

7 February 2021

Level 1, 70 Pirie Street
Adelaide SA 5000

T 08 8232 2253

E info@emmconsulting.com.au

www.emmconsulting.com.au

Fingerboards Mineral Sands Project - Inquiry and Advisory Committee
SUPPLEMENTARY Expert Witness Statement of Joel Georgiou (Groundwater expert)

1 Personal details

My name is Joel Georgiou, and I am an Associate Director in the area of hydrogeology with EMM Consulting Pty Limited (EMM).

2 Business Address

My principal place of work is located at EMM's Adelaide office, being Level 4, 74 Pirie Street, Adelaide 5000.

3 Introduction

This statement is supplementary to my expert witness statement on groundwater matters that is dated 2 February 2021.

I have been instructed by White and Case on behalf of Kalbar Operations Pty Ltd (Kalbar) to prepare a supplementary expert witness statement relevant to my groundwater expertise in relation to the centrifuge proposal documented in Technical Note TN 01 dated 18 January 2021 and titled "Implementation of centrifuges for water recovery and tailings management".

4 Key aspects of the centrifuge proposal and my opinions

In November 2018, Kalbar supplied an entrainment estimate of 1,110 ML/year within fine tails. In January 2021, Kalbar advised EMM that this rate was incorrect as it assumed 80% recovery of water from the fines slurry using 'Mud Masters', when a realistic estimate was 50% recovery. Changing the recovery rate to 50% would result in a loss of water to entrainment of 2,800 ML/year; a significant change to the water balance. Kalbar subsequently issued advice via a letter from their legal representatives, White & Case to the IAC dated 18 January 2021, that centrifuges would be used to achieve a water recovery rate of 80% to maintain the overall water balance. Other changes to the water balance which are relevant to the groundwater assessment include:

- the original water volume associated with the sand tailings stream, which can report as seepage to the water table, was reported at 1.7 GL/year. The updated process water balance estimates a revised rate of 1.15 GL/year as a result of introducing the centrifuge technology. This is because the centrifuge takes a larger portion of the sand stream (due to a large cut-off particle size), reducing the slurry volume directed towards the sand stackers, which discharges directly into the pit voids; and

- overall the nett make-up water requirement is slightly less than the rate adopted within the Environment Effects Statement (EES), with 3 GL/year reducing to ~2.9 GL/year.

The groundwater model does not assume water entrained within fine tails is free draining, thus the model never considered seepage from this source. All the seepage within the groundwater model is assumed to originate from the sand tails. Based on the updated process water balance, water that is available to seep to the water table would reduce by 0.55 GL/year, a reduction of 32%. This would result in a significant reduction in the modelled groundwater mounding presented in the EES, reducing water logging risks to nearby GDEs, reducing the risk of increased flows potentially reporting to the gullies, Mitchell River and associated floodplain, and reducing risk to site-based infrastructure due to temporary water logging.

A small reduction to the make-up water requirement will reduce the amount of groundwater extracted from the borefield, reducing drawdown effects in the Latrobe Group aquifer. This will reduce the risk to drawdown in third party bores, although this risk is deemed Low to very Low due to the presence of the Seaspray group, planned monitoring network, management plans and ongoing modelling requirements during operations.

In conclusion, the introduction of the centrifuge for tailings management will reduce the amount of water available for tailings seepage, thus reducing the risk associated with groundwater mounding. The centrifuge also marginally reduces the risks associated with groundwater extraction, due to slightly less make-up water required.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Fingerboards Inquiry and Advisory Committee.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J. Georgiou', enclosed in a thin black rectangular border.

Joel Georgiou

Associate Director | Hydrogeologist
jgeorgiou@emmconsulting.com.au