

QUARTERLY ACTIVITIES REPORT 30 SEPTEMBER 2022

Australian Securities Exchange Announcement

25 October 2022

During the September quarter, King River Resources Ltd (ASX:KRR) (King River or Company) continued exploration of the Tennant Creek gold-copper projects (KRR ASX release 1 September 2022), outlined its vanadium-titanium-iron development plan for Speewah in Western Australia (KRR ASX release 23 September 2022), and completed further laboratory development testwork on its HPA process options (KRR ASX release 20 September 2022).

Gold-Copper Projects

King River reported continued gold and copper exploration success from its Tennant Creek project where King River holds 7,200km² in 16 granted exploration licences. In recent months the Tennant Creek region has become very competitive for exploration. Significant gold and copper results have been reported including those by Castile, Emmerson and Tennant Minerals at Rover, Bluebird, and Hermitage, as well as King River's recent high grade gold results in the Kurundi Gold region (Figure 1).



Figure 1: King River's Tennant Creek Tenements (coloured polygons) by Project area.



King River's four project areas include:

- <u>Rover East Project</u> (EL31617 and EL31618) which covers ground along strike of the units that host the Rover 1 deposit where Castile intersected 30.4m @ 35.6g/t Au in 2021 (CST ASX release 2 June 2021). There are numerous significant geophysical targets within these tenements as well as geochemically anomalous ironstones.
- <u>Tennant East Project</u> (EL31619) situated only 3km along strike of the geophysical units that host Tennant Minerals Bluebird discovery where diamond drill intersection of 63m @ 2.1% Cu copper and 4.6gpt Au from 153m including 27.55m at 3.6% Cu and 10gpt Au and 7m at 38.5gpt Au was returned (TMS ASX release 17 August 2022). King River's ground is also directly along strike of the Lone Star IOCG trend that hosts Emmerson's Mauretania deposit, the Blue Moon, Gigantic and Metallic Hill historic mines as well as multiple other prospects and historic workings (all within 1km of the tenement boundary).

Further drilling is planned to locate the Mauretania/Hopeful Star corridor and test ironstone zones within it. King River targets include Lone Star Trend, Lone Star Trend East, Anomaly 5 and Commitment and more are being generated from the geophysical data. The priority is the Lone Star East prospect where magnetic imagery shows that the same stratigraphy that hosts Tennant Minerals Bluebird deposit strikes directly onto King River's ground and a number of significant gravity anomalies have been identified.

- <u>Barkly Project</u> (EL31623, EL31624, EL31625, EL31627, EL31633, EL31634) where multiple exploration companies (including Newcrest Ltd, Middle Island, Greenvale and more) have pegged all the available ground in a corridor that strikes between Mount Isa and Tennant Creek based on IOCG prospectively identified by government precompetitive work. King River holds over 2,100km² in 6 tenements.
- <u>Kurundi Project</u> (EL32199, EL32200, EL31626, EL31628, EL31629, EL32344, EL32345) where King River has recently intersected high grade gold in multiple drill holes in the Kurundi Main Workings (Figure 2), an area never drilled before (KRR ASX release 27 June 2022). There is a substantial thickness of mineralisation with gold occurring in both the quartz veining and the broader shear zone, with the best result in TRC019 7m @ 6.35g/t Au from 25m including 2m @ 21.30g/t Au with 1m @ 35.26g/t Au). In addition, high grade copper and silver values have been returned from multi element analysis of the Kurundi RC drilling with the highest copper result of 2m @ 8.4% Cu including 1m @ 21.8% Cu and best silver result of 4m @ 59ppm Ag including 1m @ 176g/t Ag. The drilling so far is very shallow and further drilling is being planned along strike and at depth.

Reconnaissance exploration in the Kurundi Region has returned high grade rock chip grab sample results from the Priesters, Tarragans and Millers prospects. The best rock chip grab samples from Priesters include 49.5g/t Au, 12.97g/t Au and 8.47g/t Au, and at Tarragans 9.28g/t Au and 5.72g/t Au where there is a lot of ground and target areas still to explore. These new high-grade surface gold results give the company additional drill targets.

KRR believes with that with ongoing exploration there is significant discovery potential. The company plans to employ a combination of geophysical (detailed gravity and drone magnetics combined with advanced IP surveys) and drilling strategies at its priority targets.





Figure 2: Reconnaissance rock chip results and new high grade gold targets around Kurundi.

Speewah Vanadium-Titanium-iron - Conceptual Development Plan

King River holds 100% interest in the large Speewah Vanadium-Titanium-Iron deposit located in the Kimberley of Western Australia (Figure 3). Speewah is Australia's largest vanadium-in-magnetite deposit based on tonnes and V_2O_5 content (Figure 3). The deposit comprises a Measured, Indicated and Inferred Mineral Resource of 4,712 million tonnes at 0.3% V_2O_5 , 3.3% TiO₂ and 14.7% Fe (reported at a 0.23% V_2O_5 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.

King River'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 magnetite-ilmenite 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.



