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Dear Paul

Hume Coal Project & Berrima Rail Project - Environmental Impact Statement Review

Thank you for your correspondence of 31 March 2017 inviting the Division of Resources & Geoscience (the Division) to comment on the Environmental Impact Statement (EIS) for the Hume Coal Project & Berrima Rail Project (the Project) submitted by Hume Coal Pty Limited (the Proponent).

The Division has reviewed the EIS with regard to the *Mining Act 1992* (the Act) and economic benefits, resource recovery and utilisation of the proposal (**attachment A**).

The Project incorporates existing Authorisation 349 (Act 1973) held by the Proponent and applications MLA 527, MLA 528 and MLA 529 (Act 1992) have been submitted by the Proponent. Under the Act, these MLAs cannot be granted until development consent for the Project has been approved.

The Division views that the Secretary's Environmental Assessment Requirements (SEARs) have been adequately addressed and notes that the Project's rehabilitation outcome currently results in lower status land value, for 58 hectares, than that of pre-mining.

Therefore, the Division requires the Proponent to further address the following to demonstrate that sustainable rehabilitation outcomes can be achieved as a result of the project:

- The Proponent should provide further justification for the proposed reduction in Land and Soil Capability (LSC) for approximately 58 hectares of land subject to disturbance associated with establishment of surface facilities. Specifically, the identified 3 hectares of Class 3, 37 hectares of Class 4 and 18 hectares of Class 5 pre-mining land will be returned to lower quality Class 6 land at the end of the Project.

The Proponent should consider and assess options to increase the post mining LSC in the areas where this will decrease, as well as to assess any other options which will result in no net loss of agricultural land value as a result of the project. This may include consideration of offsets.

It is noted in the EIS that a biodiversity offset strategy will be submitted to DPE within 12 months of development consent being granted and this strategy will potentially include offset areas impacting on other resources (sterilisation). The Division requires consultation with the Proponent in development of the offset strategy prior to submitting offset plans to for approval.

Should you have any further questions in relation to this matter, please contact Zane West, Manager Royalties and Advisory Services on 02 4931 6771.

Yours sincerely

A handwritten signature in blue ink that reads "K Hargreaves".

11.7.17

Kylie Hargreaves
Deputy Secretary Resources & Geoscience

Encl.

Addendum A – Resource and Economic Assessment – Hume Coal



**Planning &
Environment**
Resources & Geoscience

Attachment A

Unit: Strategic Resource Assessment & Advice
Branch/Division: Geological Survey of NSW - Division of Resources & Geoscience
Subject: Hume Coal Project
Resource & Economic Assessment

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 and Environment for development consent, supported by an Environmental Impact Statement (EIS).

This Resource Assessment conducted for the Hume Coal Project (the Project) by the Division of Resources and Geoscience (DRG) is designed to review the resource/reserve estimates stated in a proponent's EIS and whether the Project will deliver significant social and economic benefits to NSW from the efficient development of the resource and that resource recovery is optimised and waste minimised. It is also to ensure an appropriate return to the State from developing the resource. As such DRG has conducted an independent calculation of the royalty to be generated over the life of the Project.

The objects of the *Mining Act 1992* (the Act) are to encourage and facilitate the discovery and efficient development of mineral resources in NSW. In particular, relevance to resource assessment;

Section 3A(a) "to recognise and foster the significant social and economic benefits to New South Wales that result from the efficient development of mineral resources", and Section 3A(d) "to ensure an appropriate return to the State from mineral resources".

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

The Project is owned by Pohang Iron and Steel Company (POSCO) Australia which is 100% owned by Pohang Iron and Steel Company, the fourth largest steel producer in the world. The Project is operated by Hume Coal Pty Ltd (the Proponent) a 100% owned subsidiary of POSCO. POSCO is also a joint venture partner in two coal operations in NSW, and therefore has a long historical association with the NSW coal industry.

The Project is located in the Southern Coalfield, on the south-western edge of the Permian-Triassic Sydney Basin near Berrima. The Southern Coalfield is one of the Sydney-Gunnedah Basin's five major coalfields and is the State's largest producer of high quality metallurgical coal (hard coking coal) used for steel production. There is a long history of underground coal mining in the Southern Coalfield, with five coal mines currently in operation and consistent total saleable production for the last five years of around 12 million tonnes per year. This represents around 6% of total NSW saleable production, making the Southern Coalfield the smallest producing coalfield in NSW.

