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Liddell Coal Operations Modification 9

Submissions Report
Liddell Coal Operations Pty. Limited
March 2026

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1. Introduction

This section provides a background to the Modification and explains the purpose of the Submissions Report.

1.1 Background

Liddell Coal Operations Pty. Limited (LCO) operates the Liddell Coal Operations (Liddell) in the Upper Hunter Region of New South Wales (NSW). Liddell is located at Ravensworth directly east of Lake Liddell, approximately 25 kilometres (km) north west of Singleton, and 26 km south east of Muswellbrook (see **Figure 1**). LCO is a subsidiary of Glencore Coal Pty Limited (Glencore).

Liddell operates in accordance with Integrated State Significant Development Consent DA 305-11-01 originally granted on 20 November 2002. DA 305-11-01 was granted by the then Minister for Planning under the former sections 76(A)9 & 80 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). DA 305-11-01, as originally granted, facilitated the continued open cut operations at Liddell as well as consolidating previous development approvals for open cut and underground mining operations into a single consent. DA 305-11-01 has been modified on eight separate occasions to date.

DA 305-11-01 (as modified) enables mining operations to be undertaken until 31 December 2028 and water and tailings management activities until 31 December 2050 (or as otherwise required for rehabilitation requirements). Active mining operations at Liddell have concluded, with the last coal being mined in 2023. LCO is currently progressing mine closure and rehabilitation works.

As part of the mine closure planning process, LCO has identified the need to complete a work program involving the backfilling of remnant underground workings to provide long-term stability in select locations across the Liddell site.