The Speewah vanadium deposit 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). Metallurgical testwork has been able to produce a magnetite concentrate with grades of 2.15-2.64% V₂O₅, which is higher than other Australian vanadium deposits (Figure 4). Metallurgical investigations are currently underway by Murdoch University Hydrometallurgy Research Group to develop an optimised process flow sheet to produce high purity V₂O₅, pigment grade TiO₂ and iron metal, by trialing oxidative and reductive roast techniques, including the use of hydrogen as a reductant. Salt roast tests already completed have obtained vanadium extractions of up to 92% from a high grade vanadium-bearing magnetite concentrate (KRR ASX release 10 May 2022). Testwork is ongoing trialling mixed salts, optimisation of the salt dosage, and the precipitation of V₂O₅ product by the ammonium metavanadate (AMV) process.



Figure 3: Vanadium deposits in Australia, including King River's very large Speewah deposit. (Source: Australian Critical Minerals Prospectus 2020, Geoscience Australia, page 152)





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.

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

HPA Project Update

Laboratory process development testwork by Source Certain International (SCI) is ongoing to identify and refine new process improvements to the ARC HPA process. The objective is to identify more economical options and pathways and a more environmentally friendly process route to the production of HPA.

Three process modifications are under investigation:

<u>ARC – 1</u>. This modification of the original ARC HPA process outlined in the Prefeasibility Study (KRR ASX release 16 June 2021) converts the 5N purity AI salt precursor to AI Hydroxide which is calcined to HPA. The benefit of this process is that it requires no off-gas treatment as only water is given off in the calcination process.

<u>ARC – 2</u>. This new process is still under development and uses a different reagent in the recrystallisation purification process that can be recycled more directly. The benefits of this process are that it requires no off-gas treatment, produces less waste and has better recycling opportunities.



<u>ARC – 3</u>. This new process takes a completely different approach and is still under development. It requires no precipitating reagents, generates no reagent related wastes, and produces AI Hydroxide for calcining into HPA.

King River has significantly reduced expenditure on the HPA project until this testwork is concluded and the next step in the HPA project is determined.

Corporate

King River has recently completed a comprehensive technical background report of its large Speewah Vanadium-Titanium-Iron deposit and has initiated discussions with a number of potential buyers and/or partners. The Company has also released drill core and concentrate samples to those interested in further assessment with their own studies. Further information will be released if these discussions progress.

King River is also completing a comprehensive detailed information report of its Mt Remarkable and Tennant Creek Gold projects and will be approaching a number of International and Australian groups for potential partnering in the exploration and development of the Gold projects. King river has a very large area of very prospective ground in the Tennant Creek where exploration has become very competitive and significant gold and copper results have been reported. Further information will be released as the relationships and interest develop.

The Company's cash position as at 30 September 2022 was \$1,757,090.

King River received the first 50% funding instalment from the Northern Territory government for the Geophysical and Drilling Collaboration Program Grant in the amount of \$50,000. The grant was in respect to the airborne magnetic survey completed over tenement EL31633 and EL31634.

With regards to the item 6.1 of the Appendix 5B, released concurrently to this quarterly activities report, the Company provides the following in relation to payments to related parties that totalled \$12,400 for the quarter:

- Office representation expenses of \$1,350 are costs paid to an associate entity of Directors; and
- The director fees for the month of July 2022 of \$11,050. As a cash preservation strategy, the Directors have opted to subordinate their director fees from August 2022 until further notice.

This announcement was authorised by the Chairman of the Company.

Anthony Barton

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Statement by Competent Person

The detail 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) and The Institute of Materials Minerals and Mining (IMMM), 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.



Schedule of Tenements Held at 30 September 2022

WA Tenements Speewah Mining Pty Ltd and Whitewater Minerals Pty Ltd (wholly-owned subsidiaries of King River Resources Limited)

Tenement	Project	Ownership	Change During Quarter
E80/2863	Speewah	100%	-
E80/3657		100%	-
L80/43		100%	-
L80/47	(held by Speewah Mining	100%	-
M80/267	Pty Ltd)	100%	-
M80/268		100%	-
M80/269		100%	-
E80/5007	Mt Remarkable (held by Whitewater Minerals Pty Ltd)	100%	-
E80/5133		100%	-
E80/5176		100%	-
E80/5177		100%	-
E80/5178		100%	-
E80/5194		100%	-
E80/5195		100%	-
E80/5196		100%	-

Note: E = Exploration Licence (granted), M = Mining Lease (granted), L = Miscellaneous Licence (granted)

NT Tenements Treasure Creek Pty Ltd (wholly-owned subsidiary of King River Resources Limited)

Tenement	Project	Ownership	Change During Quarter
EL31617	Tennant Creek	100%	-
EL31618		100%	-
EL31619		100%	-
EL31623		100%	-
EL31624		100%	-
EL31625		100%	-
EL31626		100%	-
EL31627		100%	-
EL31628		100%	-
EL31629		100%	-
EL31633		100%	-
EL31634		100%	-
EL32199		100%	-
EL32200		100%	-
EL32344		100%	-
EL32345		100%	-

Note: EL = Exploration Licence (granted)