell Coal to enter into an agreement with Coal and Allied as required by condition 11A(c).	Compliant	
Schedule 3, Condition 12	**Public Notice** By the end of February 2015, the Applicant shall: (a) re-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; and (b) re-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;to the satisfaction of the Secretary.	• 2016 IEA Report (Hansen Baily)	As detailed in the 2016 IEA Report (Hansen Baily), re-notification was provided to private landholders with 2km of the Development Approval Boundary in January and February 2015.	Complete	
Schedule 3, Condition 13	By the end of February 2015, 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.	• 2016 IEA Report (Hansen Baily)	As detailed in the 2016 IEA Report (Hansen Baily), notification was provided to private landholders with 2km of the Development Approval Boundary in January and February 2015.	Complete	
Schedule 3, Condition 14	If the Applicant receives a written request for a structural property inspection from any landowner of privately-owned land within 2 km of the development, the Applicant shall within 3 months of receiving this request: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to inspect the condition of any building or structure on the land, and recommend measures to mitigate any potential blasting impacts; and (b) give the landowner a copy of the property inspection report.		It was reported that this had not occurred during the audit period.	Not Triggered	
Schedule 3, Condition 15	**Property Investigations** 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: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to investigate the claim; and (b) give the landowner a copy of the property 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 Secretary. If the Applicant or landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution. If the matter cannot be resolved within 21 days, the Secretary shall refer the matter to an Independent Dispute Resolution Process (see Appendix 4).		It was reported that this had not occurred during the audit period.	Not Triggered	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 15A	**Blast Management Plan** The Applicant shall prepare a Blast Management Plan for the development to the satisfaction of the Secretary, this plan must: (a) be submitted to the Secretary for approval by the end of May 2015, unless otherwise agreed by the Secretary; (b) describe the measures that would be implemented to ensure compliance with the blasting criteria and operating conditions of this consent; (c) propose and justify any alternative ground vibration limits for any public infrastructure in the vicinity of the site (if required); (d) include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions; (e) include a specific Blast Management Strategy for the Chain of Ponds Inn. This Strategy must: • be prepared in consultation with the Heritage Council and Coal & Allied, and endorsed by the Heritage Council; • incorporate the recommendations of the Former Chain of Ponds Inn Buildings – Investigation of Blast Vibration and Vulnerability Report (Bill Jordan and Associates, 2013) and Blast Management Strategy (Enviro Strata, 2013); • provide details on the management of potential flyrock impacts on the Chain of Ponds Inn; • provide details on how the stabilisation measures will be implemented and a timetable for implementation; • provide details of the ongoing monitoring and maintenance procedures for the Chain of Ponds Inn; • repair any damage to the Chain of Ponds (should any damage occur) within 6 months of the damage occurring; • provide and submit an annual report on the condition of the Chain of Ponds Inn to the Heritage Council; and (f) include a specific Blast Management Strategy for the Newdell Zone Substation. This Strategy must: • be prepared in consultation with the owner of the substation; • if alternative criteria to those in Table 2 are proposed, include detailed justification for the criteria based on investigations by a suitably qualified expert(s) whose appointment has been endorsed by the Secretary in consultation with the owner of the substation; • provide details on the management of potential ground vibration and flyrock impacts to ensure that blasting does not affect the structural integrity or serviceability of the substation; • include a monitoring program for blast vibration and structural integrity at the substation; and• include a protocol for repairing any damage to the substation in the event that this occurs. The Applicant shall implement the approved management plan as approved from time to time by the Secretary.	• Blast Management Plan (LIDOC-90533967-103), Version 8.0, dated 24/08/2017 • Blast Management Plan submission email to DPE from LCO, dated 28/05/2015 • Blast Management Strategy – Chain of Ponds Inn (V5, 25/10/2019) • Email to DPE resubmitted the Blast Management Strategy – Chain of Ponds Inn, dated 17/10/2018 • Drill Pattern and Blast Design Procedure (LIDOC-90533967-75) dated 14/01/2019. • Blast Management Plan PTO conducted by Long Term Planner Engineer on 30 November 2018 • Shotfirer TNA Checklist • Environmental Awareness Training Register • LCO Complaints Register • Annual Review 2016	(a) LCO submitted the Blast Management Plan to DPE for review on 28/05/2015 and then again on the 7/01/2016. The Blast Management Plan was originally approved by the DPE on 26/01/2016. LCO submitted a revised version of the Blast Management Plan, Version 5 for approval in 2018. The DPE conditionally approved the Blast Management Plan on 4/10/18 subject to changes being made to Page 13 of the Plan. The DPE requested the statement regarding cosmetic damage on page 13 of Blast Management Strategy – Chain of Ponds Inn be amended so that minor cosmetic repairs can only be waived if agreed by the relevant stakeholders. The Blast Management Strategy – Chain of Ponds Inn was resubmitted to the DPE on 17/10/ 2018. The updated version (Version 5.0) was also uploaded to the LCO Public Website as per DPEs request. (b) Section 4.1 outlines the blast management practices that will be implemented over the life of the project. (c) Section 3.1.2 of the blast management plan outlines that the impact assessment criteria for infrastructure do not apply if LCO has a written agreement with the infrastructure owner. As per evidence detailed against Condition 4, Schedule 3 LCO has an executed agreement with Ausgrid to exceed blast vibration thresholds specified in the Development Approval. LCO were in the process of undertaking a staged approved to increase the blasting limits at Newdell Zone Substation. This is outlined in the Blast Management Strategy – Newdell Zone Substation. (d) Section 5 of the Blast Management Plan outlines the Blast Monitoring Program to be implemented at LCO. (e) Chain of Ponds Inn The Blast Management Strategy – Chain of Ponds Inn was approved along with the Blast Management Plan on 04/10/18. The Strategy was prepared in consultation with Coal & Allied and the NSW Heritage Council as per letters dated 13/02/15 and 14/04/15, respectively. (f) Newdell Zone Substation The Blast Management Strategy – Newdell Zone Substation was approved along with the Blast Management Plan on 04/10/18. Ongoing consultation with Ausgrid regarding blasting impacts at the Newdell Zone Substation was sighted by the auditors. **<u>Implementation Review of Blast Management Plan</u>** **Blast Design** LCO has developed a Drill Pattern and Blast Design Procedure (LIDOC-90533967-75) dated 14/01/2019 to outline the design considerations and processes to be followed for blast design. The procedure requires that a Design Compliance Checklist is completed for every blast by the designer and reviewed and approved by the senior mining engineer or equivalent. Examples of completed checklists were sighted by the auditors.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			Meteorological assessment, blast monitoring and reporting procedure. Pre and Post blast checklist are completed by the drill and blast engineer and take into account exclusions, sensitive areas and reference the meteorological assessment, blast monitoring and reporting procedure. The Post blast checklist assesses impacts and fume results. Examples of completed checklists were sighted by the auditors. **Blast Monitoring** Blast monitoring was being undertaken at two privately owned residences, the Chain of Ponds Inn and the Newdell Zone Substation. Ecotech monitors were in place in accordance with the Blast Management Plan with blast results made available on the LCO website each month. Blast PTOs are assigned quarterly to relevant personnel as a component of the Monthly Visible Leadership Plan. These PTOs are based on the Blast Management Plan PTO checklist and asks those assigned to verify: • Blast monitoring results for the last 4 months have been compared against criteria. • Blast monitoring results are published and saved on the internal intranet. • The Blast Hotline is operational. • Select two blast events from the past 4 months and verify with the drill and blast engineer that a pre and post blast checklist was completed accurately. This process enables any gaps to be identified and closed out. For example a blast PTO identified that a number of fields on the form were not being completed. This was discussed with the drill and blast engineer and it was concluded that these fields were not necessary. As a result an action to amend and improve the blast form was assigned. **Training of relevant personnel in relation to environmental blast controls** Shotfirers have a TNA that they must comply with. This includes units that the Shotfirer must be competent in and summarises the elements of a blast that the Shotfirer is in control of that may affect the blast outcome. Shot Crew competency spreadsheet was sighted by the auditors and outlines training conducted by shot crew including Shotfirer and Blast Sentries. The Training Register for General Environmental Awareness training was sighted by the auditors and confirmed that Shotfirer and Blast Sentries received training in environmental topics. **Complaints** One complaint was received via the EPA on the 10/10/2016 for a blast event that occurred on 6/10/2016. The complainant requested to remain anonymous. The complaint was relating to fume and dust witnessed from a blast fired at 3.30pm on 6/10/2016. LCO reported		

<table>
<tr><th colspan="6">APPENDIX A AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td></td><td></td><td></td><td>the following in regards to the complaint:

There were issues encountered earlier in the week during loading (product runaway) which identified increased blast fume risk. Loading was halted and risk assessment developed to mitigate impacts. The NSW DPE was notified of potential fume risk prior to firing and the controls put in place. The fume generated from the blast was rated as Level 2, and passed over mine owned land, avoiding impact to surrounding residents as planned. LCO related this information to the EPA and supplied further information as requested, including photos. No further action has been required to date (2016 Annual Review).

Incidents

One Blast event which occurred in 31/07/2017 was notified to the DPE. The incident involved dust generated by a blast event which moved over the New England Highway. LCO reported the event to the DPE and EPA on the day of the incident. LCO E&C team members inspected the blast dust and noted that some dust was visible on the opposite side of the highway in an area of mine rehabilitation however noted that the New England Highway was clear of dust. LCO provided notification of the incident however noted that this was a precautionary step taken and that the incident was not considered to have caused or threatened material harm to the environment. No complaints were received in regards this incident.

Summary

Based on the evidence reviewed the Blast Management Plan was considered to have been generally implemented at the time of the audit.</td><td></td><td></td></tr>
<tr><td colspan="6">AIR QUALITY</td></tr>
<tr><td>Schedule 3, Condition 16</td><td>Impact Assessment Criteria

The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate emissions generated by the development do not exceed the air quality impact assessment criteria listed in Tables 3, 4, and 5 at any residence on privately-owned land.

Table 3: Long term impact assessment criteria for particulate matter
<table><tr><th>Pollutant</th><th>Averaging period</th><th>[d]Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>[a]90 µg/m^3</td></tr></table></td><td>• Sentinex Data 2018
• Annual Review 2017, Air Quality Monitoring Results
• Annual Review 2018, Air Quality Monitoring Results</td><td>LCO manages air quality in accordance with the Air Quality Management Monitoring Program (AQMMP). The following air quality monitoring is undertaken:

• Compliance Monitoring – Utilising a network of TSP and PM10 monitors, Real time TEOM monitors and dust deposition gauges.
• Management Monitoring – Real time monitoring utilised for reactive dust management in accordance with the LCO Dust Management TARP (E-BAM monitoring stations).
• Supplementary Boundary Monitoring – relocatable boundary monitoring (E-BAM monitoring stations)

Compliance monitoring results were reviewed by the auditors. The following was identified:

• 2016: no exceedances of impact criteria occurred.
• 2017: no exceedances of impact criteria occurred.
• 2018: 10 exceedances occurred of the short term impact criteria for PM10 24hr. These included:
  ○ 8 Jan 2018 – Exceedance at SX38-D2
  ○ 9 Jan 2018 – Exceedance at SX38-D2</td><td>Non-compliance (low)</td><td>No recommendation made</td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	Particulate matter < 10 µm (PM_{10}) | Annual | [a]30 µg/m^3 *Table 4: Short term impact assessment criterion for particulate matter* Pollutant | Averaging period | [d]Criterion Particulate matter < 10 µm (PM_{10}) | 24 hour | [a]50 µg/m^3 *Table 5: Long term impact assessment criteria for deposited dust* Pollutant | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level [c]Deposited dust | Annual | [b]2 g/m^2/month | [a]4 g/m^2/month *Notes to Tables 3-5:* *a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources;* *b Incremental impact (i.e. incremental increase in concentrations due to the development on its own);* *c Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS3580.10:2003: Methods for Sampling and Analysis of Ambient Air Determination of Particulate Matter – Deposited Matter – Gravimetric Method; and* *d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.*		○ 23 Jan 2018 – Exceedance at SX38-D2 ○ 9 Feb 2018 – Exceedance at SX38-D2 ○ 15 Feb 2018 – Exceedance at SX38-D1 and SX38-D2 ○ 19 Mar 2018 – Exceedance at SX38-D2 ○ 20 Mar 2018 – Exceedance at SX38-D2 ○ 15 Apr 2018 – Exceedance at SX38-D1 and SX38-D2 ○ 22 Nov 2018 – Exceedance at SX38-D1 and SX38-D2 ○ 23 Nov 2018 – Exceedance at SX38-D1 and SX38-D2 The auditors sighted investigation reports for each exceedance event which were provided to DPE. LCO reported that investigations concluded that monitoring results were either a result of: • Regional dust events, and therefore fell under 'note d' of Table 3-5; or • A result of offsite contributions and therefore unlikely that LCO operations caused an exceedance of short term impact assessment criteria. In reaching the conclusion that LCO activities did not cause the exceedance, LCOs investigation considered the meteorological data (prevailing winds), real-time monitoring results (no alarms had been triggered), boundary monitoring results and Upper Hunter Air Quality Monitoring Network results. As per note 'a' to Table 3-5, short term impact criteria are applicable to the *Total Impact* i.e. the incremental increase in concentrations due to the development **plus** background contributions due to all other sources. At the time of the audit LCO was waiting on a determination to MOD7 which included a request to make the short term PM10 criteria subject to note 'b' *Incremental Impact* (i.e. incremental increase in concentrations due to the development on its own. This would mean similar exceedances would not be considered non-compliant if they were considered to be caused by increased background concentrations from other sources. It is noted MOD 7 has since been approved (12/02/2019). This condition is found to be non-compliant due to the exceedances which have been recorded against PM10 short term criteria.		
Schedule 3, Condition 17	DELETED		Deleted	Deleted	
Schedule 3, Condition 18	**Operating Conditions** The Applicant shall: (a) implement all reasonable and feasible air quality management measures to minimise odour, fume and dust emissions from the development; (b) implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site; (c) minimise any visible air pollution generated by development;	• LCO Air Quality Management and Monitoring Program • TARP Procedure (LIDOC-90533967-2387) • Landclearing and top soil stripping	(a) Air quality monitoring is undertaken in accordance with the LCO AQMMP. In addition, the LCO Dust Management TARP and LCO Spontaneous Combustion Management Plan are used for the ongoing management of air quality. The auditors identified the following management measures in place to minimise odour, fume and dust emissions from site. • **Odour** Odour poses a low risk from an environmental point of view at LCO. Odour sources are predominately from spontaneous	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	(d) minimise surface disturbance on the site; (e) operate an air quality management system that uses a combination of high volume samplers and dust deposition gauges to ensure compliance with the relevant conditions of consent; and (f) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events to the satisfaction of the Secretary.	procedure • JACOBS Dust Forecast • LCO Complaints register • LCO Incident Register (2016-2018) • Drill Pattern and Blast Design Procedure (LIDOC-90533967-75) dated 14/01/2019 • Shotfirer TNA Checklist • Mining Supervisor Daily Inspection Report, 29/01/19, 30/01/2019, 05/02/2019	combustion occurrences. Spontaneous combustion is managed in accordance with the Spontaneous Combustion Management Plan. Occurrences of spontaneous combustion are localised within the pit. LCO ensures that mine design incorporates the use of benches for sealing off the high wall to minimise the ingress of oxygen, and the flooding of heated areas prior to mining with recycled mining water. In addition coal and overburden stockpiles are cooled and saturated with water where practical to minimise heat and dust generation. No complaints have been received during the audit period in relation to odour and no odour related incidents were recorded. • **Dust** Management and contingency measures are triggered by visual monitoring and alerts from the real time operational monitoring and forecast systems as outlined in the LCO Dust Management TARP. The Dust Management TARP contains a number of triggers including monitoring triggers, operational triggers and weather condition alarms. LCO has a daily meeting at 10am with operational, supervisor, safety and environmental staff which outlines what level of the dust TARP has been triggered for dayshift and nightshift. The auditors attended a 10am shift meeting and verified weather conditions and dust control measures were discussed in the meeting. The Mining Supervisor maintains a Daily Inspection Report book which includes notes from activities which occurred during each shift. This includes a section which outlines if the dust TARP was activated and what level. Other dust management measures in place at the time of the audit included: ○ Progressive rehabilitation sighted on site. ○ Major haul roads were maintained in a damp condition by water carts. ○ Water sprays in place at CHPP, stockpiles and train loading facility. ○ Dust suppressant was being used on light vehicle roads. ○ Graders were identified in operation to maintain road surfaces. ○ Water cart filling stations were sighted. ○ Speed limit signage was in place on site A number of exceedances of short term impact criteria were recorded against 24hr PM10 criteria. These were considered by LCO to be as a result of offsite contributions or minor equipment malfunctions and not caused by LCO operations. • **Fume** LCO implements a Post Blast Fume Procedure which is included as an appendix to the Blast Management Plan. During the blast		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			design process the engineers ensure that product selection (low fume product), meteorological conditions and other blast details are aimed at reducing fume. Following each blast, fume is reviewed by the drill and blast engineer and recorded in the post blast checklist. If fume is identified this is recorded and rated and actions made according to the fume rating. Examples of completed checklists were sighted by the auditors. (b) LCO is subject to NGERs reporting as well as shareholder and investor reporting and as such monitor greenhouse gas emissions and energy production. LCO has a fuel save program in place which is managed by the Tech Services Department. This program assesses a range of scenarios to identify anticipated outcomes with relation to fuel usage saved, reductions in fugitive emissions, and cost savings. An example where LCO amended operations to minimise greenhouse emissions includes when LCO shortened dump lifts from 30m to 15m, This means less pushing required by a dozer for development of final landforms, resulting in a saving of time, fuel, and costs. LCO estimate this change saved approximately 1.7million litres of fuel since September 2006. (c) The auditors sighted the dispatch control room in operation and the methods for management of air quality complaints or elevated levels of dust. The controls in place (as detailed above in section (a) were considered to be adequate at minimising visible air pollution. (d) LCO minimises the site disturbance footprint through progressive rehabilitation. Progressive rehabilitation was observed during the site visit with no evidence of bare ground requiring rehabilitation observed. It has also established a GDP process to ensure proposed ground disturbance is appropriate assessed and measures identified and implemented to mitigate impacts (sighted examples of completed GDPs). (e) The compliance air quality monitoring network at LCO consists of TSP and PM10 monitors, real time TEOM monitors and dust deposition gauges situated at privately owned residences. Refer evidence against Schedule 3, Condition 16. (f) LCO reviews a range of meteorological data which influences operations and air quality controls for each day. This includes: • Glencore has engaged Jacobs to provide daily dust risk forecast information to each mine in NSW. LCO receive an email from Jacobs approximately 5:30am each morning which enables the site manager to review the information prior to shift commencement. This is discussed in the site pre-start meeting. • LCO receives a daily email from the EPA “Upper Hunter Incremental dust risk forecast model”. Dusk risk is classified as ‘Normal’ or ‘High’ by the EPA. The above measures are described in the AQMMP which was approved by the Secretary (refer Schedule 3, Condition 19		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			below). Reporting of air quality performance is included in the Annual Review which is provided to the DPE.		
Schedule 3, Condition 19	**Air Quality Monitoring** The Applicant shall update and subsequently implement the Air Quality Monitoring Program for the development to the satisfaction of the Secretary. This program must be submitted to the Secretary by the end of May 2015, and must include a combination of real-time air quality monitors and supplementary monitors to monitor the dust emissions of the development; and an air quality monitoring protocol for evaluating compliance with the air quality impact assessment criteria in this consent.	• Air Quality Monitoring and Management Plan (LIDOC-90533967-2800), dated 17/10/20018 • DPE Approval of AQMMP, dated 30/5/2017 • DPE Approval of AQMMP, dated 04/10/2018	The AQMMP was approved by the DPE on 13/08/2015. The DPE noted that the AQMMP would come into force on 30/11/2015 and will remain in force until replaced by any future updated approved plans. The AQMMP was revised and reapproved by the DPE on two occasions during the audit period. The DPE approved the revised AQMMP on 30/05/2017 and 4/10/ 2018, with approval letters from the DPE sighted by the auditors. The air quality monitoring program is discussed in Section 2.11 of the AQMMP. This includes HVAS monitors (TSP, and PM10) real time TEOM monitors (PM10) and dust deposition gauges for assessing compliance as well as real-time E-BAM monitors and meteorological monitoring for use as a management tool for reactive dust management. Supplementary boundary monitoring (using E-BAMS) is also included to supplement the reactive dust management system and aid determination of LCO's contribution to local dust concentrations. The protocol for evaluating compliance with impact assessment criteria is discussed in Section 2.11. **<u>Implementation of air quality monitoring</u>** Air quality monitoring was undertaken in accordance with the AQMMP, specifically Section 2.11 – Air Quality Monitoring. Results of monitoring are provided in the Annual Reviews and uploaded onto the LCO website each month. A sample of monitoring locations was sighted during the site inspection. Refer also to Schedule 3, Condition 16.	Compliant	
Schedule 3, Condition 20	**Meteorological Monitoring** 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 EPA and Secretary.	• Letter from DP approving met station, dated 29 Jan 2008 • Meteorological Station Annual inspection and calibration certificate, 16/3/2018 CBased Environmental Pty Limits.	LCO operates a meteorological station on site (sighted by auditors). The requirement for a meteorological station is also included in the sites EPL. The meteorological station was originally approved in 2008. Refer Condition M4.1 of EPL for further discussion.	Compliant	
SURFACE AND GROUND WATER					
Schedule 3, Condition 21	**Water Supply** The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of mining operations to match its available water supply, to the satisfaction of the Secretary. *Note: The Applicant is required to obtain all necessary water licences and approvals for the*	• HEC (2018) Liddell Coal Operations Water Balance Model Calibration Update	LCO manages water through an Integrated Water Management System which includes groundwater, surface runoff, mine water from the open cut and underground mining areas and decant from the CHPP tailings storages. Water is sourced from groundwater in former underground workings, and surface water that accumulates in above ground mine storages	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	development under the Water Act 1912 and/or Water Management Act 2000.	• HEC (2016) Liddell Coal Operations Water Balance Model Calibration Report • Liddell Coal Operations – Water Inventory (7 January 2019) • 2016 and 2017 Water Accounting Framework (WAF) and Glencore Corporate Practice (GCP) Interface excel spreadsheets.	including open cut sumps and tailings decant. These water sources meet the sites raw water supply requirement. Reservoir North Dam with a capacity of 2000 ML is the main water storage on site. The Reservoir North Dam receives water pumped from both open cut pits, other dams and the former Liddell underground workings via bores. The Reservoir North Dam provides make-up supply to the CHPP, water sharing with neighbouring Hunter Valley Operations, Ravensworth Operations and Mt Owen/Glendell and water-truck fill points for dust suppression. As a tool to support decision making on site in relation to water management, a detailed Site Water Balance Model (Goldsim) has been developed for LCO and the Greater Ravensworth Area. The model did not identify any water supply shortfalls in any of the climatic scenarios simulated for the remaining mine life, implying a high level of water supply security. LCO monitors the mine water balance periodically. For example a monthly Water Inventory report is prepared which includes the current water inventory and 12 month prediction. These inventory reports include levels at which action should be taken. Predictions include both 5th percentile, median and 95th percentile to guide decisions on water inventory (i.e. reduction or site water inventory, normal conditions, etc.). The model and its calibration is discussed further under Condition 23		
Schedule 3, Condition 21A	Unless an EPL or the EPA authorises otherwise, the Applicant shall comply with Section 120 of the POEO Act and the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002.	• Liddell Offsite Water Discharge Investigation Report – Submitted (6/12/2018)	Section 120 of the POEO Act prohibits the pollution of waters. EPL 2094 includes maximum concentration limits for the following pollutants: E.Coli at Point 5; and pH and total suspended solids at Point 6. An incident occurred on 28 November 2018 in which sediment laden run-off breached a containment drain and flowed into an isolated pool within Bowman's Creek. The incident was reported to the EPA and other agencies in accordance with the PIRMP and WMP. The DPE attended site for an inspection on the 29 November and requested an investigation report into the incident. LCO's investigation concluded that the incident did not cause or threaten material harm to the environment. The auditors consider that whilst the incident response minimised potential impacts to the environment and LCO's conclusion that the incident did not cause material harm to the environment appears reasonable, LCO is non-compliant with this condition as a pollutant (sediment) entered waters (Bowman's Creek). LCO has since implemented further system improvements to mitigate the likelihood of similar event reoccurrences. Therefore no further recommendations are made. Further discussion of the incident is provided in the main report.	Non-Compliance (low)	No recommendation made

