



6 October 2023

Technical Update on Speewah Project

The Board of Tivan Limited (ASX: TVN) (“Tivan” or the “Company”) is pleased to provide a technical update for the Speewah Vanadium-Titanium-Iron Project (“Speewah” or “Project”) in Western Australia, ahead of its transition to a Pre-Feasibility Study phase in the first half of 2024.

The principal purpose of this update is to address technical questions on Speewah’s mineralogy and metallurgy that are regularly asked by institutional investors in conducting due diligence with Tivan. In particular, Tivan has presented since February a peer comparison chart that highlights Speewah as having a relatively low resource grade and a very high concentrate grade for vanadium. This feature is explained in detail below and further technical information regarding the Speewah resource is also provided.

Today’s update underscores the competitive advantages that Speewah has over vanadium in titanomagnetite resources globally, specifically its high concentrate grade, low strip ratio, close proximity to port and very large size. These characteristics flow through to project economics, in terms of expected revenue, capital expenditure and operating expenditure, that will be defined as Tivan proceeds through traditional project development stage gates in upcoming years.

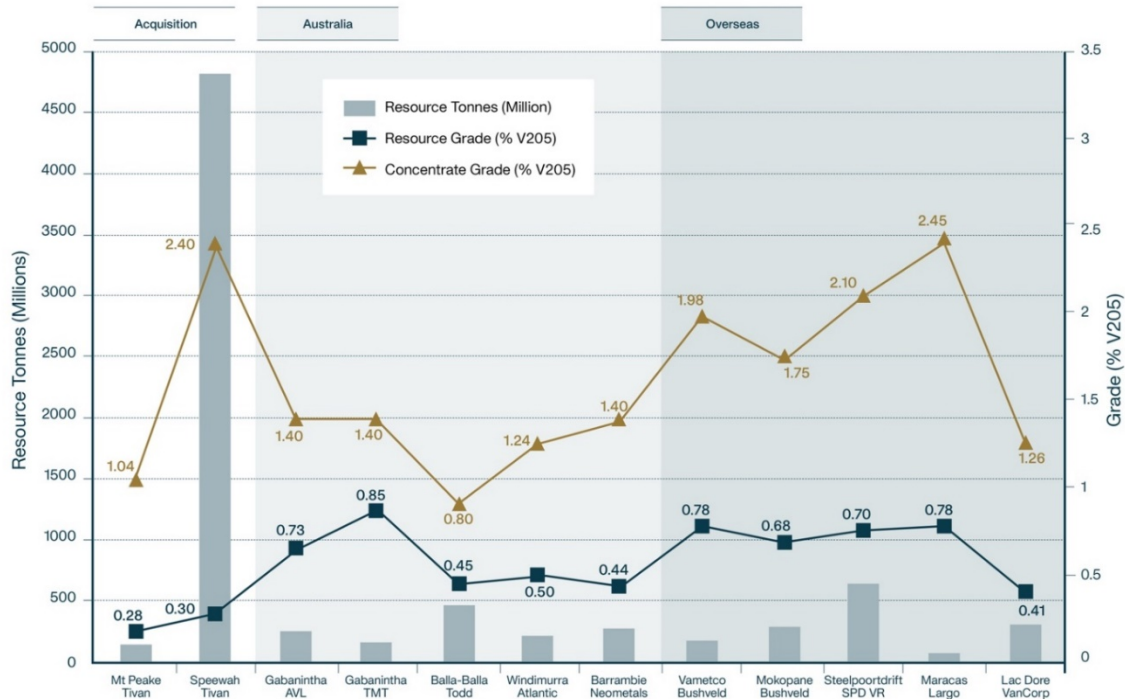


Figure 1: Vanadium Resource Peer Comparison

Figure 1 has been prepared in accordance with ASX compliance update 19 September 2018, update no. 08/18. For additional details regarding the vanadium resource peer comparison, please refer to the ASX announcement of 20 February 2023 (and Appendix 1) when Tivan announced the acquisition of Speewah. Mineral resource definition for Speewah, and an updated Competent Person’s statement, are included as Appendix 1.