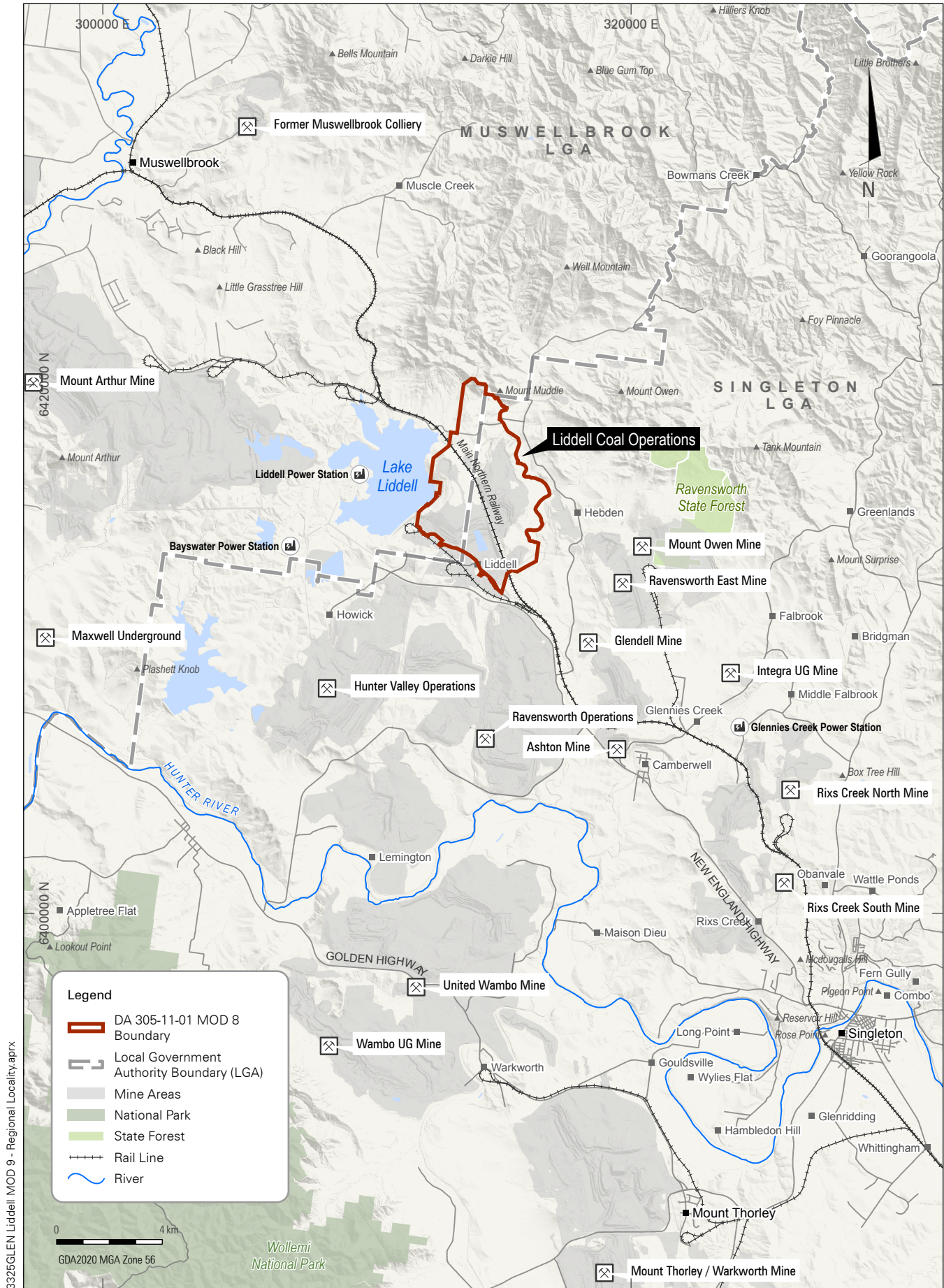
1.2 Modification Overview

Rehabilitation at Liddell is being completed in accordance with the conditions set out in DA 305-11-01 (as modified). Notably, Schedule 3, Condition 37 of DA 305-11-01 includes the rehabilitation objectives for Liddell, including for the *"mine site (as a whole) to be safe, stable and non-polluting"*. LCO's mine closure activities are being planned to achieve the rehabilitation objectives at Liddell.

Liddell has a long history of underground mining with some of the remnant first workings situated beneath the Main Northern Rail Line (MNRL) and other public infrastructure. An assessment of these workings indicates that the current pillar geometry is long-term stable. However, pillar area reduction may occur overtime as a result of external influences, such as spontaneous combustion.

In order to alleviate any pillar failure risk and subsequent subsidence beneath the MNRL and other public infrastructure, LCO is proposing the targeted backfilling of remnant underground workings to provide long-term stability. This includes the use of grout (a cementitious mix of either coal ash or blended coal ash (referred to as "fly ash" in the Modification Report and throughout the remainder of this Submissions Report) mixed with general purpose cement). The select historical underground workings that are to be targeted are referred to as Target Areas, comprising two locations; Target Area 1 and Target Area 2 as shown in **Figure 2**.

Proposed surface disturbance activities associated with the modification will occur within areas of existing and areas of approved surface disturbance at Liddell (Approved Disturbance Area). **Figure 2** illustrates the Approved Disturbance Area, along with the indicative locations where the proposed surface disturbance activities will take place (Proposed Disturbance Area).

