

In the matter of an application for approvals under
of the Fast Track Approvals Act 2024

By **Tāiko Minerals and Metals Limited**

Applicant

Statement of evidence of David Bougourd in relation to Radiation

11 April 2026

Applicant's solicitor:

Alex Booker

Anderson Lloyd

Floor 2, The Regent Building, 33 Cathedral Square, Christchurch 8011

PO Box 13831, Christchurch 8141

DX Box WX10009 Christchurch

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lloyd.**

Introduction

- 1 My name is David James Bougourd.
- 2 My role in relation to the application by Tāiko Critical Minerals Ltd (**Tāiko**) (**the application**) for approvals relating to the Barrytown Mineral Sands – Southern Block Project (**the Project**) has been to provide expert advice in relation to Radiation Management.

Qualifications and experience

- 3 With over 30 years' experience in mineral processing, I hold a Bachelor of Applied Science. (Applied Chemistry) and a Graduate Diploma in Metallurgy from Curtin University Western Australia. Further qualifications are also held in Radiation Safety for Static Gauges, Xray Devices and Naturally Occurring Radioactive Material, (NORM), relevant to the West Australian Regulators. I am a Member of the AusIMM and my current role is with Midwest Metallurgy Pty. Ltd as Principal. Over my career I have worked at mineral sands operations and been involved in many mineral sands projects at sites including Eneabba, Narngulu, Lucky Bay, Coburn and Atlas.

Expert witness Code of Conduct

- 4 While this application is not being considered by the Environment Court, I confirm that I have read the Code of Conduct for expert witnesses contained in the Environment Court of New Zealand Practice Note 2023 and that I have complied with it when preparing this evidence. Other than when I state I am relying on the advice of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

Scope of evidence

- 5 The purpose of this evidence is to:
 - (a) provide evidence on expected radiation levels in the ore body;
 - (b) provide an outline of how the mining methodology proposed will impact radiation levels; and
 - (c) confirm the conditions proposed are appropriate and will ensure any adverse effects are avoided.

Resource Radiation Levels

- 6 Historical drilling and sampling has been undertaken since the 1960s. The most recent drilling of the deposit was undertaken by Tāiko in 2025 for the Canoe Creek area. A plan of the drill holes relevant to this submission is shown in Fig 1.



Fig 1: Drill hole locations – source RSC MRE 2023

- 7 All samples recovered from the drilling and sampling program in 2025 were taken to NZIMMR's facility in Dunollie, New Zealand, the as-received drill samples were dried, crushed (for de-agglomeration post-drying), and screened to remove >2.0mm particles. The <2.0mm crush rejects were split into sub-samples for various test work endeavours. One set of samples

were pulverised and analysed by pXRF analysis. Amongst other results Uranium and Thorium were assayed in the samples and results averaged 50 ppm Th and 20 ppm U for Barrytown and 48 ppm Th and 20 ppm U for the Canoe Creek ore. This equates to a specific radiation content of 0.46 Bq/g \pm 0.19, (Bequerels per gram) for the Barrytown ore and 0.45 Bq/g \pm 0.19, for the Canoe Creek ore. This level is well below the New Zealand Radiation Safety Act threshold limit of 10 Bq/g for materials to be categorised as radioactive.

- 8 Previous data collated by Mitch Ryan IHC for Central Block noted radiation levels of 0.66 Bq/g \pm 0.06 Bq/g as an in ground specific ore radioactivity (referred to in his evidence presented in the Central Block resource consent hearing). This result is considered to be similar and consistently demonstrate low ore radiation levels.

