Gingin Water Group Inc.

Submission to Public Environmental Review
Of Image Resources
Boonanarring Mineral Sands Mine

Prepared for The Chairman
Environmental Protection Authority
of
Western Australia

IMAGE RESOURCES
PUBLIC ENVIRONMENTAL REVIEW

GROUNDWATER RELATED COMMENTS

INTRODUCTION

The comment contained in this document relates only to groundwater aspects associated with the Boonanarring Mining Project of Image Resources (IR) and more specifically the information contained in the following documents that forms part of the PER submission to the EPA:

- H3 Hydrogeological Assessment dated 9 August 2013 by URS
- Boonanarring Project - Addendum to H3 dated 4 November 2013 by URS

Background

The Gingin Water Group Inc. (GWG) was formed in 2011 in response to increasing community concerns that current water use may not be sustainable. In particular, recent reports raised concerns on water quantity and quality and visible evidence is obvious and alarming. Coupled with these concerns were the associated impacts on environmental, economic and social values of water resources in the greater Gingin area.

GWG has involved hundreds of community members in consultations and now has 50 registered family members. The management committee has great diversity, representing the broad water use stakeholders of the region. It has representation from regional NRM groups, NACC and Perth, the Moore Catchment Council and the Gingin Shire.

The initial priority for the GWG was to prepare and lodge a submission to the Gingin Groundwater Allocation Plan (the Plan). This submission has been informed by local knowledge and published information on Gingin groundwater resources with the purpose of promoting sustainable water usage in the Gingin area.

The GWG acknowledges the contributions to its knowledge base from the Department of Water (DOW) staff and from community contributions to public forums and published media articles on local water issues.

GWG further acknowledges the effort to which Image Resources has gone to achieve an open and helpful dialogue in providing briefings and any background information requested.

GENERAL COMMENTS

Positives:

- A technical review of the hydrogeological investigation indicates a professional and experienced approach to hydrogeological aspects.

- First principle review of the modeling indicated an acceptable accuracy as it relates to predicted inflows, zone of influence and cone of dewatering.

- Hydrogeological parameters (mainly hydraulic conductivity) assigned to the different lithologies are within the known range for these formations although a bit lower than expected.

- The conceptual hydrogeological understanding of the interaction between unconfined and confined aquifers appears to be correct and a conservative approach was reportedly used by URS in their modeling.

- Regional impacts results as predicted by the numerical model appear to be accurate but the localized impacts near to the mine might be less accurate. This limitation is reportedly to be addressed by a higher density of monitoring holes to be constructed by IR.

Concerns:

- The abstraction of groundwater is reportedly in an area where most of the reserve allocation for groundwater is already oversubscribed. This includes the Superficial, Leederville-Parmelia and Yarragadee aquifers. This would make any impact on ("impose footprint" *sic*) or loss of groundwater due to this project extremely high and might have unknown compounding effects on the surrounding users/farmers or the environment.

- The low accuracy of the modeling results when compared to observed levels (calibration of model) do raise some concern especially where it relates to the superficial aquifer (45-82% correlation).

CONCLUSIONS:

- It would appear that the economic benefit of this mining project and the professional approach of IR to monitor, manage and ameliorate any impacts would justify the support of the GWG subject to the recommendations as described below:

RECOMMENDATIONS:

- The mine should try not to use any of the inflow waters into the open pits from the superficial aquifer on the mine or during processing. All of this water needs to be returned to the superficial aquifer through artificial recharge or as direct release into the environment. This should be the fundamental approach of the mine as the sensitivity of the environment and local population mainly relates to impacts on the superficial aquifer.

- The assumption that there is no connection between the Mirrabooka- and Superficial aquifers as it relates to potential impacts on wetlands should not be taken as fact. Some leakage/interaction between these aquifers should be assumed.

- The difficulty in successful artificial recharge should not be underestimated and a loss of at least 30-50% should be assumed in the water and environmental balance for the mine as it relates to the superficial aquifer. Over time monitoring might indicate a more accurate recharge success rate or water loss percentage.

- Groundwater monitoring data should be made freely available to the public, GWG and/or local landowners.

This submission was prepared by GWG Inc. committee member
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for
David Rickson
President
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End