
Australian Securities Exchange Announcement**23 September 2022**

Vanadium - Conceptual Development Plan

Summary

King River Resources Limited (ASX: KRR) provides this outline of KRR's vision for its 100% owned Speewah Vanadium Project located in the Kimberley of Western Australia.

KRR's conceptual development plan is an open-cut mining operation scaled at 5Mtpa of feed to an on-site processing plant targeting production of a high-grade magnetite concentrate for export.

The exported concentrates could then be refined overseas by salt and reduction roast methodology to target vanadium pentoxide (V₂O₅), titanium dioxide (TiO₂) and iron co-products.

Key developments supporting this strategy are listed below.

Resource

- Speewah is Australia's largest vanadium-in-magnetite deposit based on tonnes and V₂O₅ content (Figure 1). The deposit comprises a Measured, Indicated and Inferred Mineral Resource of 4,712 million tonnes at 0.3% V₂O₅, 3.3% TiO₂ and 14.7% Fe (reported at a 0.23% V₂O₅ cut-off grade from the Central, Buckman and Red Hill deposits, Figure 2) (refer KRR ASX announcements 26 May 2017 and amendments 1 April 2019 and 6 November 2019 for the full resource statement details). The large deposit size supports a conceptual development plan for a potentially long mine life.

Mining

- KRR envisages an open cut mining operation on the Central Vanadium deposit which outcrops, is fresh rock from near the surface, and has shallow dipping geometry with a low strip ratio of 0.4 (Figure 3 and refer KRR ASX announcement 20 June 2018).

Process

- KRR's plan is to produce a high grade vanadium-bearing magnetite concentrate from the high grade (HG) zone of the Central Vanadium deposit, by crushing, grinding and magnetic separation (refer KRR ASX announcements 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012 and 21 April 2017). The beneficiation process can produce a magnetite concentrate with grades of 2.15-2.64% V₂O₅, which is higher than other Australian vanadium deposits (Figure 4). This important characteristic is due to very high V concentration in the magnetite crystal which reduces gradually upwards in the deposit. Consequently, a smaller mass of concentrate could be processed to deliver the targeted V₂O₅ product.
- The low insitu grade of 0.3-0.4% V₂O₅ and the disseminated nature of the mineralisation (ranging from 10% to 19% titanomagnetite and ilmenite, Figure 5) results in a relatively low mass yield of about 13% into a magnetite concentrate (KRR ASX 10 May 2022). A greater mass of disseminated magnetite gabbro feed therefore needs to be beneficiated to produce a magnetite concentrate. Staged crushing-grinding and magnetic separation optimisation tests on drill core samples are underway to produce a magnetite concentrate of high V grade, low in contaminants, and higher mass yield and vanadium department.

- Metallurgical investigations are currently underway by Murdoch University Hydrometallurgy Research Group to develop an optimised process flow sheet to produce high purity V_2O_5 , TiO_2 and iron metal, by trialing oxidative and reductive roast techniques, including the use of hydrogen as a reductant. In the salt roast tests already completed, vanadium extractions of up to 92% have been achieved from high grade vanadium-bearing magnetite concentrate (KRR ASX release 10 May 2022). Testwork is ongoing trialing mixed salts, optimisation of the salt dosage, and the precipitation of V_2O_5 product by the ammonium metavanadate (AMV) process.

Research

- KRR is supporting the Future Battery Industries Cooperative Research Centre (FBI-CRC) Vanadium Redox Flow Batteries (VRFB) Project (KRR ASX announcement 6 October 2021).