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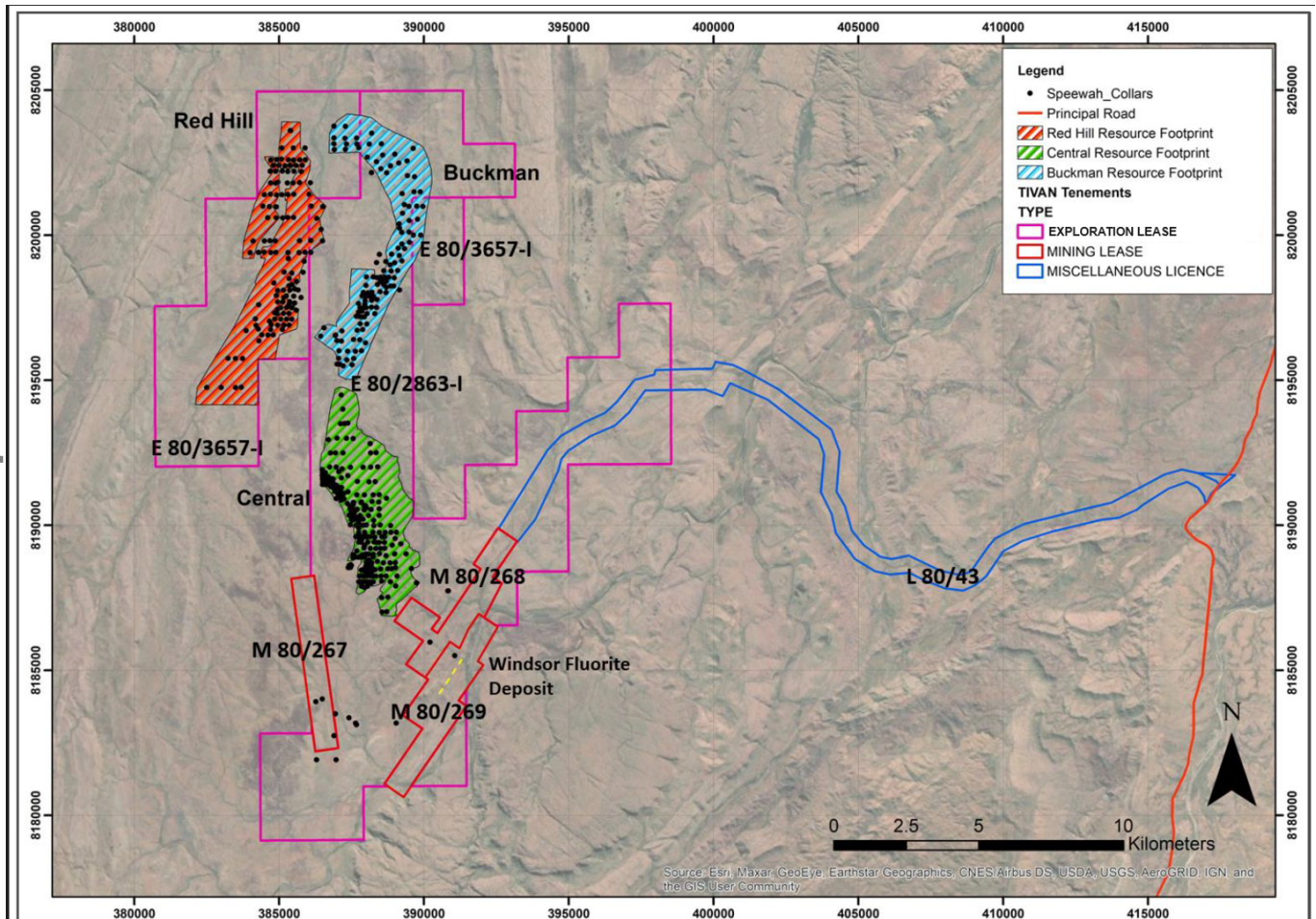
Speewah Mineral Resource overview

Speewah hosts the largest reported vanadium in titanomagnetite resources in Australia, and one of the largest globally, containing JORC compliant Mineral Resources of aggregated Measured, Indicated and Inferred Resources of 4.7 billion tonnes at 0.30% V₂O₅, 14.7% Fe and 3.3% TiO₂ (0.23% V₂O₅ cut-off grade) (refer to Appendix 2).

