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MINING, EXPLORATION & GEOSCIENCE ADVICE RESPONSE

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Dear Rose-Anne

Project: Boggabri Mine – Modification 8
Stage: Advice on Modification Report and Resource & Economic Assessment
Development Application: MP09_0182

I refer to your correspondence dated 16 August 2021 inviting the Department of Regional NSW – Mining, Exploration & Geoscience (MEG) to provide comments on the Boggabri Mine – Modification 8 (the Modification or Boggabri Extension), submitted by Boggabri Coal Operations Pty Limited (the Proponent).

The relevant units internal to MEG have been consulted in generating this advice.

Advice Overview

MEG considers the Modification will provide an appropriate return to the NSW Government including around $496 million in total royalties (current dollars).

Parameter	$m (2021 dollars)
Total royalties received	1,700
Net Present Value (NPV) royalties (7% discount rate, real)	203
Annual estimated royalties (average)	40 (Approximate)

In addition, the Modification will:

- generate on average 620 full-time equivalent (FTE) continuing jobs during operations from 2033 to 2039. The mine would also employ an additional 100 FTEs during the 2023 to 2032 period
- produce coal to the value of around $6.2 billion in current dollars, with the NPV of this revenue stream at around $2.5 billion.

If approved, the additional export income from the Modification would contribute to around A$18 billion (2019-2020 financial year total) of coal exports annually from NSW, which represents around 45 percent of the state's merchandise goods exports.

The Boggabri Extension is considered to be an efficient use of resources. If the Modification does not proceed the economic and social benefits outlined above will not be realised.

Resource and Economic Assessment

The Boggabri Coal Mine is an existing open cut coal mining operation situated in the Gunnedah Coalfield. The Boggabri Coal Mine is located approximately 15 kilometres northeast of Boggabri, within the Narrabri Shire Council Local Government Area, in the North West Slopes and Plains region of New South Wales. The mine extracts coal from the Maules Creek Coal Measures.

The proposed Modification, if approved, will increase the maximum depth of extraction at the Mine, increase annual Run of Mine (ROM) coal production, extend the life of mine by six years, and construct a fauna movement crossing over a haul road.

The Boggabri Extension will remain within the currently approved mine disturbance footprint and support the extraction of 61.1 million tonnes (Mt) of additional coal by deepening part of the pit floor to access lower coal reserves down to the Templemore Coal Seam. The Templemore Coal Seam is the lowest seam in the Maules Creek Coal Measures within this area. Two additional local seams are present in the mine area, but these are uncorrelated and discontinuous seams that are not feasible to mine.

The Modification would:

- extend the life of mine from 2033 to 2039
- increase production rate from 8.6 million tonnes per annum (Mtpa) to 9.1 Mtpa
- extract an additional 61.1 Mt of ROM coal
- extract an additional 57 Mt of product coal.

The Boggabri Extension will not result in changes to existing and approved infrastructure, site access, coal processing, transport, and rehabilitation at the Boggabri Coal Mine.

The Proponent has completed resource and reserve estimations for the Modification in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC code). The JORC Code is an industry-standard professional code of practice that sets minimum standards for public reporting of mineral exploration results, mineral resources and ore reserves. Reserves are the economically mineable portion of a resource. A JORC compliant reserves report assists in independently assessing the commercial viability of the Modification and the proposed mining method.

In view of the constraints outlined in the Proponent's Modification Report and based on the information currently available, MEG considers that the Boggabri Extension is consistent with the objects of the *Mining Act 1992.* In accordance with clause 15 of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007, the Modification represents an efficient development and utilisation of minerals resources which will foster significant social and economic benefits.

MEG is satisfied that, should the operational outcomes be achieved, the proposed mine design and mining method submissions adequately recover resources and will provide an appropriate return to the state.

The resource utilisation, recovery and economic benefits assessment undertaken by MEG is addressed in Attachment A.

Application of section 380AA of the *Mining Act 1992* – restrictions on planning applications for coal mining and titles required to undertake mining

Coal is a prescribed mineral under the Act and the Proponent is required to hold appropriate mining titles from MEG to undertake mining.

Section 380AA states:

> *(1) An application for development consent, or for the modification of a development consent, to mine for coal cannot be made or determined unless (at the time it is made or determined) the applicant is the holder of an authority that is in force in respect of coal and the land where mining for coal is proposed to be carried out, or the applicant has the written consent of the holder of such an authority to make the application.*
>
> *(2) For that purpose, an authority in respect of coal need not be in force in respect of the whole of the land to which the application for development consent relates but must be in force for the land where mining for coal is proposed.*

Based on current title information MEG advises that the Proponent holds the appropriate titles as required for planning applications for coal as relating to the Modification and satisfies the requirements of section 380AA.