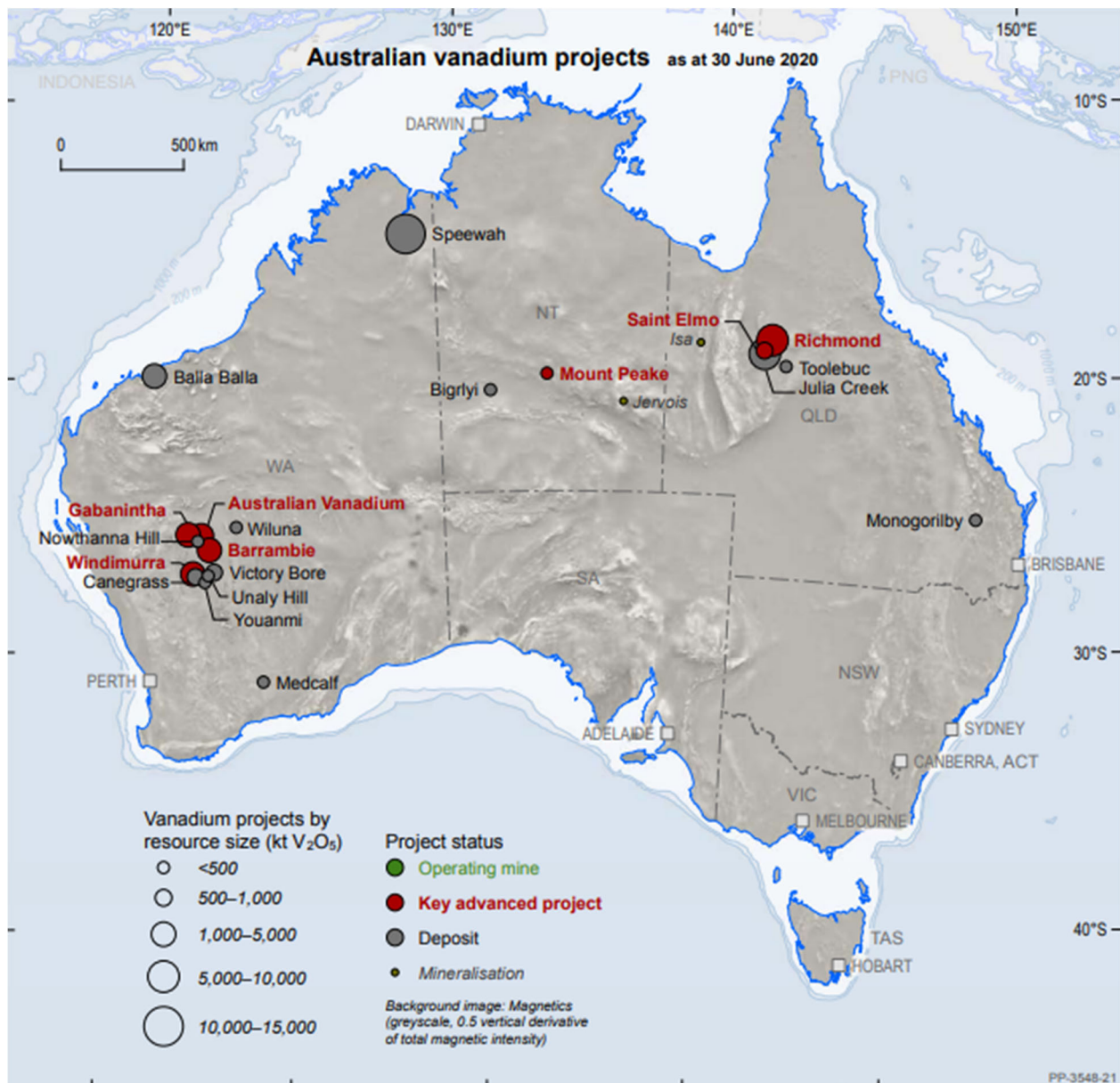


Figure 1: Vanadium deposits in Australia, including KRR’s very large Speewah deposit. (Source: Australian Critical Minerals Prospectus 2020, Geoscience Australia, page 152)