Speewah comprises three deposits, referred to as Central, Buckman and Red Hill, located on the western part of the Northern Australian Craton. A laterally extensive magnetite gabbro hosts the vanadium-titanium-iron mineralisation within the Speewah Dome.

Consistent with the prior development strategy of previous owner King River Resources Limited (“KRR”), Tivan is focused on the Central deposit at Speewah for commencement of mining operations.

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Source: SRK

Figure 2: Map of Speewah showing Central, Buckman and Red Hill deposits



The Central orebody can be pictured as a slab that is ~50m thick which dips into the earth at a 35 degree angle. The deposit outcrops at its the western edge and is very shallow due to the near horizontal dipping geometry of the ore. The relatively low dip angle reduces the volume of overburden (waste) required to be removed to access the ore.

The very large size of the deposit facilitates mining along the strike (closest to surface ore); the closest to surface high-grade ore is both suitable for mining and represents a large, accessible volume. Prior project development works by KRR confirmed a very low strip ratio of 0.4 (see KRR ASX announcement of 20 June 2018).

Speewah contains both high-grade and lower-grade ore domains. As with most orebodies there is variability in grade throughout. In the Speewah orebody the vanadium grade in the vanadiferous titanomagnetite grains increases with depth to the base of the high-grade portion of the orebody. The increasing grade in the titanomagnetite grains means the lower-grade portion of the orebody will produce a lower grade vanadium concentrate than the high-grade portion of the orebody.

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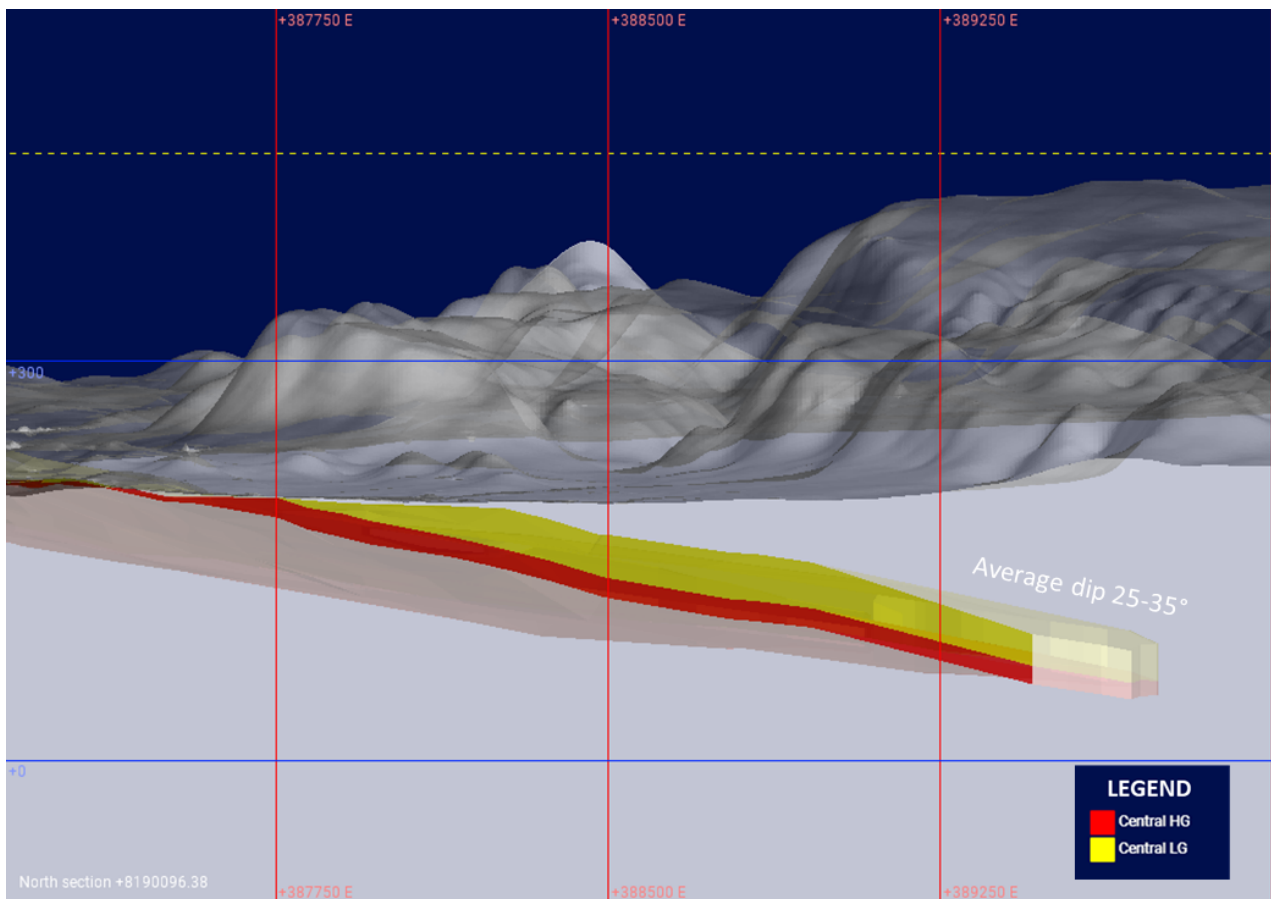


