Department of Primary Industries
Office of Water

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Department of Planning and Infrastructure
GPO Box 39
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Attention: George Mobayed

Our ref ER21225
Your ref 10_0191

Dear Mr Mobayed

Hera Gold Project (10_0191) – Exhibition of Environmental Assessment

I refer to your letter of 8 November 2011 requesting a review of the exhibited environmental assessment (EA) for the Hera Gold Project. The NSW Office of Water (Office of Water) appreciates the opportunity to comment and initially refers to previous correspondence issued by the Office of Water dated 22 August 2011 for the adequacy assessment.

The Office of Water provides this advice on the basis that the former legislative provisions under Part 3A of the *Environmental Planning and Assessment Act 1979* apply to this proposal.

On review of the exhibited EA the Office of Water recommends further assessment of critical issues and consideration of key points prior to determining the project. Detailed comments are provided in **Attachment A** and recommended conditions of approval shown in **Attachment B**. The key points include:

- Significant uncertainty is recognised in the groundwater modelling for the proposed underground groundwater interception during and post mining operations. Uncertainty therefore exists in the drawdown impact and the necessary licensed groundwater entitlement. Office of Water advises the proponent is currently restricted to a groundwater entitlement of 240ML/yr and any increase will require the purchase and trade of entitlement with further assessment.
- Although the Office of Water considers the modelling adequate for the groundwater environment and risks for this project it highlights the necessity for regular modelling reviews and a comprehensive monitoring program.
- An adverse impact is predicted to the standing water level of adjacent landholder's bores which must be monitored and mitigated.
- Office of Water recommends the proposed causeway for the main access road across Watercourse A be designed and constructed in accordance with the Office of Water's Guidelines for Controlled Activities. These guidelines can be accessed at the following link: http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx
- Office of Water recommends baseline monitoring comprise a comprehensive program to establish a thorough understanding of groundwater and surface water conditions prior to commencement of operations.
- Office of Water supports the commitment of a Water, Sediment and Erosion Control and Management Plan. Of key importance is the incorporation of management, monitoring and mitigation requirements for surface water and groundwater.

Should you have any further queries in relation to this submission please do not hesitate to contact Tim Baker on (02) 6841 7403 at the Dubbo office.

Yours sincerely

Mark Mignanelli
Manager Major Projects, Mines and Assessment
16 December 2011

ATTACHMENT A

DETAILED COMMENTS

1. WATER SUPPLY

- The EA indicates the water demands for the project (167ML/yr-processing, 20ML/yr-dust suppression) are to be obtained from a combination of surface water, groundwater and recycling. The Office of Water recognises the limitations of extended dry periods to surface water supply and supports the proposal to access groundwater as a secondary supply.
- In reference to Section 2.3 of the Groundwater Assessment, the Office of Water can confirm that YTC Resources has licensed entitlement of 240ML for groundwater take per year on the "Peak" property. The works that relate to this include 6 bores and one excavation associated with the proposed decline. The conditions on these licences require specific water level and water quality monitoring and include groundwater trigger levels in monitoring bores, which if reached would require mitigation measures.
- Any proposal by YTC to increase the groundwater entitlement on the "Peak" would require the purchase and trade of the required volume in addition to further assessment by Office of Water. Current restrictions would need to be adhered to.

2. GROUNDWATER ASSESSMENT

- Results of analytical modelling in the EA predict the groundwater inflow during decline development to increase from zero at 60m below surface to 4.6L/s at 200m below surface. This is predicted to increase to between 12L/s and 93L/s (378ML-2932ML/yr) at the end of mining operations at 550m depth, with a theoretical groundwater drawdown extent of 5880m and 15850m respectively. The EA however states that these inflows are likely to be less due to zero recharge boundaries and considers an inflow rate at end of mining of approximately 0.4L/s (12.6ML/yr) is more likely.
- Modelling after mining ceases indicates groundwater recovery to equilibrium would take between 20 and 100 years. However this may take longer where the boundary conditions in the rock strata are found to limit the lateral extent of drawdown impact. Licensed entitlement for the ongoing take of groundwater during recovery and for any evaporative losses replaced by groundwater would need to be retained at the site.
- The Office of Water recognises significant uncertainty exists in the groundwater modelling which needs to be considered in determining the acceptability of the assessment. The Office of Water considers the modelling adequate for the groundwater environment and impacts to be assessed for this project, in combination with the requirement for comprehensive monitoring and modelling reviews.
- Three registered bores licensed for stock use were identified on the Office of Water database within an 11km radius of the project site. These bores are within the predicted drawdown zone and the EA predicts an adverse impact to occur on standing water levels of the closest bores (GW017385 & GW017386).
- The groundwater assessment indicates the aquifer pumping test confirmed the ability to extract 466ML/yr from the existing borefield. The Office of Water advises that groundwater extraction at the project site has a maximum licensed entitlement of 240ML and any proposal to increase this would require purchase and a licence assessment.