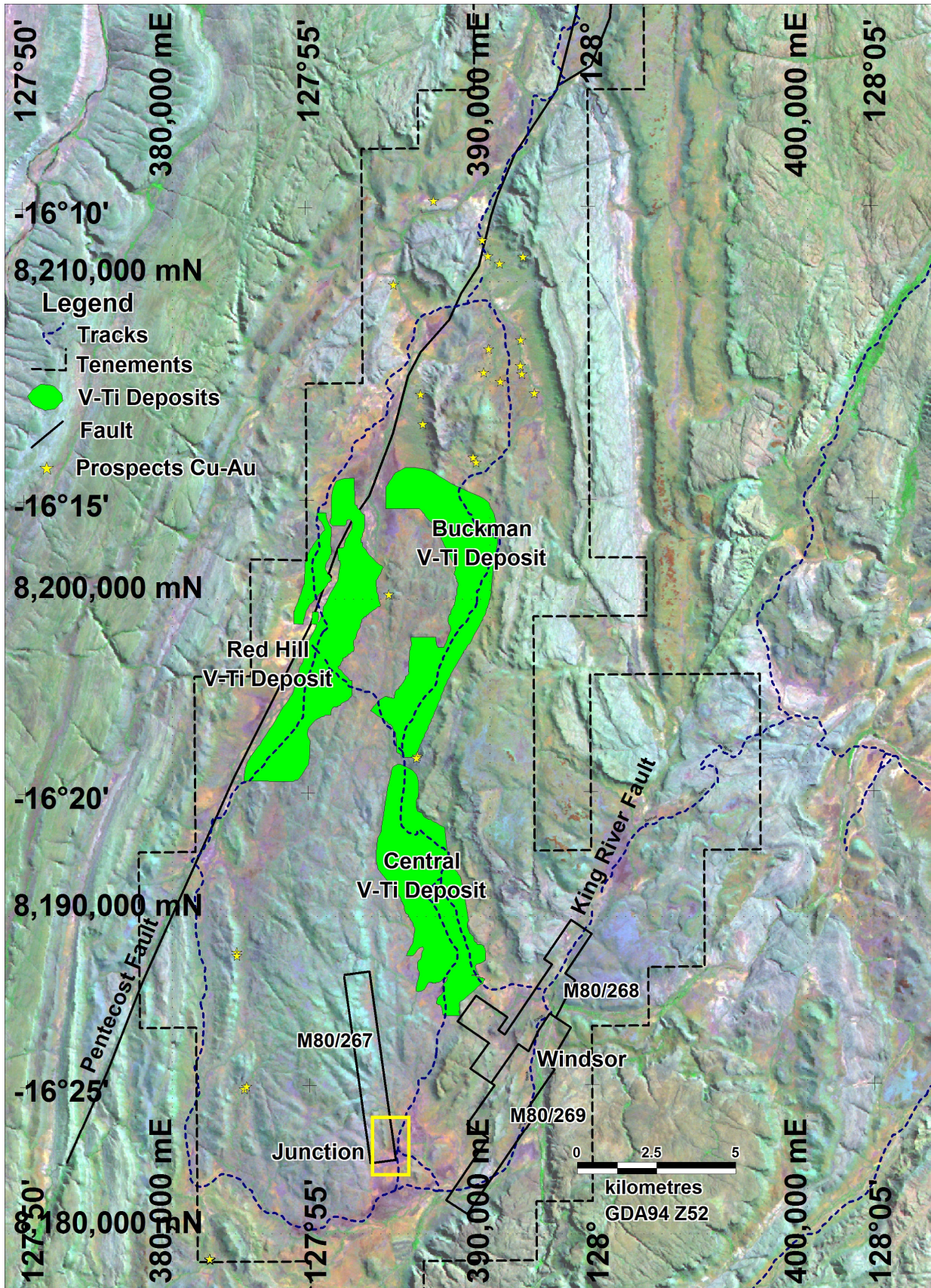


Figure 2: Location of the vanadium resources (green) and Junction V Prospect at Speewah.