The requirement for a mining authority and royalty liability

The requirement for a mining lease

As coal is a prescribed mineral under the Act, the Proponent is required to hold appropriate mining title(s) allowing for mineral extraction, such as a mining lease, to undertake mining.

The mining and prospecting activities under the currently approved MP09_0182 are located within Coal Lease 368 (Act 1973) (CL 368) and Authorisation 344 (Act 1973) (Auth 344). Based on current title information MEG advises that the Proponent holds the appropriate titles as required for mineral extraction (coal). This satisfies the requirements of sections 5 and 73 of the Act within the limits of CL 368, including the additional depth requirements of the Modification.

MEG notes that the Proponent has lodged a mining lease application over Auth 344. Mining Lease Application 586 (Act 1992) will cover the already approved operations within MP09_0182 and the additional depth sought as part of the Modification.

Royalty Liability

The holder of a mining lease is also liable to pay a royalty for both publicly and privately-owned minerals (refer to section 282-285 of the Act).

Application of section 65 of the *Mining Act 1992* – development consents under the *Environmental Planning and Assessment Act 1979*

A development application under the *Environmental Planning and Assessment Act 1979* must be approved before a mining lease can be granted. A mining lease will only be granted for activities specified in the development consent.

Section 65 states:

> *The Minister must not grant a mining lease over land if development consent is required for activities to be carried out under the lease unless an appropriate development consent is in force in respect of the carrying out of those activities on the land.*

Biodiversity offset assessment

MEG requests that the Proponent consider potential resource sterilisation should any future biodiversity offset areas be considered. The Proponent must consult with MEG and any holders of existing mining or exploration authorities that could be potentially affected by the proposed creation of any such biodiversity offsets, prior to creation occurring. This will ensure there is no consequent reduction in access to prospective land for mineral exploration or potential for the sterilisation of mineral and extractive resources.

Summary of review

MEG considers that should the Modification be approved; efficient and optimised resource outcomes can be achieved.

MEG requests that it be provided with an opportunity to review the draft conditions of approval before finalisation and any granting of development consent.

For enquiries on this matter, please contact Adam Banister, Senior Advisor – Industry Development on 02 4063 6972 or assessment.coordination@planning.nsw.gov.au.

Yours sincerely

Anthony Keon
Executive Director Strategy, Performance & Industry Development
Department of Regional NSW – Mining, Exploration & Geoscience
31 August 2021

Encl. – Attachment A – Boggabri Mine Modification 8 – Resource & Economic Assessment (DOC21/710301)

Agency update

Please note Mining, Exploration and Geoscience recently incorporated the Resources Regulator to form a larger agency. Advice will continue to be provided separately reflecting functional responsibilities. The Industry Development Directorate provides information and advice on mineral resource and mine development and mining title requirements. Matters relating to subsidence, subsidence management, mine operator, safety, rehabilitation and environmental impacts of final landform design should be referred to the Resources Regulator.

Mining, Exploration & Geoscience

Boggabri Coal Mine – Modification 8

Resource & Economic Assessment

August 2021

Published by the Department of Regional NSW

nsw.gov.au/RegionalNSW

Title: Boggabri Coal Mine – Modification 8

Subtitle: Resource & Economic Assessment

File reference: DOC21/710301

More information

Assessment Coordination Unit, Industry Development – Mining, Exploration & Geoscience
assessment.coordination@planning.nsw.gov.au or 02 4063 6534

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Executive summary

Determination

Mining, Exploration and Geoscience (MEG) assessed the Boggabri Coal Mine – Modification 8 (the Modification) and considers the Modification will provide an appropriate return to the NSW Government including:

- around $496 million in total royalties (current dollars).

Parameter	$m (2021 dollars)
Total royalties received	1,700
Net Present Value (NPV) royalties (7% discount rate, real)	203
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In addition, the Modification will:

- generate on average 620 full time equivalent (FTE) continuing jobs during operations from 2033 to 2039. The mine would also employ an additional 100 FTEs during the 2023 to 2032 period
- produce coal to the value of around $6.2 billion in current dollars, with the NPV of this revenue stream at around $2.5 billion.

The Modification is considered to be an efficient use of resources.