Mining, processing and tailings

- 9 The mining method selected is a dredge recovering ore from a pond, screening any rock or oversize adjacent to the pond and returning sand and fines to the wet concentrator. The wet concentrator plant concentrates the heavy minerals into a heavy mineral concentrate, HMC, largely through conventional gravity and screening separation techniques. No chemical or thermal processing of the ore takes place. Consequently all materials are considered to be in secular equilibrium and specific radioactivity levels are based on this premise.
- 10 In the Wet Concentration process slimes are separated from the ore, prior to HMC recovery, then recombined with the tailings sand before being returned to the dredge void. The levels of radioactivity noted previously in slimes by IHC was 1.17 Bq/g \pm 0.15 Bq/g. Tailings sand has an expected activity of 0.08 Bq/g \pm 0.03 Bq/g. The combined materials returned to the tailings void are expected to be at an activity of 0.32 Bq/g \pm 0.18 Bq/g.
- 11 IHC also estimated tailings to be 0.51 \pm 0.05 Bq/g. These results are consistent and demonstrate lower tailings activity than ore and demonstrate tailings radioactivity levels lower than 10 Bq/g for materials to be considered radioactive.
- 12 The expected Barrytown and Canoe Creek ores, slimes and tailings material measure well below the level recognised as radioactive as specified Schedule 2 of the Radiation Safety Act 2016. These results conclude that the expected Barrytown ore, slimes and tailings are not considered to be radioactive by the Radiation Safety Act 2016 and are therefore exempt from its provisions. The ore, slimes and tailings material

will not be transported off-site and so the IAEA Regulations for the Safe Transport of Radioactive Material do not apply.

Conditions

13 I have reviewed the proposed conditions included below and consider that they are conservative and appropriate to the activity being undertaken.

14 I understand that they are consistent with the conditions on the previously granted resource consent for the Central Block and I do not consider that additional monitoring is required for this consent.

8.4	<p>The Consent Holder must undertake quarterly systematic testing of the heavy minerals concentrate from within the active mining area to confirm that the material remains below the acceptable level of radioactivity concentration limits as specified in Schedule 2 of the Radiation Safety Act 2016. Copies of the independent test results must be submitted to the Consent Authority within 10 working days of receipt of the results.</p> <p>Advice Note:</p> <ul style="list-style-type: none"> • <i>If material meets the criteria in Schedule 2 of the Radiation Safety Act 2016, the extraction, processing and transport of heavy minerals concentrate will require a Source Licence under this Act, and may possibly require a radiation safety plan as per section 18 of the Act.</i>
8.5	<p>In the absence of any extant and current New Zealand Code of Practice for handling naturally occurring radioactive materials, the Consent Holder must carry out all activities on site in accordance with the Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing Code of Practice and Safety Guide published by the Australian Radiation Protection and Nuclear Safety Agency.</p> <p>Advice Note:</p> <ul style="list-style-type: none"> • <i>The Code of Practice within this consent condition requires that if radiation levels exceed 1Bq/g, the relevant authority must be notified, which differs from state to state. In the New Zealand context, the relevant body to notify is the Office of Radiation Safety.</i>
8.6	<p>a. The Consent Holder must maintain radiation monitoring devices in the locations specified in the Dust Management Plan. Data from the radiation monitoring devices must be collected and analysed once every three months. Copies of the test results must be submitted to the Consent Authorities with 10 working days of receipt of the results.</p> <p>b. If the radiation monitoring devices record radiation levels exceeding the equivalent of 1 mSv (millisievert) above background levels over 12 months (i.e., the sum of results from the past four device readings at each location minus background levels established prior to the activity commencing), then the Radiation Safety Act 2016 applies, and the Consent Holder must:</p> <ol style="list-style-type: none"> inform and consult the Office of Radiation Safety, New Zealand Ministry of Health; and carry out all activities on site in accordance with the Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing Code of Practice and Safety Guide published by the Australian Radiation Protection and Nuclear Safety Agency (or any subsequent revision). (RPS-9)

Summary

- 15 The expected Barrytown and Canoe Creek ores, slimes and tailings material measure well below the level recognised as radioactive as specified Schedule 2 of the Radiation Safety Act 2016.
- 16 The conditions as proposed are appropriate and will ensure any risk of adverse effects occurring are avoided.

David Bougourd

11 April 2026