<table>
<tr><th colspan="6">APPENDIX A AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td>Schedule 3, Condition 21B</td><td>The Applicant shall ensure that treated effluent from the wastewater treatment plant does not exceed the discharge limits in Table 6, unless otherwise agreed by the EPA.</td><td>• Letter to DPE dated 27/07/18 Water Wastewater Treatment Plant - Investigation Summary
• Monitoring Workbook_2019_01</td><td>In June/July 2018 the MIA STP treated effluent exceeded the E.coli concentration limit of 100 CFU/100 ml at the discharge. It is noted treated effluent from the plant undergoes UV disinfection and is recycled into the mine dirty water system and contained onsite.
LCO implemented the TARP outlined in the WMP and undertook resampling to determine if the result was representative. The second sample was also in exceedance of the limit. In response LCO engaged a maintenance and wastewater treatment plant contractor to investigate the exceedance. Maintenance work was undertaken including replacing a pump, float switch sensors and blower fan. Following this work, ongoing monitoring indicated the STP was performing adequately and E.coli levels have been within the limits since 23 July 2018. The internal LCO investigation looked at the root cause of the exceedance and explored whether the float sensors needed to be on a different maintenance regime. Consultation with the maintenance and electrical team indicated there was no reason to change the regime as measures were in place to identify issues (alarm initiates on Citec panel display in dispatch) and the risk for potential environmental harm low.
Given the response and thorough investigation into the exceedance no further recommendations are provided.</td><td>Non-Compliance (low)</td><td>No recommendation made</td></tr>
<tr><td>Schedule 3, Condition 21C</td><td>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 6, or as otherwise agreed by the EPA.
Table 6: Wastewater treatment plant discharge limits
<table><tr><th>Pollutant</th><th>Units of Measure</th><th>Frequency</th><th>Sampling Method</th><th>Concentration Limit (100 percentile)</th></tr><tr><td>E.coli</td><td>Colony forming units per 100 millilitres</td><td>Monthly</td><td>Representative sample</td><td>100</td></tr></table></td><td>• Monitoring Workbook_2019_01
• Monthly Environmental Monitoring Report December 2018 CBased Environmental</td><td>Monitoring at five STP sites (including the MIA STP discharge point) was being undertaken on a fortnightly basis for a number of parameters including E.coli. Sampling was being undertaken by CBased Environmental Pty Ltd (CBased) and sterile samples sent to Australian Laboratory Services (ALS) for E.coli analysis. Results were collated within the ‘Monitoring Workbook’ under the STP tab.</td><td>Compliant</td><td></td></tr>
<tr><td>Schedule 3, Condition 22</td><td>Desalination Unit
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 Secretary, DPI – Water and EPA.</td><td></td><td>The desalination unit was not constructed.</td><td>Not triggered</td><td></td></tr>
<tr><td>Schedule 3, Condition 23</td><td>Water Management Plan
The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This Plan must:
(a) be prepared in consultation with DPI – Water and EPA by suitably qualified and experienced persons whose appointment has been approved by the Secretary;
(b) be submitted to the Secretary for approval by the end of May 2015, unless the Secretary agrees otherwise;
(c) this plan must include a:</td><td>• Appendices to WMP including consultation and DPE approval</td><td>The preparation and approval of the original WMP was assessed in the previous IEA. Evidence of consultation and approval is included as Appendices to the WMP.
The WMP was revised in 2016, 2017 and 2018. In its letter approving Revision 9 of the WMP, the DPE stated that it was satisfied the changes to the plan did not warrant re-consultation on the plan (DPE letter dated 17/08/2017). The latest revision (Rev 11) was approved by the DPE on the 4.10.2018.</td><td>Compliant</td><td></td></tr>
<tr><td>Schedule 3, Condition 23 Continued</td><td>(i) Site Water Balance that:
• includes details of:
- sources and security of water supply, including contingency planning for future reporting periods;
- water use and management on site;
- reporting procedures, including the preparation of a site water balance for each</td><td>• WMP Version 11.0 26/10/2018
• 2017 WAF and GCP Interface
• 2016 WAF and</td><td>Section 7 of the WMP discusses the Site water balance. It describes the Life of Mine water balance model that was developed for LCO and since been integrated with the two neighbouring Glencore mines (Ravensworth Operations and the Mt Owen Complex). It provides an overview of the model and a summary of the model results. The WMP discusses water sources, supply, management and use. Water balance monitoring, model calibration and review and reporting</td><td>Compliant</td><td></td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	calendar year; • describes the measures that would be implemented to minimise clean water use on site;	GCP Interface • Annual Reviews (2016 and 2017)	are discussed in Section 7.5 and 7.6. Measures to minimise clean water use on site are outlined in Section 7.4 Water efficiency. Evidence that the water balance model was being reviewed and calibrated was sighted including: • Model Calibration undertaken by Hydro Engineering & Consulting Pty Ltd (HEC) initially in 2016 and again in 2017 following collection of additional data. • Dashboard/ interface and monthly status update "Water Balance Tool". • Annual Reviews providing a summary of the water balance results		
Schedule 3, Condition 23 Continued	(ii) Erosion and Sediment Control Plan that: • is consistent with the requirements of Managing Urban Stormwater: Soils and Construction, Volume 1, 4th Edition, 2004 (Landcom), or its latest version; • identifies activities that could cause soil erosion, generate sediment or effect flooding; • describes measures to minimise soil erosion and the potential for the transport of sediment to downstream waters, and manage flood risk; and • describe what measures would be implemented to maintain the structures over time;	• ESCP Design Checklist • Erosion and Sediment Control Inspection Form • Workshop Sediment dam capacity 26/05/2017 • 2017 Bayswater Stage 3 GDP summary • Completed ESC Inspection Form 19/10/2017	The water management system has been designed to capture the majority of runoff within the footprint of mining disturbance and rehabilitation areas. The ESCP (part of the WMP) generally complies with Schedule 3, Condition 23 (ii). However, Section 8.6.4 was not considered adequate in that it: • Considers Type C soil design methods appropriate due to the 'coarse-grained, non-dispersive soils' which is not consistent with Section 3.52 and 3.53 of the WMP with respect to presence of dispersive and sodic soils. However practices on site (sediment dam calculation sheets) indicate that procedures for Type F/D are being adopted which is more appropriate. • Does not refer to the appropriate design criteria recommended under the Blue Book Vol 2 – Mines and quarries for (DECC 2008). It is noted that other sections (e.g. Section 8.1 and 8.4) refer to volume 2 of the Blue Book. Site inspection observed that drains, water management controls, and erosion sediment controls were typically in well-maintained order, with the exception of a redundant sediment fence on Bowmans Creek alluvial plain which was disintegrating. Sediment dams were dewatered with pumping infrastructure in place and visible signs of maintenance / desilting (ramps, low sediment levels).	Compliant	***2019 IEA OFI 013**: Update Section 8.6.4 of the WMP – Update WMP to ensure consistency with regards to soil type and more clearly detail the design standards LCO adopts demonstrating it is consistent with the Managing Urban Stormwater Soil and Construction, Volume 2E: Mines and Quarries.*
Schedule 3, Condition 23 Continued	(iii) Surface Water Management Plan, that includes: • reference to detailed baseline data on water flows and quality contained in the EA;• a detailed description of the water management system on site; • design objectives and performance criteria for the: - design and management of final voids; - design and management for sodic and dispersible soils and acid or sulphate generating materials; - reinstatement of drainage lines on the rehabilitated areas of the site; and - control of any potential water pollution from the rehabilitated areas of the site; • surface water assessment criteria, including trigger levels for investigating any potentially adverse impacts for the following: - the water management system, including mine water storages and sediment dams;	• 2016 Biodiversity Monitoring Report (Unwelt,2017) • 2017 Biodiversity Monitoring Report (Umwelt, 2018) • Monitoring Workbook_2019_01 • Monthly Environmental Monitoring Report December 2018 CBased Environmental	**Baseline data** Baseline data for water quality provided in Section 9.1.2. WMP presents a statistical analysis of the water quality data collected between 2009 and 2014. WMP provides a section reference in the EA MOD5 for Baseline streamflow and creek condition for Bowmans Creek and Bayswater Creek. **Detailed description of the water management system** Contained in Section 5 (Existing) and 6 (Future) of the WMP. Includes summary of key storages, principles for managing clean / dirty water management schematic, controlled discharge procedures, sewage treatment, and final landform drainage. **Design Objectives and Performance Criteria for the:** Section 4.2 provides detail of water management classes (mine water, dirty water, clean water, effluent, etc.), design objectives and performance criteria for each water management class. **Design and management of final voids** High level description of the final voids is provided in Section 4.4, including design objectives and performance. Does not state any	Compliant	***2019 IEA OFI 016:** Change reference to LCO Rehabilitation Plan in WMP to reference the MOP*

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	- downstream surface water quality; and - stream and riparian vegetation health; • a program to monitor and report on: - the effectiveness of the water management system; - surface water flows and quality, stream and riparian vegetation health in the watercourses that could be affected by the development; and - stream health and channel stability; • reporting procedures for the results of the monitoring program; • a plan to respond to any exceedances of the performance criteria, and mitigate any adverse surface water impacts of the development including: - a protocol for the investigation, notification and mitigation of any exceedances; - measures to mitigate and/or compensate potentially affected landowners for the loss of surface flows in Bowmans Creek downstream of the development resulting from the development; and - the procedures that would be followed if any unforeseen impacts are detected during the development.		items relating post-closure water management, however provides reference to further detail on LCO Rehabilitation Management Plan. The requirement to develop a Rehabilitation Management Plan has been addressed in the LCO Mining Operations Plan. The MOP includes discussion of final void water balance (Section 3.4.5). **Design and management for sodic and dispersible soils and acid or sulphate generating materials** Potential for acid generation is considered low (Ref Section 3.5.3). WMP provides outline of the primary mitigation measures for management of sodic and dispersible soils, and these are considered appropriate. Whilst WMP does not clearly define *design objectives or performance criteria* for management of sodic and dispersible soils, it is considered that this falls under objectives / criteria elsewhere (i.e. overall water quality criteria and erosion and sediment controls). **Reinstatement of drainage lines on the rehabilitated areas of the site; and** No pre-mining drainage lines are to be reinstated within the final landform. Section 6.4 provides the overall principles of how the final landform and drainage thereof will be managed. **Control of any potential water pollution from the rehabilitated areas of the site.** Section 6 provides a summary of 'future water management'. The WMP proposes that runoff from rehabilitated areas is initially directed to the mine water system and therefore retained on site. Once rehabilitated areas have been revegetated and become stable, runoff will be directed to sediment storages prior to being allowed to drain to local drainage lines. **Surface water assessment criteria, including trigger levels for investigating any potentially adverse impacts for the following:** • **the water management system, including mine water storages and sediment dams;** • **downstream surface water quality; and** • **stream and riparian vegetation health.** Surface water monitoring program, baseline, trigger levels are provided in Section 9. Surface water quality is monitored at three locations on Bayswater Creek and eight locations on Bowmans Creek. Therefore monitoring program, surface water assessment criteria is focused primarily on locations along Bowmans Creek. Monitoring and triggers for other LCO water management systems (mine water storages and sediment dams) are not provided, the exception being Treated Effluent, which is monitored monthly for E.coli. Section 9.1.3.3 provides reference to the LCO Biodiversity Management Plan, and that instream and riparian condition is monitored at LCO using the Riparian Channel and Environmental (RCE) inventory (Peterson 1992) which has been modified to suit Australian Conditions (Chessman et al. 1997). RCE is undertaken at three locations along Bowmans Creek, and at the Bayswater Creek Upstream and Downstream monitoring points. The monitoring program is to be completed annually for Bowmans Creek and Bayswater Creek but at alternative sites each year. **A program to monitor and report on:** • **the effectiveness of the water management system;** • **surface water flows and quality, stream and riparian vegetation health in the watercourses that could be affected by the development; and**		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• **stream health and channel stability;** Potential for off-site impacts are monitored on Bayswater and Bowmans Creek (as noted above) which would be indicative of the effectiveness of the water management system in terms of preventing offsite pollution. This program includes surface water quality, and riparian vegetation health, stream health and channel stability in Bayswater and Bowmans Creek. Evidence sighted during the audit of the WMP monitoring program being implemented include: • Observed location of upstream stream flow gauging station • CBased Environmental Pty Ltd Environmental Monitoring provides monitoring services (inclusive of surface water quality in adjacent creeks) to LCO, selection of reports were provided as evidence, for March 2018, July 2018, December 2018, along with monitoring workbooks (Excel) • The 2016 and 2017 annual biodiversity monitoring was undertaken by Umwelt. The monitoring program included in-stream and riparian ecological monitoring using the RCE inventory. The WMP states that two gauging stations on Bowmans Creek were commissioned in 2016 (upstream and downstream) to monitor flow variability and "*in particular monitor any impacts on streamflow within Bowmans Creek as a result of drawdown on the alluvial aquifer*". It is noted that monitoring of the alluvium is undertaken (refer groundwater audit) with trigger levels, and associated TARP to monitor this potential impact, rather than streamflow. Whilst the streamflow does not have associated triggers, it is appropriate to monitor and may provide useful data to inform surface water quality and groundwater monitoring trends. **Reporting procedures for the results of the monitoring program; A plan to respond to any exceedances of the performance criteria, and mitigate any adverse surface water impacts of the development including:** • **a protocol for the investigation, notification and mitigation of any exceedances;** • **measures to mitigate and/or compensate potentially affected landowners for the loss of surface flows in Bowmans Creek downstream of the development resulting from the development; and** • **the procedures that would be followed if any unforeseen impacts are detected during the development.** Section 10 of the WMP – "Surface Water and Groundwater Response Plan". Includes definition of Investigation Triggers, and Management / Mitigation Triggers, a TARP for trigger exceedances, procedure for unforeseen events, and reporting and notifications requirements. The TARP process was being implemented with a number of surface water investigations undertaken following trigger exceedances. These are discussed in detail in the main report.		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 23	(iv) Groundwater Management Plan, that includes: • reference to baseline data on groundwater levels, yield and quality contained in the EA; • a detailed description of the groundwater management system on site; • design objectives and performance criteria, for the: - emplacement areas for tailings, acid forming and potentially acid forming materials, and saline and sodic materials; - final voids; • groundwater assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts beyond those predicted in the EA for Mod 5; • measures to minimise, prevent or offset groundwater leakage from the Bowmans Creek alluvial aquifer in excess of the drawdown predicted in the EA for Mod 5; • measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bowmans Creek alluvium if the potential for adverse impacts is detected; • a program to monitor and report on: - groundwater inflows to the mining operations; - the seepage/leachate from water storages, emplacements and final voids; - background changes in groundwater yield/quality against mine-induced changes; - impacts of the development on:o regional and local (including alluvial) aquifers; o groundwater dependent ecosystems and riparian vegetation; o the seepage/leachate from water storages, emplacements, backfilled voids and final voids; o impacts on the Bowmans Creek alluvial aquifer; • procedures for the verification of the groundwater model; • a review of existing network to identify additional monitoring locations for the alluvial system focusing on areas where additional drawdown is predicted; • reporting procedures for the results of the monitoring program and model verification; • a plan to respond to any exceedances of the predicted groundwater impacts, and mitigation of any unpredicted adverse groundwater impacts of the development;	• WMP Version 11.0 26/10/2018 • Monitoring Workbook_2019_01 • Monthly Environmental Monitoring Reports for December 2018, July 2018, March 2018 CBased Environmental • TARP investigations completed from 2016-2019	**Baseline data** Baseline data for groundwater quality is provided in Section 9.2.2 of the WMP. The WMP presents maximum and minimum water level data from July 2005 to May 2017 as well as maximum and minimum pH, electrical conductivity data for the different monitored aquifers. **Detailed description of the water management system** Contained in Section 5 (Existing) and 6 (Future) of the WMP. Includes summary of key storages, how the system is maintained and desired water levels for geotechnical stability **Design Objectives and Performance Criteria** Section 4.2 provides details of design objectives and performance criteria for the four identified water management classes (mine water, dirty water, clean water and effluent). Design objectives and performance criteria for tailings emplacement areas are not specifically provided. New tailings emplacement areas undergo detailed design and analysis in consultation with the RR. Potential for acid generation is considered low (Ref Section 3.5.3). The WMP provides an outline of the primary mitigation measures for management of sodic and dispersible soils, and these are considered appropriate. Whilst WMP does not clearly define *design objectives or performance criteria* for management of sodic and dispersible soils, it is considered that this falls under objectives / criteria elsewhere (i.e. overall water quality criteria and erosion and sediment controls). High level description of the final voids is provided in Section 4.4, including design objectives and performance criteria. The MOP includes discussion of final void design. The final void detailed design will require approval from the RR as part of a Closure Plan. **Groundwater assessment criteria** Assessment criteria have been adopted for groundwater levels, electrical conductivity (EC) and pH. • Groundwater level: There are three components to the level triggers. The first is the 2m drawdown in the alluvium compared to local reference sites in the Bowmans Creek Alluvium. The second is an investigation trigger, based on the 10th percentile water level on three consecutive occasions, used to identify unexpected changes in groundwater level. Lastly there is a subsequent investigation trigger level to assess the potential for long term harm to listed threatened species. • Groundwater quality triggers for EC and pH are based on monthly monitoring data. Section 9.2.3.3 outlines the 80th percentile upper limit and the 20th percentile lower limit trigger levels. The lower limit for EC is only used to assess the potential for increased leakage of groundwater from the alluvial aquifer to the hard rock aquifer due to mining. **Measures to mitigate leakage into Bowmans Creek** Section 10.2.3 of the WMP states that measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bowmans Creek alluvium will be investigated if potential adverse effects are detected through the monitoring program. It notes that the groundwater assessment conducted for MOD 5 predicted the peak losses from the alluvium (corresponding to a drawdown of up to 2 metres) would not occur until approximately 2021 and 2022 and that investigation into mitigation measures with regards to hydraulic connection are not anticipated to be required until that time. **Monitoring and reporting** The groundwater monitoring program is discussed in Section 9.2 of the WMP. LCO has an established groundwater monitoring program	Compliant	

APPENDIX A AUDIT CHECKLIST					
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			comprising a network of 18 locations to target both the surrounding alluvial aquifer associated with Bowmans Creek and the regional hard rock aquifer associated with the coal measures. Monitoring includes: • Groundwater inflows to the mine operations are monitored by measuring the water pumped from the mine pits and tracked in the site water balance and compared to the rates predicted in the groundwater model. • LCO conducts monthly monitoring activities for the seepage/ leakage of water storages, emplacements and final voids; background changes in groundwater yield/quality against mine induced changes; impacts of the development on: regional and local (including alluvial) aquifers; groundwater dependent ecosystems and riparian vegetation; the seepage/leachate from water storages, emplacements, backfilled voids and final voids and impacts on the Bowmans Creek alluvial aquifer. Evidence sighted during the audit of the groundwater monitoring program being implemented includes: • Monthly Environmental Monitoring Reports by CBased which include groundwater monitoring. Groundwater levels and pH and EC are monitored monthly with chemical analysis undertaken twice a year. • Monthly Workbook, an excel workbook summarising all monitoring results including groundwater dating back to mid-2015. • Observed monitoring bore ALV4, ALV8 and M49. • Observed the most recently installed (December 2017) monitoring bore at ALV9. This bore was installed to inform of any draw down impacts to Bowmans Creek (not predicted to commence until 2019) – refer discussion below. **Groundwater model verification procedures** Groundwater model verification is discussed in Section 9.3 of the WMP. The WMP states that the validity of the numerical groundwater model will be assessed by a suitably qualified, experienced and independent reviewer to assess the efficacy of the existing model and compare its prediction results with the monitored data every three years. If this review finds the model to be conservative in its predictions then it will continue to be deemed fit for purpose. If there is substantial detrimental deviation than for water quality or pressure further review of the model shall consider whether the model should be refined/ re calibrated using more data. If this refinement is required, the rationale will be given by the reviewer and the Department consulted on the process. The groundwater model was validated in 2018 by AGE. This is discussed further below. **Review of monitoring network** The WMP discusses that the groundwater monitoring network was reviewed by Jacobs (formerly SKM) as part of the preparation of the WMP to ensure the network will adequately monitor areas where additional draw down is predicted. This review recommended the addition of one piezometer to the existing network. This monitoring bore (ALV 9) was installed by LCO in December 2017. **Response to exceedances** Section 10 of the WMP includes a Surface Water and Groundwater Response Plan. Groundwater exceedances are specifically		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			discussed in Section 10.2. This includes definitions of 'Investigation Triggers', and 'Management / Mitigation Triggers' and 'Drawdown Limit Triggers'. The response plan is discussed in Section 10.2.2 and presented in Figure 10-2. Reporting of trigger exceedances is discussed in Section 11.2. LCO is required to report trigger exceedances to the DPE, DPE-W and DoE. Between May 2016 and December 2018 there have been 13 groundwater/ groundwater-surface water TARP incidents. All were investigated and were found to the caused by extended dry climatic conditions and represent natural variability within the local climate. These are discussed in further detail in the main report.		
Schedule 3, Condition 23	a program to validate the water balance and groundwater model for the development every 3 years, and compare monitoring results with modelled predictions; and	• HEC (2018) *Liddell Coal Operations Water Balance Model Calibration Update* • HEC (2016) *Liddell Coal Operations Water Balance Model Calibration Report* • AGE (2018) *Liddell Coal Operations – Review of Groundwater Model predictions*	Calibration of the water balance model against observed data was completed in 2016 and 2018 by HEC The 2018 calibration concluded that the calibrated model reproduces observed water management system behaviour well and that the model is fit for use as part of the water management system. Modelled groundwater inflows to the former underground storages and open cut puts were adjusted as part of the calibration. The report made a few recommendations to further improve model calibration and the accuracy of model predictions including: • Reviewing the calibration in one year's time (early 2019) • Reviewing predicted future groundwater inflow rates • Checking the recorded pumped volumes from Dam 6 to Dam 3 and collate pit shell information for the Mountain Block area for use in future model calibrations. LCO reviews the site water balance each year and calculates the % imbalance (an indicator of how well the model fits the actual data). The imbalance % for 2018 was reported as 1.1% indicating that the model is well calibrated. Never the less, LCO was in the process of scoping the model update / calibration (including review of groundwater inflow rates) in consultation with the other mines that use the Greater Ravensworth Area model. This was planned to occur in 2019. The groundwater model was validated by AGE in 2018. This involved collating recent water level and pit inflow data and creating graphs with historical water levels and pit inflows, reviewing the model calibration based on the updated graphs and assessing local drawdown (modelled versus observed water levels) in response to mining. The results indicated that the groundwater model is conservative and recommended that the model would benefit from recalibration to improve its predictive capability prior to the next three yearly review (due in 2021). LCO has committed to undertaking the model recalibration to meet this timing.	Compliant	
Schedule 3, Condition 23	a protocol that has been prepared in consultation with the owners of any nearby mines to: • minimise cumulative water quantity and quality impacts; • review opportunities of water sharing between the mines; • share water monitoring data where practicable; • undertake joint investigations/studies in relation to complaints/exceedances of trigger levels where cumulative impacts are considered likely; and	• Greater Ravensworth Water Management System Plan (Glencore 11/02/2016)	Section 13 of the WMP discusses water and data sharing. It discusses the water sharing systems that operate across the Glencore mining operations (LCO, Ravensworth Complex and Mt Owen Complex). A Greater Ravensworth Area Water Balance Model has been developed with three separate sub-models for the three operations. The results from the model enable predictions of water balance to minimise cumulative impacts in relation to water resources from the three operations. Monitoring data across the Glencore sites is stored on EMD. Data for	Compliant	

<table>
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<tr><td></td><td>• where practicable, co-ordinate modelling programs for validation, re-calibration and re-running of water models.The Applicant shall implement the approved management plan as approved from time to time by the Secretary.</td><td></td><td>key monitoring sites such as those where a cumulative impact could be detected is shared between the operations.

The WMP states that where an incident investigation in relation to a complaint or trigger level exceedance identified potential cumulative impacts, joint investigation will be initiated to determine the appropriate mitigation / remediation strategy. This had not been triggered during the audit period.

In addition Glencore Assets Australia provides an over-arching water management protocol for operations. A Greater Ravensworth Water Management System Plan (Glencore 11/02/2016) is utilised for the “management of water and infrastructure required to facilitate the Greater Ravensworth Water Management System within the Operations of Liddell Coal, Mt Owen Mine, and coal handling plant (CHPP), Glendell Operations, Ravensworth Operations and CHPP, and Ravensworth Underground Mine”.

The Greater Ravensworth Water Management System Plan considers the Greater Ravensworth Water Management System and supports coordination for water sharing, risk identification and management, operating procedures, inspections, monitoring and verification, incidents, system review and evaluation, responsibilities etc.</td><td></td><td></td></tr>
<tr><td colspan="6">BIODIVERSITY</td></tr>
<tr><td>Schedule 3, Condition 24</td><td>Biodiversity Offset Strategy

The Applicant shall implement the biodiversity offset strategy described in the EA, summarised in Table 7 and conceptually shown in Appendix 7.

Table 7: Summary of the Biodiversity Offset Strategy<table><tr><th>Area</th><th>Offset Type</th><th>Minimum Size (ha)</th></tr><tr><td>Mountain Block Offset</td><td>Existing vegetation and vegetation to be established</td><td>166</td></tr><tr><td>Bowmans Creek Riparian Corridor</td><td>Existing vegetation and vegetation to be established</td><td>182</td></tr><tr><td>Total</td><td></td><td>348</td></tr></table>Note: To identify the areas referred to in Table 7 refer to the applicable figures in Appendix 7.</td><td>• 2016 Biodiversity offset monitoring report, prepared by Umwelt, dated February 2017
• 2017 Biodiversity offset monitoring report, prepared by Umwelt, dated February 2018
• Evidence of Pathogens from ecological monitoring in Liddell BMP and BOMP areas briefing note, prepared by Umwelt, dated 19/11/2018
• Biodiversity Management Inspection Sheets (LIOC-90533967-3944), BMP Area
• Biodiversity Management Inspection Sheets (LIOC-90533967-3944), Bowmans Creek</td><td>The image shown conceptually in Appendix 7 has changed since the DA was approved. This is noted in the Biodiversity Offset Management Plan (Section 9.3). A letter dated 13.04/2017 to DPE details the request to change the boundary of the Bowmans Creek Riparian Corridor biodiversity offset area to ensure it remains on land under the Approval and biodiversity offset commitments can be implemented. The BOMP states the Mountain Block Offset area is 168.34ha and the Bowmans Creek Riparian Corridor is 185.52 hectares.

The BOMP was developed to provide direction for the short to long term management and enhancement of the biodiversity values of the LCO biodiversity offset areas, as well as to provide a description of the measures to be implemented to achieve this over the next three years.

<u>Implementation Review of Biodiversity Offset Management Plan:</u>
• Pathogen Management – Verbal indication that all contractors have pathogen management in their EOHS documentation. Understanding to stick to tracks and avoid areas of weed infestation.
• Fencing and signage – appropriate fencing and signage observed throughout site for Quoll habitat and indicating offset areas
• Grazing management – no cattle were observed to be grazing at the time of the field survey. Overabundant native species (i.e. kangaroos) controlled on an as needs basis (e.g. Vertebrate Management Report 19/11/2018).
• Limited new tracks put through BMP or Offset areas. Where necessary, the Ground Disturbance Permit (GDP) process is utilised.</td><td>Compliant</td><td>2019 IEA OFI 010 – Include discussion of vehicle weed hygiene management within the BMP and BOMP.

