



OUT21/10772

Rose-Anne Hawkeswood
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NSW Department of Planning, Industry and Environment

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Dear Ms Hawkeswood

**Boggabri Coal Mine MOD 8 – Increase in depth of mining
(MP09_0182-Mod-8) (Narrabri Shire) EIS**

I refer to your email of 9 August 2021 to the Department of Planning, Industry and Environment (DPIE) Water and the Natural Resources Access Regulator (NRAR) about the above matter.

The proposed modification (MOD 8) involves increasing the depth of mining within the currently approved mine disturbance boundary.

On review of the Modification report, it appears that the proponent is proposing to modify the surface water management from what is currently approved at the site with respect to clean water diversion and surface water licensing.

As such, we require additional information from the proponent regarding:

- The management of surface water particularly the use of clean water diversions for the modification,
- surface water take requirements and the proponent's ability to account for this, and
- the potential to obtain sufficient surface water supply in drought conditions.

We also recommend that the proponent be required to submit the independent peer review of the Groundwater Model Report for review, in addition to the brief summary that is attached to the proposal.

Please note our detailed advice in Attachment A.

Any further referrals to DPIE Water and NRAR can be sent by email to landuse.enquiries@dpie.nsw.gov.au. or to the following coordinating officer within DPIE Water:

Liz Rogers – Manager Assessments
E: landuse.enquiries@dpie.nsw.gov.au
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Yours sincerely

Mitchell Isaacs
Chief Knowledge Officer
Department of Planning, Industry and Environment: Water
1st October 2021

Attachment A

Detailed advice to DPIE Planning & Assessment regarding the Boggabri Coal Mine MOD 8 – Increase in depth of mining (MP09_0182-Mod-8)

1.0 Water Supply and Licensing

1.1 Recommendations – Prior to Determination

That the proponent:

- provide further information on the capture of clean runoff from upstream of the pit and the limited proposal for clean water diversions and how this differs from what is currently approved. We recommend that clean water diversions be implemented wherever possible. If not possible an impact assessment on the downstream environment and water users is required.
- quantify the changes to surface water take including water take that is both exempt and water take that needs to be accounted for. Where it needs to be accounted for the proponent needs to demonstrate the ability to obtain sufficient entitlement.
- provide further information on the potential to obtain sufficient water from the regulated Namoi River via trading and supply to meet the additional demands during a drought period. An analysis of trading history and the operation of the regulated Namoi River in the most recent drought would assist.

1.2 Explanation

The description of the existing surface water management system in the modification report highlights the need for a review of surface water take by the Boggabri Coal Mine (BCM). Previously approved environmental assessments and the approved 2017 water management plan includes the requirement for clean water diversions which are not included in the current modification document.

Clean water diversions maintain runoff downstream which minimises impacts on the downstream environment and can reduce the potential water licensing requirements. It is recommended clean water diversions be implemented wherever possible. If this is not possible, justification is required and a further impact assessment requested to confirm any additional impact on the downstream environment and water users.

We note:

- that the modification report flags that the existing approved water management strategy will continue to be used to manage runoff which includes clean water being intercepted by mining operations (Appendix J, p13). The assessment also confirms that BCM is currently reviewing licensing requirements for this runoff including harvestable rights provisions
- We note that Figure 3.1 of Appendix J indicates that the 2021 water management system has a partial clean water diversion for one third order water course on the western edge of the mining area only. Whereas the approved surface water management plan (2017, Figure 3) shows the indicative layout of clean water diversions around the west, north and east of the mining area.
- Water take from third or higher order watercourses needs to be accounted for
- Harvestable Rights and any water license exemptions related to excluded works under Schedule 1 of the *Water Management (General) Regulation 2018* only apply to minor streams (first and second order watercourses).
- Clean water diversions that maintain water flow downstream without the need for storage will reduce the water take.

- that the proponent is likely to need to hold water entitlement for water take as BCM intercepts water from 3rd or higher order watercourses commencing from Nagero Creek unless it is effectively diverted or exemptions are applicable for works on minor streams.

The final void proposed by Mod 8 will also need to be considered for surface water licensing requirements and does not appear to have been addressed in the EIS. Modelling of the final void indicates that the capture and infiltration of surface water will provide additional recharge to groundwater or be lost to evaporation (Appendix J, p 28). This will require confirmation of the surface water take for wet, average and dry years and consideration of the applicability of Harvestable Rights and/or licensing requirements.

The water balance modelling (Appendix J, p23) indicated sufficient water will be available to meet water demands for average and wet conditions from existing sources and water entitlements held by the proponent. However, during drought conditions there will be a reliance on sourcing water from external sources such as the regulated Namoi River via temporary trading with existing licence holders or via additional bore water if available. With a modelled maximum additional requirement in drought conditions of almost 1600ML, this represents a significant volume to obtain which will be dependent on trading availability in the regulated Namoi system and may represent a risk to the project in severe drought periods noting that this modification seeks to extend the mine life by another six years.

In summary, insufficient information has been provided to confirm the changes to surface water take (exempt or licensable) due to the modification and the ability to acquire entitlement where necessary.