Figure 3: North facing cross section showing representative dip of the orebody



Titanomagnetite deposits also typically feature fresh, transition and oxide ore. The three types of ore represent different levels of oxidation states. The most oxidized material typically sits near the surface of the deposit while the least oxidized ore is typically deeper; the transition zone is used to describe the zone where there is a mix of fresh and oxidized ore.

When vanadiferous titanomagnetite is oxidized the chemical composition of the ore is changed. The changed chemical composition of the ore causes changes in the magnetic susceptibility of the minerals. As oxidation of the ore increases the magnetic susceptibility of the vanadium bearing minerals is reduced. The outcome when concentrating the ore is lower overall recoveries and potentially lower grades depending on the recovery process.

Fresh ore is the preferred ore type for high recoveries and high vanadium grades in concentrate for the simplest possible flowsheet. The Speewah deposit consists of shallow fresh ore. Given the easy accessibility of the high-grade fresh ore, looking at the processing surface oxide layers is not considered by Tivan as a priority.

Vanadium in concentrate grade

Speewah ore presents as relatively low grade of vanadium in-situ. The relatively low grade is due to the percentage of high grade vanadiferous titanomagnetite minerals in the ore being relatively low, that is, the mass percentage of Fe-Ti(V) minerals are a small portion of the minerals held within the ore.

The scanning electron microscopy (SEM) map in Figure 4 below represents this effect on the millimeter scale for Speewah ore. The red minerals represent the vanadium containing titanomagnetite in a Speewah ore sample. The other minerals (waste) dilute the vanadium grade which leads to the relatively low Speewah resource grade. When the deleterious mass is efficiently rejected using standard beneficiation processing technologies for this ore type, the final Speewah concentrate product has a very high vanadium grade.

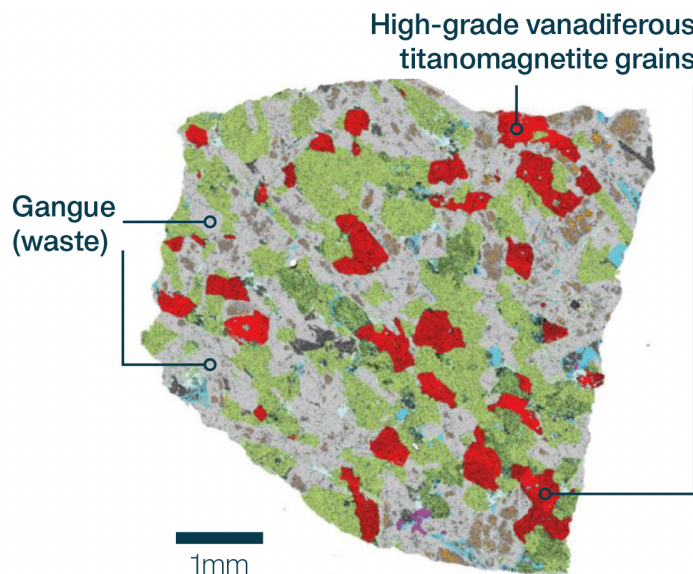


Figure 4: SEM map showing disseminated magnetite and ilmenites grains (red)



The beneficiation process can produce a magnetite concentrate with grades of 2.15% to 2.64% V_2O_5 , which is materially higher than that reported by all other Australian vanadium deposits (refer to Figure 1 - Vanadium Resource Peer Comparison; refer to KRR ASX announcements of 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012 and 21 April 2017).