2019 IEA OFI 018 – Section 3.4 Grazing Management is predominantly focussed on grazing by stock and has limited discussion on the potential impacts of overgrazing by native species (e.g. kangaroos). The BOMP could benefit from some discussion on potential management strategies for overabundant native species.</td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		• Biodiversity Management Inspection Sheets (LIOC-90533967-3944), Mitchell Hills • Biodiversity Management Inspection Sheets (LIOC-90533967-3944), Mt Block • Autumn 2016 stygofauna and in-stream and riparian ecological conditions monitoring results briefing note, prepared by Umwelt , dated 07/07/2016 • LCO Translocated Tiger Orchid monitoring – 6 months, prepared by umwelt, dated 16/10/2018 • Outcomes of Tiger Orchid Translocation briefing note, prepared by umwelt, dated 11/04/2018 • LCO 2016 Biodiversity Monitoring Report, prepared by Umwelt, dated February 2017 • Biodiversity Management Inspection Sheets (LIOC-90533967-3944), dated February 2017 • Ecological outcomes of proposed modifications to Bowman's creed riparian corridor biodiversity offset area, prepared by umwelt, dated 13/04/2017	• Natural Regeneration, Assisted Regeneration and Rehabilitation - Supplementary planting inventory provided (17.12.18) indicating number of plants installed at Bowmans Creek offset area. Saplings observed at Mountain Block Offset area, indicative of successful fencing from grazing livestock. • Habitat Augmentation – Nest boxes observed throughout offset areas and in some rehabilitated areas. Wood piles and rock piles observed throughout rehabilitated areas, providing habitat and refuge for fauna species. • Spotted-tail Quoll habitat enhancement – Nest boxes installed within Bowmans Creek offset area providing habitat for prey of Spotted-tail Quoll. • Translocation Works - Translocation of and monitoring of Tiger Orchid documented (e.g. 20180328_Tiger_Orchid_Transloctation) • Creek and Drainage Line Protection – fencing observed to prevent access by humans and livestock. Bushfire management plan sighted. • Flora monitoring - Biodiversity monitoring inspections conducted for each offset area (e.g. 2017 07 BMP Inspection). Inspections include assessments of fence lines, tracks, weed inspections, feral pests as per biodiversity offset area requirements. • Fauna monitoring – Stygofauna monitoring conducted annually (e.g. Umwelt briefing note dated 7 July 2016), Monitoring report for winter bird survey sighted (2017). Results of 2017 biodiversity monitoring documented in Annual Review and in Umwelt (2018) 2017 Biodiversity Offset Monitoring report. • Landscape Function Analysis monitoring – Outcomes documented in annual Biodiversity Monitoring reports (e.g. Umwelt (2018) 2017 Biodiversity Offset Monitoring Report). • Adaptive Management Process - BOMP reviewed on annual basis (e.g. last reviewed on 25/10/2018 and due for review on 25/10/2019). Framework in place to identify potential risks and corrective actions (e.g. Biodiversity Trigger, Action and Response Plan). Annual weed and pest annual management plan sighted (ELM-Liddell-WP-AMP-18) identifying weed management requirements for 2018. Areas where management of the biodiversity offset areas can be improved include: • Vehicle weed hygiene requirements for vehicles coming to site (or leaving areas infected with weed species. e.g. Coolatai) before entering areas without weeds. This process should be documented and evidence that vehicles are clean and free of weeds retained. • Consideration of the potential impacts of overgrazing by native species (e.g. kangaroos) and implementation of management strategies.		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 25	The Applicant shall ensure that the offset strategy and/or rehabilitation strategy is focused on the re-establishment of: (a) significant and/or threatened plant communities, including: • Central Hunter Box – Ironbark Woodland EEC; • Narrow-Leaved Ironbark – Spotted Gum Woodland EEC; • Narrow-Leaved Ironbark – Bulloak Open Forest EEC; (b) significant and/or threatened plant species; and (c) habitat for significant and/or threatened animal species including the Spotted-tailed Quoll.	• LCO Biodiversity offset Management Pan (LIDOC-90533967-3755), Version 8.0, dated 25/10/2018 • LCO Biodiversity Management Plan (LIDOC-90533967-3687), version 9.0, dated 25/10/2018	**Biodiversity Offset Management Plan** The Biodiversity Offset Management Plan focusses on the passive, active and natural restoration of the following communities: • Central Hunter Box – Ironbark Woodland EEC; • Narrow-Leaved Ironbark – Spotted Gum Woodland EEC; • Narrow-Leaved Ironbark – Bulloak Open Forest EEC; Restoration of the above vegetation communities in disturbed lands or grasslands of the biodiversity offset areas is documented with species composition and richness targets noted. Through supplementary planting, exclusion of humans and cattle with fences and rehabilitation techniques, the LCO aim to re-establish/restore the vegetation communities documented. This will also enhance habitat and connectivity for the Spotted-tailed quoll and other threatened species. **Biodiversity Management Plan** The rehabilitation plan focuses on the re-establishment of Central Hunter Grey Box-Ironbark Woodland (where woodland is required within the BMP) (731 ha), whilst grasslands will be rehabilitated to a standard suitable for future grazing by livestock (1,247 ha). Where possible, planning for the linkage and integration of rehabilitated areas with existing vegetated areas will be undertaken to enhance ecological function and provide fauna habitat.	Compliant	
Schedule 3, Condition 26	**Spotted-Tailed Quoll Contribution** The Applicant shall contribute $200,000 over 5 years towards the implementation of recovery actions under OEH's Saving Our Species Action Statement and/or Final Draft National Recovery Plan for the Spotted-tailed Quoll 2008 for the Spotted-tailed Quoll. The initial payment of at least $50,000 must be made by the end of June 2015, unless otherwise agreed by the Secretary. The timing and quantum of the subsequent payments is to be determined in consultation with OEH.	• Proof of Payment invoice to NSW DPE, dated 30/06/2016 • LCO Indirect Offset Management Plan (LIDOC-90533967-3776), version 5.0, dated 25/08/2017	Extension request provided in May 2015 for payment to occur by October 2015. A further extension was sought and on the 30th June 2016 the initial $55,000 was paid in agreement with NSW DPE (Invoice sighted "Proof of payment"). A plan outlining the approximate cost associated with various activities over a 5 year period is included in the Indirect Offset Plan which demonstrates an intention to spend a total of $243,000. Payment is based on milestones. Annual progress reports are provided and include preliminary results and budget (e.g. 2017/2018 FY $61,000 paid for execution of agreement and establishment of project).	Compliant	
Schedule 3, Condition 27	**Long Term Security of Offsets** By the end of December 2015, unless the Secretary agrees otherwise, the Applicant shall make suitable arrangements to provide appropriate long term security for the land within the biodiversity offset strategy identified in Table 7, to the satisfaction of the Secretary.	• Letter to DPE titled 'security of CGAA offset Areas, dated September 2018 • Letter from DPE granting extension until 29/03/2019	A suite of extensions were requested to make arrangements for the security of biodiversity offset areas between 2015 and 2018. A further extension was sought and granted by the DPE until 29th March 2019 for the finalisation of agreements. Conservation Agreements have been finalised / executed by LCO and returned to OEH for execution (September 2018).	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 28	**Waterbird Habitat** 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 OEH and the Secretary. The Applicant shall in addition establish a dam in the Mountain Block area to provide habitat for waterbird species to the satisfaction of OEH and the Secretary. Where achievable, the habitat enhancement measures for each dam shall include: (a) a maximum water depth of 5 metres over at least half the surface area; (b) gently sloping banks (apart from the dam wall) of less than 10 degrees; (c) areas of shallow back waters around the dams; (d) appropriate levels of vegetation; and (e) appropriate fencing and signposting.	• Interviews • Site Inspection	Dam 13B was never constructed, therefore this commitment was not triggered. However, LCO undertook habitat enhancement measures at Dam 3 and additional triangular dam to increase habitat for water birds (in particular the Blue-billed duck). Habitat enhancement measures observed included: • Gently sloping banks • Appropriate levels of vegetation • Appropriate fencing and signposting	Not Triggered	
Schedule 3, Condition 28A	The Applicant shall plant and maintain, until established, 10 River Oak trees for every established River Oak tree removed during construction of the tailings pipeline under MOD 6. Note: An established River Oak tree is considered to be two metres or greater in height.	• Interviews • Site Inspection	Condition not triggered as no River Oak trees were removed during construction of the tailings pipeline. The tailings pipeline was laid in the existing corridor.	Not Triggered	
Schedule 3, Condition 29	**Biodiversity Management Plan** The Applicant shall prepare a detailed Biodiversity Management Plan for the site to the satisfaction of the Secretary. This plan must: (a) be prepared in consultation with OEH and be submitted to the Secretary for approval by the end of May 2015, unless otherwise agreed by the Secretary; (b) describe how the implementation of the offset strategy would be integrated with the overall rehabilitation of the site (see below); (c) include: (i) a description of the short, medium and long term measures that would be implemented to:• implement the offset strategy; and• manage the remnant vegetation and habitat on the site in the offset areas; (ii) detailed performance and completion criteria for the implementation of the offset strategy; (iii) a detailed description of the measures that would be implemented over the next 3 years, including the procedures to be implemented for: • implementing revegetation and regeneration with the disturbance areas and offset areas, including establishment of canopy, sub-canopy (if relevant), understorey and ground strata; • protecting vegetation and soil outside the disturbance areas; • rehabilitating creeks and drainage lines that occur on the site; • managing salinity; • conserving and reusing topsoil ;• undertaking pre-clearance surveys; • managing impacts on fauna; • collecting and propagating seed; • salvaging and reusing material from the site for habitat enhancement;	• Interviews • Site Inspection • LCO Biodiversity Management Plan (LIDOC-90533967-3687), version 9.0, dated 25/10/2018 • Letter from DPE approving the BMP, dated 27/04/2015 • Letter from DPE approving the BMP version 7, dated 19/10/2018 • Vertebrate Management Report 19/11/2018 • 20180328_Tiger_Orchid_Translocation • Umwelt briefing note dated 7 July 2016 • Monitoring report for winter bird survey (2017). • Umwelt (2018) 2017 Biodiversity Offset Monitoring	(a) A Biodiversity Management Plan (BMP) was prepared in consultation with OEH (refer correspondence included in Appendix C of the BMP. The BMP was revised during the audit period and approved by the DPE on 19/10/2018. (b) is addressed through the development and implementation of the Biodiversity Offset Management Plan which works in conjunction with the Biodiversity Management Plan and the Mine Operations Plan. (c) (i) addressed by Section 3 (ii) addressed by Section 3 (iii) addressed by Sections 3.3, 3.4, 3.6, 3.7, 3.8, 3.9.2, 3.10, 3.12, 3.13, 3.14, Provided in BMP, (iv) addressed in Section 4 (v) addressed in Section 5.4 (vi) addressed in Section 1.5 A number of additional Opportunities for Improvement have been identified as part of the BMP adequacy review to further improve the BMP. These are included in Section 8.1.5 of the main report. **Implementation Review of Biodiversity Management Plan** Multiple examples were documented and observed demonstrating implementation of the Biodiversity Management Plan including: • Revegetation and regeneration – Evidence of progressive rehabilitation and regeneration throughout the site (in mined and offset areas). Multiple strata (e.g. canopy and understorey species) sighted throughout existing rehabilitation. Seed mix lists demonstrate inclusion of species from multiple strata. Saplings observed at Mountain Block Offset area, indicative of successful fencing from grazing livestock. Supplementary planting inventory provided (17/12/2018) indicating number of plants installed at Bowmans Creek offset area. • Protecting vegetation outside of disturbance areas – Fencing observed which delineate offset areas from mining disturbance. In particular, fencing and signage around creek lines observed to be effective and in good condition.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	• salvaging, transplanting and/or propagating threatened flora in accordance with the Guidelines for the Translocation of Threatened Plants in Australia (Vallee et at., 2004); • controlling weeds and feral pests including investigating alternate technologies to reduce poisoning of non-target species; • managing grazing and agriculture; • controlling access; • bushfire management; • habitat enhancement works; • seasonal monitoring of in-stream and riparian ecological condition; • survey of stygofauna in Bowmans Creek alluvial aquifer (prior to predicted drawdown); and • monitoring of stygofauna populations every 6 months following the occurrence of the predicted drawdown; (iv) a seasonally-based program to monitor the effectiveness of these measures, and progress against the performance and completion criteria; (v) a description of the potential risks to successful revegetation, and a description of the contingency measures that would be implemented to mitigate these risks; and (vi) details of who would be responsible for monitoring, reviewing and implementing the plan.The Applicant shall implement the approved management plan as approved from time to time by the Secretary. The Applicant shall implement the approved management plan as approved from time to time by the Secretary.	report. • Annual weed and pest annual management plan (ELM-Liddell-WP-AMP-18 • Monthly Environmental Inspections (May 2018, December 2018, January 2019) • Bi-monthly Biodiversity Monitoring Inspection (10/10/18)	• Topsoil management - Evidence of topsoil stockpiles throughout site with use of cover crops to reduce exposure to exotic species and erosion observed. • Habitat enhancement – Multiple stockpiles of logs and boulders observed throughout rehabilitation areas. Evidence sighted indicating Spotted-Quoll utilising stockpile as den within offset area. Nest boxes observed throughout offset areas and in some rehabilitated areas. • Threatened flora translocation – Translocated Tiger Orchid sighted in offset area and translocation plan reviewed. Translocation Works - Translocation of and monitoring of Tiger Orchid documented (e.g. 20180328_Tiger_Orchid_Transloctation) • Grazing management – no cattle were observed to be grazing at the time of the field survey. Overabundant native species (i.e. kangaroos) controlled on an as needs basis (e.g. Vertebrate Management Report 19/11/2018). • Fauna monitoring – Stygofauna monitoring conducted annually (e.g. Umwelt briefing note dated 7 July 2016), Monitoring report for winter bird survey sighted (2017). Results of 2017 biodiversity monitoring documented in Annual Review and in Umwelt (2018) 2017 Biodiversity Offset Monitoring report. • 2018 Annual Report sighted highlighting results from biodiversity monitoring in alignment with BMP. Requirements (e.g. seasonally based program to monitor the effectiveness of the measures). Assessment of each action against completion criteria documented. • Adaptive Management Process - BMP reviewed on annual basis (e.g. last reviewed on 25/10/2018 and due for review on 25/10/2019). Framework in place to identify potential risks and corrective actions (e.g. Biodiversity Trigger, Action and Response Plan). Annual weed and pest annual management plan sighted (ELM-Liddell-WP-AMP-18) identifying weed management requirements for 2018. Evidence sighted of monthly environmental inspections and Bi-monthly Biodiversity Monitoring Inspections.		
Schedule 3, Condition 30	**Conservation Bond** Within 6 months of the approval of the Biodiversity Management Plan, the Applicant shall lodge conservation and biodiversity bond with the Department to ensure that the biodiversity offset strategy is implemented in accordance with the performance and completion criteria of the Biodiversity Management Plan. The sum of the bond shall be determined by: (a) calculating the full cost of implementing the biodiversity offset strategy (other than land acquisition costs); and (b) employing a suitably qualified consultant to verify the calculated costs,to the satisfaction of the Secretary.The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to lodgement of the final bond.If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Management Plan to the satisfaction of the	• Letter from DPE granting extension to conservation bond, dated 20/10/2016 • Letter from DPE approving consultant to develop conservation bond costs, dated 16/05/2016 • DPE letter	The Conservation Bond was required to be lodged by 20th July 2016. An extension was request and granted by the DPE on 20th October 2016 (Ltr to LCO – Ext Cons Bond July 2016). DPE approved Mr Travis Peake as a suitable consultant to develop and verify the calculated costs of the Conservation Bond (20160516_DPE_Approval of Consultant). The conservation bond calculations were submitted to the DPE in October 2016. The DPE informed LCO by letter dated 28.10.16 that it was satisfied the bond calculations reflected the conditions of the consent and extending date for submission of final conservation bond to 20th Nov 2016 (HR Letter re Liddell Bond Calculation v4). A revised bond calculation for the Bowmans Creek Riparian Corridor offset area was submitted to the DPE in August 2017. The DPE responded by letter dated 19/09/17 that that bond lodged with the	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	Secretary, the Secretary will release the bond.If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Management Plan, the Secretary will call in all, or part of the conservation bond, and arrange for the satisfactory completion of the relevant works. *Notes:* *• Alternative funding arrangements for long term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability if the conservation bond.* *• The sum of the bond may be reviewed in conjunction with any revision to the biodiversity offset strategy or completion of major milestones within the approved plan.*	satisfaction of bond calculations, dated 28/10/2016 • DPE letter approving revised bond calculation, dated 19/09/2017	Department in November 2016 remains sufficient for the offset area and that minor changes are immaterial and a revised bank guarantee is not required for the offset area.		
ABORIGINAL CULTURAL HERITAGE					
Schedule 3, Condition 31	**Heritage Management Measures** By the end of May 2015, the Applicant shall revise and subsequently implement its Aboriginal Cultural Heritage Management Plan to include management measures as identified in Table 7.16 of the EIS, in consultation with relevant Aboriginal stakeholders and OEH and to the satisfaction of the Secretary.	Approval letter from DPE dated 1/8/18 • Aboriginal Cultural Heritage Management Plan (LIDOC-90533967-3607), dated 05/09/2018 • Aboriginal Due Diligence Archaeological Assessment, prepared by OzArk, dated January 2017 • Aboriginal Due Diligence Archaeological Assessment, prepared by OzArk, dated July 2017 • Annual meeting with RAPs, minutes dated 25/08/2016 • Annual meeting with RAPs, minutes dated 22/11/2017 • Annual meeting with RAPs, minutes dated 04/12/2018 • GDP (CAA HSEA PER 004), dated	The Aboriginal and Cultural Heritage Management Plan (ACHMP) was approved by the DPE on 16/01/2015 and included the management measures identified in Table 7.16 of the EIS. A revised version was approved during the audit period by DPE on 1/08/ 2018. **Implementation Review of Aboriginal Cultural Heritage Management Plan** The main commitments of the ACHMP related to Aboriginal stakeholder consultation, site surveys, reporting, impact assessment, site assessment, monitoring and management of Aboriginal cultural heritage sites. Evidence of implementation sighted included: **Annual Inspections with Registered Aboriginal Parties** LCO conducts an annual site inspection of Liddell Mine with members from Registered Aboriginal Parties (RAPs). This inspection and meeting minutes were sighted by the auditors for inspections and meetings held on 25/08/2016, 22/11/2017 and 4/12/2018. The annual inspections comprise a site inspection of Aboriginal artefact sites at LCO as well as a meeting in the LCO offices to discuss any relevant matters, including: • Consultation requests relating to updates of the ACHMP • A review of the blast results and potential impacts to artefacts. • Discussion regarding the due diligence process for the offset areas. • Raising any matters of concern that may be held by the RAPs • Work conducted by suitably qualified archaeologist that year. **Due Diligence Reporting and New Finds** LCO contracted OzArk Environmental & Heritage Management (OzArk) to complete Archaeological Due Diligence assessments of biodiversity offset areas to provide for the protection of cultural heritage within these areas. The auditors reviewed the due diligence reports prepared by OzArk in January and July 2017 and verified the following. • New sites were identified during the due diligence process These		

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		6/06/2017	include: ○ 9 new Aboriginal sites were recorded during the January 2017 assessment. ○ 10 new Aboriginal sites were recorded in the July 2017 assessment (inclusive of the two Creek Sensitive Archaeological Landforms (SALs) mentioned below). • During the program two additional isolated find SALs were identified being the Bowmans Coalhole SAL and the Hebden Bowmans Creek SAL. LCO reported on the new finds in the 2017 Annual Review. An updated map showing all identified Aboriginal heritage sites was provided in the Annual Review and updated in the ACHMP. Identification of new sites was conducted in accordance with the methodology specified in Section 6.2.1 of the ACHMP. **Salvage Programs** No Salvage Programs were completed during the audit period. **Ground Disturbance Management** Glencore corporate enforce a ground disturbance permit for all activities which involve surface disturbance works including slashing, tree lopping, removal of topsoil, clearing and access to rehabilitation areas. The process assesses environmental impacts including impacts to water, biodiversity, erosion and sediment, community, and heritage. The permit then enforces mitigation measures which must be implemented for the work to commence. The GDP is approved by the E&C department before and following completion of works. The GDP includes due diligence to determine whether a proposed activity will harm an Aboriginal object under the NSW Minerals Industry Due Diligence Code of Practice for the Protection of Aboriginal Objects (NSW Minerals Council 2010). **Incidents and Complaints** One incident was reported to OEH on the 18 May 2018 which involved a surface blast initiated on 07 May 2018 that led to some minor cracking and surface heave within the Liddell Bowman's Creek SAL. LCO reported the event to OEH as a precaution and to ensure transparency of archaeological management. LCO also engaged with their RAPs on the issue. The incident investigation report concluded from the nature of the impacts and review of the archaeological context of the SAL that it was very unlikely that harm as defined by the NPW Act had occurred. LCO noted that the blast which caused the incident was the final planned surface blast in that area and that subsequent shots will progress away and utilise free face to the south east. LCO consider that given the location of future planned blasts it is not anticipated that there should be a repeat issue for subsequent blasts. No complaints were recorded in relation to aboriginal heritage during the audit period. The review of the ACHMP identified that the plan was generally being implemented during the audit period. **Summary**		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			The review of the ACHMP identified that the plan was generally being implemented during the audit period.		
TRAFFIC AND TRANSPORT					
Schedule 3, Condition 32	**Road Transport** The Applicant shall: (a) ensure that 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 • transport of ROM coal to and from Ravensworth Central Coal Processing Facility is restricted to internal mine haul roads, Pikes Gully Road and Liddell Station Road. (b) use its reasonable endeavours to close Liddell Station Road as a public road to the satisfaction of SC, by the end of December 2015 unless otherwise agreed by the Secretary.	2016 & 2017 Annual Reviews Letter to Singleton Council regarding Liddell Station Rd Closure, dated 18/11/2015 Notes of meeting between Glencore and Singleton Council, dated 05/12/2015 Singleton Council meeting minutes, dated 21/12/2015 Singleton Council meeting minutes dated 17/10/2016 Emails from LCO to Singleton Council requesting update dated, 15/12/2017, 05/02/2018, 21/01/2019	(a) It was reported that there were no sales of tailings and no truck movements for the transportation of coal during the audit period. It was reported that no ROM coal was transported to / from Ravensworth Central Coal Processing Facility during the audit period. (b) LCO continues to consult with Singleton Council (SC) over the closure of Liddell Station Road. SC approved the closure of Liddell Station Road on the 17/10/16. Since this date the road closure process has been in progress and was awaiting action from SC at the time of the audit site inspection. Evidence reviewed by the auditors includes: • LCO letter to SC dated 18/11/15 regarding the potential for Glencore to close the road and use it as a services corridor. This letter follows up on an initial meeting between Glencore and SC on the matter, held 11/03/15. • Notes of meeting between Glencore and SC representatives held 5/12/15. • SC Meeting Minutes dated 21/12/2015. SC resolved that the proposed closure of Liddell Station Road would be advertised for a 28 day period and that affected landholders and service providers be notified. SC meeting minutes dated 17/10/2016 outline that “The General Manager and Mayor is authorised to sign and affix the common seal of council to documents associated with the road closure application”. LCO has requested on multiple occasions for an update from SC on the status of the road closure application. The following correspondence was observed: • 15/12/17: Email sent to SC requesting update on the matter to be provided in writing. No response received. • 05/02/18: Email sent to SC requesting update on the matter to be provided in writing. No response received. • 08/1/2019 phone call with SC requesting an update on the matter. SC verbally informed LCO that SC was working with Ausgrid to put an instrument in place to ensure that Ausgrid’s access to the substation remains in place. SC was awaiting a formal agreement from Ausgrid. LCO requested the update be provided in writing however no formal correspondence was provided by SC. • 21/1/19: Follow up email sent to SC requesting update on the matter to be provided in writing. No response received. The evidence reviewed indicated LCO was working with SC towards	Compliant	

APPENDIX A AUDIT CHECKLIST					
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			the closure of Liddell Station Road. It is considered LCO has used its reasonable endeavours to progress the closure.		
Schedule 3, Condition 33	**Monitoring of Coal Transport** The Applicant shall: (a) keep records of the: • amount of coal transported from the site each year; and • number of coal haulage train movements generated by the development (on a daily basis); and (b) include these records in the Annual Review.	• Train loading report, 01/01/2016 – 30/04/2016 • Coal Receivals (01/05/2016 – 31/12/2016) • Coal Receivals (01/01/2017 – 31/12/2017) • Coal Receivals (01/01/2018 – 31/12/2018) • Annual Review 2015 • Annual Review 2016 • Annual Review 2017	LCO Commercial Department track the amount of coal transported from site as well as the daily coal haulage train movements. Commercial provide an annual summary to the E&C team for inclusion in the Annual Review each year. The auditors reviewed the train loading reports for the years 2016, 2017 and 2018 which record the train movements from site and the amount of coal transported from the site. The auditors verified the number of coal haulage train movements generated by LCO and the amount of coal transported from site was being tracked.	Compliant	
VISUAL IMPACT					
Schedule 3, Condition 34	**Visual Amenity and Lighting** The Applicant shall: (a) implement all reasonable and feasible measures to mitigate visual and off-site lighting impacts from the development; (b) ensure no outdoor lights shine above the horizontal; (c) undertake screen plantings along the western boundary of the proposed office and workshop area to further minimise potential visual impacts on the New England Highway; and (d) 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 Secretary.	• LCO Lighting Management Procedure (LIDOC-90533967-802), version 4.0, dated 27/06/2016 • Compliance Lighting Audit, prepared by EMM, dated 10/06/2015 • Annual Review 2016 • Annual Review 2017	a) Lighting sources which may present potential impacts with regards to off-site lighting impacts include: • The mine pit • The overburden emplacement areas • The CHPP and ROM Stockpile • The Product Stockpile • The maintenance area and sheds • Site Conveyors which have fixed lighting • The rail loader • Locomotives attending and departing site. LCO has developed a Lighting Management Procedure which defines the control measures to be implemented for the management of lighting impacts from site. Key management measures include: • Design of overburden emplacement areas to shield operations from view. • Revegetation of the overburden emplacement areas. • Visual bunding, planting and fencing. • Lighting treatments for specific infrastructure, plant and equipment to reduce light spillage.	Compliant	

APPENDIX A AUDIT CHECKLIST					
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			b) Assessed as part of the Lighting Compliance Audit discussed under requirement d) c) The auditors sighted plantings which had been made along the mines boundary to the Old New England Highway which are intended to screen the mine from the New England Highway. d) LCO engaged EMM in 2015 to conduct a Compliance Lighting Audit of the site. The purpose of the audit was to assess the sites compliance with the requirements of Condition 34, Schedule 3 (excluding c), screen plantings). The Compliance Lighting Audit assessed the mine against the requirements of AS 4282 using both qualitative and quantitative assessments. Lux readings were taken at external viewpoints to determine compliance with AS 4282 and qualitative analysis of the light spill and contribution to sky glow also undertaken. The Compliance Lighting Audit concluded that based on the field measurements and qualitative assessment , illuminance at all viewpoints were well within the allowable criteria set out under AS 4282. On this basis and given there had been no recorded complaints regarding lighting, no recommendations were proposed. There have been no significant changes to fixed lighting since the 2015 Lighting Compliance Audit and no complaints recorded during this audit period relating to lighting. A summary of lighting and visual impacts is made in the annual review each year which is provided and approved by the DPE.		
WASTE MINIMISATION					
Schedule 3, Condition 35	The Applicant shall: (a) monitor the amount of waste generated by the development; (b) investigate ways to minimise waste generated by the development; (c) implement reasonable and feasible measures to minimise waste generated by the development; (d) ensure irrigation of treated wastewater is undertaken in accordance with EPA's Environmental Guideline for the Utilisation of Treated Effluent; and (e) report on waste management and minimisation in the Annual Review, to the satisfaction of the Secretary.	• Waste Management Plan LIDOC-90533967 • Waste Tracking Spreadsheet 2018 • J.R Richards Weekly Waste Inspection Form • Annual Review 2015 • Annual Review 2016 • Annual Review 2017 • Muswellbrook Council Sewage Treatment plant Approval (Approved 24/04/2014) • CMO Review	(a) Waste is managed in accordance with the LCO Waste Management Plan. Waste management on site was undertaken by contractors JR Richards. JR Richards provides monthly waste data which includes a breakdown of the types of waste collected for disposal or recycling. LCO maintains a waste tracking spreadsheet as a corporate requirement which must be reported to Glencore Corporate on a monthly basis. (b) The waste management plan identifies waste streams, waste monitoring and tracking procedures and details management measures to ensure the generation of waste is minimised and recycling of waste is maximised where practicable. (c) LCO has set an internal recycling target of 92%. The recycling percentage for 2018 was 89%. Evidence of waste segregation was observed during the audit site inspection. Separate bins for batteries, scrap metal, recycling, oil filters and cardboard recycling were observed. (d) Sewage generated by the CHPP and associated workshop and offices is collected in the CHPP sewage treatment tanks, and pumped to the aerated sewage treatment plant prior to disposal at the designated effluent irrigation area. This audit did not assess compliance against the EPA's Environmental Guideline for the Utilisation of Treated Effluent. LCO approval to operate the CHPP STP from MSC was granted on the 25/06/14 expiring on the 21/04/19. All the conditions	Administrative Non-Compliance	***2019 IEA REC 002:*** *Report on waste management and minimisation in the Annual Review*

