
Australian Securities Exchange Announcement 23 July 2018

Highlights

- High purity Vanadium Pentoxide produced assaying **99.51% V_2O_5**.

King River Copper Limited (ASX: KRC) is pleased to provide this update on hydrometallurgical testwork completed by TSW Analytical Pty Ltd ("TSW Analytical"). This work is part of a Vanadium Concept Study into the production of high purity Vanadium Pentoxide powder (>99.5 V_2O_5) and standard grade Vanadium Pentoxide flake (>98% V_2O_5), Titanium Dioxide products (pigment and high purity >99% TiO_2), iron oxide hematite and Vanadium Electrolyte (used in vanadium flow batteries) for input into a Scoping Study.

Metallurgical Testwork by TSW Analytical

TSW Analytical is investigating a new direct leaching-precipitation method to produce these products from the vanadiferous titaniferous magnetite concentrate of the Central Vanadium deposit at Speewah. This process is different from conventional salt roast technology or solvent extraction methods.

<u>Chemical Precipitation of High Purity Vanadium Pentoxide</u>

Leach 40 used the coarser grained magnetite-ilmenite concentrate from the diamond core beneficiation test that assayed 2.11% V_2O_5, 16.23% TiO_2 and 66.27% Fe_2O_3 (KRC ASX 21 March 2018). 200.11g of magnetite-ilmenite concentrate was leached into 9M (28.73%) hydrochloric acid (HCl) over 4 hours at 90°C and 10% pulp density with agitation. Leach efficiencies were 99.2% V, 96% Fe and 93% Ti. Thermal hydrolysis was then used to precipitate Titanium Dioxide from the leachate.

The Ti-depleted liquor was oxidised to precipitate Vanadium as a crude Vanadium-Iron compound with high Vanadium recovery of 95.8%.

The Vanadium in the crude Vanadium-Iron precipitate was separated using the Ammonium Metavanadate ("AMV") process route by first dissolving it in a caustic solution. The caustic solution pH was adjusted with HCl then ammonium chloride solution added to precipitate AMV.

AMV was purified by several high purity water recrystallisations to remove impurities from the AMV.

The purified AMV was calcined at 450°C which converted the AMV to high purity Vanadium Pentoxide that assays **99.51% V_2O_5** on a sum of impurities basis with 0.1874% Na_2O, 0.1007% K2O, 0.0916% SiO_2, 0.0306% Fe_2O_3, 0.0243% CaO and 0.0238% Al_2O_3.

High purity Vanadium Pentoxide 99.51% V_2O_5

Leach 41/42 is processing 400g of magnetite concentrate to generate more Vanadium Pentoxide product, and improve the leach, precipitation and purification recoveries and mass balance calculations.

To finalise the TSW Concept Study, the next processing and optimisation steps include:

- produce high value standard grade V_2O_5 flake suitable for the steel industry.
- refine the high purity V_2O_5 powder process suitable for chemical and battery grade products.
- titanium dioxide testwork to improve recovery of KRC's high purity TiO_2 and other TiO_2 products.
- iron oxide (hematite) precipitation testwork and maximise HCl acid recovery.

In addition, the high purity V_2O_5 product will be used in initial trials to make Vanadium Electrolytes (VE).

Directors Comments

The production of high purity Vanadium Pentoxide assaying 99.51%% V_2O_5 is another important milestone in KRC's plan to become an important player in the manufacture of vanadium and titanium products. Future testwork will aim to improve upon this excellent first result.

The AMV process route is a known technology and the high solubility of AMV in water allows for improvements in V_2O_5 purity in future testwork.