We note that existing water entitlements held by the proponent are adequate to account for the predicted increase in groundwater inflows caused by the project. Increases in water take are predicted in the groundwater sources of the Gunnedah Oxley Basin from 458ML/yr to 608ML/yr, the Upper Namoi Zone 4 alluvium from 78ML/yr to 109ML/yr and the Upper Namoi Zone 11 alluvium from 4ML/yr to 13ML/yr.

1.3 Recommendations – Post Determination

- The Water Management Plan be updated to reflect additional monitoring, metering and management measures to report on groundwater and surface water take and potential impacts to water sources due to the development. Where existing monitoring bores are to be impacted, suitable alternatives need to be installed with baseline data collection commenced prior to mining activities.
- The proponent should develop a water balance to measure actual water take from surface and groundwater sources, this should include accurate metering where possible. The water balance should be used in ongoing reviews of actual versus modelled water take and impact predictions. This will be a key component to confirm impact predictions, the adequacy of mitigating measures and compliance for water take.
- The proponent must report on water take at the site each year (direct and indirect) in the Annual Review. This is to include water take where a water licence is required and where an exemption applies. Where a water licence is required the water take needs to be reviewed against existing water licences.
- The proponent must ensure sufficient water entitlement is held in a Water Access Licence/s to account for the maximum predicted take for each water source prior to take occurring.
- The proponent must ensure that relevant nomination of work dealing applications for Water Access Licences proposed to account for water take by the project have been completed prior to the water take occurring.
- The proponent should be aware of and comply with the rules of the relevant water sharing plans.

1.4 Explanation

The amendments required to the final landform drainage works to address the 5m increase in height will need to include natural channel design criteria with the objective to ensure long term channel stability both on-site and off-site. This will need to be incorporated into a relevant management plan.

The erosion risk assessment of the final landform has indicated an increase in erosion risk in a small area of the site and erosion rates that generally exceed the stated acceptable criteria of 5t/ha/yr. It is recommended mitigating measures be developed to minimise erosion potential and associated impacts to watercourse stability and ecological functioning.

The predicted impact on 33 monitoring bores due to the increase in groundwater drawdown associated with the increase in mining depth needs to be considered in terms of the role of these bores in monitoring the impacts of groundwater take. Monitoring bores used to monitor groundwater level changes are critical to verify impact predictions and associated water take and for triggers to manage impacts to within approved limits.

The water balance for surface water and groundwater management at the site will need to be reviewed to ensure a comprehensive understanding of water take that enables a review against the water regulatory framework.

2.0 Groundwater impact assessment and modelling

2.2 Recommendation – Prior to Determination

That the proponent:

- submit the full independent peer review of the Groundwater Model Report completed by Associate Professor Claire Cote – University of Queensland.

2.3 Recommendation – Post Determination

That the proponent:

- incorporate floristic condition monitoring of the 'High Priority' GDE 'Black Tea Tree' mapped along Goonbri Creek into the post approval management plans. The plan must also define the management and mitigation responses.
- undertake a census of registered bore GW02523, and develop a 'make good provision' (should the work still exist).

2.4 Explanation

The groundwater impact assessment that supports the Environmental Assessment is a well-presented document satisfactorily addressing each of the Secretary Environmental Assessment Requirements (SEARs). However, with reference to the NSW Aquifer Interference Policy (2012) (AIP) there are three issues of note that will require further information:

- *Independent Peer Review* - The impact of the Mod 8 in the groundwater regime was assessed using a 3D numerical groundwater flow model developed to represent the cumulative impacts of the Boggabri, Tarrawonga and Maules Creek Complex (BTM Complex). The independent review submitted to support the application comprises a single page that references to the work completed but not the review itself. The single page states a more detailed submission has been provided from the author to the proponent. A copy of that submission is requested as it documents issues raised by DPIE Water/NRAR, amendments made to the current modelling report and remains a requirement under the AIP.
- *High Priority Groundwater Dependent Ecosystems (GDEs)* - Black Tea Tree (*Melaleuca bracteata*) is mapped along Goonbri Creek to the east of the mine lease boundary. The proponent has dismissed this vegetation community as a terrestrial GDE based on presence of this vegetation occurring in areas both within the 0-10m water table depth range, and in areas where water table greater than 10m which is the proponent's nominal depth cut-off threshold for groundwater dependence.

Groundwater modelling shows potential cumulative drawdown impacts greater than the AIP category 1 impact for this GDE. The vegetation community is mapped in the Water Sharing Plan for the Namoi Alluvial Groundwater Sources 2020 as a 'high priority GDE' and therefore afforded protective management under the *Water Management Act 2000* and the AIP. The proponent is required to manage potential impacts to 'High Priority' GDEs.

- *Water Census and Make Good* - Bore GW02523 is predicted to be a dry bore due to cumulative depressurisation. The groundwater impact assessment presents no information on this work and no investigation has been undertaken. The bore is over 50 years old and may no longer exist. A census should be undertaken and 'make good condition' apply if mining activities diminish water security for the registered holder.

End Attachment A