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		• MSC Approval to operate on-site sewage management system (WTA 2/2006) • Periodic Septic Service Report for Liddell Coal Mine CHPP (All Septic Services, 18/07/18 & 16/08/18) • Monthly Environmental Inspection Report	associated with the Approval were entered into CMO and were actively being tracked and managed by LCO. Including undertaking monthly maintenance on the system (sighted examples), maintaining the irrigation area, installing signage and fencing the irrigation area to exclude cattle (observed during site inspection), carrying out routine inspections to confirm it is operating efficiently and not causing odours (included in E&C Monthly Inspection) . The CHPP STP was observed during the audit site visit and was not considered to be odorous. The fencing and signage was observed. (e) Waste management and minimisation was reported in the previous Annual Environmental Management Reports which were prepared prior to 2015. Since 2015 LCO has been preparing Annual Reviews in accordance with the post-approval requirements for State Significant Mining Developments Annual Review Guideline released by the DPE in October 2015. This guideline does not require the inclusion of waste reporting. Waste management and waste minimisation was not reported in the LCO 2015, 2016 and 2017 Annual Reviews and on this basis, this condition is considered non-compliant.		
BUSHFIRE MANAGEMENT					
Schedule 3, Condition 36	The Applicant shall: (a) ensure that the development is suitably equipped to respond to any fires on site; and (b) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site.	• LCO Bushfire Management Plan (LIDOC-90533967-5406), Version 1.0, dated 21/01/2019 • Fuel loadings assessment and report for land under LCO responsibility, report by Kleinfelder, (REF 20192123), dated 11/12/2018 • LCO Emergency Management Plan (LIDOC-90533967-1052) • LCO Pollution Incident Response Management Plan (LIDOC-9053367-2175)	(a) To ensure compliance with the requirements of the *Rural Fires Act 1997* LCO prepared a Bushfire Management Plan for its landholdings which includes both the operational and designated offset areas. LCO engaged Kleinfelder Australia in September 2018 to review and update the sites Bushfire Management Plan. The purpose of the review was to reflect current conditions, legislation and policies as well as incorporate hazard mitigation measures appropriate to the existing LCO Landholdings. A hazard assessment was conducted by Kleinfelder in September 2018 to determine the vegetation type and estimated fuel load across the LCO landholdings. Emergency response is conducted in accordance with the sites Emergency Management plan which incorporates the requirements of the Pollution and incident Response Management Plan (PIRMP). It was reported that the only fire which occurred at LCO during the audit period was a small grass fire which occurred in 2017 and was attended by the Rural Fire Service (RFS). Management of the fire was conducted by LCO and RFS assistance was not required to control the fire. Controls sighted by the auditors for bushfire management include: • Established first response team who assess all emergency incidents • No smoking policy on site • Maintenance of fire trails and access tracks	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• Fire extinguishers • Water carts • Spray pumps • Maintained water fill points It is noted that while LCO have various controls in place to manage fire the auditors are not fire safety engineers and as such are not qualified to determine if a site is equipped to respond to any type of fire on site. (b) It was reported that there were no fires in the vicinity of the site during the audit period whereby LCO was required to assist the RFS and emergency services.		
REHABILITATION					
Schedule 3, Condition 37	The Applicant shall rehabilitate the site to the satisfaction of DRE. The rehabilitation must comply with the objectives in Table 8, and be consistent with the final landform plan shown in Appendix 3. *Table 8: Rehabilitation Objectives* **Feature** / **Objective** Mine site (as a whole): • Safe, stable and non-polluting • Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms • Constructed landforms drain to the natural environment (excluding the final voids) • Minimise visual impact of final landforms as far as reasonable and feasible Final voids: • Minimise to the greatest extent practicable: - the size and depth of final voids - the drainage catchment of final voids Surface infrastructure: • To be decommissioned and removed, unless DRE agrees otherwise Revegetation: • Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems that is comprised of at least: - 731 hectares of Central Hunter Box-Ironbark Woodland - 1,247 hectares of grassland suitable for grazing use • Establish areas of self-sustaining habitat for threatened flora and fauna species including corridor habitat for the Spotted-tailed Quoll Community: • Ensure public safety • Minimise the adverse socio-economic effects associated with mine closure Final land use: • Restore or maintain land capability generally as described in the EA and as shown conceptually in Appendix 3.	• Site Inspection (Mine Rehabilitation and Closure Specialist) • LCO Mining Operations Plan (2018-2020), dated 29/11/2017 • Liddell revegetation monthly report, prepared by Toolijooa environmental restoration, dated December 2017	<u>Mine Site (as a whole)</u> • Rehabilitation observed during field visit and from annual reports to be stable (i.e. no erosion) and non-polluting • Final landforms observed to be incorporating micro-relief (i.e. undulations across surface to create microhabitats) and integrate with surrounding landforms. Documented in MOP as a rehabilitation objective. • Rehabilitated landforms observed to be draining inwardly, so as not to drain into surrounding landscape • Efforts to reduce visual impact of edges undertaken (e.g. revegetating slopes with woodland and tops of overburden with grassland in general). <u>Final voids</u> • MOP details plans to progressively backfill open cut pit with overburden (observed during site visit). However mining is yet to cease so final void design not completed. <u>Surface infrastructure</u> Not applicable as mine is in operation. <u>Revegetation</u> • The landform shown in Appendix 3 does not allow for the targets of 731 ha of woodland and 1247 ha of grassland to be achieved. At the time of the audit a modification to the DA (Mod 7) had been submitted to address this issue. Woodland will be prioritised in preference to grassland or water bodies. MOD 7 has since been approved (12/02/19). • Ecosystem function of rehabilitated land not yet established. During the site visit, multiple strata were observed in the woodland and seeding grass species observed in grassland rehabilitation. Completion criteria in MOP detail requirements requiring multiple structural characteristics (e.g. canopy, mid layer, groundcover) and evidence of reproductive material (e.g. flowering, seedling). None of the rehabilitated areas on site have	Compliant	

<table>
<tr><th colspan="6">APPENDIX A AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td></td><td></td><td></td><td>yet been assessed against the MOP completion criteria for the purpose of formal relinquishment.
• Areas of self-sustaining habitat for threatened flora and fauna species have not yet been assessed against the MOP. Evidence observed of supplementary planting and natural regeneration among offset sites.
<u>Community</u>
• Public safety not applicable as mine is in operation.
• Grazing trials observed during field visit and documented throughout BMP and MOP highlighting the intention to ensure closure of the site will still allow for economic benefits from the land.
<u>Final land use</u>
• Rehabilitation aiming to establish grassland on overburden emplacement to Classes IV, V and VI in keeping with the EA and as shown in Appendix 3.</td><td></td><td></td></tr>
<tr><td>Schedule 3, Condition 38</td><td>Progressive Rehabilitation
The Applicant shall carry out rehabilitation progressively, that is, as soon as reasonably, practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies shall be employed when areas prone to dust generation cannot yet be permanently rehabilitated.Note: It is accepted that parts of the site that are progressively rehabilitated may be subject to further disturbance in the future.</td><td>• Annual Review 2016, dated 30/03/2017
• Annual Review 2017, dated 28/03/2018
• Site Inspection (Mine Rehabilitation and Closure Specialist)</td><td>Progressive rehabilitation was reported in Annual reviews (e.g. 2016 and 2017 reviews) and detailed as an objective within the MOP.
<table><tr><th>Year</th><th>MOP Requirement (rehab)</th><th>Site rehabilitation</th><th>Variance</th></tr><tr><td>2016</td><td>22.7</td><td>42</td><td>+19.3</td></tr><tr><td>2017</td><td>30</td><td>37</td><td>+7</td></tr><tr><td>2018</td><td>68.3</td><td>67.4</td><td>-0.9</td></tr></table>The negative variance in 2018 reflected the reduced areas available for rehabilitation due to bringing forward rehabilitation in previous years.
The MOP specifies a cumulative rehabilitation target of 865ha. LCO reported the current rehabilitation status is 872ha.
Progressive rehabilitation observed abutting current work face of mine during site visit. No evidence during site visit of bare ground requiring rehabilitation. During site visit, evidence sighted of areas rehabilitated with grassland as an interim measure until final landform determined (e.g. slopes overlooking ROM).</td><td>Compliant</td><td></td></tr>
</table>

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 3, Condition 39	**Rehabilitation Management Plan** The Applicant shall prepare a Rehabilitation Management Plan for the development to the satisfaction of DRE, This plan must: (a) be submitted to DRE for approval by the end of June 2015; (b) be prepared in consultation with the Department, DPI – Water, OEH, MSC and SC; (c) be prepared in accordance with relevant DRE guidelines; (d) describe how the rehabilitation of the site would be integrated with the implementation of the biodiversity offset strategy; (e) include a detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary); (f) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform including final voids and final land use; (g) include interim rehabilitation where necessary to minimise the area exposed for dust generation; (h) include a program to monitor and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and (i) build to the maximum extent practicable on other management plans required under this consent. The Applicant shall implement the approved management plan as approved from time to time by the Secretary.	• LCO Mining Operations Plan (2018-2020), dated 29/11/2017 • Letter from DPE approving MOP, dated 29/11/2017 • Consultation letters from Crown lands and water division, Muswellbrook shire council, DPE, OEG and Singleton shire council, dated 31/10/2017 • Annual Rehabilitation and Land Management plan • LCO Weed Action plan, prepared by Enright Land Management, dated February 2016 • LCO 2018 – completed Weed Works, prepared by Enright Land Management, dated August 2018 • Vertebrate Pest Management Report, Prepared by Enright Land Management, dated 19/11/2018 • Weed and Pest Annual Management Plan, prepared by Enright Land Management, dated 05/02/2018 • Letter to EPA re mixed waste organic material use at LCO dated 14/11/2018 • Bi-monthly Biodiversity	Mine Operations Plan (2018-2020) used to address the requirements of the Rehabilitation Management Plan required by Schedule 3, Condition 39. (a) Initial MOP (2015-2022) submitted to DRE for approval prior to June 2015. Current MOP (2018-2020) approved by DRE on 29/11/2017. (b) 2018-2020 MOP prepared in consultation with Crown Lands and Water Division (formerly DPI-Water), Muswellbrook Shire Council, DPE, OEH and Singleton Shire Council by letters dated 31/10/17. A meeting with DRE to discuss the MOP was held on the 17/10/2017. (c) Section 1.2 of the MOP states that it was prepared in accordance with the DRE Guidelines *ESG3: Mining Operations Plan (MOP) Guidelines. September 2013.* A detailed assessment of the MOP against the Guideline was not undertaken. (d) The BOMP details how the rehabilitated areas are to be integrated with the implementation of the Biodiversity Offset strategy. The BMP, BOMP and MOP documents work together to achieve this goal. (e) Section 6 of the MOP details the performance indicators and completion / relinquishment criteria... (f) Section 7 of the MOP details rehabilitation implementation across the site. While Section 8 details monitoring of the rehabilitation and research. (g) The MOP states that LCO implements progressive rehabilitation in accordance with an Annual Land Management and Rehabilitation Plan that is developed to optimise progressive rehabilitation and minimise the total disturbance footprint. (h) LCO is moving towards a new rehabilitation monitoring reporting system (Rehabilitation Report Card) as documented in Section 8.1 of the MOP. The purpose of Rehabilitation Report Card is to more clearly demonstrate the effectiveness of rehabilitation and relevant information at the appropriate lifecycle stage of the rehabilitation and to ensure that if a critical failure is identified, the rehabilitation will not progress onto the next stage until the issue has been addressed. Rehabilitation Report Card was yet to be implemented at the time of the audit. As addressed in Section 8.1.1 of the MOP all rehabilitated areas are monitored on an annual basis, including ecological monitoring as detailed in the BOMP, BMP and the Annual Rehabilitation Report. The MOP (Section 9.2) also includes a TARP for rehabilitation to identify required management actions in the event of impacts to rehabilitation or where rehabilitation outcomes are not achieved in an acceptable timeframe. (i) Multiple management plans work in sync together to establish and monitor the success of rehabilitation across site. These plans include (but are not limited to) the Weed and Pest Management Plan, Bushfire Management Plan. **<u>Implementation Review of Rehabilitation Management Plan</u>**	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		Monitoring Inspection (10/10/18) • 2017 Annual Rehabilitation Monitoring Report (Future Harvest March 2018)	• Impacts to biodiversity managed through a suite of management plans and programs (e.g. Annual Rehabilitation and Land Management Plan, Weed and pest control programs, grazing trials, Ground Disturbance Permits etc.). Plans sighted and implementation observed during site visit (e.g. ground disturbance permit, grazing trial equipment, rehabilitation trials, progressive rehabilitation) • Evidence of implementation of the annual rehabilitation monitoring program was sighted. The rehabilitation monitoring program involves flora plot monitoring, habitat assessment, biobanking transects at woodland sites, pasture transects and rehabilitation walkover inspections. The 2017 Annual Rehabilitation Monitoring Report included specific recommendations for each site within a rehabilitation domain as well as general recommendations. • Evidence of interim rehabilitation was observed during the site visit (e.g. grassed slopes facing the ROM until the final landform has been created and woodland vegetation established). • Evidence of progressive rehabilitation was observed during the site inspection. No large exposed areas (other than operational areas) were observed. • Bi-monthly Biodiversity Monitoring Inspections are undertaken across the site to identify any potential issues at rehabilitated or offset sites arising as a result of fencing issues, weeds, revegetation, pests, tracks, erosion, security, grazing, bushfire management, waste. • The Annual Reviews provide an update of the rehabilitation status (number of hectares disturbed and rehabilitated during the year and includes a figure/map showing the areas. Further details of the number of hectares of each ecosystem is provided in Appendix H of the Annual Review. • Cumulative rehabilitation targets are being achieved. • At the time of the site visit, organic growth material (OGM) was no longer permitted for use in rehabilitation. A concern for the site is the likely deficit of topsoil available for rehabilitation upon closure. Identification of alternative soil substitutes would clearly demonstrate that this issue has been considered and an alternative strategy is in place.		
Schedule 4 ADDITIONAL PROCEDURES					
NOTIFICATION OF LANDOWNERS					
Schedule 4, Condition 1	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 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.	• Hanson Bailey IEA, 2016	This condition was completed outside of the audit period and verified in previous IEAs.	Complete	
Schedule 4, Condition 2	If the results of monitoring required in Schedule 3 identify that impacts generated by the development are greater than the impact assessment criteria, 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 Secretary and the affected landowners and/or existing or future tenants (including tenants of	• LCO Website	10 exceedances of 24hr PM10 criteria occurred in 2018 which trigger this requirement. LCO provided incident reports to the DPE following the occurrence of these incidents. Monthly monitoring results are published on the LCO website which include air quality monitoring results at the monitors where exceedances were identified (SX38-D1	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	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 Schedule 3.		and SX38-D2). It is noted that through investigation none of the dust incidents reported during the audit period were determined to be directly caused by operations at LCO therefore under this condition, monitoring results have not been attributed to impacts generated by the development.		
Schedule 4, Condition 3	The Applicant shall send a copy of the NSW Health fact sheet entitled 'Mine Dust and You' (as may be updated from time to time) 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 Secretary where the predictions in the EA identify that the dust emissions generated by the development are likely to be greater than the air quality criteria in Schedule 3.	• Letter from DPE to LCO acknowledging receipt of the fact sheet, dated 31/12/2018 • Letter to landowners dated 02/01/2019 with mine dust and you fact sheet attached	The fact sheet was updated during the audit period and as such the updated version was sent to relevant landowners on 2/01/2019. The fact sheet was also sent to recreational area landowner (Lake Liddell) so that it may be passed onto recreational users at Lake Liddell.	Compliant	
INDEPENDENT REVIEW					
Schedule 4, Condition 4	If a landowner of privately-owned land considers the development to be exceeding the impact assessment criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land. If the Secretary is satisfied that an independent review is warranted, the Applicant shall within 2 months of the Secretary decision: (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to: • consult with the landowner to determine his/her concerns; • conduct monitoring on the land, to determine whether the development is complying with the relevant impact assessment criteria in Schedule 3; and • if the development is not complying with these criteria then: - determine if more than one mine is responsible for the exceedances; and if so the relevant share of each mine regarding the impact of the land; - identify measures that could be implemented to ensure compliance with the relevant criteria; (b) give the Secretary and landowner a copy of the independent review.	Interview with LCO Staff	It was reported that this has not occurred during the audit period.	Not Triggered	
Schedule 4, Condition 5	If the independent review determines that the development is complying with the relevant impact assessment criteria in Schedule 3, then the Applicant may discontinue the independent review with the approval of the Secretary.	Interview with LCO Staff	This has not occurred during the audit period.	Not Triggered	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 4, Condition 6	If the independent review determines that the development is not complying with the relevant impact assessment criteria in Schedule 3, and that the development is primarily responsible for this non-compliance, then the Applicant shall:(a) take all reasonable and feasible measures, in consultation with the landowner and appointed independent expert to ensure that the development complies with the relevant criteria; or(b) secure a written agreement with the landowner to allow exceedances of the criteria in Schedule 3,to the satisfaction of the Secretary.If the additional monitoring referred to above subsequently determines that the development is complying with the relevant criteria in Schedule 3, then the Applicant may discontinue the independent review with the approval of the Secretary.If measures referred to in (a) do not achieve compliance with the criteria in Schedule 3, and the Applicant cannot secure a written agreement with the landowner to allow these exceedances within 3 months, then upon receiving a written request from the landowner, then the Applicant or landowner may refer the matter to the Secretary for resolution.	Interview with LCO Staff	This has not occurred during the audit period.	Not Triggered	
Schedule 5 ENVIRONMENTAL MANAGEMENT, AUDITING & REPORTING					
ENVIRONMENTAL MANAGEMENT STRATEGY					
Schedule 5, Condition 1	The Applicant shall prepare an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must: (a) provide the strategic context for environmental management of the development; (b) identify the statutory requirements that apply to the development; (c) describe in general how the environmental performance of the development would be monitored and managed; (d) describe the procedures that would be implemented to: • keep the local community and relevant agencies informed about the operation and environmental performance of the development; • receive, handle, respond to, and record complaints; • resolve any disputes that may arise during the course of the development; • respond to any non-compliance; • manage cumulative impacts; and • respond to emergencies; (e) describe the role, responsibility, authority, and accountability of all the key personnel involved in environmental management of the development; and (f) include: • copies of various strategies, plans and programs that are required under the conditions of this consent once they have been approved; and • a clear plan depicting all the monitoring to be carried out in relation to the development. The Applicant shall implement the approved strategy as approved from time to time by the Secretary.	• Letter from DPE to LCO approving EMS, dated 14/12/2015 • Letter from DPE to LCO approving Version 11.0 of EMS, dated 04/10/2018. • LCO Environmental Management Strategy (LIDOC-90533967-797) version 11.0, dated 23/10/2018 • CMO Review • LCO Internal and External Audits Standard (LIDOC-90533967-96) • Monthly Inspections conducted by E&C team • LCO Emergency Management Plan (LIDOC-90533967-1052) • LCO Pollution Incident Response	The LCO Environmental Management Strategy (EMS) was developed in 2015 and originally approved by the DPE on 14/12/2015. The EMS was operational from 08/01/2016 and has been revised and updated multiple times since its original approval. Version 11.0 of the EMS was approved by DPE on 4/10/18. (a) Section 1 of the EMS outlines how the EMS provides the strategic context for the environmental management of LCO and the framework from which the Environmental Management System is implemented. . (b) Section 2.9 of the EMS outlines the legislation and regulatory requirements applicable to LCO. (c) Sections 3 and 4 outline the implementation measures and measurement and evaluation measures that will be implemented. In particular section 4.1 describes the various environmental monitoring programs that are in place to measure the performance of the operation. This includes reference to: a. Air quality monitoring b. Noise monitoring c. Blast monitoring d. Surface water monitoring e. Groundwater monitoring f. Ecological monitoring including rehabilitation (d) This requirement is outlined in the following sections of the EMS: a. Section 3.7 - Local community b. Section 3.9 - Complaints c. Section 3.10 - Dispute resolution d. Section 4.4 - Incidents and corrective action which	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		Management Plan (LIDOC-9053367-2175)	includes non-compliances e. Section 3.5 - Impact management f. Section 3.12 - Emergency response (e) Section 3.1 of the EMS refers to roles and responsibilities. Section 6 of the EMS outlines in detail the accountabilities of all relevant personnel with regards to environmental management. (f) Appendix B includes a publication list of LCO management plans, strategies and programs and includes hyperlinks to the documents on the LCO website. Appendix A outlines the monitoring plans for LCO and specifically shows the monitoring locations for surface and groundwater monitoring and air quality, noise and blast monitoring. **Implementation Review of Environmental Management Strategy** **Compliance Monitoring** LCO implements and monitors compliance with key obligations outlined in the LCO management plans, strategies and programs as well as statutory requirements from approvals, licences and leases in the system CMO. Each obligation has been entered into CMO. CMO allows the obligations to be tracked and assigned to relevant personnel. It also allows evidence to demonstrate how the obligation is met to be discussed and attached. The auditors observed the use of CMO during the audit as it was one of the main tools used by LCO to access documents to demonstrate compliance with the Development Consent, EPL, Mining Leases and implementation of management plans. The auditors identified that the required environmental monitoring plans and programs were being implemented during the audit period. This is discussed in more detail under the condition related to each management / monitoring plan. LCO conducts internal monitoring of the operations environmental performance in accordance with the internal standard for internal and external audits. The auditors verified the following was occurring: • Internal compliance audits conducted by Glencore Corporate prior to each IEA. • Internal compliance audit conducted by the LCO E&C team. • Monthly inspections conducted by the E&C team **Consultation** LCO is required to track all external consultation in the Glencore corporate tool – Consultation Manager. Various external consultation methods were being implemented on site by LCO during the audit period. These included • Biannual CCC meetings • Monthly newsletter • Consultation with stakeholders during management plan development and review, including regulatory agencies, Registered Aboriginal Parties (RAPs) and Community members.		

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• Operation of community enquiries line • Ad-hoc communication with E&C Team as required. **Complaints** LCOs management of environmental complaints was verified as adequate. Refer findings against EPL conditions M5-M6 (Appendix A2). **Non-Compliances** Environmental non-compliances are entered into CMO and reported to the appropriate stakeholders. Refer findings against Schedule 5, Condition 11 with regards to incident occurrences and reporting in the audit period. **Cumulative Impact Management** LCO consider cumulative impacts of the operation and the development of management controls to minimise these impacts in the following ways: • Share environmental monitoring data with Mt Owen and Ravensworth complex • Conduct environmental management programs with neighbouring operations for example the annual fox and dog baiting programs. **Emergency Response** The site operates under the LCO Emergency Management Plan. This management plan includes the requirements of the LCO Pollution Incident Response Management Plan (PIRMP). Based on the evidence reviewed, it was considered that in general the EMS was being implemented by LCO		
Schedule 5, Condition 2	DELETED.			Noted	
ANNUAL REVIEW					
Schedule 5, Condition 3	Each year, the Applicant shall prepare an Annual Review to the satisfaction of the Secretary. This review must: (a) identify the standards and performance measures that apply to the development; (b) describe the works carried out in the last 12 months; (c) describe the works that will be carried out in the next 12 months; (d) include a comprehensive review of monitoring results and complaints received during the past year, and compare the results against: • limits/criteria in this consent, statutory requirements and performance measures/criteria; • monitoring results from previous years; and (e) predictions in the latest EA; (f) identify any trends in the monitoring over the life of the development; (g) identify and discuss any non-compliance during the previous year and describe what actions were (or are being) taken to ensure compliance; (h) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	• Annual Review 2015 • DPE Approval letter for 2015 Annual Review, dated 02/06/2016 • Annual Review 2016 • DPE Approval letter for 2016 Annual Review, dated26//04/2017 • Annual Review 2017	• **2015** – Submitted on 30 March 2017 to DPE. DPE approved the 2015 Annual Review on 2/6/2016. The DPE requested that the next annual review include the amount of ROM coal processed at Mt Owen. • **2016** – Submitted on 30 March 2017 to DPE, DOE, DPI-Water, DRG, EPA, MSC, SC, OEH DPE approved the 2016 Annual Review on 26/4/17. The Annual Review addressed comments made by the DPE in 2016 regarding coal processed at Mt Owen, stating that no coal was processed at Mt Owen. The DPE requested the inclusion of an environmental performance table and assessment against EA predictions. • **2017** – Submitted on 28 March 2018 to DPE, DOE, DPI-Water, DRG, EPA, MSC, SC, OEH	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	(i) describe what measures will be implemented over the next year to improve the environmental performance of the development.	• DPE Approval letter for 2017 Annual Review, dated 04/09/2018	Annual Review included additional inclusions as requested by DPE following their review of the 2016 Annual Review (letter dated 26/04/2017). DPE approved the 2017 Annual Review on 4/9/2018. • **2018** – in draft at the time of the audit. The auditors reviewed the 2015, 2016 and 2017 Annual Reviews and verified they contained the required information as required by Condition 3, Schedule 5 and as requested by the DPE.		
INDEPENDENT ENVIEONMENTAL AUDIT					
Schedule 5, Condition 4	Within a year of the approval of modification application DA 305-11-01 MOD 5, and every 3 years thereafter, unless the Secretary 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 Secretary; (b) include consultation with relevant agencies; (c) assess the environmental performance of the development, and its effects on the surrounding environment; (d) assess whether the development is complying with the relevant standards, performance measures, and statutory requirements; (e) review the adequacy of any strategy/plan/program required under this consent; and, if necessary, (f) recommend measures or actions to improve the environmental performance of the development, and/or any strategy/plan/program required under this consent. Note: This audit team must be led by a suitably qualified auditor and include experts in the field of mine rehabilitation and mine closure.	• Letter from DPE to LCO approving Hansen Bailey to conduct 2016 IEA, dated 10/11/2015 • Liddell Coal Operations Independent Environmental Audit Report, Hansen Bailey 15/07/2016 • Letter from DPE to LCO approving AECOM to conduct the 2019 IEA, dated 09/01/2019.	The previous IEA was undertaken by Hanson Bailey in 2016 and covered the audit period July 2012 to December 2015. a) LCO commissioned AECOM to conduct the 2019 IEA (This audit). This audit covered the three year period since the previous IEA (1/01/16 to 7/02/19. The audit team includes experts in the fields of rehabilitation, surface water and groundwater as requested by the DPE. The DPE endorsed the AECOM audit team to conduct the 2019 IEA on 09/01/2019. b) Section 4.0 discusses consultation with relevant agencies c) Section 6.0 assess the environmental performance of LCO d) Section 9.0 and Appendix A assesses compliance with key approvals, licences and leases e) Section 7.0 reviews the adequacy of the strategy and management plans f) Section 9.0 summarises the recommendations and opportunities for improvement identified	Compliant	
Schedule 5, Condition 5	Within 6 weeks of completing this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary with a response to any recommendations contained in the audit report.	• Email from DPE approving extension of 2016 IEA • Email from LCO to DPE submitting IEA report along with response to recommendations made, dated 24/03/2016 • LCO Public Website	DPE approval was obtained to extend the date that the 2015 IEA was required to the 30/03/2016. The audit site inspection was conducted in February 2016 and the IEA report submitted to the DPE on the 24/03/2016. A copy of this report along with LCO's response to any recommendations contained in the audit report is available on LCO's public website. This audit will be submitted to the DPE along with a response to any recommendations by LCO. The timing of submission will be assessed in the next IEA.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
Schedule 5, Condition 6	Within 3 months of submitting the audit report to the Secretary, the Applicant shall review and if necessary revise the strategies/plans/programs required under this approval, to the satisfaction of the Secretary.	• Email to DPE from LCO 10/05/2016 • Email to LCO from DPE 10/05/2016	LCO sent an email to DPE on 10/05/2016 noting that a review of management plans was conducted however as plans were less than 12 months old and the IEA did not provide any performance updates, they determined that no revisions were required. DPE responded to LCO's email on 10/05/2016 stating that it was satisfied with LCOs review of management plans and approach.	Compliant	
COMMUNITY CONSULTATIVE COMMITTEE					
Schedule 5, Condition 7	The Applicant shall maintain a Community Consultative Committee for the development to the satisfaction of the Secretary. The CCC must be operated in accordance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Developments (Department of Planning, 2007, or its latest version). Notes: • The CCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent. • In accordance with the Guideline, the Committee should comprise an independent chair and appropriate representation from the Applicant, Councils and the community.	• CCC Meeting Minutes 29/05/2017 • CCC meeting minutes 13/112017 • CCC Meeting Minutes 21/05/2018 • CCC Meeting Minutes 21/11/2018 • Letter from DPE dated 14/02/19 re Liddell CCC update	LCO has an established Community Consultative Committee (CCC) which meets twice a year. The CCC consists of representatives from LCO, MSC, SCC and the local community. A DPE representative is also invited to the meetings and attends on an ad hoc basis. Minutes from the CCC meetings held during the audit period were reviewed by the auditors. The *Community Consultative Committee Guidelines, State Significant Projects*, November 2016 have previously been provided to the CCC members for review and discussion. This was detailed in the CCC meeting held on 27/05/2017. During the audit period the CCC did not have an independent chair nominated. As detailed in the 21/05/2018 CCC meeting minutes the CCC agreed to coordinate the CCC meetings as normal until further guidance is provided by the DPE. Correspondence was provided by the DPE in February 2019 to start the process of transitioning the CCC to the new guideline and look into chairperson options. A summary of the CCC meetings for the year is provided in the Annual Review.	Compliant	
Schedule 5, Condition 8	DELETED			DELETED	
ACCESS TO INFORMATION					

