



06 AUG 2015

OUT15/19635

Mr Paul Freeman
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

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Dear Mr Freeman,

**Moolarben Coal Mine Stage 1 (MP05_0117 MOD 12) and
Moolarben Coal Mine Stage 2 (MP08_0135 MOD 2)
Proposed Modifications**

I refer to your email dated 1 July 2015 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment by DPI Water

DPI Water has reviewed the exhibited Environmental Assessment (EA) for the Moolarben Complex UG1 Optimisation Modification. Key comments are provided below and detailed comments provided in Attachment A for consideration in final determination of the project.

- The UG1 Longwall panels are within an area where surface water and water within the alluvial sediments are regulated under the *Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009*. The water sources relevant to the UG1 Optimisation Modification are the Upper Goulburn and Wollar Creek Water Sources. The proponent must commit to ensuring that Water Access Licences (WAL) are held for each water source and of the required category, representative with water take requirements of the operation.
- Clarification is requested as to the projected quantity of take from the Upper Goulburn Water Source over the mining operation life.
- Clarification is requested regarding the quantity of predicted surface water loss from both the Wollar Creek Water Source and the Upper Goulburn water source, as currently no unregulated category shares are held in either of these water sources.
- The proponent must develop the Water Management Plans and the Extraction Plan for UG1 in consultation with DPI Water. These plans should also detail the annual reporting requirements. It is recommended that the

Water Management Plan also specify that a section on compliance with the conditions of licences held under the *Water Act 1912* (WA 1912) and *Water Management Act 2000* (WMA 2000) be included in the Annual Environmental Management Report.

- The proponent must provide the *Moolarben Electrical Resistivity Mapping Using TEM and ERT, July/August 2014 – Final Report* (21 August 2014) by Groundwater Imaging Pty Ltd (2014). This is important to understand how the palaeochannel was defined.

For further information please contact Hannah Grogan, Water Regulation Officer (Newcastle West office) on 4904 2516 or at hannah.grogan@dpi.nsw.gov.au.

Agriculture NSW and Crown Lands advise no issues.

Yours sincerely



Kristian Holz
Director Policy, Legislation and Innovation

Attachment A

Moolarben Coal Mine Stage 1 (MP05_0117 MOD 12) and Moolarben Coal Mine Stage 2 (MP08_0135 MOD 2) Proposed Modifications Additional comments by DPI Water

1. Water Demands and Sources

The EA notes that as per WRM Water & Environment (2015) it is assessed that the UG1 Optimisation Modification will have negligible impact on the site water balance and the additional capture, from the Remote Service Facilities, able to be handled by the existing and proposed water management infrastructure. However the proponent must quantify the changes to the site water balance should the proposed modification be approved. This must also take into consideration variable climatic conditions. Should this already be demonstrated in the WRM Water & Environment (2015) review this should be provided for consideration.

2. Groundwater Impacts and Licensing

The lengthening of UG1 longwall panels to the north-east results in an increased proximity to alluvium associated with Wilpinjong and Murrumbidgee Creeks. There is potential that these increases will cause additional fracturing, however the increased height of the fracturing does not alter existing model configuration.

A groundwater modelling study has been undertaken to quantify the baseflow loss from Murrumbidgee and Wilpinjong Creeks and the induced leakage from the alluvium associated with Murrumbidgee and Wilpinjong Creeks and the Tertiary palaeochannel. This has demonstrated increased groundwater inflow rates for the modification compared to the Preferred Project Report (PPR), with peak groundwater inflow occurring in year 6 with approximately 529 ML or 1.45 ML per day (Appendix B – Table 2, Predicted Average Groundwater Inflow Rates). The proponent must clarify if this table includes groundwater inflow from water within alluvial sediments. It is noted that to minimise impacts on the palaeochannel, the proposed longwall take off lines are terminated short of the palaeochannel. Based on the Appendix B it is interpreted that none of the proposed extended longwall panels will pass beneath any water bearing palaeochannel sediments. However DPI Water requests that the report by Groundwater Imaging Pty Ltd (2014) be provided to understand how the palaeochannel has been defined.

Further information is requested regarding the water accounting system in Table 1 (Average Simulated Water Balance for the Moolarben Prediction Model) in Appendix B and how this corresponds with existing licences held by the proponent.

The additional licensing requirement of the modification from the Sydney Basin is up to 69 ML/y, which increase the total licensing requirement to 903 ML/y which is an increase from the pre modification licensing requirement of 834 ML. This increase is still within the range of the currently licensed entitlement held by Moolarben Coal Operations.

Comparatively, page 10 of the EA Appendix B states the cumulative baseflow loss from the modification for all impacted sub-catchments equates to an average of 1.1 ML/yr. The currently approved Moolarben Stage 2 has an average total baseflow loss of 40.4 ML/year. The proponent must demonstrate that they have sufficient water access licences to account for all baseflow loss. In the Wollar Creek Water Source the proponent holds WAL 36340 which is of aquifer category with a share component of 218. The proponent must identify the current use of this water access licence and whether a portion is used to reconcile loss of baseflow from the Wollar Creek Water Source.

