



OUT15/35992

Ms RoseAnne Hawkeswood  
Resource Assessments  
NSW Department of Planning and Environment  
GPO Box 39  
SYDNEY NSW 2001

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Dear Ms Hawkeswood,

**Tomingley Gold Mine Mod 3 (09\_0155 Mod 3)  
Response to exhibition of Environmental Impact Statement**

I refer to your email dated 18 November 2015 requesting advice from the Department of Primary Industries (DPI) in respect to the above matter.

Comment has been sought from DPI Water, Agriculture, Fisheries and Lands. Any further referrals to DPI can be sent by email to [landuse.enquiries@dpi.nsw.gov.au](mailto:landuse.enquiries@dpi.nsw.gov.au). DPI Lands, Agriculture and Fisheries advise no issues. DPI Water comments are provided below.

Comment by DPI Water

The Department of Primary Industries - Water (DPI Water) has reviewed the exhibited Environmental Assessment for the proposed modification to the Tomingley Gold Mine Project. The following key comments and recommendations are provided with detailed comments in Attachment A. Recommended conditions of approval are included in Attachment B.

**Key Comments**

- Water supply for the proposed modification relies predominantly on groundwater extracted near Narromine and rainfall/runoff collected at the site. Groundwater inputs from inflows at the site are predicted to significantly increase from 2018 when underground mining commences.
- The water balance relies on external trucked water of up to a maximum of approximately 70ML/yr. This water is to be sourced when the raw water dam is below 50% capacity. The percentage of time external water is required and the source of the water is not provided.
- The assessment indicates a further reduction in the clean water catchment of Gundong Creek by 26.5ha or 5%, which is within the existing mine site. This is predicted to result in a reduction in annual runoff volume of 10ML/yr which is considered in the assessment to be a negligible impact on downstream water users.
- The modification has included a revised groundwater impact assessment based on monitoring data and observations. This has predicted the

drawdown extent to reduce from 5600m in the original EIS to 2500m for the proposed modification.

- The groundwater inflow inputs in Table 5-6 of Appendix 3 differ to the groundwater inflows in the average annual water balance in Table 5-8.
- Section 5.2.2 of Appendix 3 indicates the average annual groundwater inflows are predicted to increase from 375ML/yr in 2020-21 for the approved operations up to 531ML/yr in 2020-21 for the proposed modifications.
- The assessment indicated a low risk of impact to groundwater quality due to acid rock drainage and saline drainage from the proposed filling of Wyoming Three open cut with waste rock. The report however has recommended further geochemical testing to confirm the impact prior to placement of the material. It needs to be recognised that if the further testing identifies a higher level of risk to groundwater quality this may require alternative management and mitigation methods.
- The groundwater impact assessment indicates impacts to water level, water pressure and water quality are to be within the limits approved as part of the original EIS. The impacts are not predicted to exceed the Level 1 Minimal Impact Considerations which is acceptable.

### **Recommendations**

- Assess the percentage of time external water is to be trucked to site and nominate the water sources and their reliability.
- The proponent makes a commitment to acquire the additional water entitlement required to account for the predicted increased groundwater take.
- The proponent contacts DPI Water to complete an application under the *Water Management Act 2000* to link a water access licence to account for groundwater take.
- The proponent confirms the groundwater entitlements required from the Lachlan Fold Belt groundwater source for the project. This is to include groundwater take from groundwater inflows, pumping from the aquifer and groundwater entrained in the resource.
- Quantify the amount of groundwater inflows post cessation of mining activities in 2021 up to and post when equilibrium is reached. All groundwater take post closure will need to be accounted for by adequate water entitlements.
- Provide viable management options to ensure stability of the proposed levee between the central clean water diversion and the WRE 3 dirty water drain.

For further information please contact Tim Baker, Senior Water Regulation Officer (Dubbo Office) on 6841 7403 or at [tim.baker@dpi.nsw.gov.au](mailto:tim.baker@dpi.nsw.gov.au).

Yours sincerely



Mitchell Isaacs  
**Director, Planning Policy & Assessment Advice**  
**18/12/2015**

## Attachment A

### Tomingley Gold Mine Mod 3 (09\_0155 Mod 3) Response to exhibition of EIS Detailed comments - DPI Water

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#### 1. Water Licensing

- The assessment refers to a 220 unit share water entitlement in Water Access Licence 28643 to account for part of the predicted groundwater take at the site. DPI Water advises this WAL is not currently linked to the Tomingley Gold Project to account for the current or predicted take. Additional entitlement will also need to be purchased in the Lachlan Fold Belt water source to account for groundwater take that exceeds 220ML/yr. The proponent is recommended to contact DPI Water to confirm the water licence requirements.
- The groundwater inflow inputs in Table 5-6 of Appendix 3 differ to the groundwater inflows in Table 5-8.
- Groundwater take at the site includes groundwater that flows directly into a void or is pumped from an aquifer, in addition to groundwater that is entrained within the resource that is removed. The proponent needs to ensure the maximum annual take from all these sources are adequately considered in determining the entitlement requirements.
- Groundwater take after mining has completed will need to be accounted for. This may occur via groundwater inflow during the period of groundwater recovery until equilibrium is reached and post equilibrium as a result of groundwater inflow replacing water loss from evaporation.

