

12 May 2021

By Email

Mr Nick Wimbush
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Dear Mr Wimbush,

Fingerboards Mineral Sands Mine EES Inquiry: Additional Emails from submitter 639

We continue to act for Kalbar Operations Pty Ltd (**Kalbar**).

We refer to the email received on 29 April 2021 attaching two emails from submitter 639 (Mr Andrew Helps) to the Inquiry and Advisory Committee:

- Comments on KALBAR's Draft Workplan, 7 April 2021; and
- Toxicological Profile for Silica, 12 April 2021.

This letter sets out Kalbar's response to the technical issues raised by Mr Helps in these two emails.

Data on metals in groundwater (raised as an issue in Email Title - Comments on KALBAR's Draft Workplan)

Mr Helps' email criticises the EES in two respects – the groundwater baseline in Table 2-3 of the draft work plan and the alleged conversion of data from Ug/L to Mg/L, and reliance on the "ANZECC 2000" guideline. We have assumed in this letter that this is a reference to the *Australian and New Zealand guidelines for fresh and marine water quality*, Australian and New Zealand Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand (**ANZECC & ARMCANZ, 2000**).

Dealing firstly with Mr Helps' comments about the groundwater baseline, the draft work plan is not the baseline groundwater assessment. It includes a general summary of groundwater conditions for context, if read in isolation from the EES. The baseline groundwater assessment is presented in Appendix A006 of the EES. All of the groundwater quality data from NATA-accredited laboratories is in Appendix K of Appendix A006. These Appendices demonstrate that the groundwater baseline was based on analysis for an

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extensive suite of analytes, including many from the list of “omitted metals” in Mr Helps’ email.

Mr Helps has also assumed the laboratory reports should include all of the 34 metals set out in his email. However, this is often not the case given there are a number of different analytical suites offered by laboratories. An assessor can either select a suite or suites offered by the laboratory, or choose a selection of analytes that are specifically relevant to the project. It is not best practice nor common to analyse for every metal that can be measured. There is no requirement to analyse for a specific suite of chemicals, and most laboratories will report results in units according to the requested sensitivity and their NATA accreditation. The laboratory reports confirm that units were not converted. This would be immaterial even if they had.

Moreover – and more importantly – the tailings seepage geochemical assessment included a much wider suite of metals so that the potential for seepage hazards could be understood. This included an analysis of 42 metals that are summarised in Section 7.3.4 of EES Appendix 006. Additional analysis and laboratory reports are included in Appendix D to Appendix 006 of the EES.

The groundwater joint expert witness statement agreed at paragraph 5.4 that in addition to the 18 metals analysed in the EES groundwater baseline, uranium, thorium and radium should be added to the baseline monitoring rounds. The experts did not recommend that additional metals should be included.

Dealing secondly with Mr Helps’ concerns about ANZECC & ARMCANZ, 2000, Schedule 3 of the SEPP (Waters) sets out the environmental quality indicators and objectives to protect the beneficial uses of all waters in Victoria, as well as specific indicators and objectives for groundwater and surface water. Clause 1(2) of Schedule 3 explains that the SEPP adopts the risk-based approach of ANZECC & ARMCANZ (2000). Moreover, SEPP (Waters) provides that if an environmental quality or indicator is not provided for in Schedule 3, the relevant environmental quality indicator is to be sourced from either the levels specified in ANZECC & ARMCANZ (2000), the levels specified for groundwater in *National Environment Protection (Assessment of Site Contamination) Measure (ASC NEPM)*, or derived for groundwater using a risk assessment methodology set out in the ASC NEPM. It can therefore hardly be said that ANZECC & ARMCANZ (2000) is irrelevant to assessing the impacts of the Project on water.

The analytes listed in Table 2-3 of the draft work plan primarily relate to the protection of ecological (including soil, pasture, crops, livestock) receptors, rather than human health. Mr Helps’ listing of criteria for metals/metalloids appear to be based on human health matters. The Tier 1 screening criteria for groundwater for ecological and human health receptors is provided in the ASC NEPM, and are sourced from ANZECC & ARMCANZ (2000) and NHRMC (2011).

It is acknowledged that some other countries refer to criteria developed and published by the USEPA and ATSDR as they have not yet established suitable criteria suitable for settings in their country, and the US has derived criteria for many more compounds than are available elsewhere. In Australia, where a screening criteria has not been developed by appropriate Australian agencies for a particular chemical, criteria developed by international agencies can be adopted and in some cases adjusted to conform to Australian policy. If international criteria are selected over an Australian source, this would have to be justified.

Tracked earth moving equipment breaking small rocks into dust (raised as an issue in Email Title - Toxicological Profile for Silica)

It is not clear what Mr Helps’ purpose is in tabling the ATSDR’s toxicity profile on silica. The email notes the generation of dust from earth moving equipment, the impacts of tracks on dirt roads and the types of

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bulldozers proposed for use at the project. The potential emission of silica, in the form of respirable crystalline silica (**RSC**), is assessed in the EES.

Appendix A002 of the EES presents the results of quantitative X-ray diffraction analysis (**XRD**) of samples taken from the topsoil composite sample, the overburden composite sample, and the 10 tonne fine tailings sample (see p.22). The purpose of the XRD was to determine the amount of RSC in the soils, overburden and fine tailings, as RCS is a known carcinogenic material and needed to be addressed in the air quality assessment. The XRD indicated that the majority of the RCS is quartz, and that levels of cristobalite and tridymite were below detection limits.

This data was used to model the dispersion of RSC as a fraction of PM2.5 emissions from overburden, topsoil and ore in the air quality assessment (Appendix 038). The predicted annual average RSC concentrations were then compared to the RSC criteria adopted from the *Protocol for Environmental Management Emissions (Mining and Extractive Industries)* (**PEM**). The assessment concluded that the annual average concentrations of RSC from the Project, in combination with measured background levels, were typically about an order of magnitude below the adopted PEM criterion for RSC.

Please do not hesitate to contact me if you have any questions.

Yours sincerely,



Tim Power
Partner