Schedule 5, Condition 9	By the end of February 2015, and for the remainder of the life of the development, the Applicant shall:
	(a) make the following information publicly available on its website:
	• a copy of all current statutory approvals for the development;
	• a copy of the current environmental management strategy and associated plans and programs;
	• a summary of monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent;
	• a complaints register, which is to be updated in a monthly basis;
	• a copy of the CCC minutes;
	• a copy of any Annual Reviews (over the last 5 years);
	• a copy of any Independent Environmental Audit, and the Applicant's response to the recommendations in any audit;
	• any other matter required by the Secretary; and
	(b) keep this information up to date
	to the satisfaction of the Secretary.
		LCO Public Website	A review of the LCO public website was conducted on 5 February 2019. The following information was available:
			• Development Approval (DA-305-11-01)
			• EPBC Approval (2013/6908)
			• EPL 2094
			• Mining Leases (ML 1313, ML 1597, ML 1552, CCL 708)
			• Water Licences (surface water and groundwater)
			• Radiation Licences
			• Aboriginal Heritage Impact Permits
			• The following environmental management plans and programs:
			  ○ Environmental Management Strategy 26/10/2018
			  ○ Biodiversity Management Plan 26/10/2018
				Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			○ Biodiversity Offset Management Plan ○ Indirect Offset Management Plan 12/09/2017 ○ Water Management Plan 26/10/2018 ○ Air Quality Management and Monitoring Plan 19/10/18 ○ Blast Management Plan 26/10/2018 ○ Blast Management Strategy – Chain of Ponds Inn 19/10/18 ○ Blast Management Strategy – Newdell Zone Substation 19/10/18 ○ Aboriginal Cultural Heritage Management Plan 05/09/2018 • PIRMP 22/08/2018 • Mining Operations Plan 2017-2020 • Complaints Register (last updated 15/02/2019)Monthly EPL Environmental Monitoring Report (from 2012) • Monthly Environmental Monitoring Results (from 2009) • Monthly Noise Monitoring Report (from 2009) • Monthly Blasting Results (from 2009) • Annual Flora and Fauna Monitoring Report (from 2008) • CCC Minutes (from 2009) • Annual Reviews (from 2b) • Independent Environmental Audit Reports 2016 & 2012 as well as LCO response to recommendations • Pollution Reduction Programs required under the EPL The required information was up to date, easy to locate and presented in a logical format.		
REVISION OF STRATEGIES, PLANS AND PROGRAMS					
Schedule 5, Condition 10	Within 3 months of: (a) the submission of an Annual Review under condition 3 above; (b) the submission of an incident report under condition 11 below; (c) the submission of an audit under condition 4 above; or (d) any modification to the conditions of this consent, the Applicant shall review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 2 months of the review the revised document must be submitted to the Secretary for approval, unless the conditions in Schedule 3 provide for an alternative timing and/or the Secretary agrees otherwise. *Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.*	• Submission of Management Plans letter to DPE dated 17/07/2017 • Letter to DPE from LCO regarding review of management plans in 2016, dated 10/05/2016 • Letter to LCO from DPE regarding review of management plans in 2016, dated 10/05/2016 • Letter to LCO from DPE approving an extension to the	**2016** - LCO sent an email to DPE on 10/05/2016 noting that a review of management plans was conducted however as plans were less than 12 months old and the IEA did not include any performance updates, LCO determined that no revisions were required. DPE responded to LCO's email on 10/05/2016 stating that it was satisfied with LCOs review of management plans and approach. **2017** – AQMP and NMP were revised and updated following discussions internally and with DPE. Biodiversity Management Plan was also updated in 2017 to reflect changes to offset areas. **2018** – All management plans were revised and submitted for approval within 2 months after submission of the Annual Review. The only plan that was not updated was the indirect offset plan and the MOP as they were updated and re-approved by DPE on 25 August 2017 and November 2017 respectively. The biodiversity offset management plan was revised and submitted to DPE on 31/08/2018, following a one month extension to the 3 month submission date granted by DPE.	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		biodiversity management plan, dated 31/08/2018			
INCIDENT REPORTING					
Schedule 5, Condition 11	The Applicant shall notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	• 2016-2018 LCO Incident Register • Newdell zone substation Vibration Exceedance Incident Report, dated 26/06/2016 • Blast Dust Incident Report, dated 08/08/2017 • Email from DPE acknowledging receipt of incident report for blast exceedance in 2016, dated 5/04/2016 • Email from DPE dated 29/11/2018 requesting incident report for turbid water discharge • Written report, unauthorised discharge of sediment laden water, dated 06/12/2018 • Confirmation of receipt of written report re turbid water discharge from EPA dated 10/12/18 • Written report, wastewater treatment plant	An Incident is defined by the Development Consent as *a set of circumstances that: causes or threatens to cause material harm to the environment; and / or breaches or exceeds the limits of performance measures / criteria in this approval*. Review of the LCO incident register for the audit period identified the following: : • 2016: One incident occurred in 2016 relating to a vibration exceedance which occurred on 15/02/2016. LCO received an extension from the DPE to the investigation report submission date to allow sufficient time for the investigation to be completed. The report was submitted on 26/02/2016 to DPE. The DPE acknowledged receipt of this report in its email dated 05/04/2016. • 2017: One incident occurred on 31/07/2017 relating to blast dust. The incident was notified to the DPE and EPA verbally and then by follow up email on the 31/07/2017. The incident was reported as a precautionary measure due to the potential for dust being visible to the public travelling on the New England Highway. The EPA requested a written report be provided in accordance with Condition R3.3 of the EPL. The written report was provided to the EPA on 08/08/2017 and the DPE on the 10/08/2017. • 2018: Thirteen incidents occurred in 2018 relating to the following: ○ 10 occurrences where air quality criteria was exceeded. Air quality investigation reports were sighted by the auditors and verified as being submitted within DPE required timeframes. ○ 1 blast vibration exceedance occurred on 16/01/2018. The auditors reviewed the written report provided to DPE on 31/1/2018. The DPE approved an extension to the timing of the investigation report to allow for results of testing carried out by Ausgrid to be completed (email dated 17/01/2018). ○ 1 unauthorised discharge of sediment laden water occurred on 28/11/2018. The incident was notified via telephone to the EPA and DPE on 29/11/2018. The DPE responded via email on the 29/11/2018 acknowledging the notification and requesting an incident report provided by COB 7/12/18. The email (which the EPA was	Compliant	

APPENDIX A AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
		exceedance, dated 27/07/2018 • Email from DPE approving extension of blast exceedance investigation report due date (dated 17/01/2018) • Email to DPE attaching blast exceedance 16/01/2018t investigation report (dated 31/01/18) • Blast Vibration Investigation Report 16/01/2018	copied into) included a number of matters the DPE wanted included in the report. The incident investigation report dated 06/12/2018 was submitted to DPE and EPA on 7/12/2018. The EPA confirmed receipt of the report by email dated 10/12/18. No further feedback was received. ○ 1 occurrence where the sewage treatment plant failed to meet the discharge quality limits. LCO identified the exceedance on 13/07/2018. LCO provided a written report to the DPE on 27/07/2018.		
REGULAR REPORTING					
Schedule 5, Condition 12	The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent, and to the satisfaction of the Secretary.	• LCO Public Website	To meet this requirement and to comply with EPL requirements, LCO upload a summary of compliance monitoring results on the LCO Public Website each month. Refer also to Schedule 5, Condition 9 for a list of additional information available on the LCO Public Website.	Compliant	

Appendix A2 – EPL 2094

<table>
<tr><th colspan="6">APPENDIX A2 AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td colspan="6">1 Administrative Conditions</td></tr>
<tr><td>A1.1</td><td>WHAT THE LICENCE AUTHORISES AND REGULATES
This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.
Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.
<table><tr><th>Scheduled Activity</th><th>Fee Based Activity</th><th>Scale</th></tr><tr><td>Coal works</td><td>Coal works</td><td>> 5000000 T annual handing capacity</td></tr><tr><td>Mining for coal</td><td>Mining for coal</td><td>> 5000000 T annual production capacity</td></tr></table></td><td>• Production Summary Spreadsheet titled “2018 Production Physicals”
• Annual Review 2016, dated 30/03/2017
• Annual Review 2017, dated 28/03/2018</td><td>Tracking of coal production is managed by the Tech Services Department. The auditors sighted the Production Summary spreadsheet for 2018. Production figures detailed in this spreadsheet are reproduced in the Annual Review each year. Interviews with relevant personnel and review of the production summary spreadsheet and Annual Reviews indicated the following:
ROM Coal extracted includes:
• 2016: 5,940,742 tonnes extracted
• 2017: 4,259,086 tonnes extracted
• 2018: 5,933,351 tonnes extracted</td><td>Compliant</td><td></td></tr>
<tr><td>A2.1</td><td>PREMISES OR PLANT TO WHICH THIS LICENCE APPLIES
The licence applies to the following premises:
<table><tr><th>Premises Details</th></tr><tr><td>LIDDELL COAL OPERATIONS</td></tr><tr><td>OLD NEW ENGLAND HIGHWAY RAVENSWORTH VIA SINGLETON</td></tr><tr><td>RAVENSWORTH</td></tr><tr><td>NSW 2330</td></tr><tr><td></td></tr><tr><td>AS SHOWN ON MAP TITLED 'LIDDELL COAL OPERATIONS - EPL 2094 PREMISES BOUNDARY' RECEIVED BY THE EPA ON 20 DECEMBER 2013. EPA FILE REFERENCE DOC13/96613.</td></tr></table></td><td></td><td>Noted</td><td>Noted</td><td></td></tr>
<tr><td>A3.1</td><td>INFORMATION SUPPLIED TO THE EPA
Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.
In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998;
and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.</td><td>• Observations
• Site Inspection</td><td>LCO reported that no works and activities outside those specified in the EPL application have been undertaken during the audit period.
The original licence application was not reviewed.
No works and activities outside those specified in EPL 2094 were observed during the site inspection.</td><td>Compliant</td><td></td></tr>
</table>

<table>
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<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td colspan="6">2 Discharges to Air and Water and Applications to Land</td></tr>
<tr><td>P1.1</td><td>LOCATION OF MONITORING/DISCHARGE POINTS AND AREAS
The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.
Air
<table><tr><th>EPA identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>9</td><td>Particulate Matter Monitoring</td><td></td><td>At coordinates 313190 6417158 (Easting Northing) on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points"dated 06/04/2017. EPA Reference DOC17/223288.</td></tr><tr><td>10</td><td>Particulate Matter Monitoring</td><td></td><td>At coordinates 316398 6413361 (Easting Northing) on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 06/04/2017. EPA Reference DOC17/223288.</td></tr><tr><td>11</td><td>Particulate Matter Monitoring</td><td></td><td>At coordinates 312296 6415170 (Easting Northing) on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 06/04/2017. EPA Reference DOC17/223288.</td></tr><tr><td>12</td><td>Particulate Matter Monitoring</td><td></td><td>At coordinates 316738 6414413 (Easting Northing) on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 06/04/2017. EPA Reference DOC17/223288.</td></tr></table></td><td>• EPL Monitoring Reports
• AQMP
• Site Inspection</td><td>A review of the monitoring data for the audit period indicated that monitoring was being undertaken at the monitoring points specified in the EPL.
The EPL Monthly Monitoring reports detail a map which references the four PM10 monitoring locations by EPA ID number. The auditors observed the four E-BAM monitors during the audit site inspection. The location of the E-BAMs appeared to be generally in accordance with the location shown on the map.</td><td>Compliant</td><td></td></tr>
<tr><td>P1.2</td><td>The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.</td><td></td><td>None Specified</td><td>Noted</td><td></td></tr>
<tr><td>P1.3</td><td>The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.
Water and land
<table><tr><th>EPA Identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr><tr><td>5</td><td>Discharge to waters Discharge quality monitoring</td><td>Discharge to waters Discharge quality monitoring</td><td>Discharge from the wastewater treatment plant shown as Point 5 on map titled "Liddell Coal Operations - EPL 2094 Monitoring Points" dated 28/10/2016. EPA reference DOC16/376147-01.</td></tr><tr><td>6</td><td>Hunter River Salinity Trading Scheme Discharge and Monitoring Point</td><td>Hunter River Salinity Trading Scheme Discharge and Monitoring Point</td><td>Discharge Point on Bayswater Creek at the site boundary adjacent to the Old New England Highway shown as Point 6 on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 28/10/2016. DOC16/376147-01.</td></tr></table></td><td>• EPL Monitoring Reports
• Site Inspection</td><td>The EPL Monthly Monitoring reports detail a map which references the two monitoring locations by EPA ID number. EPL Monitoring Points 5 and 6 were viewed by the auditors during the audit site inspection. EPL monitoring point 5 is located at the Sewage Treatment Plant located next to the MIA building. EPL monitoring point 6 is located off the Old New England Highway near Bayswater Creek.</td><td>Compliant</td><td></td></tr>
<tr><td>P1.4</td><td>The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.</td><td>• EPL Monitoring Reports
• Site Inspection</td><td>The EPL Monthly Monitoring reports detail a map which references the two monitoring locations by EPA ID number. The meteorological station was visible from the MIA office. The location of vibration and air blast overpressure monitoring points were generally in accordance with the locations on the map.</td><td>Compliant</td><td></td></tr>
</table>

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
	Noise/Weather **EPA identification no.** / **Type of monitoring point** / **Location description** 7 — Air blast overpressure & ground vibration peak particle velocity monitoring — Point 7 on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 28/10/2016. DOC16/376147-01. 8 — Air blast overpressure & ground vibration peak particle velocity monitoring — Point 8 on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 28/10/2016. DOC16/376147-01. 13 — Meteorological Station — Point 13 on plan titled "Liddell Coal Operations EPL 2094 Monitoring Points" dated 28/10/2016. DOC16/376147-01.				
3 Limit Conditions					
L1.1	**POLLUTION OF WATERS** Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.	• Liddell Offsite Water Discharge Investigation Report – Submitted (6/12/2018) • EPA confirmation of receipt of incident report on Environment Line (email dated 29/11/2018) • DPE email confirming phone call notification of incident and requesting incident report (dated 29/11/2018) • Email to DoE notifying of incident (dated 30/11/2018) • Email to DPI-Water notifying of incident (29/11/18)	On 28 November 2018, LCO recorded a total 35.6mm of rainfall and whilst completing routine high rainfall inspection, a supervisor observed sediment laden run off breaching a containment drain blocked by blast heave. The uncontained run off was observed to combine with run off from undisturbed areas of remnant vegetation and follow existing drainage lines reporting to an isolated and pooled section of Bowman's Creek. Once the containment failure was identified, actions to control and contain the sediment-laden water commenced including drainage repairs, sampling and reporting. These actions included: • LCO pumped the sediment-laden water from the isolated pool back into the mine water system • Deployment of machinery to make repairs of the containment drain to prevent further runoff • Water quality sampling of the creek pools and runoff water • Notification of the incident in accordance with LCO's PIRMP • Investigation into the incident and reporting to DPE and EPA Photographs presented in the investigation report, as well as sampling collected at the time of the incident of the discharge water, and upstream / downstream pools within Bowmans Creek supported LCO's conclusion that the sediment laden discharge was contained to an isolated pool and returned to the mine water system and that actions were taken to minimise potential environmental harm. The auditors consider that whilst the incident response minimised potential impacts to the environment and LCO's conclusion that the incident did not cause material harm to the environment appears reasonable, LCO is non-compliant with this condition as a pollutant (sediment) entered waters (Bowman's Creek). LCO has since implemented further system improvements to mitigate the likelihood of similar event reoccurrences. Therefore no further recommendations are made.	Non-compliance (low)	Not required
L2.1	**CONCENTRATION LIMITS** For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	• Condition L2.4	Refer evidence against Condition L2.4	Refer evidence against Condition L2.4	
L2.2	Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.		Noted	Noted	
L2.3	To avoid any doubt, this condition does not authorise the pollution of waters by		Noted	Noted	

<table>
<tr><th colspan="6">APPENDIX A2 AUDIT CHECKLIST</th></tr>
<tr><th>Reference</th><th>Condition</th><th>Evidence</th><th>Comments</th><th>Audit Finding</th><th>Recommendation</th></tr>
<tr><td></td><td>any pollutant other than those specified in the table\s.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>L2.4</td><td>Water and/or Land Concentration Limits
POINT 5<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentile concentration limit</th><th>90 percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>E. coli</td><td>colony forming units per 100 millilitres</td><td></td><td></td><td></td><td>100</td></tr></table>POINT 6<table><tr><th>Pollutant</th><th>Units of Measure</th><th>50 percentile concentration limit</th><th>90 percentile concentration limit</th><th>3DGM concentration limit</th><th>100 percentile concentration limit</th></tr><tr><td>pH</td><td>pH</td><td></td><td></td><td></td><td>6.5-9.0</td></tr><tr><td>Total suspended solids</td><td>milligrams per cubic metre</td><td></td><td></td><td></td><td>120</td></tr></table></td><td>2015-16 Annual Review
2016-17 Annual Review
2017-18 Annual Review
Monthly monitoring results 2016-2018</td><td>The auditors reviewed monitoring data records for the audit period and the Annual Returns submitted to the EPA by LCO for the periods 2015/16, 2016/17 and 2017/18, The following non-compliance was identified:
On 18 June 2018 a sample taken from EPA monitoring point 5 measured a faecal coliform concentration of 120 CFU/100ml. This is an exceedance of LCOs licenced discharge criteria of 100CFU/100ml. It is noted treated effluent from the plant undergoes UV disinfection and is recycled into the mine dirty water system and contained onsite.
In response to the exceedance LCO engaged a maintenance and wastewater treatment plant contractor to investigate the exceedance and undertake maintenance work. This is discussed further under Schedule 3, Condition 21B of the Development Consent.
Given the response and thorough investigation into the exceedance no further recommendations are provided.</td><td>Non-compliance (low)</td><td>Not required</td></tr>
<tr><td>L3.1</td><td>VOLUME AND MASS LIMITS
For each discharge point or utilisation area specified below (by a point number), the volume/mass of:
a) liquids discharged to water; or;
b) solids or liquids applied to the area;
must not exceed the volume/mass limit specified for that discharge point or area.<table><tr><th>Point</th><th>Unit of Measure</th><th>Volume/Mass Limit</th></tr><tr><td>6</td><td>megalitres per day</td><td>100</td></tr></table></td><td>HRSTS Annual Reports 2016
HRSTS Annual Reports 2017-18
Discharge record sheets, dated 2016</td><td>The auditors reviewed LCO’s discharge record sheets from EPA monitoring point 6 during the audit period. Discharge events occurred on only two occasions during the audit period (01 Jan 2016 – 07 February 2019) as follows:
Discharge Event (block ID 2016-267) occurred between 21/09/2016 – 22/09/2016. A total of 18.44ML was discharged.
Discharge Event (block ID 2016-268) occurred between 22/09/2016 – 23/09/2016. A total of 23.77ML was discharged.
HRSTS Annual report for 2017-18 detailed that LCO did not discharge under the HRSTS during the reporting period. LCO reported that it has not discharged water since this date.</td><td>Compliant</td><td></td></tr>
<tr><td>L4.1</td><td>BLASTING
Blasting in or on the premises must only be carried out between 0900 hours and 1700 hours, Monday to Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.</td><td>LCO Blast Tracking Spreadsheet 2016 - 2018</td><td>The auditors viewed the LCO Blast Tracking Spreadsheet which includes all blast events from 2016, 2017 and 2018. No blasts were identified to have occurred before 9am or after 5pm.
The earliest blast recorded during the audit period occurred at 09:01am, the latest blast recorded during the audit period occurred at 04:25pm. No blasts were identified to have occurred on a Sunday or Public Holiday.</td><td>Compliant</td><td></td></tr>
</table>

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
L4.2	The airblast overpressure level from blasting operations in or on the premises must not exceed: 115 dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; at either monitoring point 7 or 8 in Condition P1.4.	• LCO Blast Tracking Spreadsheet 2016 - 2018	Ecotech monitors are in place in accordance with the Blast Management Plan with blast results made available on the LCO website each month. The auditors reviewed the LCO Blast Tracking Spreadsheet which includes a summary of all blasts which occurred during the audit period along with monitoring results for each blast. In summary 488 blasts occurred during the audit period, including: • 2018 - 146 blasts • 2017 - 179 blasts • 2016 - 163 blasts A number of measurements above the ground vibration limit were recorded at privately owned residences on the following dates: • 26/05/16 • 29/06/16 • 31/08/17 • 21/05/18 However these measurements were within the 5% of allowable blast exceedances over the total number of blasts in the reporting periods.	Compliant	
L4.3	The airblast overpressure level from blasting operations in or on the premises must not exceed: 120 dB (Lin Peak) at any time; at either monitoring point 7 or 8 in Condition P1.4.	• LCO Blast Tracking Spreadsheet 2016 - 2018	No exceedances of blast overpressure were recorded during the audit period.	Compliant	
L4.4	The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed: 5 mm/second for more than 5% of the total number of blasts during each reporting period; at either monitoring point 7 or 8 in Condition P1.4.	• LCO Blast Tracking Spreadsheet 2016 - 2018	No exceedances of ground vibration criteria at Point 7 or 8 were recorded during the audit period.	Compliant	
L4.5	The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed: 10 mm/second at any time; at either monitoring point 7 or 8 in Condition P1.4.	• LCO Blast Tracking Spreadsheet 2016 - 2018	No exceedances of ground vibration criteria at Point 7 or 8 were recorded during the audit period.	Compliant	
L4.6	Offensive blast fume must not be emitted from the premises. *Definition:* *Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other* *circumstances:* 1. *are harmful to (or likely to be harmful to) a person that is outside the premises from which it is emitted, or* 2. *interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.*	• Blast Management Plan (LIDOC-90533967-103), Version 8.0, dated 24/08/2017 • LCO Complaints Register (dated Feb 2019) • Drill Pattern and Blast Design Procedure (LIDOC-90533967-75) dated 14/01/2019 • Shotfirer TNA Checklist	Blast Mitigation Works are implemented in accordance with the LCO Blast Management Plan and associated sub plans. Included in the Blast Management Plan is the Post Blast Fume Procedure which is implemented should blast fume be identified during a blast event. During the blast design process the engineers ensure that product selection (low fume product), meteorological conditions and other blast details are aimed at reducing fume. Post blast the drill and blast engineer will review any fume released from the blast and record the occurrence in the post blast checklist. If fume is identified the fume level is rated and actions made according to the fume rating. Examples of completed checklists were sighted by the auditors. The auditors reviewed the LCO complaints register and identified that no complaints in relation to blast fume had been registered.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
4 Operating Conditions					
O1.1	**ACTIVITIES MUST BE CARRIED OUT IN A COMPETENT MANNER** Licensed activities must be carried out in a competent manner. This includes: a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	• Site Inspection • Waste Management Plan LIDOC-90533967 • Waste Tracking Spreadsheet 2018 • J.R Richards Weekly Waste Inspection Form	LCO has established processes for managing the processing, handling, movement and storage of coal including: • 24/7 site operational control via Dispatch which includes monitoring of site conditions and weather forecasts and other controls as required • Trained and competent staff • Spill recovery systems and processes to recover as much product coal as possible • Complaints and incident investigation process to determine the cause of a complaint or incident and implementation of control measures • Waste is managed in accordance with the Waste Management Plan. Waste information is provided by J.R Richards and uploaded into the Waste Tracking Spreadsheet for internal reporting purposes. Evidence of waste segregation was observed during the audit site inspection. Separate bins for batteries, scrap metal, recycling, oil filters and cardboard recycling were observed. LCO has set an internal recycling target of 92%. LCO report waste management to Glencore Corporate (recycling % for 2018 was 89%)	Compliant	
O2.1	**MAINTENANCE OF PLANT AND EQUIPMENT** All plant and equipment installed at the premises or used in connection with the licensed activity: a) must be maintained in a proper and efficient condition; and b) must be operated in a proper and efficient manner.	• Development Consent Checklist Schedule 2, Condition 10	Refer evidence against Development Consent Schedule 2, Condition 10.	Compliant	