Background on the Speewah Vanadium Project

KRC's Vanadium Project is based on the largest vanadium-in-magnetite deposit in Australia with the highest vanadium grade in the magnetite-ilmenite concentrate. KRC's vanadium deposit is 100% owned and located at Speewah in the East Kimberley of Western Australia. The deposit comprises a Measured, Indicated and Inferred Mineral Resource of 4,712 million tonnes at 0.3% V_2O_5, 2% Ti and 14.7% Fe (reported at a 0.23% V_2O_5 cut-off grade from the Central, Buckman and Red Hill deposits). This combined resource total comprises Measured Resources of 322 million tonnes at 0.32% V_2O_5, 2% Ti and 14.9% Fe, Indicated Resources of 1,054 million tonnes at 0.33% V_2O_5, 2% Ti and 14.9% Fe, and Inferred Resources of 3,335 million tonnes at 0.29% V_2O_5, 2% Ti and 14.6% Fe (Refer to KRC ASX announcement 26 May 2017 for the full resource statement details).

KRC envisages an open cut mining operation based on the Central Vanadium deposit which outcrops and has shallow dipping geometry (refer KRC ASX announcement 20 June 2018 for an initial conceptual pit modelling study). KRC's Vanadium Concept Study is examining a process flow sheet to produce vanadium pentoxide, titanium dioxide and iron oxide products (KRC ASX release 20 June 2018). Initially a magnetite concentrate grading 2.11-2.15% vanadium pentoxide (V_2O_5) is produced by crushing, grinding and magnetic separation methods (KRC ASX announcements 21 August 2017 and 21 March 2018). The vanadium and titanium enriched concentrate is then leached in hydrochloric acid to release the V, Ti and Fe metals into solution for separation by hydrothermal and chemical precipitation methods followed by purification steps to produce high purity vanadium pentoxide (V_2O_5) and titanium dioxide (TiO_2) products (KRC ASX announcements 30 January 2018, 27 February 2018 and 25 June 2018).

About TSW Analytical

TSW Analytical was established in 2006 to offer research-based scientific services. These scientific services are focused on solving problems which cannot be addressed by the suppliers of routine laboratory analytical service. Since inception, the company has grown to become one of the leading suppliers of forensic and analytical chemistry in Australia and abroad. The highly diverse expertise of the TSW Analytical team has enabled the business to provide services to almost any client; from those involved in mining and exploration, to food regulators, producers and distributors, law enforcement agencies (domestically and internationally), consultants to the oil and gas industry as well as those pursuing academic endeavours. TSW Analytical is actively involved in cutting-edge scientific research which enables the delivery of a unique scientific service and facilitates an exceptional, highly applied research and training environment (http://www.tswanalytical.com.au/about.html).

Statement by Competent Person

The information in this report that relates to Exploration Results, Mineral Resources and Metallurgy is based on information compiled by Ken Rogers (B.Sc.Hons.) and Dr. John Watling (Ph.D.) and fairly represents this information. Mr. Rogers is the Chief Geologist and an employee of King River Copper 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. Dr. Watling is the Chief Scientist at TSW Analytical Pty Ltd, and former Professor of Forensic Chemistry at the University of Western Australia, he is a Fellow of both the Royal Australian Chemical Institute (RACI) and the Royal Society of Chemistry (RSC) (London), he is a Chartered Scientist and Chartered Chemist and a Registered Analytical Chemist with the Royal Society of Chemistry, he supervised the hydrometallurgical test work, analytical procedures and chemical studies reported in this announcement. 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 and Dr. Watling consent to the inclusion in this report of the matters based on information in the form and context in which it appears.

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Appendix 1: King River Copper Limited Speewah Project JORC 2012 Table 1

The following section is provided to ensure compliance with the JORC (2012) requirements for the reporting of exploration results:

SECTION 1 : SAMPLING TECHNIQUES AND DATA

Criteria	JORC Code explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.*	This ASX Release dated 23 July 2018 reports on further metallurgical test work programmes on the Vanadium deposits at the Company's Speewah Project. *Metallurgical Sample:* A 1kg sample of the vanadiferous titano-magnetite concentrate previously produced by Nagrom the Mineral Processor (refer KRC ASX announcement 21 March 2018).
Sampling Techniques (continued)	*Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*	*Metallurgical Sample:* Leach 40 used 200.11g of concentrate leached in 9M (28.73%) HCl for 4 hours at 90°C, 10% pulp density and with agitation.
	Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	*Metallurgical Sample:* 200.11g of concentrate was leached in 9M (28.73%) HCl for 4 hours at 90°C, 10% pulp density and with agitation. The leachate was heated under evaporative and reflux to reduce the volume and promote the precipitation of a crude Titanium Dioxide which was filtered for later purified to high purity TiO_2. The Ti-depleted leachate was used in the Vanadium extraction testwork.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	No drilling was undertaken.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	No drilling was undertaken.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	No drilling was undertaken.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No drilling was undertaken.
Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	No drilling or logging was undertaken.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	No drilling or logging was undertaken.
	The total length and percentage of the relevant intersections logged.	No drilling or logging was undertaken.

Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No diamond core drilling was undertaken.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	No drilling was undertaken.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	No drilling was undertaken.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	No drilling was undertaken.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	No drilling was undertaken.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	No drilling was undertaken.
Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	Titanium Oxide (TiO2) product generation testwork was undertaken by thermal hydrolysis without the addition of any reagents. The leach liquor was heated under reflux and distillation conditions to promote the hydrolysis of Titanium. Vanadium Pentoxide (V2O5) product generation testwork was undertaken trialling selective chemical precipitation using various precipitating agents and controlling acidity (pH), redox potential (Eh) and temperature. Further TiO_2 and V_2O_5 production tests are underway and planned. TSW Analytical is a well-established analytical service provider that has developed a reputation for producing accurate analyses for complex samples. The company's expertise has assisted with the development of hydrometallurgical flow-sheets for multi-element ore concentrates. The titaniferous vanadiferous magnetite concentrate (supplied by the client) and leach residues have been assayed using ICP-AES and ICP-MS. Samples were fused in a lithium borate flux, the resultant glass bead was dissolved in hydrochloric acid and suitably diluted for either ICP-MS or ICP-AES analysis. Loss on Ignition (LOI) at 1000 ^{O}C was performed for completeness of the analytical data and to give a better indication of the total analytical percentage approximation to 100%. The leach solutions and wash liquors have been analysed using ICP-AES and ICP-MS. The samples were diluted suitably for the appropriate ICP based analysis. Dilutions are used to bring the analyte concentration into the optimum analytical range of the ICP instrument used and to reduce matrix interference complications during quantification. Leach efficiency has been determined using the mass of the total analyte in the leach residue divided by the mass of the total analyte in the initial titaniferous vanadiferous magnetite concentrate used. The resulting fraction is multiplied by 100 to give a percent leach efficiency. TSW Analytical uses in-house standards and Certified Reference Materials (CRMs) to ensure data are "Fit-For-Purpose".

	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical data was collected.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	TSW Analytical - concentrations are reported as micrograms per gram (µg/g) in the solid unless otherwise stated, Instrumental response is measured against AccuTrace High Purity multi-element standards (Choice Analytical) to achieve quantitation. Data are subjected to in-house QA and QC procedures where an independent analyst recalculates instrumental output and compares the newly generated data set with the original. Lack of equivalence between the two data sets triggers an internal review and if necessary re-analysis of the entire data set. Under these circumstances a third independent analyst will assess all generated data prior to sign off. Initial equivalence between the two data sets, generated by the analyst and reviewer, will clear data for remittance to the customer. All reports are reviewed by an independent analyst prior to submission to the customer and where necessary relevant changes, such as wording that may give rise to possible ambiguity of interpretation, will be modified prior to the final report being sent to the customer.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	No drilling or other sampling was undertaken.
	The use of twinned holes.	No twinned holes have been completed.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	No drilling or other sampling was undertaken.
	Discuss any adjustment to assay data.	No adjustments or calibrations will be made to any primary assay data collected for the purpose of reporting assay grades and mineralised intervals.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	No drilling or other sampling was undertaken.
	Specification of the grid system used.	No drilling or other sampling was undertaken.
	Quality and adequacy of topographic control.	No drilling or other sampling was undertaken.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	No drilling or other sampling was undertaken.
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	No drilling or other sampling was undertaken.
	Whether sample compositing has been applied.	No drilling or other sampling was undertaken.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	No drilling or other sampling was undertaken.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	No drilling or other sampling was undertaken.