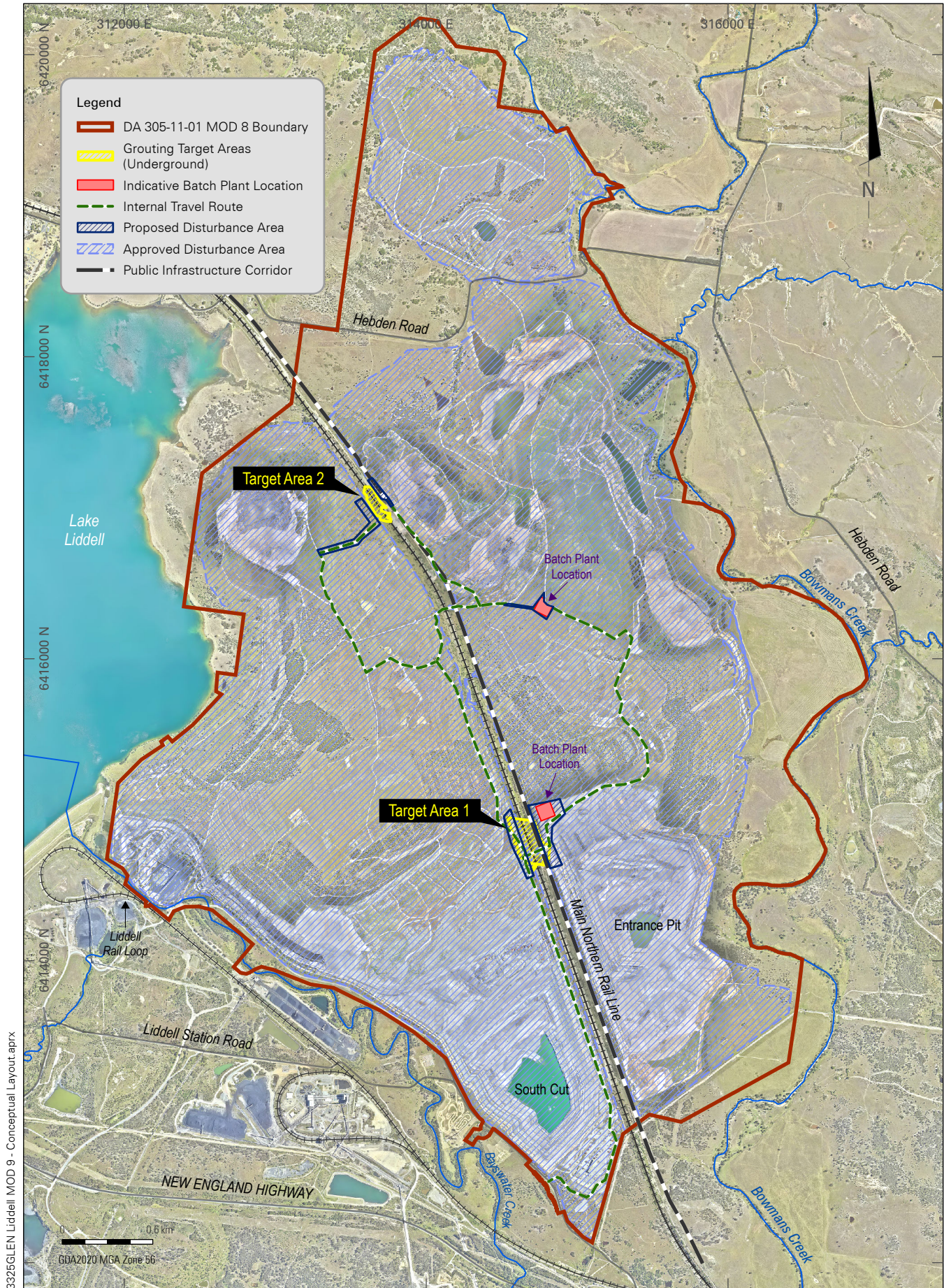


3325GLEN Liddell MOD 9 - Regional Locality.aprx

LIDDELL COAL OPERATIONS

Regional Locality

FIGURE 1



3325GLEEN Liddell MOD 9 - Conceptual Layout.aprx

LCO is seeking minor amendments to DA 305-11-01 by way of a modification application under section 4.55(1A) of the EP&A Act to permit works required to backfill select underground workings within the Target Areas (MOD 9).

Other than the works associated with the targeted backfilling of remnant underground workings, all other aspects of the approved operations will remain consistent with DA 305-11-01 including mining methods, maximum production rate, disturbance footprints and ancillary activities.

The Target Areas and temporary grout batching compound locations for MOD 9 are conceptually illustrated with approved operations in **Figure 2**.

1.3 Document Purpose

The Modification Application and supporting Modification Report for MOD 9 were submitted to the Department of Planning, Housing and Infrastructure (DPHI) for assessment on 23 December 2025.

DPHI subsequently referred the Modification Report to relevant NSW government agencies for review. Submission from five government agencies were received in response, as outlined in **Section 2.1**.

On 12 February 2026, DPHI formally requested a written response to matters and recommendations raised in the submissions.

This Submissions Report has been prepared by Xenith Consulting Pty Ltd (Xenith) on behalf of LCO to respond to the issues raised and support the Modification Application under Section 4.55(1A) of the EP&A Act. This Submissions Report has been prepared with regard to the guidelines provided within the *State significant development guidelines including Appendix C – preparing a submissions report* (DPHI, 2024).

1.4 Document Structure

This Submissions Report is structured as follows:

- › **Section 2** includes a summary of the submissions received from government agencies;
- › **Section 3** provides responses to the issues raised by the government agencies;
- › **Section 4** outlines all referenced materials relevant to this Submissions Report; and
- › **Section 5** lists the abbreviations utilised in this Submissions Report.

2. Analysis of Submissions

This section provides an overview of the submissions received in relation to MOD 9.

