

Rose-Anne Hawkeswood

From: Wayne Jones <wayne.jones@dpi.nsw.gov.au>
Sent: Friday, 11 September 2015 11:40 AM
To: Rose-Anne Hawkeswood
Cc: Water Referrals
Subject: Hera Gold Mine Modification 3 (PA 10_0191) EA

Hi Rose-Anne

Please see following draft DPI comments on the above project. Formal response will follow asap.

Regards
Wayne

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OUT15/24754

Ms Rose-Anne Hawkeswood
Resource Assessments
NSW Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

RoseAnne.Hawkeswood@planning.nsw.gov.au

Dear Ms Hawkeswood,

**Hera Gold Mine Modification 3 (PA 10_0191)
Response to exhibition of Environmental Impact Statement**

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

Comment by DPI Water

DPI Water has reviewed the Environmental Assessment in support of the proposed modification to the Hera Gold Project. The following comments and requests for further information are provided to assist in finalising the assessment of the project. Detailed groundwater assessment comments are provided in Attachment A.

The proposed modification includes the following:

- Increase annual production from 355 000t to 505 000t.
- Increase life of mine ore to be processed from 1.9Mt to 3.2Mt.
- Increase life of mine from 31 December 2020 to 31 December 2022 to account for the additional ore to be mined and processed.
- Inclusion of additional surface infrastructure.

The proposed increase in the maximum annual production rate is predicted to result in an increase in water demand to between 270 and 300ML/yr. The site is currently authorised for groundwater take of 240ML/yr, hence additional licensed entitlement will need to be obtained. The proponent has considered the market depth to purchase additional entitlement and has identified sufficient entitlement is available.

The ability to meet the additional water demands has been assessed in Appendix 3 of the EA. This assessment has not adequately assessed the potential impacts on neighbouring bores or considered the development of monitoring and management to mitigate impacts in accordance with the NSW Aquifer Interference Policy.

An additional waste rock emplacement (north) is proposed to store non-acid forming waste rock. Clean and dirty water diversions around this WRE are proposed.

Additional production bores and monitoring bores are proposed with appropriate amendments to the existing Water Management Plan. Specific locations for these bores have not been provided.

The current water management plan would require updating to reflect the proposed changes to the water management infrastructure, in addition to altered monitoring and mitigation requirements as outcomes of this project.

Information Requests

Revise or develop a new groundwater assessment report that focusses on potential impacts to basic landholder rights water users, licensed water users and the environment due to the proposed water demands.

Include the additional proposed bore extraction locations in any revised groundwater assessment to more accurately represent impacts and provide opportunities to minimise potential off-site impacts where possible.

Where off-site impacts are identified to exceed the Level 2 criteria of the Aquifer Interference Policy, the proponent is required to make a commitment to develop a 'Bore Impact Management Plan'. This plan will include further information relating to the optimisation of the bore field to minimise detrimental impacts to offsite receptors and must include 'make good' provisions where applicable. This plan also needs to include revised trigger levels and commitment to adhering to the trigger levels.

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

DPI Agriculture and DPI Fisheries have no comments on the modification. DPI Lands have responded directly to your Department.

Attachment A

Hera Gold Mine Modification 3 (PA 10_0191) Response to exhibition of EIS Detailed comments - DPI Water

Review of Appendix 3 – ‘Supplementary Assessment of Groundwater Availability’

The report was structured for an assessment of groundwater availability for the mine site operations and not an assessment of groundwater impact on existing users and the aquifer. Conceptual and analytical models (Aqtesolv) were developed to further increase understanding of the hydrogeological system and to provide a simple prediction of the existing bores capabilities to provide water for the mine site into the future (2022).

This report did not:

- Predict take from the groundwater source and any connected groundwater or surface water sources during the life of the mine and after closure of the activity,

- Consider any rules of NSW Murray-Darling Basin Fractured Rock Water Sharing Plan,

- Provide details on the level of potential impacts on nearby basic landholder rights water users, licensed water users or groundwater dependent ecosystems,

- Provide an assessment of potential change in water quality due to extraction.

1. Review of conceptual model

The original conceptual model was developed in 2011 following a series of 7 day pump tests. Aquifer properties have been updated based on longer pumping periods between 2013 and 2015. The updated aquifer properties are considered to be representative.

The geological information provided is considered to be sound.

There is adequate baseline water level data for analysis. Significant drawdown trends are present within the hydrographs for the monitoring bores near extraction points but these issues were not adequately addressed within the report in terms of potential off-site impacts.

The report indicates that the south-western portion of the mine lease has more ideal aquifer properties to extract reliable quantities of groundwater than the rest of the mine area.

In 2011 the groundwater flow direction was assumed to be in a NNW-SSE direction; along the strike of the rock. The groundwater flow direction on site has been updated since 2011 based on increased water level data from multiple monitoring bores. The updated groundwater flow direction is now considered to be perpendicular to the strike of the rock in a SSW direction.

2. Review of analytical model

An analytical model using Aqtesolv was developed to predict whether the existing production bores could supply enough water for the mine site operation.

The analytical model was ‘fit-for-purpose’ for determining groundwater availability on-site but not for assessing off-site impacts of groundwater pumping.

The model determined that WB11 and WB8 (southern bore field) are operating near optimum capacity.

Over time the groundwater yield from the excavation will be declining. Additional production bores will be required to extract the desired amount of groundwater in the future. The target location of these additional production bores will be in the south-west corner.

Based on the predicted drawdown calculated on-site, it is likely that extraction from the south-west portion will have off-site impacts on neighbouring property. Groundwater level triggers need to be established in suitably placed monitoring bores to manage and minimise off-site impacts.

3. Recommendation

From the review of Appendix 3 – ‘Supplementary Assessment of Groundwater Availability’, the following recommendations are made:

Revise or develop a new groundwater assessment report that focusses on potential impacts to basic landholder rights water users, licensed water users and the environment due to the proposed water demands.

Include the additional proposed bore extraction locations in any revised groundwater assessment to more accurately represent impacts and provide opportunities to minimise potential off-site impacts where possible.

Where off-site impacts are identified to exceed the Level 2 criteria of the Aquifer Interference Policy, the proponent is required to make a commitment to develop a ‘Bore Impact Management Plan’. This plan will include further information relating to the optimisation of the bore field to minimise detrimental impacts to offsite receptors and must include ‘make good’ provisions where applicable. This plan also needs to include revised trigger levels and commitment to adhering to the trigger levels.

End Attachment A

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