Size and quality of the resource

The Division has verified that the Project will provide approximately 50 million tonnes (Mt) of Run-of-Mine (ROM) coal and approximately 40Mt of product coal over the project life. The Proponent has completed coal resource and reserve estimation for the Project 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 minerals exploration results, mineral resources and ore reserves.

The Project will be a new underground coal mine in the Southern Coalfield. A Coal Handling and Preparation Plant (CHPP) and all necessary infrastructure will be developed on-site to support the Project. Once operational, the life of the Project will be around 20 years. Approval is being sought to extract at a rate of up to 3.4 million tonnes per annum (Mtpa) of run-of mine (ROM) coal, which would provide up to 2.6 Mtpa of product coal.

There is a long history of underground coal mining in the Wongawilli Seam in the Southern Coalfield, such as at the adjacent Berrima Mine and from mines in the Illawarra (Dendrobium Mine and Wongawilli Colliery). The coking coal fraction of the Wongawilli Seam is typically blended with the Bulli Seam and is used locally for steel manufacture or sold to international coking coal markets. The Wongawilli Seam can be exported as a stand-alone product, but like most coking coal products is often blended with one or more products before utilisation. Approximately 90% of coal produced from the Southern Coalfield is sold into coking coal markets.

The Project will produce one semi-hard coking coal product (54%) and one thermal coal product. The export coking coal product will be an around 10% ash content semi-hard coking coal product. The remaining middlings product has potential to meet export thermal coal markets as a 22% ash content high ash product, or meet domestic cement/power generation market specifications. The remaining CHPP reject will be emplaced underground into mining voids. A review of available coal quality information suggests the proposed product quality, market split and yield is achievable. Raw ash levels necessitate all ROM coal to be processed by a CHPP to meet the proposed market specifications. DRG considers that a total of approximately 40Mt of product (saleable) coal from the Project is feasible.

Resource Recovery

A number of factors constrain the mine plan, extraction methodology and therefore the resource recovery at the Project. These include geological, mining and

environmental constraints. The Proponent has considered a large variety of underground mining techniques and mine plans for the Project.

Mining techniques assessed included first and second workings techniques such as longwalls, miniwalls (at varying widths), pillar pocketing and plunge mining. The pine-feather system of underground coal mining was selected by the Proponent to optimise economic extraction with due consideration of constraints at the Project. The pine-feather system is a first workings underground mining technique and as such will have lower resource recovery than secondary extraction techniques such as longwall mining. First workings are typically utilised in projects where no surface subsidence is permitted.

Berrima Colliery is the closest mine in the area, which lays adjacent and to the north of the Project. Workings from the Berrima Colliery are less than 5km from the Project. The Berrima Colliery, which ceased operation in 2013, mined the Wongawilli Seam using bord and pillar first workings with pillar extraction second workings techniques.

The Wongawilli Seam in the Southern Coalfield ranges up to ten metres in thickness, with the economically mineable section occurring towards the base. The working section extracted at the Berrima Colliery ranged from 2.2m to 2.5m with a raw ash content of 28% to 33%. The economic working section extracted at Berrima Colliery is similar to that proposed by the Project. The Project working section will range up to approximately 3.5m thickness. In some areas Triassic strata have eroded the top of the economic section and working section heights reduce to around 1.5m. Throughout the Southern Coalfield the basal section of the Wongawilli Seam is recognised as the only economic section of the Wongawilli Seam when extracted underground.

The Permian, Wongawilli Seam is the only viable seam to economically mine in the Project area. The Bulli Seam which has a long history of production as a coking coal across the Southern Coalfield, has been eroded during the deposition of Triassic sediments. The American Creek and Tongarra seams underlie the target Wongawilli Seam at the Project, however they are too thin and/or too high in ash content to be commercially viable.

The Project proposes to extract coal using the pine-feather technique. Given the constraints outlined in the Proponent's EIS, DRG Strategic Resource Assessment & Advice considers the Project mine plan for underground operations to adequately recover coal resources and provide an appropriate return to the State, within the mine footprint, giving due consideration to the particular constraints of the location.