2.1 Breakdown of Submissions

DPHI provided the Modification Report to other NSW government agencies, local councils and infrastructure owners for comment, resulting in submissions being received from:

- › Transport for NSW (TfNSW);
- › NSW Department of Climate Change, Energy, the Environment and Water – Water Group (DCCEEW - Water);
- › NSW Environment Protection Authority (EPA);
- › NSW Resources Regulator (RR); and
- › Muswellbrook Shire Council (MSC).

The submissions did not object to MOD 9. Submissions generally raised matters seeking clarification and/or additional information, or have recommended particular approval conditioning. A response to each matter raised in the submissions received from the government agencies and MSC is provided in detail in **Section 3**.

2.2 Issues Raised in Submissions

Table 1 outlines and categorises the issues raised in submissions, and indicates where they are addressed in this Submissions Report.

Table 1 **Categorisation of Issues**

Category	Issue or Concern	Stakeholder	Relevant Sections
Request for Information	Technical Information	RR	Section 3.4.1
	Clarification on Public Infrastructure	MSC	Section 3.5.1
	Fly Ash Source	MSC	Section 3.5.2
Other Approvals	Variation to EPL	EPA	Section 3.3.1
Post Approvals	Traffic - Installation of Variable Message Signs	TfNSW	Section 3.1.1
	Management Plans	TfNSW DCCEEW	Section 3.1.1 Section 3.2.1
	Coal Ash Compliance	EPA	Section 3.3.2
	NSW Guide for Large Emitters Compliance	EPA	Section 3.3.3
	Rehabilitation Completion Criteria Statement	RR	Section 3.4.2

3. Response to Submissions

This section responds to the issues raised by regulatory agencies regarding MOD 9.

3.1 Transport for NSW

3.1.1 Traffic

TfNSW noted that it appears that the origin of imported fill material is currently unknown, hence heavy vehicle volumes as related to east/west splits is also unknown. TfNSW recommended that, given the temporary nature of the works (12 months), Variable Message Signs (VMS) be installed in each direction on the New England Highway to advise motorists of "Turning Vehicles" and that haulage routes be detailed in any Environmental Management Plan (EMP) as they become known.

Response

LCO acknowledges TfNSW's recommendation for the installation of VMS. Subject to obtaining the necessary road occupancy approvals, VMS will be installed in each direction on the New England Highway to advise motorists of "Turning Vehicles" during the period of the proposed works.

Liddell will review the relevant EMPs in accordance with the development consent requirements. Where required, the relevant EMP(s) will be updated to incorporate confirmed haulage route details once the material suppliers have been determined.

3.2 NSW Department of Climate Change, Energy, the Environment and Water – Water Group

3.2.1 Water Management Plan

DCCEEW – Water noted that the information provided in the Modification Report was satisfactory and recommended post-approval measures. DCCEEW - Water requested that LCO update the Water Management Plan (WMP) to include the MOD 9 works, including any additional water supply infrastructure, an updated water balance, and groundwater monitoring for two years following completion of the Mod 9 backfilling works.

Response

LCO acknowledges the request from DCCEEW – Water Group and will revise and update the Liddell WMP to incorporate MOD 9 works, including details of the water supply infrastructure and any necessary changes to the water balance. LCO will continue monitoring water within the South Pit for a period of two years following completion of the backfilling works and include a monitoring program in an updated water management plan.

3.3 NSW Environment Protection Authority

3.3.1 Environment Protection Licence

The EPA advised that if MOD 9 is approved, prior to accepting coal ash at the premises, the Licensee will need to apply for, and be granted, a variation to the Licence to reflect the approval to accept the waste at the premises.

Response

LCO will apply for the necessary variation to its Environment Protection Licence (EPL) 2094 prior to accepting of coal ash (i.e., fly ash under MOD 9) at the premises. This will include amendments to enable the receipt and use of fly ash in accordance with relevant coal ash orders and in particular, the *Coal Ash Order 2014* and the *Eraring Ash Dam Coal Ash Order 2025* issued by the EPA, as applicable.

3.3.2 Coal Ash Exemptions

The EPA recommended that DPHI remind LCO of the requirement to use coal ash in accordance with the *Coal Ash Exemption 2014* (Exemption). In particular, condition 7.4.3 of the Exemption specifies that non-cementitious mixes must not be applied in or beneath water, including groundwater.