This was also validated in 2011 when approximately 6 tonnes of RC drilling samples were processed to produce a high-grade concentrate assaying 2.44% V_2O_5 . Tivan received the remaining concentrate sample (approximately 200 kg), as part of the acquisition of Speewah from KRR.

Due to the very large size of the deposit and corresponding high volume of relatively shallow high-grade ore, Tivan is evaluating a “high grading” mining strategy in the early years to accelerate the project payback period.

When upgrading the ore to produce a concentrate no chemical changes are required, all upgrade processes are physical. The implication is the minerals within the ore do not change in the process, the only processes occurring are the reduction of particle size and preferential rejection of the minerals which contain no vanadium.

The vanadium grade in the orebody and concentrate is driven by two factors:

1. The mass percentage of the Fe-Ti(V) minerals

Fe-Ti(V) beneficiation technologies focus on increasing the mass percentage of Fe-Ti(V) minerals into a single product by rejecting the waste. The gangue is a high proportion of the total mass in the Speewah ore, therefore, after rejecting this gangue only ~10-15% weight of the original ore remains.

2. The concentration of vanadium in the Fe-Ti(V) minerals

As no chemical changes are made to the ore in the beneficiation process, the concentration of vanadium in the Fe-Ti(V) minerals does not change, making it an inherent property of the orebody.

At Speewah, the vanadium composition of the Fe-Ti(V) concentrate will be closer to the average vanadium grade in the Fe-Ti(V) minerals due to less dilution from gangue minerals.

The limiting factor for the best achievable vanadium composition in the concentrate is grind size. As a general rule of thumb, the finer the particle size, the better the separation of gangue and valuable minerals. The chart below in Figure 5 shows the increasing vanadium grade in Speewah concentrates when grinding to finer sizes. This data is based on testwork conducted by KRR that has been extensively reviewed by Tivan’s project team.

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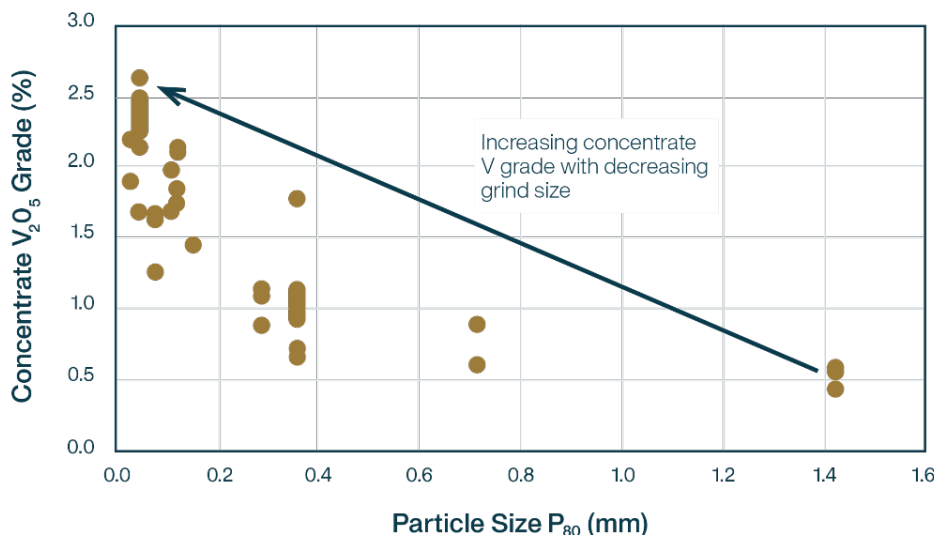


Figure 5: Speewah concentrate grade relative to particle size

The presented datapoints were extracted from KRR supplied metallurgical testwork data. The testwork data was prepared across multiple testwork programs, with differing process configurations and feedstocks, therefore not all programs were optimised for a salt roasting project or for meeting the highest grade concentrate for a specific grind size. As part of the project development, Tivan will be optimising the process for a salt roast project.