O3.1	**DUST**
	The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.
		• LCO Dust Management TARP (LIDOC-90533967-2387).
		• Land Clearing and Topsoil Stripping Procedure
		• JACOBS Dust Forecast
			LCO manages air quality in accordance with the Air Quality Management Monitoring Program (AQMMP). The AQMMP specifically outlines the management measures for the prevention of dust. Those verified as being implemented during the audit period include:
			• Implementation of the dust management TARP which contains a number of triggers including monitoring triggers, operational triggers and weather condition alarms.
			• LCO review a range of meteorological data which influences operations and air quality controls for each day. This includes:
			  ○ Glencore has engaged Jacobs to provide daily dust risk forecast information to each of its NSW mines. LCO receives an email from Jacobs at approximately 5:30am each morning which enables the site manager to review the information prior to shift commencement. This is discussed in the site pre-start meeting.
			  ○ LCO receives a daily email from the EPA “Upper Hunter Incremental dust risk forecast model”. Dust risk is classified as ‘Normal’ or ‘High’ by the EPA.
			• Daily meeting at 10am which outlines if the dust TARP has been activated and at what level and if operational staff are required to implement additional dust management controls i.e. additional water carts.
				Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• Shift supervisor will note in their stat book that a dust TARP was activated during the applicable shift. • Water carts and available fill points identified throughout pit. • Water sprays in place at CHPP and coal train loading area. • The use of dust suppressant had recently been trialled on light vehicle roads. Dust mitigation measures are generally triggered by visual monitoring and alerts from the real time operational monitoring and forecast No complaints were received during the audit period in relation to dust with the exception of blast generated dust which was proactively managed and reported by LCO.		
O3.2	All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must 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.	• Site inspection • Wheel Generated Dust Monitoring Reports (audit period)	The following was noted with regards to maintaining the site in a condition to minimise wind-blown or traffic generated dust: • Graders maintain the road to ensure it is in a condition that is trafficable. Site based graders maintain all heavy vehicle roads/tracks. LCO contract external graders to maintain light vehicle tracks. • Water carts maintain roads to prevent dust generation. During site inspection auditors witnessed water carts being requested to areas of the pit via radio and observed water carts in operation. Wheel generated dust monitoring has not identified a requirement for additional controls on haul roads. • Personnel are trained in the requirements of the dust TARP. Interviews with Mining Supervisors and Dispatch Control Room Operators indicated good knowledge and understanding of the dust TARP. • LCO is implementing chemical dust suppressant on light vehicle roads, which are not used by haul trucks and therefore are not watered by mine water carts. The use of the dust suppressant frees up the smaller water carts for use on other exposed areas within the LCO operational area • Water sprays were observed to be operational on coal stockpiles and train loader facilities.	Compliant	
O4.1	**OTHER OPERATING CONDITIONS** There must be no incineration or open burning of any material(s) on the premises, except as specifically authorised by the EPA.	• Site Inspection	LCO stated that it does not incinerate or conduct open burning on site. No evidence was seen which indicated the site has conducted incineration on site during the audit period.	Compliant	
5 Monitoring and Recording Conditions					
M1.1	**MONITORING RECORDS** The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.		Noted	Noted	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**

M1.2	All records required to be kept by this licence must be:
	a) in a legible form, or in a form that can readily be reduced to a legible form;
	b) kept for at least 4 years after the monitoring or event to which they relate took place; and
	c) produced in a legible form to any authorised officer of the EPA who asks to see them.
		• Water quality analysis report, steel river testing, dated 21/09/2016
		• Water quality monitoring report, CBased, dated 3/12/2018
		• Dust Records Book
		• Meteorological Data stored in EMD
		• Blast monitoring records
		• EPL monitoring reports
			EPL Monitoring at LCO is conducted via the following means:
			• Dust monitoring
			  ○ Continuous monitor (E-BAM)
			• Blast Vibration and Overpressure
			  ○ Continuous monitor
			• Water quality at discharge point
			  ○ Steel River Testing conduct the analysis of water samples taken by CBased who are contracted by LCO. Water quality monitoring is conducted when site is discharging. This only occurred in 2016.
			  ○ Monitoring analysis report from 21/09/16 sighted.
			• Water quality at STP
			  ○ CBased conduct monitoring fortnightly (requirement is monthly)
			• Weather Data
			  ○ Continuous monitor
			  ○ Meteorological data is stored in Environmental Management Database (EMD). Data recorded was reviewed during audit in EMD.
			• Dust records go back to 2015 (when the requirement for dust monitoring came into the EPL)
			• Meteorological data records go back to 2013
			• Blast monitoring records go back to 2010
			• EPL Monitoring reports, including water monitoring records, were sighted back to 2012
			• All data reviewed was in a legible form.
				Compliant	

M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: a) the date(s) on which the sample was taken; b) the time(s) at which the sample was collected; c) the point at which the sample was taken; and d) the name of the person who collected the sample.	• Water quality analysis report, steel river testing, dated 21/09/2016 • Water quality monitoring report, CBased dated 3/12/2018	This requirement is relevant to the water quality sampling at the two discharge points (LDP 5 – MIA STP discharge and LDP 6 HRSTS discharge). • LDP 6: Sampling undertaken by CBased in 2016 included the date, time, point at which sample was taken and name of person who collected sample • LDP 5: Example of monitoring record sighted (3/12/2018) included date, time, point at which sample was taken and name of person who collected sample	Compliant	
M2.1	**REQUIREMENT TO MONITOR CONCENTRATION OF POLLUTANTS DISCHARGED** For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:	Conditions M2.2 and M2.3	Refer evidence against conditions M2.2 and M2.3	Refer evidence against conditions M2.2 and M2.3	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
M2.2	Air Monitoring Requirements POINT 9,10,11,12 **Pollutant** | **Units of measure** | **Frequency** | **Sampling Method** PM10 | micrograms per cubic metre | Continuous | Special Method 1 *Note: Special Method 1 requires the Licensee to undertake the monitoring of PM10 concentration in strict accordance with the manufacturer's operating manual supplied with the continuous monitoring equipment and titled "E-BAM Rapid Deployment Particulate Monitor - Operation Manual for PM10 or PM2.5 Continuous Monitoring E-Bam-9800 REV L" dated 2008.*	• Sentinex Dust Unit Maintenance and Calibration Report SXD5, dated08/02/18 • OEM Dust Monitor Specifications from E-Bam-9800 Manual REV L sighted. • 2018 PM10 monitoring data • EPL Annual Return 2017-18, Non-compliance attachments • Liddell Dust availability spreadsheet 17/18	LCO maintains a spreadsheet to track data completeness from all of its TEOMs and E-BAMs (Liddell dust availability 17_18). This spreadsheet records the percentage of time that each meter was operational for each day and where this is not equal to 100%, an explanation for the non-reading. Where data was not available for 75% of the time, the 24 hour average PM10 reading for that day is considered to be invalid. This is based on the *National Environment Protection (Ambient Air Quality) Measure Technical Paper No.5 – Data Collection and Handling, 2001,* which proposes that an average concentration can only be valid if it is based on at least 75% of the expected samples in the averaging period. Days with invalid data (<75%) are highlighted in the Dust Availability Spreadsheet which tracks how many invalid days occur during the year and whether LCO is achieving its continuous data availability target of 90% for the year as set out in the AQMMP. Despite working towards a continuous data availability target of 90%, LCO reported all instances where a valid 24 hour average was not available due to less than 75% availability of data as a non-compliance with the requirement for continuous monitoring. For the 2017-18 Annual Return period, LCO reported the following: • Point 9: ○ Failed to monitor at least 75% of the time on one occasion ○ Data failures resulting in monitoring >75% of the time on 32 occasions • Point 10: ○ Failed to monitor at least 75% of the time on 18 occasions ○ Data failures resulting in monitoring >75% of the time on 36 occasions • Point 11: ○ Failed to monitor at least 75% of the time on 14 occasions ○ Data failures resulting in monitoring >75% of the time on 60 occasions • Point 12: ○ Failed to monitor at least 75% of the time on 2 occasions ○ Data failures resulting in monitoring >75% of the time on 23 occasions. LCO reported that the reason for the failure to monitor continuously was attributed to the following: • All monitoring units are routed through a communications tower which undergoes periodic shutdowns for maintenance. These shutdowns cause a temporary loss of communications to all monitoring units, resulting in failure to transmit and record data for the shutdown period. • Power loss • Equipment error • Planned maintenance occurring	Non-Compliance (low)	***2019 IEA REC 003:*** *Seek clarification from the EPA on an appropriate data availability target for continuous monitoring to factor in a reasonable period of monitor downtime. This could be in the form of a variation to the EPL to include a minimum percentage of time on line (e.g 90%) for the continuous monitors.*

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
			• Minor equipment malfunctions • Communication issues resulting in either failure to monitor or erroneous data records LCO has taken action to attempt to minimise failures to monitor PM10 continuously. This has included: • Configuration of data management from all units was upgraded in August 2017 to prevent data loss during periodic shutdown of communications tower. • Adjustment of the LCO routine maintenance program and daily checks of equipment to ensure proper functioning of equipment and efficient response to equipment failure. • Operation and maintenance of equipment as per manufactures guidelines. Sighted examples of Sentinex dust unit maintenance and calibration reports. • Maintenance of spare batteries in a readily accessible state for rapid deployment as required. • Battery capacity reviewed to ensure sufficient contingency is available to prevent power loss to system occurring. As PM10 was not monitored continuously over the audit period, this condition has been assessed as non-compliant. The evidence reviewed indicates that LCO has implemented measures to address the causes of the data failures within its control to the extent practicable. Whilst no clear requirement is provided from the EPA regarding an appropriate data availability target, general industry practice is 90%. This is supported by information on the EPA's website which provides a minimum data capture guide of 90% for CEM systems to allow for a reasonable period of monitor downtime in the following situations (monitor breakdown, scheduled maintenance, daily zero and span checks and performance specification testing). Further guidance is provided in the EPA Requirements for Publishing Monitoring Data (EPA, 2013) which includes a discussion of instrument downtime (Section 4.1) and states that a licence condition requiring continuous monitoring may specify a minimum percentage of time on-line (i.e. 90%) or procedures that require frequent manual sampling and testing if the instrument is off-line for a set minimum period.		

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
M2.3	Water and/ or Land Monitoring Requirements **POINT 5** **Pollutant** / **Units of measure** / **Frequency** / **Sampling Method** Faecal Coliforms / colony forming units per 100 millilitres / Once a month (min. of 4 weeks) / Grab sample **POINT 6** **Pollutant** / **Units of measure** / **Frequency** / **Sampling Method** Conductivity / microsiemens per centimetre / Continuous during discharge / A probe designed to measure the range 0 to 10,000 uS/cm pH / pH / Daily when wastes discharged / Grab sample Total suspended solids / milligrams per litre / Daily when wastes discharged / Grab sample	• ALS certificate of Analysis sighted (Work Order; ES1836282) date issued 10/12/18 • 3/12/2018 STP CBased monitoring record sighted • EPL Monthly Monitoring Points (2016-2018)	Point 5 – MIA Sewage Treatment Plant • CBased conducts fortnightly monitoring of the MIA Sewage Treatment Plant. It is noted the EPL requirement is monthly. Example monitoring reports were sighted. • The report states that a sterile sample was sent to ALS for analysis. The Chain of Custody to confirm this was sighted as was the ALS certificate of Analysis. Point 6 – HRSTS Discharge Point • CBased conducts water quality monitoring when site is discharging. Discharge events occurred on two occasions in 2016 during the audit period. • Sampling techniques verified during review of CBased water quality monitoring reports. • Discharge record sheets are provided to the EPA in accordance with Condition R4.2. These record the start and finish time of discharging and the volume discharged. • The EPL Monthly Environmental Monitoring Reports (available on the website) include a summary of the results (EC, pH, Total Suspended Solids) for the months where discharges occurred	Compliant	
M3.1	**TESTING METHODS – CONCENTRATION LIMITS** Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place. *Note: The Protection of the Environment Operations (Clean Air) Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".*	• Sentinex Monitoring Reports • E-BAM Monitoring Reports	Condition M2.2 requires that PM10 monitoring is undertaken continuously by the sampling methodology – 'Special Method 1. This is defined as in strict accordance with the manufacturer's operating manual titled "E-BAM Rapid Deployment Particle Monitor – Operation Manual for PM10 or PM2.5 Continuous Monitoring E-BAM-9800 REV L" A review against the Operating Manual was not conducted. The E-BAM Monitoring Reports state that monitoring was undertaken in accordance with the Operating Manual. Sentinex dust unit maintenance and calibration reports detail that monitoring and calibration is conducted in accordance with AS/NZS 3580.9.9.2006.	Compliant	
M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.	• ALS CoC, dated 10/12/2018 • Monitoring analysis report, Steel review testing, dated 21/09/2016	Point 5 (STP) • ALS certificate of analysis sighted. Brief method summaries outline the method used for each anolyte which are approved methods of testing. Point 6 (Water Discharge Point) • Steel River Testing conduct the analysis of water samples taken by CBased who are contracted by LCO. Water quality monitoring is conducted when site is discharging. • Monitoring analysis report from 21/09/16 sighted. Outlines that testing is conducted in accordance with American Public Health Association (APHA) Methods for conductivity, pH, TSS and TDS.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
M4.1	**WEATHER MONITORING** At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively. **POINT 13** **Parameter / Sampling method / Units of measure / Averaging period / Frequency** Rainfall / AM-4 / millimetres / 1 hour / Continuous Sigma Theta / AM-2 & AM-4 / Degrees / 15 minutes / Continuous Temperature at 2 metres / AM-4 / Celsius / 15 minutes / Continuous Temperature at 10 metres / AM-4 / Celsius / 15 minutes / Continuous Total Solar Radiation / AM-4 / Watts per square metre / 15 minutes / Continuous Wind Direction at 10 metres / AM-2 & AM-4 / Degrees / 15 minutes / Continuous Wind Speed at 10 metres / AM-2 & AM-4 / metres per second / 15 minutes / Continuous Note: All methods are specified in the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* and all monitoring must be conducted strictly in accordance with the requirements outlined in this document.	• Letter from DP approving met station, dated 29 Jan 2008 • Meteorological Station Annual inspection and calibration certificate, 16/3/2018 CBased Environmental Pty Limits. • Annual Returns 2015, 2016, 2017	The weather station was initially approved for operation in 2008. It was supplied and is maintained by CBased. The meteorological data is recorded and available in the TeleData platform, and saved in EMD, which is maintained by CBased. Annual inspection and calibration reports from 2018 were sighted by the auditors. Annual Inspection and Calibration reports outline that the weather station is operating in accordance with the Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales. LCO reported that weather monitoring was not captured continuously throughout the audit period. This was identified as a non-compliance in the 2015-16 Annual Return. The 2018 Annual Return reporting period was in progress at the time of the audit. LCO reported that the non-compliance was due to the following: • Some parameters were not monitored during the reporting period due to electrical interference from storm activity or intermittent multi-parameter sensor malfunction. • EPL varied condition M4.1 to include total solar radiation. LCO however did not commence monitoring total solar radiation until 23/11/2016 due to a delay in the unit installation. • Intermittent faults within the multi parameter sensor resulting in erroneous data being recorded. LCO conducted investigations into the weather station faults and concluded that these were the result of electrical interference from storm activity. As a result an alarm logic was enabled to notify LCO when erroneous data was being reported. As intermittent faults continued to occur with the multi sensor, the unit was replaced in Q1 of 2017 and no further issues were recorded. The non-compliance which occurred in the 2018-19 reporting period was due to a lightning strike. No further recommendations have been made.	Non-Compliance (low)	Not required
M5.1	**RECORDING OF POLLUTION COMPLAINTS** The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.	• LCO Complaints register	The auditors sighted the LCO complaints register and verified that LCO had received only one complaint in the audit period. The complaint was in relation to dust caused by a blast event which occurred on 06/10/2016 at 15:40. This complaint was reported to the EPA by LCO. The EPA did not respond to the lodgement of the complaint. The complainant asked to remain anonymous. The complaint is recorded in the complaints register which is publically available on the LCO website. Complaints are also recorded in CMO in the form of an incident form which includes actions for remediation.	Compliant	
M5.2	The record must include details of the following: a) the date and time of the complaint; b) the method by which the complaint was made; c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; d) the nature of the complaint; e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and f) if no action was taken by the licensee, the reasons why no action was taken.	• LCO Complaints register	The auditors sighted the LCO complaints register and reviewed the complaints procedure implemented when a complaint is recorded. The required information was captured by the community complaints hotline operator and published in the complaints register which is available on the LCO public website.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.	• CMO – Complaints page	Complaints are saved in CMO and records were sighted back to 2011.	Compliant	
M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.		This has not been requested in the audit period.	Not Triggered	
M6.1	**TELEPHONE COMPLAINTS LINE** The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	• LCO Public Website	LCO operates a free Community Complaints and Blasting Information Hotline which operates 24 hours per day, 7 days per week. The number is **1800 037 317**. The auditors called the telephone complaints line and verified it was operating at the time of the audit. The complaints line is managed by external agency Oracle CMS. When a complaint is lodged a text message and email is sent to the E&C team, the mine manager, Operations manager, CHPP manager, production superintendent and OCEs.	Compliant	
M6.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.	• LCO Public Website • Singleton Newspaper Screen Shot, Notice dated 18/9/2018	The Community Complaints and Blasting Information Hotline telephone number is advertised on the LCO public website. The blasting hotline / complaints line has also been advertised in the Singleton Newspaper in 2018.	Compliant	
M6.3	The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.		Noted	Noted	
M7.1	**REQUIREMENT TO MONITOR VOLUME OR MASS** For each discharge point or utilisation area specified below, the licensee must monitor: a) the volume of liquids discharged to water or applied to the area; b) the mass of solids applied to the area; c) the mass of pollutants emitted to the air; at the frequency and using the method and units of measure, specified below. POINT 6 **Frequency** / **Unit of Measure** / **Sampling Method** Continuous during discharge / megalitres per day / By Calculation (volume flow rate or pump capacity multiplied by operating time)	• HRSTS Annual Reports 2016 • HRSTS Annual Reports 2017-18 • Discharge record sheets (2016)	The auditors reviewed LCO's discharge record sheets for LDP 6 during the audit period. Discharge events occurred on two occasions during the audit period (01 Jan 2016 – 07 February 2019). These included the following: • Discharge Event (block ID 2016-267) occurred between 21/09/2016 – 22/09/2016. A total of 18.44ML was discharged. • Discharge Event (block ID 2016-268) occurred between 22/09/2016 – 23/09/2016. A total of 23.77ML was discharged. LCO determine the flow rate through continuous monitoring of flow depth through a designed weir. The volume of water discharged is then calculated using the flow rate multiplied by the operating time (start and finish time of discharge event).	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
M8.1	**BLASTING** To determine compliance with conditions L4.2, L4.3, L4.4 and L4.5: a) Airblast overpressure and ground vibration levels must be measured and electronically recorded for monitoring points 7 and 8 for the parameters specified in Column 1 of the table below; and b) The licensee must use the units of measure, sampling method, and sample at the frequency specified opposite in the other columns. **Parameter** / **Units of Measure** / **Frequency** / **Sampling Method** Airblast Overpressure / Decibels (Linear Peak) / All blasts / Australian Standard AS 2187.2-2006 Ground Vibration Peak Particle Velocity / millimetres/second / All blasts / Australian Standard AS 2187.2-2006	• Blast Monitor Calibration Reports, Ecotech dated 20/07/2018 • LCO Blast Monitoring Summary Report, EcoTech, dated 8/11/2018 • Blast Management Plan (LIDOC-90533967-3742), Version 6.0, dated 26/10/2018	Blast Vibration and Overpressure monitoring is conducted during all blast events in accordance with the Blast Management Plan. Ecotech calibration reports for the blast monitors were sighted by the audit team. Ecotech monthly summary reports are provided to LCO and include a summary of the blasts which occurred in the past month. The methods used by the blast monitoring network are detailed in the reports and include: **Overpressure:** • Instrument: ACO Pacific 7052 microphone • Method Used: AS 2187.2-2006 Explosives – Storage and Use – Use of explosives **Ground Vibration:** • Instrument: Geospace HS-1-LT 2Hz geophone - Method Used: AS 2187.2-2006 Explosives – Storage and Use – Use of explosives • Instrument: IO Sensor SM-6 geophone with high range filter - Method Used: AS 2187.2-2006 Explosives – Storage and Use – Use of explosives	Compliant	
M9.1	**OTHER MONITORING AND RECORDING CONDITIONS** HRSTS Monitoring The licensee must continuously operate and maintain communication equipment which makes the conductivity and flow measurements, taken at Point 6 available to the "Service provider" within one hour of those measurements being taken and makes them available in the format specified in the "Hunter River Salinity Trading Scheme Discharge Point Site Equipment" as published by the Department of Land and Water Conservation on 7 May 2002.	• Bi-monthly maintenance reports, HydroLab (Jan, March, May, July, September 2018) • Site inspection of Point 6 monitoring and communication equipment • LCO's discharge record sheets • Schneider Commissioning Report 16/13/2016	The HRSTS monitoring point and communication equipment was sighted by the auditors during the site inspection. The monitoring location was relocated and the new point commissioned as per Special Condition E1.1. The communication equipment was tested and a Test Certificate provided by Schneider Electric on the 8/03/2016. The testing verified correct operation of the HRSTS data including that the software was correctly configured and communications with the TDE magna system (Water NSW' system) established. The test was witnessed and accepted by a representative from Water NSW. Hydrometric Consulting Services (HCS) conduct bi-monthly maintenance on the HRST monitoring point. This includes: calibration of the hydrolab probe, checks of battery and solar panel, tests that the hyrdolab is connected and operating correctly, test logs of simulated flow level and a download of data.	Compliant	
M9.2	The licensee must ensure that all monitoring data is within a margin of error of 5% for conductivity measurements and 10% for discharge flow measurement.	• Bi-monthly maintenance reports, HydroLab • Calibration Certificate	Calibration of the conductivity, pH and NTU probe is conducted every two months by HydroLab. Calibration certificates were sighted by the auditors and state on them that calibration is in accordance with EPL Condition M9.2.	Compliant	
M9.3	The licensee must mark monitoring point 6 with a sign which clearly indicates the name of the licensee, whether the monitoring point is up or down stream of the discharge point(s) and that it is a monitoring point for the Hunter River Salinity Trading Scheme.	• Site Inspection	The LDP6 sign was sighted during audit inspection and verified to contain required information.	Compliant	
M9.4	Requirement to Monitor Particulate Matter The licensee must record the average PM10 concentration at monitoring points 9,10,11 and 12 at intervals of 10 minutes. This data must be made available upon request by any Authorised Officer of the EPA who asks to see it.	• SXD5 (Point 11) daily monitoring summary	Sentinex units email the E&C team each day with a summary of data for each monitor. These were sighted by the auditors and include a list of data collected every 10 minutes. It was reported that there had been no requests by any Authorised Officers of the EPA for this data.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
6 Reporting Conditions					
R1.1	**ANNUAL RETURN DOCUMENTS** The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: 1. a Statement of Compliance, 2. a Monitoring and Complaints Summary, 3. a Statement of Compliance - Licence Conditions, 4. a Statement of Compliance - Load based Fee, 5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan, 6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and 7. a Statement of Compliance - Environmental Management Systems and Practices. At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	• 2015-16 Annual Return • 2016-17 Annual Return • 2017-18 Annual Return • eConnect EPA Annual Return 2017-18 Submitted Receipt, dated 27/08/2018 • eConnect EPA Annual Return 2016-17 Submitted Receipt, dated 25/08/2017 • Australia Post receipt Annual Return 2015-16, dated 22/08/2016	The auditors sighted the following Annual Returns which were required to be submitted during the audit period. • 2015-16 Annual Return; submitted via post 22 August 2016 • 2016-17 Annual Return; submitted 25 August 2017 • 2017-18 Annual Return; submitted 27 August 2018 The auditors reviewed the Annual Returns and confirmed they contained the required content.	Compliant	
R1.2	An Annual Return must be prepared in respect of each reporting period, except as provided below. Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.	Condition R1.1	Refer evidence against Condition R1.1	Refer evidence against Condition R1.1	
R1.3	Where this licence is transferred from the licensee to a new licensee: a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period. Note: An application to transfer a licence must be made in the approved form for this purpose.		No licence transfer occurred in the audit period	Not Triggered	
R1.4	Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on: a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.		No licence surrender occurred in the audit period	Not Triggered	
R1.5	The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').	Condition R1.1	Refer evidence against Condition R1.1	Compliant	
R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.	• LCO Server	All Annual Return's submitted by LCO were available on the LCO server.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
R1.7	Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	• 2015-16 Annual Return • 2016-17 Annual Return • 2017-18 Annual Return	Signed copies of the Annual Returns sighted by the auditors.	Compliant	
R1.8	The licensee must supply, with each Annual Return, a Blast Monitoring Report which must include the following information relating to each blast carried out within the premises during the reporting period covered by the Annual Return: a) the date and time of the blast; b) the location of the blast on the premises; c) the blast monitoring results at each blast monitoring station; and d) an explanation for any missing blast monitoring results.	• Blast Monitoring Report 2015/16, August 2016 • Blast Monitoring Report 2016/17, August 2017 • Blast Monitoring Report 2017/18, August 2018	The auditors sighted copies of the Blast Monitoring Reports submitted with each Annual Return. Appendix 1 of the Blast Monitoring Report includes the blast summary for the reporting period. This includes the date, time, location, ground vibration and overpressure results for each blast which occurred.	Compliant	
R2.1	**NOTIFICATION OF ENVIRONMENTAL HARM** Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act. R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.	• LCO Incident Register (2016-2018) • Incident Investigation Report, 20181206 Liddell Offsite water discharge, dated • Incident Investigation Report, 20170807 Blast Dust event, dated 08/08/2017	LCO notified the EPA of the following two incidents during the audit period: • Incident which occurred on 28/11/2018 relating to an unauthorised discharge of sediment laden water from site. LCO notified the EPA of the incident on 28/11/2018 in accordance with the sites PIRMP and WMP. LCO's assessment of the potential for environmental harm (included in its incident investigation report) concluded that the incident response mitigated potential impacts and the incident did not result in potential or actual material harm to the environment. The EPA did not attend the site however a DPE representative did attended the site for an inspection. LCO discussed the incident with the EPA via phone call discussion conducted on 30/11/2018. Both the EPA and DPE requested an investigation report for the incident. • Incident which occurred on 31 July 2017 in relation to dust caused by a blast event which travelled offsite towards the New England highway. LCO reported the event to the DPE and EPA on the day of the incident. LCO E&C team members inspected the blast and noted that some dust was visible on the opposite side of the highway in an area of mine rehabilitation however noted that the New England Highway was clear of dust. LCO provided notification of the incident however noted that this was a precautionary step taken and that the incident was not considered to have caused or threatened material harm to the environment. LCO noted in the incident report that notification for this incident was "*not made in accordance with section R2 of the EPL after determining that the incident had not caused or threatened material harm to the environment. The notification was made in order to provide transparency of operations and inform the EPA of the event due to it potentially being visible to the community"*. The EPA requested a written report be prepared in accordance with condition R3.3 in its email dated 1/08/2017.	Compliant	
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.		Refer discussion below. The timeframes for submission of the reports were met.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: a) where this licence applies to premises, an event has occurred at the premises; or b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.	• Incident Investigation Report, 20181206 Liddell Offsite water discharge, dated • Incident Investigation Report, 20170807 Blast Dust event, dated 08/08/2017 • Email to EPA dated 8/08/2017 attaching written report for dust exceedance • Email to EPA dated 7/12/2018 attaching written report for sediment laden water discharge • EPA email dated 10/12/2018 acknowledging receipt of report on sediment laden water	The EPA requested a written report for both incidents detailed against condition R2.1. The auditors sighted the incident investigation reports submitted to the EPA. This included the following: 1. Unauthorised discharge of Sediment Laden water incident which occurred on 28/11/2018. LCO provided the written report to the EPA on 76/12/2018. This was the date specified by the DPE in its email acknowledging the notification of the incident and requesting a written report. The EPA was included in the email from the DPE and thus aware of the due date. The EPA contacted the E&C Manager (by telephone on the 30/11/17) and requested that in addition to the information requested by the DPE to be included in the written report that water sample results also be included. The report included: a. An overview of the incident including the cause, time and duration of the event. b. An estimate of the volume of sediment-laden water c. Water quality monitoring results taken from the creek pools and run off. d. Locality plan showing location of incident e. Photographs of the incident f. Timeline of the incident and response. The EPA confirmed receipt of the report and stated that it would review and be in contact if anything further is required (email dated 10/08/2018). 2. Dust generated from blast which moved offsite incident which occurred on 31/07/2017. LCO provided the requested written report to the EPA on 08/08/2017. The following information was included in the report, as requested by the EPA: a. The fume rating of the blast b. A video of the blast c. The explosive type used and its sleep time d. The blasting contractor / shotfirer e. The airblast overpressure level and ground vibration peak particle velocity monitoring results. Copy of SMS of blast monitoring results provided. f. Locality plan noting the location of the blast and dust g. Air quality control system forecast information provided by Jacobs The EPA acknowledged receipt of the written report and then no further action was taken by the EPA. No complaints were received from the community in response to this event.	Compliant	
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.				
R3.3	The request may require a report which includes any or all of the following information: a) the cause, time and duration of the event; b) the type, volume and concentration of every pollutant discharged as a result of the event; c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event; d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and g) any other relevant matters.				
R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.	• Audit Interviews	This had not occurred	Not Triggered	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
R4.1	**OTHER REPORTING CONDITIONS** Reporting of Blasting Monitoring The licensee must report any exceedance of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedence becomes known to the licensee or to one of the licensee's employees or agents.	• Audit Interviews • Blast Data Spreadsheet 2016 - 2018	No exceedances of EPL blast criteria had occurred in the IEA audit period.	Not Triggered	
R4.2	HRSTS Reporting - The licensee must compile a written report of the activities under the Scheme for each scheme year. The scheme year shall run from 1 July to 30 June each year. The written report must be submitted to the EPA's regional office within 60 days after the end of each scheme year and be in a form and manner approved by the EPA. The information will be used by the EPA to compile an annual scheme report.	• HRSTS Annual Reports 2015-2016 • HRSTS Annual Reports 2016-2017 • HRSTS Annual Reports 2017-2018 • Email submissions of HRSTS reports to the EPA.	The HRSTS Annual Report for 2015/16 was submitted to the EPA by email dated 9/08/16. The HRSTS Annual Report for 2016/17 was submitted to the EPA by email dated 24/08/17. The HRSTS Annual Report for 2017/18 was submitted to the EPA by email dated 21/08/18.	Compliant	
7 General Conditions					
G1.1	**COPY OF LICENCE KEPT AT THE PREMISES OR PLANT** A copy of this licence must be kept at the premises to which the licence applies.	LCO Public Website	A link to the LCO EPL is included on the LCO Public website. An electronic copy of the EPL is available on LCO's system. A hard copy was available with the E&C Team.	Compliant	
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.		The Licence is available however no requests had been made during the audit period.	Not Triggered	
G1.3	The licence must be available for inspection by any employee or agent of the licensee working at the premises.		The EPL is available for inspection by employees via the website, LCO system or through the E&C Team.	Compliant	
8 Pollution Studies and Reduction Programs					
U1.1	**PREMISES NOISE LIMITS** The licensee must conduct a noise assessment in accordance with the document, ' *NSW Industrial Noise Policy*', (EPA 2000) for the operations and activities carried out at the licensed premises and submit a report to the Manager, Hunter Region, by no later than 31 May 2013.	PRP Environmental Noise Report (Global Acoustics, 29/5/13)	This condition was completed prior to the audit period. Noise Assessment conducted by Global Acoustics – PRP Environmental Noise Report (Global Acoustics, 29/5/13)	Complete	***2018 IEA OFI 019****: With the next EPL Variation, request that the completed PRPs and Special Conditions are removed from the Licence*