If approved, the additional export income from the Modification would contribute to the around A$18 billion (2019-2020 financial year total) of coal exports annually from NSW, which represents around 45 percent of the state's merchandise goods exports.

If the Modification does not proceed the economic and social benefits outlined above will not be realised.

The Modification

Boggabri Coal Operations Pty Limited (the Proponent), has submitted a Modification for planning approval 09_0182 for the Boggabri Coal Mine. The proposed Modification, if approved, will increase the maximum depth of extraction at the Mine, increase annual Run of Mine (ROM) coal production, extend the life of mine by six years, and construct a fauna movement crossing over a haul road. The Modification will remain within the currently approved mine disturbance footprint of the Mine.

The Modification would support the additional extraction of 61.1 million tonnes (Mt) of additional coal by deepening part of the pit floor to access additional coal reserves down to the Templemore Coal Seam.

The Modification also proposes the construction of a specifically designed fauna movement crossing over a haul road, between the overburden emplacement area and the western side of a regional biodiversity corridor. The establishment of the fauna movement crossing is proposed to improve the movement of fauna from the Leard State Forest through the southern rehabilitation area.

The Modification would:

- extend the life of mine from 2033 to 2039
- increase production rate from 8.6 million tonnes per annum (Mtpa) to 9.1 Mtpa
- extract an additional 61.1 Mt of ROM coal
- extract an additional 57 Mt of product coal.

The Modification will not result in changes to existing and approved infrastructure, site access, coal processing, transport, and rehabilitation at the Boggabri Coal Mine.

Introduction

State significant development is regulated under the *Environmental Planning and Assessment Act 1979*, which requires a proponent to apply to the Department of Planning, Industry and Environment for development consent, supported by a Modification Report (MRT).

This Resource & Economic Assessment (REA) conducted for the Boggabri Coal Mine – Modification 8 by MEG assessed:

- the social and economic benefits to NSW including royalties, capital investment, revenues and jobs
- the resource/reserve estimates stated in the proponent's MRT
- if the Proposal is an efficient development of the resource, that resource recovery is optimised and waste minimised.
- if the Proposal will provide an appropriate return to NSW.

The objects of the *Mining Act 1992* are to encourage and facilitate the discovery and efficient development of mineral resources in NSW.

Of particular relevance to this REA are the Section 3A Objects:

- to recognise and foster the significant social and economic benefits to NSW that result from the efficient development of mineral resources
- to ensure an appropriate return to the State from mineral resources.

The relevant section of the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 is Part 3, Clause 15: Resource Recovery, which requires that resource recovery is efficient, optimised and minimises waste.

Modification overview

Current mine history and ownership

The Boggabri Coal Mine is an existing open cut coal mining operation situated in the Gunnedah Coalfield. The Boggabri Coal Mine is located approximately 15 kilometres northeast of Boggabri, within the Narrabri Shire Council Local Government Area, in the North West Slopes and Plains region of New South Wales. The mine extracts coal from the Maules Creek Coal Measures.

The Boggabri Coal Mine was initially approved in 1989, to extract 5 Mtpa product coal over 21 years until November 2011, under DA36/88 and DA79/1443. Coal production commenced in 2006. The consent was subsequently modified, including a two-year extension of operations to December 2013.

In 2012, approval was granted under Part 3A of the Environmental Planning and Assessment Act 1979 (09_0182) to continue open cut mining at the Boggabri Coal Mine at 7 Mtpa product coal for a further 21 years. Planning approval 09_0182 has subsequently been modified 7 times, and currently allows the extraction of 8.6 Mtpa ROM coal until 31 December 2033 and transport up to 10 Mtpa of product coal. It also allows the processing of 4.2 Mtpa ROM coal, combined with Tarrawonga Mine. The remaining ROM coal is bypassed.

Approval 09_0182 allows mining to the Merriown Coal Seam of the Maules Creek Coal Measures. The total coal recovery planned over life of mine is 145 Mt ROM and 135 Mt product coal, mined to a depth of 180 m below surface. Current operations utilise truck and shovel extraction, however planning approval 09_0182 does allow extraction via dragline.

The proposed Modification

The Modification seeks approval to increase the approved maximum depth of mining down to the Templemore Coal Seam, which will result in the recovery of an additional 61.6 Mt of ROM coal over the life of mine within the currently approved mine disturbance boundary. The additional recovery will result in an extension of the mine life by six years. The Modification also proposes to increase the allowable annual ROM coal production from 8.2 Mtpa to 9.1 Mtpa. The Modification is considered to be an efficient use of resources.