Sample security	*The measures taken to ensure sample security.*	Chain of Custody is managed by the Company until samples pass to a duly certified metallurgical laboratory for subsampling, assaying, beneficiation and hydrometallurgical test work. The RC assay pulp bags are stored on secure sites and delivered to the metallurgical laboratory by the Company or a competent agent. The chain of custody passes upon delivery of the samples to the metallurgical laboratory.
Audits or Reviews	*The results of ay audits or reviews of sampling techniques and data.*	No external audits have been completed.

Section 2 : Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Speewah Project comprises 16 exploration licences. Details are listed in Table 1 Schedule of Tenements held at 31 March 2018 reported previously in the March Quarterly Report. The Speewah test work reported in this announcement are from samples collected entirely within E80/2863. The tenements are 100% owned by Speewah Mining Pty Ltd (a wholly owned subsidiary of King River Copper Limited), located over the Speewah Dome, 100km SW of Kununurra in the NE Kimberley. The tenements are in good standing and no known impediments exist. No Native Title Claim covers the areas sampled and drilled. The northern part of the tenements (but not E80/2863) is in the Kimberley Heritage Area.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	Prior work carried out by Elmina NL in the Windsor area included rock chip sampling and RC and DC drilling to delineate the ABC fluorite deposit in 1988-1993. Mineral Securities Ltd in joint venture with Doral Mineral Industries completed further drilling of the ABC fluorite deposit, a new resource estimate, heritage, environmental and hydrology studies, and a prefeasibility study into the development of an acid grade fluorspar operation.
Geology	*Deposit type, geological setting and style of mineralisation.*	The ferrovanadium titanium (Ti-V-Fe) deposits occur within the Palaeo-Proterozoic Speewah Dome, which is an elongated antiform trending N-S in the East Kimberley Region of Western Australia. The dome is about 30 km long and attains a maximum width of about 15 km. It comprises sediments and minor volcanics of the Speewah Group, intruded by the Hart Dolerite sill, a large layered, mafic intrusive complex which forms the core of the dome. The vanadium-titanium mineralisation is hosted within a magnetite bearing gabbro unit of the Hart Dolerite, outcropping in places and forming a generally flat dipping body that extends over several kilometres of strike and width. The layered sill is up to 400m thick containing the magnetite gabbro unit which is up to 80m thick. Exposure is limited and fresh rock either outcrops or is at a shallow depth of a few metres. Ti-V-Fe mineralisation occurs as disseminations of vanadiferous titano-magnetite and ilmenite. Within the tenement the layered deposit has been divided into three deposits – Central, Buckman and Red Hill. The test work reported in this announcement was sampled from the Central vanadium deposit.

Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* • *easting and northing of the drill hole collar* • *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* • *dip and azimuth of the hole* • *down hole length and interception depth* • *hole length.* • *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	No drilling or other sampling was undertaken.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	No drilling or other sampling was undertaken.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	No drilling or other sampling was undertaken.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are used for reporting.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	No drill results reported.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	No drill results reported.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Reports on previous metallurgical results can be found in ASX Releases that are available on our website, including announcements 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012, 21 April 2017, 21 August 2017, 9 October 2017, 4 December 2017, 30 January 2018, 27 February 2018, 21 March 2018 and 25 June 2018.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Updated vanadium resource estimates in accordance with the JORC 2012 guidelines were reported in KRC ASX announcement 26 May 2017.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Further metallurgical optimization tests are planned to increase metal recoveries, shorten leach times and reduce acid consumption, and trialing selective chemical precipitation, thermal hydrolysis and solvent extraction methods to precipitate vanadium pentoxide and titanium dioxide, and make vanadium electrolyte.