Subsidence impacts relating to pine-feather mining technique

DRG acknowledges that the pine-feather system of mining is untested in both NSW and Australia, and notes the commissioning of an independent expert mining engineering advice relating to the Project. It is recommended that subsidence predictions and effects be a consideration of the advice sought in relation to this mining technique. Principally, the construct and placement of fill and claims by the Proponent that near zero subsidence would result from using this mining technique be addressed in the advice.

Economic benefits of the resource

Over the life of the Project, assuming production is sold on the export coking market (54%) and the remainder on either the export or domestic thermal markets, the value of the coal produced would be worth around \$3.9 billion in current dollars. The net present value of this revenue stream has been estimated by DRG at approximately \$1.6 billion.

Export income is vital for the health of both the NSW and Australian economy, export income contributes to the Nation's balance of trade which provides positive benefits to both the NSW and Australian credit rating. This additional export income will contribute to the around \$13.2 billion (2015-16 total) of coal exports annually. Coal exports are by far the largest value export from NSW, representing around 25% of total NSW exports (both goods and services combined).

The Southern Coalfield is the smallest in NSW and as at June 2016 had five mines producing coal. In 2015-16 the Southern coalfield produced around 12 million tonnes of product coal, which was 6% of the State's total. The total number of mines in the Southern Coalfield has been in rapid decline over the past few decades and the region has not had a new green-field coal mine for many years.

If approved, the additional anticipated 50 million tonnes of ROM coal to be produced over 20 years from the Project would assist in ensuring the Southern Coalfield remains a part of the NSW coal industry.

In addition, the Project would contribute to the economic activity of the region through the expected creation of around 290 jobs at peak production. The majority of these roles are expected to be filled from Wingecarribee Shire and other surrounding areas.

Based on other mine projects, DRG believes the additional indirect employment within the region and in NSW as a whole from the Project could support a further 1200 positions. These would be roles in local businesses who supply the mining operations with a range of goods and services. Capital investment over the life of the Project could be of the order of \$650 million.

DRG also notes from the Proponent's EIS, (specifically the Economic Impact Assessment Report prepared by BAEconomics) that the following net economic benefits would result from the Project:

- net value added/NSW gross state product would be a direct benefit of \$295m
- net disposable income for the Southern Highlands region of \$85m

DRG also notes from the local effects analysis in the BAEconomics Report that the following employment related benefits would flow from the Project:

- disposable income (NPV 2016) of \$236m
- other, non-labour operating expenditure (NPV 2016) of \$643m

Coal royalty calculation

The Project is a proposed underground mine and as such a royalty rate of 7.2% applies to all saleable production, this rate is applicable 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 which is either; \$3.50 per tonne for coal subjected to a full washing cycle, or \$2.00 per tonne for coal subjected to a simple washing process, or \$0.50 per tonne for coal that is washed and screened. As all product coal from the Project will be subjected to a full washing cycle, a deduction of \$3.50 per tonne from the value of coal produced applies. A deduction for levies also applies which would amount to no more than \$1.00 per tonne. Hence allowable deductions for royalty for the Project would amount to \$4.50 per tonne.

One of the most important assumptions in the calculation of future Royalty for a coal proposal is the estimate of a future coal price over the life of a project. Coal from the Project is expected to be sold into the export coking market (54%) and either the export or domestic thermal markets. A review of coal quality information by DRG suggests this is achievable.

Coal price forecasting is inherently difficult and over the long term. An average coal price of around A\$120 per tonne over the life of the Project has been used for the export coking coal from the Project. An average price of around A\$70 per tonne for the thermal coal from the Project has been used by DRG, as some of the thermal coal from the Project will be sold into the domestic market the overall price of thermal coal from the Project is lower than expected future export thermal coal prices.

Another important aspect of future royalty calculation for a proposed coal project is estimation of future annual production. DRG has estimated that if the Project is approved, around 40 million tonnes of product coal would be able to be economically mined from the Project area from 2020 to 2040. The maximum rate of extraction would be around 2.6 Mtpa of product coal.

Using the above parameters DRG has calculated that in a typical full production year the State will receive around \$16 million per annum in royalty and \$270 million over the life of the Project. The net present value of this royalty stream would be \$110 million using a 7% real discount rate.