Response

Further to the commitments made in Table 13 of Section 6.6 of the Modification Report, LCO confirms that it is committed to complying with the requirements of the applicable coal ash exemptions, and further, that the use of coal ash (i.e., fly ash) will be limited to cementitious mix applications.

Noting that fly ash may be sourced from either Bayswater or Eraring power stations, LCO will comply with relevant coal ash exemptions, including meeting the material requirements under the *Coal Ash Order 2014* and the *Eraring Ash Dam Coal Ash Order 2025* respectively.

3.3.3 Greenhouse Gas

The EPA advised that it has started applying the principles in the *NSW Guide for Large Emitters* (GHG Guide) (EPA, 2025). The EPA advised that for future applications or modifications that may increase greenhouse gas (GHG) emissions, proponents will be required to ensure consistency with the principles in the GHG Guide. Modification applications are also required to provide an estimate of Scope 1 and Scope 2 GHG emissions and confirm if the modification is likely to emit more than 25,000 tonnes CO₂-e of Scope 1 and 2 emissions.

If emissions are estimated to exceed 25,000 tonnes CO₂-e, LCO will be required to prepare and submit a *Greenhouse Gas Assessment* and a *Greenhouse Mitigation Plan*, this approach is consistent with the GHG Guide.

Response

LCO has undertaken an assessment of the GHG emissions likely to result from MOD 9. The assessment, completed by Airen Consulting, was included in the *Air Quality and Greenhouse Gas Assessment* (AQGHG Assessment) appended to the Modification Report as *Appendix A*.

Section 3.5 of the AQGHG Assessment presented MOD 9's estimated GHG emissions and confirmed that emissions are expected to remain below 25,000 tonnes CO₂-e (Airen Consulting, 2025). A summary of these findings was also provided in Section 6.1.3.2 of the Modification Report (Xenith, 2025).

3.4 NSW Resources Regulator

3.4.1 Additional Information

The RR in its review of the Modification Report expressed a view that it focuses on the potential environmental impacts of the proposed works, with limited information on the likely effectiveness of the works to control the risk of subsidence affecting the rail line. The RR noted that while grouting of abandoned mine workings is an accepted industry practice to improve the stability of abandoned mine workings, it stated that the report did not provide sufficient detail to assess whether the works will achieve the outcomes required under Condition 37 of the development consent.

Further information is therefore required by the RR on how the proposed works will achieve the rehabilitation objectives, including the likely effectiveness in controlling the risk of subsidence.

Response

The remnant underground workings subject to the proposed backfilling program are associated with historical underground mining operations at Liddell which occurred many decades ago. No subsidence effects have been observed within the MNRL corridor to date and an assessment of these historical workings indicates that the current coal pillars are long-term stable.

Mine closure studies have identified that the coal pillars may reduce in size overtime as a result of external influences, such as spontaneous combustion.

The grouting works, which involve filling of select underground workings beneath and adjacent to the MNRL using fly ash–cement grout, are proposed to mitigate this potential risk. The filling program is designed to achieve this by:

- › Improving the pillar support within the workings;
- › Reducing the potential for strata movement that could impact the rail corridor; and
- › Reducing oxygen/air pathways and isolating remnant void space, thereby reducing the likelihood of progressive heating/oxidation processes and limiting the potential for localised deterioration of exposed pillar surfaces over time.

Backfilling (with fly ash grout) is technically feasible and aligned with long-term rail corridor performance objectives, subject to design, constructability, and Quality Assurance / Quality Control (QA/QC) frameworks. This process has been employed in numerous locations and situations to stabilise historical underground mining areas and has been successful.

The performance of the works (i.e. effectiveness in controlling subsidence risk to the rail line long term) will be confirmed against defined criteria and consultation with the RR following completion and monitoring of the works, including:

- › Grout strength;
- › Grout placement success through monitoring and reconciled grouting records;
- › Verification drilling and post-treatment monitoring to confirm grout placement;
- › Comprehensive as-built reporting; and
- › Future monitoring of the works.

3.4.2 Rehabilitation Completion Criteria Statement

The RR further noted that subject to approval of MOD 9, it is the expectation that the Rehabilitation Completion Criteria Statement will be modified to include rehabilitation completion criteria that set appropriate performance metrics to be met by the stabilisation works to ensure that the landform is stable, specifically in relation to the MNRL.