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
U1.2	The report referred to in condition U1.1 must include, but is not limited to the following: 1. Project Specific Noise Levels for the nearest noise sensitive receiver location(s). The project specific noise levels may be sourced from recent documentation submitted in support of a project approval applications, or determined specifically in response to this condition, provided that: (a) The source of the project specific noise levels are stated; (b) The project specific noise levels have been derived in accordance with the NSW industrial Noise Policy (EPA 2000), ("INP"); (c) Details are provided of how the project specific noise levels have been derived; and (d) The nearest noise sensitive receiver locations chosen are representative of those potentially most affected by noise from the premises. 2. Predicted or measured noise level contributions for the noise sensitive receiver locations identified in U1.2-1 above as a result of all activities and operations carried out at the premises. These may be sourced from recent documentation submitted in support of a project approval or determined specifically in response to this conditions provided that: (a) The source of the predicted or measured noise level(s) are stated; (b) Noise levels have been predicted or measured in accordance with the INP; and (c) Details of how the noise levels have been predicted are provided. 3. Noise limits proposed for the location(s) identified in U1.2-1 above, derived with regard to the project specific noise levels and predicted noise level contributions from U1.2-1 and U1.2-2 above, that can be placed on the licence, for all activities and operations carried out at the premises. 4. Details of methods to be used to determine compliance with limits in U1.2-3 above. Note: (a) A reference to the INP includes a reference to INP Application Notes; and (b) Noise sensitive receiver locations do not include any locations owned by the licensee or another coal mine or where a negotiated agreement (as outlined in the INP) is in place between the landowner and any licence holder.		Refer U1.1	Complete	
9 Special Conditions					
E1.1	**COMMISSIONING OF NEW DISCHARGE POINT** Condition M9.1 of this licence does not apply during relocation and commissioning of Discharge and Monitoring Point 6, provided that no discharge of water is permitted during this period. The licensee is to notify the EPA in writing of the intended start and finish dates of the construction and commissioning period at least 7 days prior to commencement, and notify the EPA once Discharge and Monitoring Point 6 is fully operational.	• Letter to EPA from LCO notifying of discharge point location amendment, dated 28/01/2016	A new discharge point was not commissioned during the audit period however the existing discharge point (Point 6) was moved further upstream near the CHPP. On 28/01/2016 LCO notified the EPA that it intended to commence construction of a discharge point which would be the new location for Point 6. Construction commenced on 8/02/2016 and was completed by 31/5/2016. LCO emailed the EPA on 29/02/2016 to inform that construction of the new discharge point was nearing completion. The existing monitoring and telemetry equipment was disconnected on 1/3/2016 and reconnected on 8/3/2016. On 17/3/16 LCO notified the EPA that commissioning of the new Point 6 discharge point location was complete. LCO could seek to have this condition removed in the next variation of the EPL.	Compliant	

APPENDIX A2 AUDIT CHECKLIST					
Reference	**Condition**	**Evidence**	**Comments**	**Audit Finding**	**Recommendation**
E2.1	**HUNTER VALLEY DUST RISK FORECASTING TRIAL – SPRING 2017** From 1 September 2017 to 30 November 2017 inclusively, the licensee must electronically record the following information: 1) Daily Total Tonnes Moved; and 2) Timestamped PM10 concentrations from upwind and downwind of the premises, recorded in ten minute intervals at monitoring points: 9, 10, 11 and 12. For the purposes of this condition 'Total Tonnes Moved' is calculated as: Total Tonnes Moved = Run of Mine (ROM) coal moved + Total Overburden Moved (TOM) Where: (a) ROM must be expressed in tonnes; and (b) TOM must be expressed in tonnes and must be determined by multiplying bank cubic metres of overburden moved by a density of 2.4 tonnes per bank cubic metre. TOM must include rehandled overburden.	• Letter to EPA titled 'LCO EPL 2094 – Hunter Valley Dusk Risk Forecasting Trial – Spring 2017 – Submission of Data, dated 17/01/2018 • Spreadsheet submitted to EPA ' EPL 2094 LCO E2 Dust Risk'	LCO conducted the dust risk forecasting trial in 2017 in accordance with special condition E2.1. The auditors sighted the submission letter to the EPA, dated 17/01/2018, containing the daily total tonnes moved and the timestamped PM10 concentrations recorded upwind and downwind of the premises at 10min intervals at monitoring points 9, 10, 11 and 12. The auditors reviewed data submitted to the EPA and verified that it included an excel spreadsheet of all monitoring conducted at Points 9, 10, 11 and 12 and the total tonnes of ROM coal (in tonnes) moved each day between the dates 01/09/2017 and 30/11/2017. Formal correspondence confirming completion of the trial was not received by the EPA. LCO could seek to have this condition and Condition E2.2 removed in the next variation of the EPL.	Compliant	
E2.2	The licensee must provide an electronic set of Excel spreadsheets with a separate tab for each of the items identified in Condition E2.1 to the EPA at hunter.region@epa.nsw.gov.au by 19 January 2018.	• Letter to EPA titled 'LCO EPL 2094 – Hunter Valley Dusk Risk Forecasting Trial – Spring 2017 – Submission of Data, dated 17/01/2018 • Spreadsheet submitted to EPA ' EPL 2094 LCO E2 Dust Risk'	As per evidence against condition E2.1 the spreadsheet of data was submitted to the EPA on 17/01/2018. The spreadsheet included two separate tabs for each item detailed in Condition E2.1.	Compliant	
E3.1	**HUNTER RIVER SALINITY TRADING SCHEME** This licence authorises the discharge of saline water into the Hunter River Catchment from an authorised discharge point (or points), in accordance with the *Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2009*.		Noted. A detailed assessment of compliance against the *POEO (Hunter River Salinity Trading Scheme) Regulation* was not undertaken as part of this audit	Noted	
E3.2	For the purposes of Clauses 23 and 29 of the Protection of the Environment Operations (Hunter River Salinity Trading Scheme) Regulation 2002 the licensee must apply the conversion factor of 0.6.	2016 Discharge Calc Sheet	LCO utilises a Discharge Calculation Spreadsheet as a tool for determining the maximum discharge volumes that would meet the allowable salt load. A factor 0.6 was observed to be used in the Discharge Calculation Spreadsheet.	Compliant	

Appendix A3 – Mining Leases

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
Condition 1 ML 1597 ML 1313 ML 1552 CL 708	Within a period of three months from the date of grant/renewal of this lease or within such further time as the Minister may allow, the lease holder must serve on each landholder of the land a notice in writing indicating that this lease has been granted/renewed and whether the lease includes the surface. An adequate plan and description of the lease area must accompany the notice. If there are ten or more landholders affected, the lease holder may serve the notice by publication in a newspaper circulating in the region where the lease area is situated. The notice must indicate that this lease has been granted/renewed; state whether the lease includes the surface and must contain an adequate plan and description of the lease area.	• Notification letter sent to landowners, dated 31 January 2008	Notifications to landowners were sent on 31 January 2008 to Glendell, SC, Transgrid, Transgrid, MC, ARTC, Ausgrid, Lake Liddell Trust and Department of Lands.	Compliant	
Condition 2 ML 1597 ML 1313 ML 1552	The proponent shall implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or rehabilitation of the development.	• Schedule 2, Condition 1	Refer evidence against Schedule 2, Condition 1	Compliant	
Condition 3 ML 1597 ML 1313 ML 1552 **Condition 2** CL 708	(a) Mining operations must not be carried out otherwise than in accordance with a Mining Operations Plan (MOP) which has been approved by the Director General of the Department of Primary Industries – Mineral Resources (b) The MOP must: • Identify areas that will be disturbed by mining operations; • Detail the staging of specific mining operations; • Identify how the mine will be managed to allow mine closure; • Identify how mining operations will be carried out on site in order to prevent and or minimise harm to the environment; • Reflect the conditions of approval under; i. The *Environment Planning and Assessment Act 1979* ii. The *Protection of the Environment Operations Act 1997* iii. Any other approvals relevant to the development including the conditions of this lease; and • Have regard to any relevant guidelines adopted by the Director-General. (c) The titleholder may apply to the Director-General to amend an approved MOP at any time. (d) It is not a breach of this condition if: i. The operations constituting the breach were necessary to comply with a lawful order or direction given under the *Mining Act 1992,* The *Environment Planning and Assessment Act 1979,* The *Protection of the Environment Operations Act 1997* or the *Occupational Health and Safety Act 2000; and* ii. The Director-General has been notified in writing of the terms of the order or direction prior to the operations constituting the breach being carried out. (e) A MOP ceases to have affect 7 years after date of approval or other such period as identified by the Director-General. An approved amendment to the MOP under condition 5 does not constitute an approval for the purpose of this paragraph unless otherwise identified by the Director-General.	• LCO Mining Operations Plan 2018 – 2020, dated 29/11/2017 • Letter from Resource Regulator approving MOP Addendum, dated 24/10/2018	(a) The current MOP (2018-2020) was approved by Resources Regulator (RR) on 29th November 2017. (b) The MOP includes the following: • Plans 3A – 3C are a series of plans which show the annual sequence of mining and rehabilitation activities over the MOP term. • MOP Section 2.0 outlines the proposed mining activities in detail. This section is complimented by the MOP Plans 3A – 3C • Plan 4 outlines the plan for Final rehabilitation and post mining land use. Section 2.0 of the MOP outlines the Rehabilitation Cost Estimate (RCE) prepared for this MOB and defines the method behind calculation of the RCE to ensure the desired final land use. • Specific control measures to be implemented to manage risks of environmental harm are outlined in Section 3.0. • Section 1.4 discusses the Development Consent, EPBC Approval, EPL and other licences. • The MOP references the following DRE Guidelines: ○ ESG3: Mining Operations Plan (MOP) Guidelines, September 2013 (DRE 2013) ○ DTRIS (2012b), MDG 6001 – Guideline for the Permanent Filling and Capping of Surface Entries to Coal Seams. ○ NSW Trade and Investment – Division of Resources and Energy (DRE) guideline (c) LCO requested an addendum to the MOP. The purpose of the proposed Addendum was to resume tailings emplacement at the Reservoir Tailings Emplacement Area (RTEA) within the 2018-2020 period using a staged filling program until the maximum fill level is reached.	Compliant	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
			LCO submitted the addendum to the RR for approval on 05/10/2018. RR approved the addendum in its letter dated 24/10/2018. (d) Not triggered (e) The MOP addendum is approved for the period from the date of the approval (24/10/2018) until 1/12/2020.The MOP document is approved until 1/12/2020.		
Condition 4 ML 1597 ML 1313 ML1552	**Environmental Management Reporting** The lease holder must lodge Environmental Management Reports (EMR) with the Director-General annually or at dates otherwise directed by the Director-General.	• Annual Review 2015 • Annual Review 2016 • Annual Review 2017	The Environmental Management Reports have been combined with the LCO Annual Review required by the Development Consent Conditions. The Annual Review is submitted to RR along with submission to DPE. The auditors reviewed the 2015, 2016 and 2017 Annual Reviews and verified they contained the information required by Condition 4 and 5 and as requested by the RR.	Compliant	
Condition 5 ML 1597 ML 1313 **Condition 4** ML 1552	The EMR must: - Report against compliance with the MOP; - Report on progress in respect of rehabilitation completion criteria; - Report on the extent of compliance with regulatory requirements; and - Have regard to any relevant guidelines adopted by the Director-General				
Condition 6 ML 1597 ML 1313 ML1552	**Additional Environmental Reports** Additional environmental reports may be required on specific surface disturbing operations or environmental incidents from time to time as directed in writing by the Director-General and must be lodged as instructed.		Additional reports had not been requested in the audit period.	Not Triggered	
Condition 7 ML 1597 ML 1313 ML1552 **Condition 13** CL 708	**Rehabilitation** Disturbed land must be rehabilitated to a sustainable/agreed end land use to the satisfaction of the Director-General.	• Condition 37, Schedule 3 of the Development Consent Checklist	Rehabilitation was progressing towards the agreed end land use discussed in the approved MOP. Rehabilitation is aiming to establish grassland on overburden emplacement in keeping with the EA and as shown in Appendix 3 of the Development Consent. Refer also to Condition 37, Schedule 3 of the Development Consent Checklist.	Compliant	
Condition 8 ML 1597 ML 1313 ML1552 **Condition 4** CL 708	**Subsidence Management** (a) The lease holder shall prepare a Subsidence Management Plan prior to commencing any underground mining operations which will potentially lead to subsidence of the land surface. (b) Underground mining operations which will potentially lead to subsidence include secondary extraction panels such as longwalls or miniwails, associated first workings (gateroads, installation roads and associated main headings, etc.), and pillar extractions, and are otherwise defined by the Applications for Subsidence Management Approvals guidelines (EDG17) (c) The lease holder must not commence or undertake underground mining operations that will potentially lead to subsidence other than in accordance with a Subsidence Management Plan approved by the Director-General, an approval under the Coal Mine Health and Safety Act 2002, or the document New Subsidence Management Plan Approval Process — Transitional Provisions (EDPO9). (d) Subsidence Management Plans are to be prepared in accordance with the Guideline for Applications for Subsidence Management Approvals. (e) Subsidence Management Plans as approved shall form part of the Mining Operations Plan required under Condition 2 and will be subject to the Annual Environmental Management Report process as set out under Condition 3.		No underground mining has occurred during the audit period.	Not Applicable	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
	The SMP is also subject to the requirements for subsidence monitoring and reporting set out in the document New Approval Process for Management of Coal Mining Subsidence - Policy.				
Condition 9 ML 1597 ML 1313 ML1552 **Condition 5** CL 708	**Working Requirement** The Lease holder must: (a) ensure that at least 83 (ML1597), 3 (ML1552), 15 (ML 1313), 130 (CL708) competent people are efficiently employed on the lease area on each week day except Sunday or any week day that is a public holiday, OR (b) expend on operations carried out in the course of prospecting or mining the lease area, an amount of not less than $1,452,500 (ML 1597), $52,500 (ML1552), $262,500 (ML1313), $2,275,000 (CL 708) per annum whilst the lease is in force. The Minister may at any time or times, by instrument in writing served on the lease holder, increase or decrease the expenditure required or the number of people to be employed.	• Letter from RR approving variation to condition 9, dated 10 Sep 2018	On 10 September 2018 RR approved this condition to be omitted from the mining lease. The RR stated that *In accordance with Clause 12 of Schedule 1B of the Mining Act 1992 I have determined to vary the conditions of ML 1597 by omitting condition 9, which related to labour and expenditure in accordance with the attached instrument of variation. The decision of the relevant condition will take effect from 8 October 2018.* Prior to this date the mine maintained 390 full time and full time equivalent staff.	Compliant	
Condition 10 ML 1597 ML 1313 **Condition 6** CL 708	**Control of Operations** (a) If an Environmental Officer of the Department believes that the lease holder is not complying with any provision of the Act or any condition of this lease relating to the working of the lease, he may direct the lease holder to:- (i) cease working the lease; or (ii) cease that part of the operation not complying with the Act or conditions; until in the opinion of the Environmental Officer the situation is rectified. (b) The tease holder must comply with any direction given. The Director-General may confirm, vary or revoke any such direction. (c) A direction referred to in this condition may be served on the Mine Manager.		This had not occurred during the audit period	Not Triggered	
Condition 11 ML 1597 ML 1313 **Condition 7** CL 708	**Reports** The lease holder must provide an exploration report, within a period of twenty-eight days after each anniversary of the date this lease has effect or at such other date as the Director-General may stipulate, of each year. The report must be to the satisfaction of the Director-General and contain the following: (a) Full particulars, including results, interpretation and conclusions, of all exploration conducted during the twelve months period; (b) Details of expenditure incurred in conducting that exploration; (c) A summary of all geological findings acquired through mining or development evaluation activities; (d) Particulars of exploration proposed to be conducted in the next twelve months period; (e) All plans, maps, sections and other data necessary to satisfactorily interpret the report	• Annual Exploration Report 2016 • Exploration Report 2016-2018 • Letter from DRE approving consolidated reporting, dated 11/03/2013 • Letter from RR approving change in anniversary date, dated 06/03/2017	LCO applied to group reporting of all MLs CCL708, ML1552, ML1597 on 5 March 2013. On 11 March 2013 DRE (now RR) approved LCOs application to consolidate reporting of all mining leases. As such the anniversary date for the purpose of reporting the exploration report is 30 December. The following reports were reviewed: • **Exploration Report 31/12/2015 – 30/12/2016;** Annual Exploration Report for LCO for the period 31 Dec 2015 – 30 Dec 2016, dated 25/01/2016. • **Exploration Report 31/12/2016 – 17/05/2018;** On 22 Feb 2017 LCO submitted an application to change the reporting date of the annual exploration report. RR approved the change in reporting date on 6 March 2017. The updated reporting anniversary for the exploration report is now 17 May. • RR outlined that the 2017 exploration report period could be extended until 17 May 2018. This made the reporting period for the exploration report from the 31 Dec 2016 to the 17 May 2018, with the report due by 17 June 2018. This Exploration Report was submitted to RR on 13/06/2018. The next exploration report due to RR is for the period 18/06/2018 – 17/06/2019 and will be due to RR by the 17/06/2019.	Compliant	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
Condition 12 ML 1597 ML 1313 **Condition 8** CL 708	**Licence to Use Reports** (a) The lease holder grants to the Minister, by way of a non-exclusive licence, the right in copyright to publish, print, adapt and reproduce all exploration reports lodged in any form and for the full duration of copyright. (b) The non-exclusive licence will operate as a consent for the purposes of section 365 of the Mining Act 1992.	-	This condition is noted	Noted	
Condition 13 ML 1597 ML 1313 **Condition 9** CL 708	**Confidentiality** (a) All exploration reports submitted in accordance with the conditions of this lease will be kept confidential while the lease is in force, except in cases where: a. the lease holder has agreed that specified reports may be made non- confidential. b. reports deal with exploration conducted exclusively on areas that have ceased to be part of the lease. (b) Confidentiality will be continued beyond the termination of a lease where an application for a flow-on title was lodged during the currency of the lease. The confidentiality will last until that flow-on title or any subsequent flow-on title, has terminated. (c) The Director-General may extend the period of confidentiality.		This condition is noted	Noted	
Condition 14 ML 1597 ML 1313 **Condition 10** CL 708	**Terms of the non-exclusive licence** (a) the Minister may sub-licence others to publish, print, adapt and reproduce but not on-licence reports. (b) the Minister and any sub-licensee will acknowledge the lease holder's and any identifiable consultant's ownership of copyright in any reproduction of the reports, including storage of reports onto an electronic database. (c) the lease holder does not warrant ownership of all copyright works in any report and, the lease holder will use best endeavours to identify those parts of the report for which the lease holder owns the copyright. (d) there is no royalty payable by the Minister for the licence (e) if the lease holder has reasonable grounds to believe that the Minister has exercised his rights under the non-exclusive copyright licence in a manner which adversely affects the operations of the lease holder, that licence is revocable on the giving of a period of not less than three months' notice.		This condition is noted	Noted	
Condition 15 ML 1597 ML 1313 **Condition 11** CL 708	**Blasting** (a) Ground Vibration The lease holder must ensure that the ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10 mm/second and does not exceed 5 mm/second in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises as the case may be, unless determined otherwise by the Department of Climate Change and Environment. (b) Blast Overpressure The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120 dB (linear) and does not exceed 115 dB (linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, as the case may be, unless determined otherwise by the Department of Climate Change and Environment.	• Development Consent checklist Condition 4, Schedule 3	A number of measurements above the overpressure limit were recorded at privately owned residence. However these did not exceed the allowable exceedances criteria outlined in Table 2.	Compliant	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
Condition 16 ML 1597 ML 1313 **Condition11** ML1552 **Condition 12** CL 708	**Safety** Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations. All drill holes shafts and excavations must be appropriately protected, to the satisfaction of the Director-General, to ensure that access to them by persons and stock is restricted. Abandoned shafts and excavations opened up or used by the lease holder must be filled in or otherwise rendered safe to a standard acceptable to the Director-General.	• Monthly and bimonthly inspections • NOTICE OF SATISFACTORY AEMR letter from RR, dated 6/2/2018 • NOTICE OF SATISFACTORY AEMR letter from RR, dated 25/09/2018	Safety was not assessed in detail as part of this audit, however the following comments are made: • LCO manages a safety management system which is enforced by Glencore Corporate. • The site is a secure facility with fences and locked gates. Boundary fencing inspected by the auditors was identified as intact. • Monthly E&C inspections and bimonthly biodiversity inspection which include a review of fencing. • Glencore owns the majority of the buffer land surrounding the lease area. • LCO does not have any abandoned shafts or excavations. RR conducts annual inspections following submission of Annual Reviews. Following RR's inspection they will issue a satisfaction of Annual Review letter. Inspections conducted in the audit period include: - RR conducted an inspection in 20/12/2017 and provided a 'Notice of Satisfactory AEMR' letter on 6/2/2018 - RR conducted an inspection in 18/08/2018 and provided a 'Notice of Satisfactory AEMR' letter on 25/09/2018	Compliant	
Condition 17 ML 1597 ML 1313 **Condition 15** CL 708	**Exploration Drilling** (1) At least twenty eight days prior to commencement of drilling operations the lease holder must notify the relevant Department of Climate Change and Environment regional hydrogeologist of the intention to drill exploratory drill holes together with information on the location of the proposed holes. (2) If the lease holder drills exploratory drill holes he must satisfy the Director-General that:- a. all cored holes are accurately surveyed and permanently marked in accordance with Departmental guidelines so that their location can be easily established; b. all holes cored or otherwise are sealed to prevent the collapse of the surrounding surface; c. all drill holes are permanently sealed with cement plugs to prevent surface discharge of groundwaters; d. if any drill hole meets natural or noxious gases it is plugged or sealed to prevent their escape; e. if any drill hole meets an artesian or sub-artesian flow it is effectively sealed to prevent contamination of aquifers. f. once any drill hole ceases to be used the hole must be sealed in accordance with Departmental guidelines. Alternatively, the hole must be sealed as instructed by the Director-General. g. once any drill hole ceases to be used the land and its immediate vicinity is left in a clean, tidy and stable condition.	• DPI-Water Notification Spreadsheet • Notification email to DPI-Water sent 10/11/2017 • Email to DPI-Water from LCO amending Exploration program, dated 10/08/18 • Email from DPI-Water to LCO approving amendment to drilling program, dated 22/08/2018	During the audit period, exploration drilling was conducted in 2018 only. Notification for the exploration program was provided to the regional hydrogeologist on 10/11/2017. The exploration program commenced on 11/12/2017 as per Notification Spreadsheet. LCO submitted an addendum to the Exploration Program on the 10/08/2018 to add an additional two holes to the drilling program. The request for addendum included a request to accept a shorter notice period. DPI-Water replied to LCOs request on 22/08/2018. DPI-Water advised that it approved the commencement of drilling operations and accepted the shortened notice period. The exploration program was ongoing at the time of the audit and a summary of the program will be reported in the next exploration report. Following exploration works the drill holes are filled with stemming gravel and temporarily sealed or plugged. This is due to the fact that the drill holes are within the disturbance boundary and have been or will be excavated in future mining operations.	Compliant	
Condition 18 ML 1597	**Prevention of Soil Erosion and Pollution** Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an	• Schedule 3, Conditions 18, 21A and 23 of the Development	Refer evidence against Development Consent Checklist: • Schedule 3, Condition 18 – air pollution	Non-compliance (low)	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
Condition 12 ML 1552 **Condition 18** ML 1313 **Condition 16** CL 708	accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwaters. The lease holder must observe and perform any instructions given by the Director-General in this regard.	Consent Checklist.	• Schedule 3, Condition 21A (Non-Compliance) • Schedule 3, Condition 23,– water pollution and erosion	Compliant	
Condition 19 ML 1597 ML 1313 **Condition 13** ML 1552 **Condition 17** CL 708	**Transmission lines, Communication lines and Pipelines** Operations must not interfere with or impair the stability or efficiency of any transmission line, communication line, pipeline or any other utility on the lease area without the prior written approval of the Director-General and subject to any conditions he may stipulate.	• Site Inspection	No issues were reported or identified with regards to transmission lines, communications lines or pipelines.	Compliant	
Condition 20 ML 1597 ML 1313 **Condition 18** CL 708	**Fences and Gates** (a) Activities on the lease must not interfere with or damage fences without the prior written approval of the owner thereof or the Minister and subject to any conditions the Minister may stipulate. (b) Gates within the lease area must be closed or left open in accordance with the requirements of the landholder.	• Site Inspection	Glencore is the landowner for all fences and gates within the ML boundary. No issues were reported or identified with regards to fences and gates	Compliant	
Condition 21 & 22 ML 1597 ML 1313 **Condition 14** ML 1552 **Condition 19 & 20** CL 708	**Roads and Tracks** (a) Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior written approval of the Director-General and subject to any conditions he may stipulate. (b) The lease holder must pay to the designated authority in control of the road (generally the local council or the Roads and Traffic Authority) the cost incurred in fixing any damage to roads caused by operations carried out under the lease, less any amount paid or payable from the Mine Subsidence Compensation Fund. Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks must be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations. The design and construction of access tracks must be in accordance with specifications fixed by the Department of Climate Change and Environment.	• Site Inspection	LCO is the landowner of all roads and tracks within the ML boundary. It was reported that to date operations had not affected any roads. No additional access tracks have been constructed outside of the mine footprint during the audit period. Temporary access tracks are managed through the Ground Disturbance Permit (GDP) process.	Compliant	
Condition 23 ML 1597 ML 1313 **Condition 21** CL 708	**Trees and Timber** (a) The lease holder must not fell trees, strip bark or cut timber on the lease without the consent of the landholder who is entitled to the use of the timber, or if such a landholder refuses consent or attaches unreasonable conditions to the consent, without the approval of a warden. (b) The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease area except such as directly obstructs or prevents the carrying on of operations. Any clearing not authorised under the Mining Act 1992 must comply with the provisions of the Native Vegetation Act 2003. (c) The lease holder must obtain all necessary approvals or licences before using timber from any Crown land within the lease area.	• Ground Disturbance Permit • Approved MOP • Site Inspection	LCO reported that it had not cleared any trees which required consent from another landholder entitled to the use of the timber. All clearing is conducted in accordance with the LCO MOP and under the permission of the GDP Process.	Compliant	
Condition 25	**Resource Recovery** (a) Notwithstanding any description of mining methods and their sequence or of		This has not occurred during the audit period.	Not Triggered	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
ML 1597 ML 1313 **Condition 17** ML 1552 **Condition 23** CL 708	proposed resource recovery contained within the Mining Operations Plan, if at any time the Director-General is of the opinion that minerals which the lease entitles the lease holder to mine and which are economically recoverable at the time are not being recovered from the lease area, or that any such minerals which are being recovered are not being recovered to the extent which should be economically possible or which for environmental reasons are necessary to be recovered, he may give notice in writing to the lease holder requiring the holder to recover such minerals. (b) The notice shall specify the minerals to be recovered and the extent to which they are to be recovered, or the objectives in regard to resource recovery, but shall not specify the processes the lease holder shall use to achieve the specified recovery. (c) The lease holder must, when requested by the Director-General, provide such information as the Director-General may specify about the recovery of the mineral resources of the lease area. (d) The Director-General shall issue no such notice unless the matter has firstly been thoroughly discussed with and a report to the Director-General has incorporated the views of the lease holder. (e) The lease holder may object to the requirements of any notice issued under this condition and on receipt of such an objection the Minister shall refer it to a Warden for inquiry and report under Section 334 of the Mining Act, 1992. (f) After considering the Warden's report the Minister shall decide whether to withdraw, modify or maintain the requirements specified in the original notice and shall give the lease holder written notice of the decision. The lease holder must comply with the requirements of this notice.				
Condition 26 ML 1597 ML 1313 **Condition 18** ML 1552 **Condition 24** CL 708	**Indemnity** The lease holder must indemnify and keep indemnified the Crown from and against all actions, suits, claims and demands of whatsoever nature and all costs, charges and expenses which may be brought against the lease holder or which the lease holder may incur in respect of any accident or injury to any person or property which may arise out of the construction, maintenance or working of any workings now existing or to be made by the lease holder within the lease area or in connection with any of the operations notwithstanding that all other conditions of this lease shall in all respects have been observed by the lease holder or that any such accident or injury shall arise from any act or thing which the lease holder may be licensed or compelled to do.		Noted	Noted	
Condition 28 ML 1597 ML 1313 **Condition 21** ML 1552 **Condition 26** CL 708	**Security** (a) The single security given and maintained with the Minister by the lease holder for the purpose of ensuring the fulfilment by the lease holder of obligations under Mining Leases 1313, 1552 (Act 1992) and Consolidated Coal Lease 708 (Act 1973) is extended to apply to this lease. (b) If the lease holder fails to fulfil any one or more of the obligations under this lease, then the security held may be applied at the discretion of the Minister towards the cost of fulfilling such obligations. For the purpose of this clause the lease holder shall be deemed to have failed to fulfil the obligations of the lease if the lease holder fails to comply with any condition or provision hereof, any provision of the Act or regulations made thereunder or any condition or direction imposed or given pursuant to a condition or provision hereof or of any provision of the Act or regulations made thereunder.	• Email from RR outlining additional security deposit amount, 11/12/2017 • Email from LCO to RR outlining that additional security deposit had been issued, 22/02/2018 • Bank Guarantee to DPE, dated 22/02/2017 for 70% of deposit	On the 11/12/2017 the security for all leases was grouped into one figure. The revised deposit was determined to be $43,555,000, this was an additional $10,262,000 to the originally assessed security amount. LCO had already supplied a security bond and was required to provide the additional $10,262,000 which was required following reassessment in 2017. LCO issued the remaining security funds on 22/02/2018.	Compliant	
Condition 29	**Prescribed Dams** (A) Notwithstanding any Mining Operations Plan, the lease holder must not mine	• Map 'Prescribed Dams	(A) The status of each of the three prescribed dams is provided	Compliant	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
ML 1597 ML 1313 **Condition 27** CL 708	within any part of the lease area which is within the notification area of the Liddell Cooling Water, Chain of Ponds 13B or Antiene Mine Lease Tailings Dams without the prior written approval of the Minister and subject to any conditions he may stipulate. (B) Where the lease holder desires to mine within the notification area he must: i. at least twelve (12) months before mining is to commence or such lesser time as the Minister may permit, notify the Minister of the desire to do so. A plan of the mining system to be implemented must accompany the notice; and ii. provide such information as the Minister may direct. (C) The Minister must not, except in the circumstances set out in sub-paragraph (ii), grant approval unless sub-paragraph (i) of this paragraph has been complied with. i. This sub-paragraph is complied with if: a. the Dams Safety Committee as constituted by Section 7 of the Dams Safety Act 1978 and the owner of the dam have been notified in writing of the desire to mine referred to in paragraph (B). b. the notifications referred to in clause (a) are accompanied by a description or plan of the area to be mined. c. the Director-General has complied with any reasonable request made by the Dams Safety Committee or the owner of the dam for further information in connection with the mining proposal. d. the Dams Safety Committee has made its recommendations concerning the mining proposal or has informed the Minister in writing that it does not propose to make any such recommendations; and e. where the Dams Safety Committee has made recommendations the approval is in terms that are: - in accordance with those recommendations; or - where the Minister does not accept those recommendations or any of them - in accordance with a determination under sub-paragraph (ii) of this paragraph. ii. Where the Minister does not accept the recommendations of the Dams Safety Committee or where the Dams Safety Committee has failed to make any recommendations and has not informed the Minister in writing that it does not propose to make any recommendations, the approval shall be in terms that are, in relation to matters dealing with the safety of the dam: a. as determined by agreement between the Minister and the Minister administering the Dams Safety Act 1978; or b. in the event of failure to reach such agreement - as determined by the Premier (D) The Minister, on notice from the Dams Safety Committee, may at any time or times: a. cancel any approval given where a notice pursuant to Section 18 of the Dams Safety Act 1978 is given. b. suspend for a period of time, alter, omit from or add to any approval given or conditions imposed.	Notification Areas LCO', dated 11/02/2019	below: • The Liddell Cooling Water – Lake Liddell: LCO is not actively mining within the notification area. • The Chain of Ponds Dam 13B – was not constructed (MOD 5) • The Antiene Mine Lease Tailings Storage Facility – The tailings dam was in the process of being capped at the time of the audit. LCO reported that tipping of overburden is the only activity occurring in this area and that no mining or blasting had occurred during the audit period within the notification area. Once fully capped LCO intends to apply to the Dam Safety Committee to de-prescribe the Antiene TSF. The LCO Tech Services department provided to the auditors a map showing the prescribed dam notification areas for the Lake Liddell Cooling Water Dam and Antiene Mine Lease Tailings Dam along with the areas of active mining which occurred in the audit period. As per the map provided no mining has occurred within the notification areas of these dams. (B) (C) (D) Not Triggered as no requirement to mine within the prescribed areas has occurred within the audit period.		