Each vanadium in titanomagnetite resource has a maximum achievable vanadium grade in its concentrate. When grinding finer, there is typically a trade-off between overall vanadium recovery and vanadium grade in concentrate. This tends toward an optimum grind size where the economics are most favourable for a technically viable processing solution.

The baseline grind sizes being evaluated by Tivan's project team are relatively common in industrial metallurgical operations and can be achieved with conventional well established technologies. The path from bench scale metallurgy to industrial implementation is also well defined. These areas are within scope of the engineering review currently being conducted by Hatch.

Concentrate grade is an important metric as it translates on a linear basis into higher vanadium output and therefore higher revenue from downstream processes. That is, a concentrate grade that is twice as high as between Resource X and Resource Y translates into twice as much expected revenue, all else being equal, for the equivalent tonnes of concentrate and salt roast vanadium recoveries.

For Speewah, the reported vanadium in concentrate grade of ~2.40% is very high relative to peer. The results are based on extensive testwork by KRR that has been corroborated by Tivan's project team, and that will be further optimized in the period ahead. The anticipated process flowsheet for the high vanadium concentrate grades inherent to Speewah utilises well-established industrial processes and technologies.

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Comment from Tivan Executive Chairman

Mr Grant Wilson commented:

“This is an important update for Tivan, addressing commonly asked technical questions with responses that underscore the superior characteristics of Speewah as a resource. Shareholders can be assured by the rigorous work being undertaken by our world-class team, now in conjunction with Hatch, building on high quality resource definition and studies conducted by KRR over the past decade.

Whilst we continue to move fast at Tivan, there will be no short cuts taken enroute to the Pre Feasibility Study (PFS) at Speewah. The integrity of such studies is often found wanting in the junior resources sector in Australia. This inevitably undermines project delivery and ultimately erodes shareholder value. Tivan will deliver a robust PFS next year, leveraging Speewah’s superior characteristics, in support of project finance and downstream facilitation of long duration energy storage”.

This announcement has been approved by the Board of the Company.

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Appendix 1 – Hard Rock Vanadium Peer Comparison Table