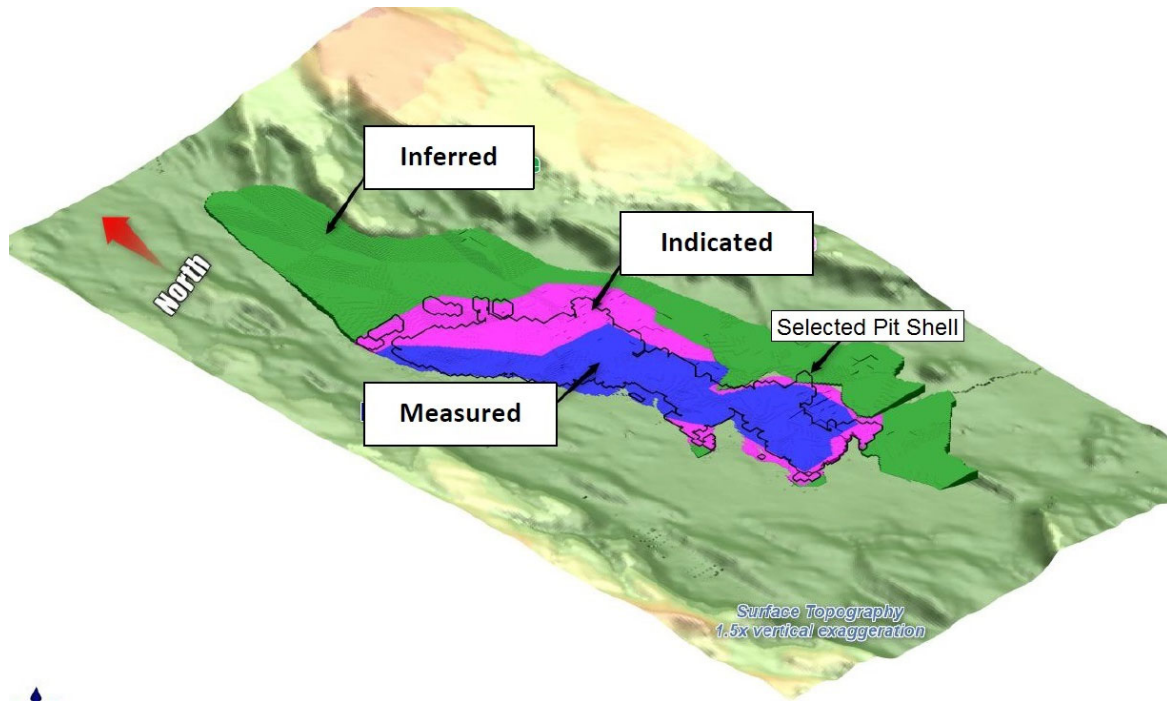


Figure 3: 3D view of Central Vanadium resource with outline of a pit shell with 0.4 strip ratio (KRR ASX announcement 20 June 2018)

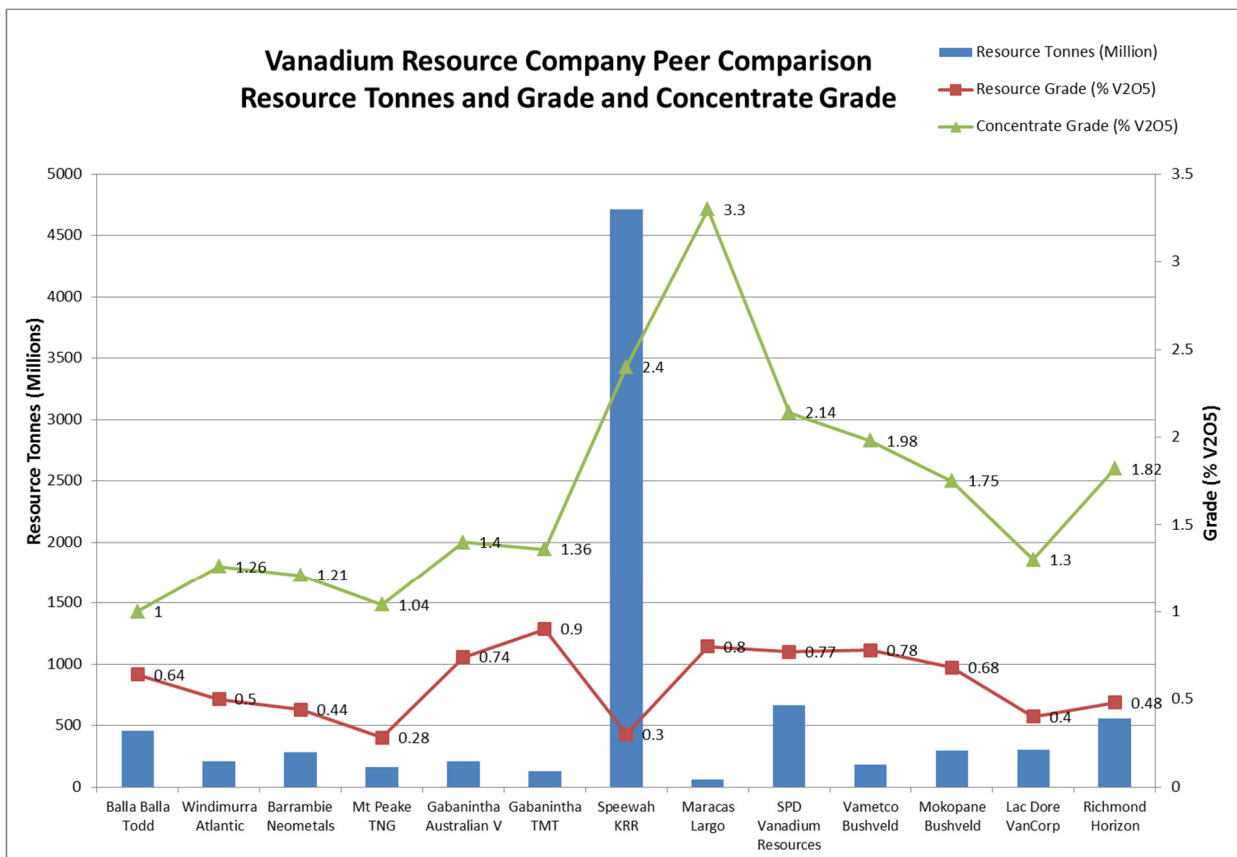


Figure 4: Vanadium deposits highlighting Speewah large size, low grade and high grade concentrate.

Source: Company websites, ASX announcements, Technical Reports and Studies, and metallurgical updates.

Tonnes and grade based on reported total resources.