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
	c.				
Condition 30 ML 1597	**Special Conditions** The lease holder unless with the consent of the Minister and subject to such conditions as the Minister may impose shall not mine for, win or remove any coal from that part of the subject area within 30 metres horizontally distant from either side of the easement of the Main Northern Railway.	• Survey Plan of Mining operations	LCO provided the auditors with a Survey Plan of mine operations which shows the area within a 30m offset of the main northern railway easement. Pit limits are not close to the eastern buffer. The high wall on the western side of the pit sits just before the 30m buffer.	Compliant	
Condition 31 ML 1597	**Special Conditions** The lease holder unless with the consent of the Minister and subject to such conditions as the Minister may impose shall not work or cause to be worked any seam of coal by underground methods within the subject area within the barrier as defined as follows: The land within the zone beneath and adjacent to the Main Northern Railway enclosed by an angle of draw of 35 degrees from the vertical plane of the boundary parallel to a thirty (30) metres horizontal distance from either side of the railways lands, such angle of draw being measured outwards from the point on the vertical plane of the said boundary at the surface or at the level of the horizontal plane of the railway tracks, whichever may be the higher, to the floor of the coal seam in which mining operations are being carried out.		This has not occurred.	Not Triggered	
Condition 32 ML 1597 **Condition 31** ML 1313	**Special Conditions** The lease holder shall maintain an underground reserve of water of a minimum of 2000 mega litres in disused underground mine workings of the land hereby demised and shall at all times permit Coal and Allied Operations Pty Limited and it's successors and assigns to have access to that underground reserve for the purpose of obtaining water for use in connection with the operations of the Hunter Valley Mine.	• Site Water Balance reporting tool (Jan 2019)	The Site Water Balance reporting tool (Jan 2019) shows the three underground working areas, their max storage volumes and their current volumes. The following volumes were available for use in the underground disused mine workings at the time of the audit site inspection in February 2019: • Hazeldene Colliery – 1666.7ML • Middle (Liddell Colliery Middle Liddell Seam) – 1365ML • M49 (Liddell Colliers Upper Liddell Seam) – 2874ML This indicates that there is available approx. 5900ML, well above the required 2000ML.	Compliant	
Condition 23 ML 1552 **Condition 28** CL 708	The holder of a lease (or consolidated mining lease) may not suspend mining operations in the mining area other than in accordance with the consent of the minister.	• LCO Legal Advice	LCO does not mine within all mining lease boundaries however legal advice provided to the E&C team indicated that because LCO has continued to actively mine in one of its mining lease boundaries and because the RR has approved a consolidated lease and grouping of mining lease reporting, LCO operations do not constitute a suspension of mining operations in one lease area.	Compliant	

APPENDIX A3 MINING LEASES (ML 1597, ML 1313, ML1552, CL 708)					
Condition	**Requirement**	**Evidence**	**Comments**	**Finding**	**Recommendation**
Condition 5 ML 1552	**Incident reporting** (a) The lease holder must report any environmental incidents. The report must: (i) Be prepared according to any relevant Department guidelines; (ii) Be submitted within 24 hours of the environmental incident occurring (b) For the purpose of this condition, environmental incident includes: (i) Any incident causing or threatening material harm to the environment (ii) Any breach of conditions 1-9 and 11-24; (iii) Any breach of environmental protection legislation (iv) A serious complaint from landholders or the public (c) For the purpose of this condition, harm to the environment is material if (d) (i) if involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or (e) It results in actual or potential loss or property damage of an amount or amounts in aggregate, exceeding $10,000 where loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent mitigate or make good harm to the environment		No incidents have occurred in the lease boundary of ML 1552 which required reporting within 7 days as per the condition requirement. The requirement to notify the RR is not included in the PIRMP. The PIRMP notification requirements reflect the agencies specified by the POEO Regulations.	Not Triggered	***2019 IEA OFI 020:*** *Update the PIRMP to reflect the requirement of ML 1552 to report environmental incidents to the RR*

Appendix B

Audit Team DPE Approval

Ben de Somer
Environment and Community Manager
Liddell Coal Operations Pty Ltd
PO Box 7
SINGLETON NSW 2330

Contact: Michael Frankcombe
Phone: (02) 6575 3413
Email: compliance@planning.nsw.gov.au
michael.frankcombe@planning.nsw.gov.au
Our Ref: DA 305-11-01, as modified

Dear Mr de Somer,

Liddell Coal DA 305-11-01
Independent Environmental Audit Team Endorsement.

Thank you for providing a copy of AECOM's Independent Environmental Audit (IEA) proposal for the Liddell Coal dated 20 December 2018, for endorsement of the audit team in accordance with Schedule 5, Condition 4 of DA 305-11-01.

The Department has reviewed the information provided and I endorse the proposed audit team with the following personnel:

- Helen Onus – Lead Auditor
- Kate Michelmore – Auditor
- Dr Helen Vickers – Mine Rehabilitation and Closure Specialist
- Amanda Kerr – Surface Water Specialist
- Angus McFarlane – Groundwater Specialist
- Sam Mitchell – Assistant Auditor
- Ian Richardson – Independent Verifier.

The Department expects that the audit will be conducted in accordance with the Independent Audit Guideline, October 2015. A copy of this guideline is available at: http://www.planning.nsw.gov.au/~/media/Files/DPE/Guidelines/independent-audit-guideline-2015-10-23.ashx\

Please ensure that your audit team consults with relevant regulatory agencies and the mine's CCC chairperson prior to the site inspection. Evidence of consultation and consideration of any matters raised are to be provided in the audit report. Please ensure the audit report is submitted (preferably via email to compliance@planning.nsw.gov.au) within 6 weeks of the audit inspection date, unless otherwise agreed.

Should you have any queries on this matter, please do not hesitate to contact Michael Frankcombe on the details provided above.

Yours sincerely

09/01/19

Leah Cook
Team Leader- Compliance
As Nominee of the Secretary

Appendix C

Review of Previous IEA Recommendation

Review of Previous Audit Recommendations

IEA Action/Recommendation	LCO Proposed Action	2019 Status
Development Approval DA 305-11-01		
Schedule 3, Condition 23(ci) Complete the calibration of the Site Water Balance as soon as possible in 2016.	Water balance calibration commissioned to Hydro Engineering & Consulting Pty Ltd to complete on 21 January 2016. Despite not compliant with the Water Management Plan, the delayed commencement allows for full dataset of 2015 water inputs/outputs to be included.	Water Balance Calibration undertaken by Hydro Engineering & Consulting Pty Ltd (HEC) initially in 2016 and again in 2017 following collection of additional data. **COMPLETE**
Schedule 3, Condition 34 Continue to support the development of the plantings on the Old New England Highway bund to ensure that an adequate visual screen is established.	Replace failed tube stock where required and continue to monitor.	LCO reported in its 2017 Annual Review that additional trees were planted to replace failed ones. Trees continue to be watered where necessary and monitored. The auditors sighted the plantings on the southern boundary of the mine along the Old New England Highway. The trees will require continued support (watering and monitoring) to establish an adequate visual screen from the Old New England Highway. LCO E&C Team conduct a visual inspection of the plantings during their monthly inspections. **ONGOING**
Schedule 3, Condition 37 • Commission a visual impact specialist to review the performance of the measures to enhance the natural appearance of the RL 195 emplacement area to ensure integration with surrounding natural landforms. • Attempt to obtain greater clarification from DP&E and DRE as to their expectations regarding landform integration	• Engage visual impact/landform specialist to review final landform options. • Communicate outcomes to DPE/DRE and seek agreement on any proposed landform option.	LCO commissioned Jacobs to conduct a visual assessment of the existing and proposed final landform in 2016. The results of the assessment were provided to DPE for review and determination on 23 December 2016. **COMPLETE**

IEA Action/Recommendation	LCO Proposed Action	2019 Status
Mining Operations Plan		
Amend Section 3.4.3 of the MOP at the next variation to describe the use of OGM top-dressed overburden in some rehabilitation areas	Include in future MOP amendment in consultation with DRE.	Addressed in revised MOP 2018-2020 which commenced on the 1/12/2017. **COMPLETE**
Amend MOP Section 3.4.3 to ensure the commitment that "LCO propose to re-spread 100 mm of topsoil on all rehabilitation areas", is subject to the LCO Soil Distribution Plan		
Amend MOP Section 7.3.4 at the next variation to provide clarity regarding the source of seed used in LCO rehabilitation		
In future MOPs or MOP amendments, consider linking rehabilitation commitments with milestones other than calendar years, such as production or disturbance progress, to ensure rehabilitation commitments match operational progress. Rehabilitation commitments would then reflect fluctuations in operational tempo		
Section 9.2 Assess the ecological and rehabilitation monitoring results against the relevant rehabilitation completion criteria in future Annual Reviews. If required, monitoring results should trigger a management response as described in the MOP TARP. LCO should ensure that there is a clear decision making pathway between monitoring results, completion criteria, the TARP and resulting management measures.	2015 Annual Review prepared to address this requirement	Included in Section 8.3 of the 2015, 2016 and 2017 Annual Review. **COMPLETE**

IEA Action/Recommendation	LCO Proposed Action	2019 Status
Appendix F. Continue with investigations under Mountain Block Remedial Strategy, as outlined in the 2015 MOP, Appendix F.	LCO supports this recommendation.	Progress relating to the Mountain Block Remedial Strategy is outlined in Section 8.7 of the Annual Review. Geotechnical investigations are complete. LCO commissioned external expertise to finalise a detailed design for remediation of Mountain Block. Preparation for slope stabilisation and rehabilitation measures to be commenced at Mountain Block in 2019 pending necessary approvals (DA Mod 7, ML1597 Ancillary Mining Activity application, MOP amendment). Approval was received on the 12/02/2019 for MOD 7 which approved a minor adjustment to the northern consent boundary to enable remediation works in the historic Mountain Block Mining Area. **ONGOING**
Singleton Council Sewerage Management System Approval, Condition 3.		
Review contractor reporting procedures to confirm monitoring results are provided to SC within 7 days of testing as required under the approval condition.	LCO to consult further with Singleton Council regarding reporting requirements with aim to consolidate to monthly reporting similar to other approval reporting requirements e.g. Environmental Protection Licence.	LCO sought and obtained approval from Singleton Council to report monitoring results once every 3 months. This was approved by Singleton Council on 20 September 2012. At the time of the audit LCO was conducting monitoring at the STP discharge point every fortnight. Once every 3 months LCO provided the monitoring results to Singleton Council within 7 days of obtaining them. **COMPLETE**
20BL172588 Middle Liddell Bore, Condition 12		
The water licence audit was not completed within the five year period required under Condition 12. It is recommended that LCO address this issue with DPI-Water and seek to	LCO to gain clarification from DPI-Water as to audit scope /requirements and complete.	LCO contacted DPI Water and confirmed it is satisfied that requirements have been addressed in IEA and previous Annual Reviews. LCO note that this will continue to apply for future audit intervals.

IEA Action/Recommendation	LCO Proposed Action	2019 Status
undertake the required audit as soon as possible in 2016.		**COMPLETE**
Biodiversity Management Plan Section 6		
Recommend updating Section 6 of the plan at the next revision to include options for weed control in advance of topsoil stripping in addition to just spraying to align with practices being undertaken.	To be included at next review. DA305-11-01 Schedule 5 Condition 6 requires any review to management plans/procedures required by the audit be completed within 3 months of submitting the audit report.	Section 6 of the BMP updated and DPE and DOE notified of the changes. **COMPLETE**
LCO SD PRO 0079 Bioremediation Area		
Review remediation actions and responsibility for the bioremediation area to ensure that the site and emplaced materials are adequately maintained.	To be included at next review. DA305-11-01 Schedule 5 Condition 6 requires any review to relevant management plans/procedures required by the audit be completed within 3 months of submitting the audit report. Update to include information relating to pre & post rainfall inspections, and record keeping	The Waste Management Bioremediation Area Procedure was updated on the 24/06/2016 following the 2015 IEA. The updated procedure was provided to the DPE by email on the 24/06/2016. **COMPLETE**
Aboriginal Cultural Heritage Management		
Remove any residual fencing and signage of Aboriginal heritage sites collected during the 2015 archaeological salvage to minimise any future uncertainty in the management of remaining sites.	LCO supports this recommendation.	Residual fencing and signage from the 2015 archaeological salvage were removed. All remaining fenced sites exist within the LID-BC-SAL. **COMPLETE**
General Rehabilitation		
Review areas of bare patches on the ridges of contour banks in the Railway Block rehabilitation and remediate these areas if required	LCO to schedule with 2016 rehabilitation program and complete	LCO conducted a review of bare areas in 2016. Areas identified for maintenance were re-ploughed with ameliorants and reseeded in June 2016. This audit observed very few areas of bare ground across the site with rehabilitation. **COMPLETE**

IEA Action/Recommendation	LCO Proposed Action	2019 Status
Reinstate cover on the disturbed face of the topsoil stockpile on the RL 192 overburden emplacement if the dump is not planned for modification during 2016	LCO has completed this action during recent rehabilitation activities.	LCO seeded the topsoil stockpile in 2016. This audit observed evidence of topsoil stockpiles formed in accordance with the stripping and stockpiling procedures (e.g stockpiles established away from mining areas on level or gently sloping lands, to a height of less than 3m and sown with suitable cover crops). **COMPLETE**
Implement a formal review process to assess the immediate and long term success of grazing and slashing trials as a control measure for Rhodes grass dominated pasture, to determine the value of these activities as a long term controls (for biodiversity and woodland corridor areas).	LCO to include in annual mine rehabilitation planning and document within 2017 plan.	Section 7.2 of the MOP (2018-2020) states that Rhodes grass at LCO is an historic management practice and where rehabilitation areas are becoming a monoculture of Rhodes grass it is managed through grazing and slashing where appropriate. The 2017 Annual Review reported that Rhodes grass domination of the South Cut rehabilitation areas has been identified as requiring strategic control to ensure the development of the pasture areas. It committed to commencing the installation of fencing, shade and watering systems to allow grazing in the South Cut rehabilitation areas. LCO engaged GSS to prepare a Rhodes Grass Management Strategy in November 2017. The Strategy included a review of grazing and slashing trials and recommended management measures for different pasture areas and woodland areas. LCO was implementing the Rhodes Grass Management Strategy including continuing the use of grazing as a management tool in Rhodes grass dominated rehabilitation areas. The auditors observed the installation of fencing, shade and watering systems in the South Cut rehabilitation areas during the audit site inspection. **ONGOING**

IEA Action/Recommendation	LCO Proposed Action	2019 Status
Based on those areas with specific biodiversity objectives (such as proposed habitat features or woodland corridors) identified in the 2015 MOP, priorities for the slashing and/or grazing control of Rhodes grass should be documented, and a schedule determined to ensure sufficient time and resources are allocated to achieve the required outcomes.	LCO to include in annual mine rehabilitation planning and document within 2017 plan.	As above. Refer also to discussion of rehabilitation in the main report. **ONGOING**
Continue to review the performance of the Weed Action Plan to reflect corrective actions for high risk locations and the weed species present on site.	LCO considers there are already sufficient processes in place to address this recommendation as follows: monthly site inspections by E&C staff, 2-monthly weed inspections as required by approved Biodiversity Management Plan (BMP), annual ecological monitoring of remnant and rehabilitation areas as required by BMP, and annual weed action plan site survey.	Performance is reviewed through annual monitoring events and inspections completed every 2 months. Annual weed and pest annual management plan sighted (ELM-Liddell-WP-AMP-18) identifying weed management requirements for 2018. **ONGOING**

Appendix D

Independent Audit Declaration Form

Appendix D – Independent Audit Declaration Form Template

Independent Audit Declaration Form

Project Name	Liddell IEA 2019
Consent Number	Development Consent 305-11-01
Description of Project	Continued open cut mining at Liddell Colliery and associated surface facilities and infrasturtcure
Project Address	Liddell, NSW
Proponent	The Proponent as named on the Development Consent is Liddell Coal Operations Pty Limited Developments Pty Ltd.

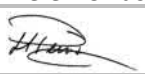
Title of Audit	Liddell Coal Mine Independent Environmental Audit 2019
Date	25 March 2019

I declare that I (with other auditors as nominated in the audit report) have undertaken the Independent Audit and prepared the contents of the attached Independent Audit Report and to the best of my knowledge:

- the audit has been undertaken in general accordance with relevant condition(s) of consent and the *Post Approval Guidelines - Independent Audits (2015)*;
- the findings of the audit are reported truthfully, accurately and completely being based on observations made during the audit and documents provided by the Project;
- I have exercised due diligence and professional judgement in conducting the audit;
- I have acted professionally, objectively and in an unbiased manner;
- I am not related to any proponent, owner or operator of the project neither as an employer, business partner, employee, or by sharing a common employer, having a contractual arrangement outside the audit, or by relationship as spouse, partner, sibling, parent, or child;
- I do not have any pecuniary interest in the audited project, including where there is a reasonable likelihood or expectation of financial gain or loss to me or spouse, partner, sibling, parent, or child;
- neither I nor my employer have provided consultancy services for the audited project that were subject to this audit except as otherwise declared to the Department prior to the audit; and
- I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from payment for auditing services) from any proponent, owner or operator of the project, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.

Notes:

a) Under section 10.6 of the *Environmental Planning and Assessment Act 1979* a person must not include false or misleading information (or provide information for inclusion in) in a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is false or misleading in a material respect. The proponent of an approved project must not fail to include information in (or provide information for inclusion in) a report of monitoring data or an audit report produced to the Minister in connection with an audit if the person knows that the information is materially relevant to the monitoring or audit. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000; and
b) The *Crimes Act 1900* contains other offences relating to false and misleading information: section 307B (giving false or misleading information – maximum penalty 2 years imprisonment or 200 penalty units, or both)

Name of Auditor	Helen Onus
Signature	
Qualification	Lead Auditor Certification – Exemplar Global
Company	AECOM Australia Pty Limited