Acquisition		Australia		Overseas						
Company	Code	Deposit	Location	Stage	Resource Category	Resource (Mt)	Resource Grade (V2O5%)	Total Resource (Mt V2O5%)	Concentrate Grade	Sources and Notes
Tivan	ASX: TVN	Mount Peake	NT	Development	Measured	118.0	0.29	160Mt @ 0.28% (Cutoff V2O5% 0.10%)	1.04	ASX announcement 24 January 2023 Quarterly Activities Report, TNG investor presentation https://tivan.com.au/wp-content/uploads/2023/02/61132915-1.pdf https://www.asx.com.au/asxpdf/20190604/pdf/445lqv6lxy90gf.pdf
					Indicated	20.0	0.28			
					Inferred	22.0	0.22			
KRR	ASX: KRR	Speewah	WA	Development	Measured	322.0	0.33	4712Mt @ 0.30% (Cutoff V2O5% 0.23%)	2.40	ASX announcement 1 April 2019, 10 May 2022, 22 September 2022 https://app.sharelinktechnologies.com/announcement/asx/4fd202b184aafb93bc7350413f16d283 https://app.sharelinktechnologies.com/announcement/asx/5f6090d1a01816a20d24a633a15ecb20 https://app.sharelinktechnologies.com/announcement/asx/41ad6aa2b6c9b0c09cb45d6b2046327d
					Indicated	1,054.0	0.30			
					Inferred	3,335.0	0.29			
AVL	ASX: AVL	Gabanintha	WA	Development	Measured	11.3	1.14	239Mt @ 0.73% (various cutoffs)	1.40	ASX announcement 6 April 2022 Bankable Feasibility Study. 73.6Mt of the Indicated and 88.5Mt of the Inferred tonnes use 0.40% V2O5 cutoff. All other tonnages (95.6Mt) are at 0.70% V2O5 cutoff.
					Indicated	82.4	0.70			
					Inferred	145.3	0.71			
TMT	ASX: TMT	Gabanintha	WA	Development	Measured	12.1	1.00	154Mt @ 0.85% (Cutoff V2O5% 0.40%)	1.40	ASX announcement 23 November 2022 RUI Resurgence Conference 23 November 2022
					Indicated	51.2	0.90			
					Inferred	90.5	0.80			
Todd Resources	Private	Balla Balla	WA	Development	Measured	219.0	0.64	456Mt @ 0.64% (Cutoff V2O5% 0.30%)	0.80	Integrated feasibility study December 2009. ASX disclosure 16 December 2011. https://www.asx.com.au/asxpdf/20111216/pdf/4239v45c02k79t.pdf https://drive.google.com/file/d/1wGS4cibLxmYmTnnltz39T_n5uoU1WOLH/view
					Indicated	86.7	0.63			
					Inferred	150.2	0.64			
Atlantic	Private	Windimurra	WA	Development	Measured	34.6	0.49	210Mt @ 0.50% (Cutoff V2O5% 0.28%)	1.24	2019 Mineral Resource Estimate https://atlanticptyltd.com.au/projects/windimurra/geology-reserves-resources
					Indicated	123.5	0.50			
					Inferred	51.6	0.50			
Neometals	ASX: NMT	Barambie	WA	Development	Measured	n/a	n/a	280Mt @ 0.44% (Cutoff V2O5% 0.20%)	1.40	ASX announcement 17 April 2018 Updated Barambie Mineral Resource Estimate https://wcsecure.weblink.com.au/pdf/NMT/01971759.pdf
					Indicated	187.0	0.46			
					Inferred	93.0	0.40			
Bushveld	LSE: BMN	Vametco	South Africa	Production	Measured	n/a	n/a	183Mt @ 0.78% (Cutoff = 0.20% magnetite)	1.98	Vametco Inferred & Indicated Mineral Resource and Ore Reserve Update for Annual Reporting https://www.bushveldminerals.com/wp-content/uploads/2022/04/J4590-Vametco-Mineral-Resources-and-Ore-Reserves-31-December-2021-Dated-30-Mar-2022.pdf
					Indicated	140.1	0.74			
					Inferred	42.6	0.90			
Bushveld	LSE: BMN	Mokopane	South Africa	Development	Measured	n/a	n/a	297Mt @ 0.68% (Cutoff V2O5 = 0.30%)	1.75	Mokopane Vanadium project Pre-Feasibility Study 30/1/2016 http://bushveldminerals.com/wp-content/uploads/2017/08/201602040458050.pdf
					Indicated	63.2	1.32			
					Inferred	234.0	0.51			
SPD VR	ASX: VR8	Steelpoortdrift	South Africa	Development	Measured	145.5	0.72	680Mt @ 0.70% (Cutoff V2O5 = 0.45%)	2.10	ASX announcement 17 November 2022. Investor Presentation May 2022. https://vr8.global/sites/default/files/2022%2005%2009%20Vanadium%20Resources%20Investor%20Presentation%20.pdf
					Indicated	327.3	0.70			
					Inferred	207.4	0.68			
Largo Resources	NASD: LGO TSX: LGO	Maracas	Brazil	Production	Measured	45.9	0.83	79Mt @ 0.78% (Cutoff V2O5 = 0.30%)	2.45	43-101 Technical Report 10 October 2021 https://s29.q4cdn.com/562286712/files/doc_downloads/technical_report/marac%20C3%A1s_menchen_mine/TR_GE21_Largo_43101_16122021_Final-Version-Conformed-for-Filing.pdf
					Indicated	17.7	0.70			
					Inferred	15.5	0.74			
Lac Dore	TSX: VRB	VanCorp	Canada	Development	Measured	24.0	0.50	304.9Mt @ 0.41% (Cutoff V2O5 = 0.30%)	1.26	Lac Dore Mineral Resource Estimate 29 October 2020 https://www.vanadiumcorp.com/releases/vanadiumcorp-reports-the-lac-dore-mineral-resource-estimate-mre-2/
					Indicated	191.0	0.40			
					Inferred	89.9	0.40			