The Modification does not propose any changes to the approved mine disturbance area, infrastructure and access, hours of operation, processing, or rehabilitation strategy under approval 09_0182. The Modification also does not propose any changes to the approved rate of ROM coal processing and product railed from the mine, however, may result in a minor addition to the height of the final landform.

The Modification, if approved, would support the continued employment of the existing Boggabri Coal Mine workforce. It is estimated the Modification will support the employment of 620 FTE staff between 2022 and 2039, with a peak of 770 FTE.

MEG notes that this REA has been undertaken in accordance with commercial-in-confidence resource and mine schedule data supplied by the Proponent.

The Modification would support the following activities and development:

- increased open cut extraction within the existing disturbance boundary of Boggabri Coal Mine by mining of additional deeper coal reserves via truck and shovel, to a maximum depth of up to 380 metres
- minor increase in the currently approved maximum production rate (of 8.6 Mtpa) to 9.1 Mtpa of ROM coal in the maximum production years schedule
- additional 6 years of mining to end 2039

- employment of 620 FTE (annual average) between 2022 and 2039, with a maximum of 770 FTE over this period
- reconfiguration of the mining fleet and workforce
- minor changes to the final landform design.

Size and quality of the resource

The Modification proposes to continue mining the Maules Creek Coal Measures. Coal seams currently extracted at the Boggabri Coal Mine include the Herndale, Onavale, Teston, Thornfield, Braymont, Bollol Creek, Jerralong and Merrriown seams. The Modification proposes to increase the approved maximum depth of mining down to the Templemore Coal Seam, to recover an additional 61.6 Mt ROM coal from the Velyama, Nagero, Northam, Therribri, Flixton, Tarrawonga and Templemore seams.

The proposed average overburden to coal stripping ratio remains generally consistent to that currently achieved at an average of 8.1 bank cubic metres (bcm) of overburden removed to each tonne of ROM coal recovered.

The Proponent has completed coal resource and reserve estimation for the Boggabri Coal Mine in accordance with the Australasian Code for Reporting Exploration results, Mineral Resources and Ore Reserves (the JORC Code). The JORC Code is an industry-standard professional code of practice that sets minimum standards for public reporting of mineral exploration results, mineral resources and ore reserves.

The Boggabri Coal Mine currently produces three products: export thermal, Pulverised Coal Injection (PCI) and semi soft coal. The quantity of semi soft and PCI product varies, and the remaining coal is sold as an export thermal coal product. Coal produced at the Boggabri Coal Mine is generally washed and transported via the Boggabri Rail Spur to the Port of Newcastle for export.

The ROM coal proposed to be recovered from deeper seams under the Modification is expected to produce a higher energy (averaging 7,051 kcal and 3.4 CSN), lower ash (averaging 10%) premium product coal than what is currently produced at Boggabri Coal Mine. The proposed average product of the Modification is.

- Thermal export coal (63%)
- Pulverised Coal Injection (PCI) export coal (13%)
- Semi Soft export coal (24%)

It is proposed that the Modification will produce approximately 32 Mt thermal product coal, and 25 Mt of PCI / semi soft coking coal product.

A review of coal quality data confirms the proposed product quality, target export market split, and yield are achievable. MEG has verified that the Modification proposes to extract about 61.6 Mt of ROM coal, and 57 Mt of product coal, with an average yield of approximately 92%.

Under the proposed Modification, up to 4.2 Mtpa of ROM coal will continue to be processed via the Boggabri Coal Mine Coal Handling and Preparation Plant (CHPP), with the remaining ROM coal bypassing the CHPP. Product coal will continue to be transported from the site via rail at a rate of up to 8.6 Mtpa for sale to the export market.

The mine plan proposed by the Proponent, if approved, has a cumulative 143 Mt ROM coal and 132.3 Mt product coal for the existing Boggabri Coal Mine and the Modification when combined. The Modification alone, if approved, will produce an additional 61.6 Mt of ROM coal on top of the coal that will be produced from the Boggabri Coal Mine over the remainder of operations.

Resource recovery

The Proponent assessed options for the extraction at Boggabri Coal Mine, and determined the Modification is the most appropriate extraction of these coal resources. Many factors constrain a mine plan and extraction methodology and therefore the resource recovery. These include geological features, environmental constraints, and commercial viability.

Continuing to mine the coal resources in the Modification area will optimise recovery of coal within the existing disturbance footprint of the Boggabri Coal Mine. The Templemore Coal Seam is the lowest coal seam in the Maules Creek Coal Measures within this area. Two additional local seams are present in the mine area, but these are uncorrelated and discontinuous seams which are not feasible to mine.