#### 2. Groundwater Assessment

##### 2.1 General

Modifications (addition of a new Caloma 2 open cut mine on the eastern side of the Newell Highway, new underground workings beneath the existing Caloma 1 open cut and backfilling of the existing Wyoming 3 open cut) to the Tomingley Gold Mine are detailed as having no additional impact to the local groundwater system and its users.

The new open cut Caloma 2 pit (when at its maximum depth will be 170m AHD, or 100m below existing ground level) and the proposed underground workings beneath Caloma 1 (entrance portal and decline at 140m AHD) are detailed as having no additional impact to the groundwater resource in terms of both pit and void inflows and seepage, and the radius of drawdown as a result of mine dewatering. Impacts to existing groundwater users are negligible as users (1 irrigation, 4 basic rights) within the previously approved 5.6km drawdown radius are seemingly accessing shallow water sources (assumed small scale local alluvial) in proximity to Gundong Creek.

Predicted drawdown radiuses have been updated to better represent a confined aquifer system (previously calculated in 2011 as being unconfined below a depth of 60m). Results infer a cumulative drawdown radius from the existing three open pits is lessened as a result of confining properties. With the proposed modification of the mine involving the backfilling of an existing open cut pit and the establishment of another, the predicted cumulative radius of drawdown remains within previously approved drawdown extents.

Predicted groundwater inflows have also been modified to reflect the confining properties of the intercepted fractured rock aquifer. As a result of the modification, groundwater inflows have been predicted to the completion of mining in September 2021. Predicted peak inflows are expected in 2017 for the three open cut mines, and 2021 for the underground workings.

As a result of the new underground mine, the total volume of groundwater inflow at the mine site is predicted to increase. Groundwater inflows after the completion of mining practices have not been detailed (inflows into voids and pit seepages post 2021) and the assessment has not

taken these flows into account. It is not known how long after mining, groundwater levels will return to pre-mining levels.

### **2.1 NSW Aquifer Interference Policy**

No nearby GDEs are present, and the drawdown interference is determined as being less than previously approved with local groundwater not impacted by the proposed modifications.

Exceedance of Level 1 minimal impacts are not expected as a result of the modification.

### **2.2 Groundwater Monitoring and Mitigation**

The existing network of groundwater monitoring bores at the mine site (drilled between November 2012 and May 2013) has established two years' worth of baseline data. The data collated has been used to assist in determining new confining properties of the intercepted aquifer and allowed for revised calculations of groundwater inflow and drawdown influence.

Mitigation of groundwater quality as a result of the backfilling of Wyoming 3 has been discussed in the assessment. Potential changes to the geochemistry as a result of acid rock drainage and acid forming samples have been identified. Geochemical testing is proposed prior to waste bedrock and overburden being placed into the pit void. Ongoing groundwater monitoring is proposed to confirm no significant changes to water quality are occurring as result of the emplacement. There is assumed to be no connectivity to the shallow local alluvial aquifer from which local groundwater users are extracting from, to the fractured rock groundwater source with which the mine intercepts.

### **3. Surface Water Assessment**

- Realignment of the clean water diversion and the dirty water diversion is proposed between the Caloma open cuts and WRE3. This raised potential risks in the EA associated with erosion of the diversion channel and overtopping of both the clean and dirty water channels due to altered flows. These risks are to be minimised by designing the central channel to convey the 100yr ARI critical duration storm event and the dirty water channel to convey the 20yr ARI critical duration storm event. Reinforced turf is proposed to manage potential erosion issues. DPI Water considers the ongoing management requirements for the turf, particularly the water requirements need to be considered for its long term stability. Consideration also needs to be given to alternate vegetation types suited to the local climate and soils.
- Figure 5-1 and 5-2 of Appendix 3 indicates a proposed batter slope of 1 in 2 for the levee between the central clean water diversion and the WRE 3 dirty water drain. DPI Water considers this slope will require significant stability work to minimise sediment generation and to ensure long term stability. It is recommended concept detail be provided on viable management options to stabilise the proposed levee. A minimum of 1 in 3 is generally recommended to enhance the ability to achieve long term stability with vegetation management measures.
- DPI Water supports the proposed design and implementation of erosion and sediment control measures in accordance with the guideline, "*Managing Urban Stormwater : Soils and Construction – Volume 2E Mines and Quarries*".

**End of Attachment**

## **Attachment B**

### **Tomingley Gold Mine Mod 3 (09\_0155 Mod 3) Response to exhibition of EIS Recommended Conditions of Approval - DPI Water**

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DPI Water requests the following conditions be included in any determination issued for the Tomingley Gold Mine Mod 3 Project:

1. The proponent shall revise the Water Management Plan in consultation with DPI Water prior to commencement of activities.
2. The proponent must obtain relevant licensing under the *Water Management Act 2000* before commencing any works which intercept or extract groundwater.

**End Attachment B**