The UG1 Longwall panels undermine the Wollar Creek water source and the Upper Goulburn water source. On page 33 of the EA it is noted that the changes to the licensing requirements for these water sources are 'negligible', these changes need to be quantified and the requirements adhered to. Further clarification is requested regarding licensing requirement from the Upper Goulburn Water Source.

It is recommended that the proponent update the Water Management Plan (WMP) for the site. This must be done in consultation with DPI Water. It is understood that draw down impacts up to 6.5 m are predicted in the Ulan Seam, with some drawdown to also occur in the overlying Permian coal measures. However it is assessed that no privately held bores will be impacted. It is however recommended that the WMP incorporate monitoring of groundwater level.

Section 1.2.3 of the Groundwater Modelling Assessment, by Hydrosimulations (2015) states that there are 70 registered bores within a 5km radius of the Moolarben Coal Complex which are not DPI Water monitoring bores or on land owned by the proponent. This should be depicted via a figure within the groundwater assessment.

The EA indicates that although open cut mining would have depressurised the Ulan Seam some advanced dewatering may be required to facilitate UG1 underground mining. As such the proponent is advised that any bores for the purpose of mine dewatering require a licence under Part 5 of the WA 1912.

3. Aquifer Interference Minimal Impact Considerations

The groundwater sources in this area are classified as less productive groundwater sources. The combined impact of the existing approved development and the proposed modification are within minimal harm considerations of the water table and water pressure.

4. Surface Water Impacts and Licensing

The Moolarben Coal Complex UG1 Optimisation Modification EA describes the surface water impacts in Appendix F. It is noted that the proposed Remote Services Facilities involves the removal of 5.2ha of Wilpinjong Creek catchment area or 0.3% of the total catchment area. The proponent must demonstrate whether this loss of catchment has been quantified in terms of surface water loss. It is noted that the proponent currently has no unregulated category WAL in the Water Sharing Plan for the Hunter Unregulated and Alluvial Water Sources 2009.

Additionally Figure 4.1 in Appendix F has mapped some watercourses, which are not defined in the legend, whilst other water courses have been excluded. For the purposes of conveying change in catchment area the proponent must include in both the map and legend all water courses as per the definition of a 'river' in the dictionary of the WMA 2000. Similarly Figure 7 in the EA does not show all watercourses within the UG1 area.

It is recommended that if approved the proponent review and update the WMP accordingly. This must occur in consultation with DPI Water.

5. Water Management Infrastructure

The EA indicates that 'a change to the general location of some sediment dams would be required.' DPI Water requests that the proponent provide further information detailing the proposed changes to water management infrastructure and sediment and erosion controls.

6. Subsidence and Extraction Plan

Appendix A of the EA details the subsidence assessment, which indicates that the proposed modification will increase subsidence over UG1. It is recommended that the instrument of approval require for the proponent to prepare an Extraction Plan in consultation with DPI Water. This Extraction Plan must monitor and mitigate the impacts of subsidence and include appropriate trigger action response plans. These plans must quantify the impact trigger and note timeframes for actions to be undertaken.

Section 2.3.2 of Appendix A states 'There are no rivers or creeks within the UG1 study area'. This statement is not consistent with the WMA 2000 definition of a river. The Glossary of this document does not define these terms, and as such the proponent must be aware that the WMA 2000 definition applies. Similarly drawing number MSEC731-08 in Appendix E includes in the legend drainage lines, water courses and rivers and creeks. The proponent should provide further information on how these were categorised in the context of the subsidence impact assessment and also how these were mapped, as this drawing does not correspond with DPI Water strahler stream order mapping. Additionally the proponent should ensure that use of this terminology remains consistent throughout the EA and its related appendixes.

It is also noted in section 2.3.2 that a high proportion of surface UG1 surface flows will be diverted whilst some will flow into the open cut areas. DPI Water will not require licensing of dirty water captured in dams from disturbed surfaces, whether those dams are inside or outside a mine pit, provided that:

- Construction is generally demonstrated to be best management practice, and the mine has been designed to minimise the volume of water that is required to be captured;
- Management of this water is in accordance with an Environmental protection Licence or other necessary statutory instruments;
- The dams are not located on a major stream; and
- The water does not come from a third order or higher stream.

The proponent must also ensure that if fracturing associated with the UG1 induces loss of water from the alluvium or surface water sources that this is accounted for via the appropriate WAL's. It is noted in section 5.2.2 in Appendix A that surface water flow into fractures would be influenced by rainfall. However the proponent must quantify this and ensure that a WAL is held in the impacted water source. DPI Water notes that the proponent currently holds no WAL in the Upper Goulburn Water Source.

End Attachment A