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Appendix 2

SPEEWAH PROJECT MINERAL RESOURCES

Mineral Resource

In 2010, Runge Ltd reported a Mineral Resource estimate for the Speewah vanadium deposit in accordance with JORC 2004. In 2012 this estimate was updated by Runge Ltd again in accordance with JORC 2004. In 2017, KRR engaged mining industry consultants CSA Global Pty Ltd (“CSA”) to complete an updated resource estimate for the Speewah Project, consistent with the JORC Code 2012 (refer to KRR ASX announcement of 26 May 2017). In 2019, CSA further updated the resource estimate to include the reporting of the TiO₂ grade (refer to KRR ASX announcement of 1 April 2019), which is shown in the table below.

Speewah project Global Mineral Resource estimate (0.23% V₂O₅ cut-off grade)

Zone	JORC Classification	Tonnage (Mt)	V(%)	V ₂ O ₅ %	Fe%	Ti(%)	TiO ₂ %
High Grade	Measured	181	0.21	0.37	15.1	2.1	3.5
	Indicated	404	0.20	0.35	15.0	2.0	3.4
	Inferred	1,139	0.19	0.34	14.9	2.0	3.4
Total High Grade		1,725	0.20	0.35	15.0	2.0	3.4
Low Grade	Measured	141	0.15	0.27	14.6	2.0	3.3
	Indicated	650	0.15	0.27	14.5	1.9	3.2
	Inferred	2,196	0.15	0.27	14.4	1.9	3.2
Total Low Grade		2,987	0.15	0.27	14.5	1.9	3.2
Combined Zones	Measured	322	0.18	0.32	14.9	2.0	3.4
	Indicated	1,054	0.18	0.33	14.9	2.0	3.3
	Inferred	3,335	0.16	0.29	14.6	2.0	3.3
Grand Total		4,712	0.17	0.30	14.7	2.0	3.3

* Due to the effects of rounding, the total may not represent the sum of all components

* V₂O₅ calculated as V x 1.785

* TiO₂ calculated as Ti x 1.668

Source: CSA Global

Competent Person’s Statements

The information in this announcement related to the Speewah Mineral Resource estimate is extracted from an ASX announcement of King River Resources Limited (ASX: KRR) entitled “Vanadium Resource Amendment” dated 1 April 2019 and is available to view on www.kingriverresources.com.au and www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original announcement, and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant 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.

The information in the KRR ASX announcement "Vanadium Resource Amendment" dated 1 April 2019 on pages 1 to 4 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 of the information in the KRR announcement "Vanadium Resource Amendment" dated 1 April 2019 on pages 1 to 4 of the matters based on information in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant 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 represented have not been materially modified from the original market announcement.

Ongoing geological activities at Speewah are being overseen by Stephen Walsh (BSc). Mr Walsh is the Chief Geologist and an employee of Tivan, and a member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Walsh 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.

Forward looking statements disclaimer

This announcement contains certain "forward-looking statements" and comments about future matters. Forward-looking statements can generally be identified by the use of forward-looking words such as, "expect", "anticipate", "likely", "intend", "should", "estimate", "target", "outlook", and other similar expressions and include, but are not limited to, the timing, outcome and effects of the future studies, project development and other work. Indications of, and guidance or outlook on, future earnings or financial position or performance are also forward-looking statements. You are cautioned not to place undue reliance on forward-looking statements. Any such statements, opinions and estimates in this announcement speak only as of the date hereof, are preliminary views and are based on assumptions and contingencies subject to change without notice. Forward-looking statements are provided as a general guide only. There can be no assurance that actual outcomes will not differ materially from these forward-looking statements. Any such forward looking statement also inherently involves known and unknown risks, uncertainties and other factors and may involve significant elements of subjective judgement and assumptions that may cause actual results, performance and achievements to differ. Except as required by law the Company undertakes no obligation to finalise, check, supplement, revise or update forward-looking statements in the future, regardless of whether new information, future events or results or other factors affect the information contained in this announcement.