3. SURFACE WATER ASSESSMENT

- Modelling of impacts to downstream flows due to the construction of a new dam at Back Tank East (90ML) and the expansion of Pete's tank (20ML) predicts a 3% reduction to the mean annual volume of discharges. No reduction in the frequency of flows was predicted. The Office of Water considers this reduction would not represent a significant impact to downstream users, the natural environment or surface water conditions.

- The Office of Water supports the proposal in the EA to construct sediment basins in accordance with the requirements of *"Managing Urban Stormwater: Soils and Construction, Landcom (2004)"*.
- The Office of Water advises the proposed causeway for the main access road across Watercourse A as referred to in Figure 1 and Section 3.2 of the Surface Water Assessment needs to be designed and constructed in accordance with the Office of Water's Guidelines for Controlled Activities.

4. MONITORING AND MITIGATION

- Baseline monitoring is critical to provide a clear understanding of natural conditions prior to commencement of activities. The Office of Water supports the proponent's intent to collect baseline data and recommends this be achieved through a minimum 12 months of monitoring with monthly sampling of water level and water quality. It would be expected that this is already occurring.
- Office of Water supports the concept of groundwater monitoring and a response plan to mitigate impacts to existing groundwater users. This is consistent with current licence requirements issued by Office of Water. Further to this it is recommended specific trigger levels for implementation of mitigation measures are included as detailed on current groundwater licences.
- The development of a groundwater and surface water monitoring network and response plan should be undertaken in consultation with the Office of Water. This must include the registered bores predicted to be impacted by drawdown due to the mine.
- Office of Water recommends the groundwater monitoring program extend to the groundwater dependent ecosystem associated with the shallow alluvium of Gundong Ck. This would require the inclusion of vegetation monitoring in addition to monitoring the shallow groundwater system.
- The Office of Water supports the proposal to line the TSF floor to prevent seepage of groundwater contaminants and potential degradation of groundwater quality. A permeability of no more than $1x10^{-9}$m/s is supported. Lining is also needed for the leachate collection pond and any other storages proposed to hold potentially contaminated water.
- The Office of Water recommends the proponent prepare a water management plan to address the surface water and groundwater management, monitoring and mitigating requirements. Office of Water supports the concept of an impact response protocol detailed in the EA for surface and groundwater management and recommends this be included within the water management plan. The identification of a groundwater dependent ecosystem associated with Gundong Ck will also need to be incorporated into the monitoring plan.

5. WATER LICENSING

- Additional monitoring bores will require licensing under the *Water Act 1912/Water Management Act 2000* (whichever is relevant) prior to installation.
- The proponent is currently licensed under the *Water Act 1912* for a groundwater entitlement of 240ML/yr. This total entitlement is attached to 6 groundwater bores, and one excavation which represents the proposed decline. Licence numbers include 85BL256001 (excavation), 85BL256002, 85BL256090, 85BL256091, 85BL256092, 85BL256093 and 85BL243254.

End of Attachment A
16 December 2011

Department of Primary Industries
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ATTACHMENT B

Recommended Conditions of Approval

- The proponent must ensure that it has sufficient water for all stages of the project to the satisfaction of the NSW Office of Water, and if necessary, adjust the scale of operations to match its licensed water entitlements.
- The proponent must prepare a Soil and Water Management Plan to address surface water and groundwater management. This plan is to be prepared in consultation with and to the satisfaction of the NSW Office of Water prior to commencement of activities.
- The proponent must obtain relevant licences to the satisfaction of the NSW Office of Water under the *Water Act 1912* for all groundwater works (including bores and piezometers) within the proposed site prior to the commencement of activities.
- The proponent must obtain relevant licenses to the satisfaction of the NSW Office of Water under the *Water Act 1912* for all activities which intercept or extract groundwater prior to commencement of these activities.

End of Attachment B
16 December 2011

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