Concentrate grade commonly from beneficiation of High Grade zone material.

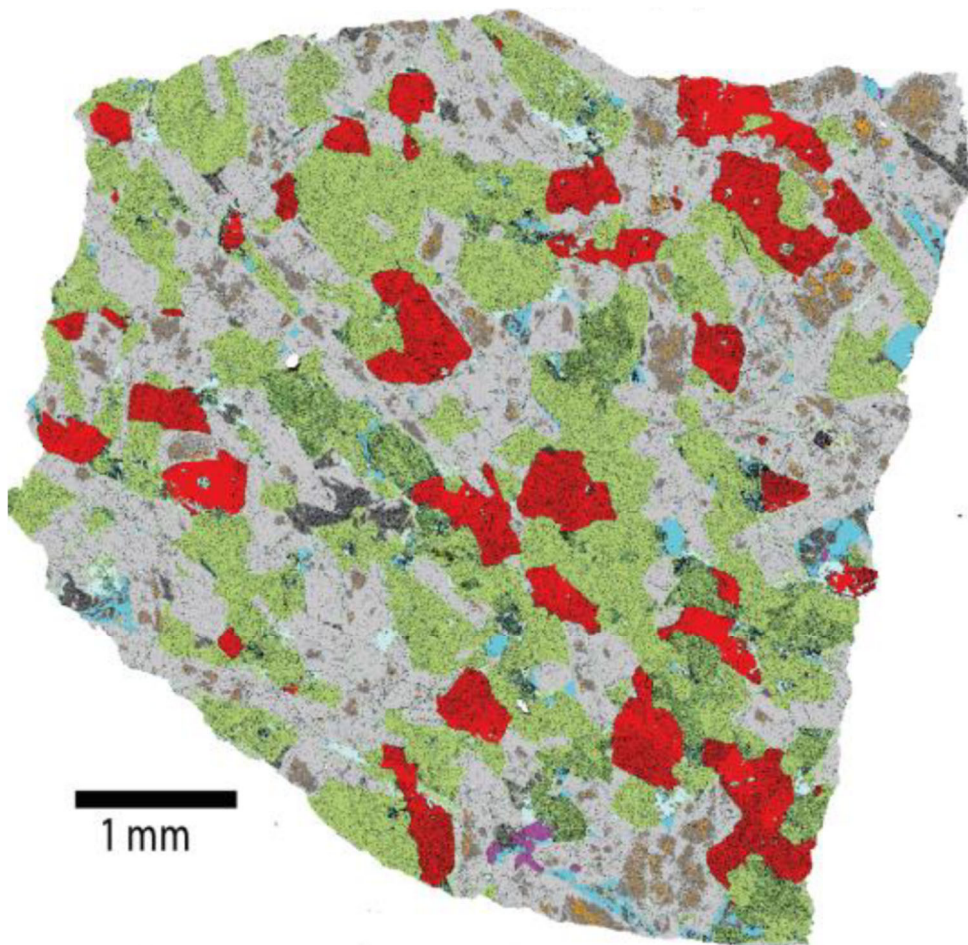


Figure 5: Disseminated magnetite gabbro outcrop (above) and below a SEM map showing the disseminated magnetite and ilmenite grains (red) (TIMA system image, P11 -6.3mm particle, SDH11-09 21-37.5m HG zone).

This announcement was authorised by the Chairman of the Company.

Anthony Barton

Chairman

King River Resources Limited

Email: info@kingriverresources.com.au

Phone: +61 8 92218055

Statement by Competent Person

The information in this report is based on information compiled by Ken Rogers (BSc Hons) and fairly represents this information. Mr. Rogers is the Chief Geologist and an employee of King River Resources Ltd, and a Member of both the Australian Institute of Geoscientists (AIG number 2359) and The Institute of Materials Minerals and Mining (IMMM number 43552), and a Chartered Engineer of the IMMM. Mr. Rogers has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Rogers consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

Compliance Statement

The information in this report that relates to Mineral Resource Estimates for the Speewah Vanadium Project are extracted from the ASX Announcements entitled "Speewah V-Ti-Fe resource conversion to JORC 2012" lodged 26 May 2017, the amendment to report Ti as TiO₂ entitled "Vanadium Resource Amendment" lodged 1 April 2019, and a further amendment to add alumina and magnesia entitled "Central Deposit Mineral Resource Amendment" lodged 6 November 2019.

Pursuant to Listing Rule 5.23.2 the Company confirms that it is not aware of any new information or data that materially affects the information included on the original market announcement and that all material assumptions and technical parameters underpinning the estimates in the market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.