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**Australian Securities Exchange Announcement**

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**20 January 2022****HPA-Precursor Project**

The Definitive Feasibility Study for our Type 1 Aluminium Salt Precursor Plant project is progressing well. Aluminium salts are used in the manufacture of precursor Cathode Active Materials (P-CAM) which are then lithiated with lithium hydroxide or lithium carbonate to produce the Cathode Active Materials (CAM) used in lithium ion batteries (LiB). P-CAM's are intermediate mixed metal hydroxides made by a co-precipitation process where nickel, cobalt, manganese and aluminium salts are precipitated as a mixed metal hydroxide of specific composition, morphology and particle size distribution

Engineering studies are being undertaken by COMO Engineers and remain on track for completion at the end of April 2022.

Market investigations are also underway, identifying end-users of NCA (Nickel-Cobalt-Aluminium) and NCMA (Nickel-Cobalt-Manganese-Aluminium) chemistry p-CAM's and also market research groups with expertise in these LiB cathode commodities. The NCA and NCMA chemistry based LiB cathodes are used in the manufacture of current and next-generation LiB for high-performance fully electric vehicles (EV).

In November 2021 King River Resources Ltd (KRR) reported on Source Certain International (SCI) utilising KRR's Type 1 Aluminium salt precursor (Figure 1) to produce a NCA p-CAM chemistry of 85:15:5 chemical composition (KRR ASX release 3 Nov 2021). Further testwork is underway to obtain the correct particle morphology (shape and crystal form) and size distribution required for high density and safe cathode materials. Type 1 Aluminium salt has also been used to make a new intermediate Type 2 Aluminium compound (Figure 2) more suited to conversion to high purity alumina (HPA) on calcination and also conversion to other aluminium salts used in LiB and LED (light emitting diode) lighting applications (KRR ASX release 10 December 2021). Further experimentation is underway to improve the purity of this Type 2 Aluminium Compound precursor.



**Figure 1: Type 1 Aluminium Salt Precursor (>99.999% purity)**



**Figure 2: Type 2 Aluminium Compound Precursor and NCA p-CAM (in glass vial)**

In November 2021 King River Resources Ltd (KRR) also reported that the Laboratory Scale Pilot Plant (Figure 3) had been successfully commissioned with bulk laboratory sample productions in progress. Campaigns 1, 2, 3 and 4 have now achieved >99.999% (5N) purity of Type 1 Precursor (Figure 4) (KRR ASX releases 3 Dec 2021, 10 December 2021 and 4 January 2022).



**Figure 3: Laboratory Scale Pilot Plant – Type 1 Precursor production for market samples**



**Figure 4: Campaign 1 Type 1 Precursor – Aluminium Salt**

## **KRR Joins the Future Batteries Industries CRC**

In October 2021, KRR signed a Participant Agreement with the Future Battery Industries Cooperative Research Centre (FBICRC) for collaboration in the following projects:

- Cathode Precursor and Active Materials Production Pilot Plant, and
- Development and application of Vanadium Redox Flow Batteries

The FBICRC has a portfolio of 17 research and development projects which span the battery value chain and bring together 70 industry participants, including major corporations such as BASF, BHP and IGO, the federal government, four state governments (WA, QLD, SA and NT) and eight research partners with a combined value in excess of \$120 million over six years. Headquartered in Perth, the FBICRC has an ambitious six-year, research and development program targeting all segments of the battery value chain: the policy and governance framework for battery industries; the processes for extraction, refining and processing of raw materials and advanced battery component materials, and their recycling; and the testing, manufacture and deployment of battery components and systems (refer KRR ASX release 6 October 2021).

## **Speewah Project**

Metallurgical testwork of the Speewah Project continued during the quarter with the focus on extracting high purity vanadium (V) and titanium (Ti) products to address the current interest in battery metals and master alloy compounds of the green economy. Current testwork involves solvent extraction (SX) and various roast methods to produce vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>), titanium dioxide (TiO<sub>2</sub>) and iron metal (Fe) products.

## **Gold Projects**

KRR continued exploration at its Mount Remarkable and Tennant Creek Gold Projects. Regional exploration at Mt Remarkable (up to 100km north and south of the Trudi vein) included follow up reconnaissance of anomalous gold results returned from helicopter based exploration earlier in the year. These results included the 7g/t Au rock chip grab sample result from the Middle Branch area (announced in KRR ASX release 13 October 2021). Reconnaissance exploration at the Tennant Creek project targeted the Rover East, Kurundi (Whistle Duck) and Taragans areas. The assay results are still pending for both the Mt Remarkable and Tennant Creek reconnaissance programmes and they are now expected in the coming month.

An airborne magnetic survey was completed over EL31634 southeast of Tennant Creek within the Barkly project. A total of 6,035 line km were flown. The programme was part of the NT governments collaboration programme "Resourcing the Territory" covering 50% of the survey costs. Geophysical processing of the data is currently underway and further airborne surveys are planned for 2022.

## **Corporate**

The Company's cash position as at 31 December 2021 was \$4,537,347.

With regards to the item 6.1 of the Appendix 5B, released concurrently with this quarterly activities report, the Company provides the following in relation to payments to related parties that totalled \$34,420 for the quarter:

- Office representation expenses of \$1,420 are costs paid to an associate entity of Directors; and
- The director fees for the quarter paid of \$33,000.

This announcement was authorised by the Chairman of the Company.

### **Anthony Barton**

King River Resources Limited

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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 31 December 2021

#### 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 (held by Speewah Mining Pty Ltd)	100%	-
E80/3657		100%	-
E80/4468		100%	-
L80/43		100%	-
L80/47		100%	-
M80/267		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%		-
ELA80/5192	100%		Withdrawn 28 October 2021
ELA80/5193	100%		Withdrawn 28 October 2021
E80/5194	100%		-
E80/5195	100%		-
E80/5196	100%		-

Note: E = Exploration Licence (granted), ELA = Exploration Licence (application),  
 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), ELA = Exploration Licence (application)