Response

LCO acknowledges that upon the approval of MOD 9, appropriate rehabilitation completion criteria for these stabilisation works in historical underground workings below the MNRL will be developed and submitted for the RR's review and approval in accordance with the requirements of the *Mining Act 1992*.

3.5 Muswellbrook Shire Council

3.5.1 Clarification on Public Infrastructure

MSC noted that Section 1.2 of the Modification Report states that LCO proposes targeted backfilling of remnant underground workings to alleviate any pillar failure risk and subsequent subsidence beneath the MNRL and public infrastructure.

MSC advised that further clarification should be provided regarding the specific public infrastructure referenced (e.g., roads, powerlines) and its location relative to the proposed works. An updated plan should be provided and referenced in any approval.

Response

In response to the Council's request for clarification, the proposed targeted backfilling of remnant underground workings is planned beneath the MNRL (managed by the Australian Rail Track Corporation (ARTC)) and other key public infrastructure, including the Ausgrid 132 kV transmission line and an optic fibre cable owned by Telstra. It is noted that, in general, both the transmission line and optical fibre cable are located within LCO-owned land adjacent to the MNRL.

Consultation with the relevant service providers has been undertaken, as documented in Table 3 of Section 5.1 of the Modification Report.

A revised Conceptual Modification Layout plan illustrating the location of this other public infrastructure in relation to the proposed backfilling activities is provided in **Figure 2**.

3.5.2 Fly Ash Source

MSC noted that Section 3.5 of the Modification Report states fly ash will be sourced from either Eraring Power Station or Bayswater Power Station. The Council indicated a preference for sourcing from Bayswater Power Station, given its closer proximity to the Project site, which would reduce heavy vehicle movements, haulage distances, and cumulative transport impacts on the regional road network.

Response

Further to the response provided to the EPA's comments in Section 3.3, LCO acknowledges MSC's comments regarding the source of fly ash for the proposed works. Eraring Power Station has been identified as the preferred source of fly ash materials as it better accommodates truck loading, associated machinery, and meets the daily supply requirements for the proposed activities. Bayswater Power Station remains a potential option to supply the required fly ash materials, and further evaluation will be conducted in line with any commercial and contracting considerations relevant to the supply arrangements.

4. References

- › Airen Consulting (2025). *Liddell Coal Operations Modification 9: Air Quality and Greenhouse Gas Assessment*.
- › Department of Planning, Housing and Infrastructure (2024). *State significant development guidelines – preparing a submissions report*.
- › NSW Environment Protection Authority (2025). *NSW Guide for Large Emitters: Guidance on how to prepare a Greenhouse Gas Assessment as part of the NSW Environmental Planning Processes*.
- › Xenith (2025). *Liddell Coal Operations Modification 9 – Modification Report*.

5. Abbreviations

Term	Definition
Approved Disturbance Area	Areas of existing and areas of approved surface disturbance at Liddell
ARTC	Australian Rail Track Corporation
CO ₂ -e	Carbon Dioxide Equivalent
DCCEE Water	NSW Department of Climate Change, Energy, the Environment and Water – Water Group
DPHI	NSW Department of Planning, Housing and Infrastructure
EMP	Environmental Management Plan
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
GHG	Greenhouse Gas
GHG Guide	NSW Guide for Large Emitters: Guidance on How to Prepare a Greenhouse Gas Assessment as Part of the NSW Environmental Planning Processes
Glencore	Glencore Coal Pty Limited
Grout	A cementitious mix of either coal ash or blended coal ash (referred to as “fly ash” in the Modification Report) mixed with general purpose cement and water
km	kilometres
LCO	Liddell Coal Operations Pty. Limited
Liddell	Liddell Coal Operations
MPa	Megapascal
MNRL	Main Northern Rail Line
MOD 9	Modification 9 to DA 305-11-01
NSW	New South Wales
Proposed Disturbance Area	Indicative locations where the proposed surface disturbance activities will take place.
QA/QC	Quality Assurance / Quality Control

Term	Definition
RR	NSW Resources Regulator within NSW Resources, a division of the Department of Primary Industries and Regional Development
Target Areas	The remnant underground workings targeted for backfilling comprising two locations; Target Area 1 and Target Area 2
TfNSW	Transport for New South Wales
TARP	Trigger Action Response Plan
UCS	Unconfined Compressive Strength
VMS	Variable Message Signs
WMP	Water Management Plan



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