After examining the Proponent's MRT, MEG considers the Modification an efficient development of coal resources that provides an appropriate return to the State, within the mine footprint, giving due consideration to the geological constraints of the location.

Economic benefits of the resource

Over the life of the Modification, around two thirds of production would be sold on the export thermal market, with the remaining one third sold on the export metallurgical market. This is an increase in the proportion of metallurgical coal produced from the existing operation due to the extraction of a suite of seams down to the basal Templemore seam. These seams in general have additional coking properties to those being extracted at the Boggabri mine. MEG has estimated that the value of the coal produced would be around $6.2 billion in current dollars, with the net present value of this revenue stream at around $2.5 billion at a real discount rate of seven percent.

If approved, the additional export income from the Modification would contribute to the around A$18 billion (2019-2020 financial year total) of coal exports annually from NSW, which represents around 45 percent of the state's merchandise goods exports.

The Modification, if approved, would provide significant additional full-time operational jobs from 2023 to 2039, compared to the current approved Boggabri mine. Without this Modification being approved the current mine would close in 2033. The Modification would allow the mine to continue to 2039. During the 2033 to 2039 period the Modification would employ a maximum of 620 full time equivalent personnel. The Modification would also employ more personnel during the 2023 to 2032 period, with a maximum of around 100 additional jobs during this period. MEG estimates at the maximum years of additional employment, that these direct mine jobs would result in an additional 2,400 indirect jobs in both mine and non-mine related services.

MEG notes from the Economic Assessment prepared by the Proponent's economic consultant (Gillespie Economics) that the Modification would deliver a net social benefit to NSW in NPV terms of A$240 million and $293 million to the Australian economy.

Gillespie Economics also estimates that total direct and indirect annual effects from the Modification to the local economy between 2023 to 2039 are as follows:

- $1,259 million in output
- $885 million in value added
- $153 million in gross wages.

Royalty calculation

Assumptions

The Modification is a proposed open cut mine; therefore, a royalty rate of 8.2 percent applies to all saleable production. This rate applies to the net disposal value. Net disposal value is the price received per tonne minus any allowable deductions. The main allowable deduction is for coal beneficiation. As around 50% of ROM coal from the Modification would be subject to the full washing cycle, with the remainder to bypass the CHPP, therefore, a deduction of A$2.00 per tonne from the value of coal produced applies. A deduction for levies also applies which would amount to no more than A$1.00 per tonne. Hence allowable deductions for royalty for the Modification of A$3.00 per tonne are applicable.

The majority of coal from the Modification (63%) is expected to be sold into the export thermal market, the remainder (37%) is expected to be sold on the export metallurgical market. A review of coal quality information by MEG suggests this is achievable.

Coal price forecasting is inherently difficult and over the Modification life variations in coal prices are expected. The following average export coal prices from the Modification have been used by MEG:

- Around an average of A$100 per tonne for the export thermal product
- Around an average of A$130 per tonne for the export metallurgical products.

MEG has estimated that if the Modification is approved, around 57 Mt of product coal would be able to be economically mined from the Modification over the Modification life. This is over and above the total to be sold based on current approvals.

Total royalties estimate

Using the above assumptions and parameters, MEG has calculated that the State will receive:

Parameter	$m (2021 dollars)
Total royalties received	496
Net Present Value (NPV) royalties (7% discount rate, real)	203
Annual estimated royalties (average)	40 (Approximate)

Departmental Assessment

Assessed by	Unit	Branch
Assessing Officer: Erin Holmes Senior Geologist – Coal Resource Assessment	Geoscience Assessment & Advice (GAA)	Geological Survey of NSW
Assessing Officer: Bryan Whitlock Senior Resources Analyst	Resource Economics	Strategy, Performance & Industry Development
Assessing Officer: Adam W. Banister Senior Advisor	Assessment Coordination Unit – Industry Development	Strategy, Performance & Industry Development

Approvals

Approved by	Signature	Date
Approving Officer: Dr Kevin Ruming Director Strategic Geoscience Assessment & Advice	Approved in CM9	31/08/2021
Approving Officer: Kristine Erzikov Director Resources Policy	Approved in CM9	30/08/21
Approving Officer: Chris Celovic Director Industry Development	Approved in CM9	01/09/2021
Endorsing Officer: Anthony Keon Executive Director Strategy, Performance & Industry Development	Approved in CM9	01/09/2021