

TESTWORK ENHANCES CONCENTRATE FROM STEELPOORTDRIFT VANADIUM PROJECT

HIGHLIGHTS

- ◆ Testwork completed as part of the Scoping Study has successfully upgraded the Steelpoortdrift vanadium concentrate to a higher quality product through reducing deleterious silica and alumina
- ◆ Concentrate maintains superior V_2O_5 grade (2.2% V_2O_5) and increases iron content to 58.5% Fe
- ◆ Optimisation of concentrate quality will aid downstream processing due to efficient reagent consumption, which in turn will reduce operating costs
- ◆ Scoping Study continues to advance towards Q3 completion with VR8 seeking to be the lowest capex and opex global producer

The management of Vanadium Resources Limited (ASX:VR8) (**VR8** or **the Company**) is pleased to provide an update on the Company's testwork at the Steelpoortdrift Vanadium Project in South Africa.

Bill Oliver, Managing Director of VR8 commented:

"The testwork results confirm that deleterious elements in the concentrate, which may cause a material rise in the production costs of high purity V_2O_5 flake, have now been lowered to levels which enable efficient processing. It is highly encouraging that we were able to maintain the superior V_2O_5 concentrate grade at 2.2% whilst reducing the deleterious silica and alumina content. This optimisation of the concentrate will ultimately result in enhancing the extraction of vanadium in the salt roasting/leaching process and reducing operating costs for the project. This bodes well for the Company's aim of making Steelpoortdrift into one of the worlds lowest capex and opex producers."

Optimisation work associated with the Scoping Study has resulted in the upgrading of the Steelpoortdrift concentrate by reduction of deleterious silica and alumina contents (to 1.2% and 3.4% respectively, Table 1). Importantly, the vanadium content has been maintained at a very high grade 2.2% V_2O_5 with the iron content increasing to 58.5% Fe. This concentrate has been produced under plant simulation testwork conditions using bulk samples sourced from the Company's drilling at Steelpoortdrift.

Table 1. Concentrate results from cleaner trials

	Initial Concentrate		Upgraded Concentrate
V_2O_5 %	2.2	→	2.2
Fe %	54.6	↑	58.3
TiO_2 %	12.0	↑	12.3
SiO_2 %	3.2	↓	1.2
Al_2O_3 %	4.8	↓	3.4

The benefits of this upgrading are expected to be seen in the current salt roasting and leaching tests. Removal of silica removes a key deleterious element which impacts the efficiency of the roasting process as elevated silica levels can lead to increased reagent usage (and consequently operating costs) and/or sintering of the roaster feed material, both of which affect the extraction of vanadium in the leach process.

Previous plant simulation testwork used a two-stage magnetic separation process to produce concentrate grading 2.2% V_2O_5 (refer ASX Announcement 18 March 2019). To upgrade the concentrate further a third magnetic separation stage has been added and the concentrate has been milled slightly finer to 80% passing 106µm (vs 80% passing 300 µm in the previous trials).

It is worth noting that as the samples are milled finer they mirror more closely previous laboratory-scale, Davis Tube results (refer ASX Announcements 14 January 2019, 29 January 2019 and 5 August 2019). For Davis Tube analysis, the samples were milled to a much finer grind 80% passing 75µm. To achieve similar results at a coarser grade will have positive implications for the power and grinding requirements of the milling circuit.

The concentrate continues to return one of the highest V_2O_5 grades published globally at 2.2% V_2O_5 (Figure 1, Appendix 2). The Company looks forward to completion of the new salt roast and leach testing and the results being incorporated into the Scoping Study for the production of high purity +98% V_2O_5 flake.

Results from the Scoping Study are anticipated to demonstrate both the cost-competitive advantage and the viability of producing a high purity V_2O_5 flake product from Steelpoortdrift. It is expected that the high grade nature of the project, its location within a world renowned mining hub with key infrastructure and local experience in building and maintaining vanadium plants will significantly reduce unit operating costs and capital requirements, thereby ensuring the project is globally competitive.

This announcement has been authorised for release by the directors of Vanadium Resources Ltd.

For and on behalf of the board:

Kyla Garic

Company Secretary

BACKGROUND ON VANADIUM

Current day demand for vanadium arises from its established use in strengthening steel via various alloys. Consumption is currently increasing with the recent implementation of stricter standards on the strength of steel to be used in construction (specifically rebar). The use of vanadium in steel making accounts for over 90% of current vanadium demand in today's market.

The most commonly traded vanadium product is 98% V_2O_5 flake as it can be used directly in steel making or converted to ferrovanadium for additional uses in steel making. Higher purity vanadium products either are produced by a modern plant (such as being planned by VR8) or are further processed from 98% V_2O_5 flake for speciality uses in chemical industries, energy storage and high performance alloying technologies.

Such speciality uses are expected to provide additional longer term demand for vanadium. Vanadium redox flow battery (VRFB) technology was developed in Australia and has a number of advantages in industrial and small town sized energy storage requirements. The global move towards renewable energy solutions will require a vast increase in energy storage installations, which in turn is forecast to result in an increase in the amount of VRFBs being manufactured and installed around the world.

Another emerging use of vanadium is in high-performance light weight alloys. Supply of such alloys is increasing in the aerospace industry, with aeroplanes such as the Boeing Dreamliner 787 and the Airbus A350 now incorporating up to 100 tons of vanadium per aircraft.

Last month 98% V_2O_5 flake product traded between US\$6.10 – US\$6.30/lb (Fastmarkets Metal Bulletin) and has risen in recent weeks to trade around \$7.00/lb (US\$15,420/tonne; Fastmarkets Metal Bulletin). Trade remains quiet globally with suppliers reported to be unwilling to lower prices offered and end-user demand slow.

BACKGROUND ON THE STEELPOORTDRIFT VANADIUM PROJECT

The Steelpoortdrift titaniferous magnetite deposit is located in the prolific Bushveld Geological Complex surrounded by known mineral and vanadium production facilities within reach of proven processing plants, railway and road options and ports.

The Steelpoortdrift Vanadium project is licensed with a mining right and the Company is in the process of conducting work towards becoming fully permitted (such as acquiring a water use license) for production and towards studies to verify a pathway of options to produce high purity V_2O_5 flake and other niche products from the suite of elements present in the Titano-magnetite (V, Ti and Fe). The current Scoping Study aims to demonstrate the viability of producing high purity V_2O_5 flake from the Project.

The Steelpoortdrift Vanadium Project compares highly favourably to other vanadium deposits globally (Figure 1), as **the largest published global undeveloped Mineral Resource** (662 million tonnes at an in situ grade of 0.77% V_2O_5 , defined above an in-situ grade of 0.45% V_2O_5), as well as **the largest published high grade undeveloped resource** (188 million tonnes at an in situ grade of 1.23% V_2O_5 , defined above an in situ resource grade of 1% V_2O_5 , Appendix 3). A sizeable portion of this high grade resource (68Mt at 1.37% V_2O_5 , Appendix 3) is hosted in a discrete, massive magnetite unit which outcrops along 4km of strike within the project area.

The Steelpoortdrift Vanadium Project produces a high-quality concentrate containing approximately 2.2% V_2O_5 , 12% TiO_2 and 58% Fe (ASX Announcement 18 March 2019 and this announcement). Studies into downstream processing of this concentrate are in progress to confirm its ability to create high value products suitable for the steel, renewable energy (VRFB battery) and industrial minerals markets.

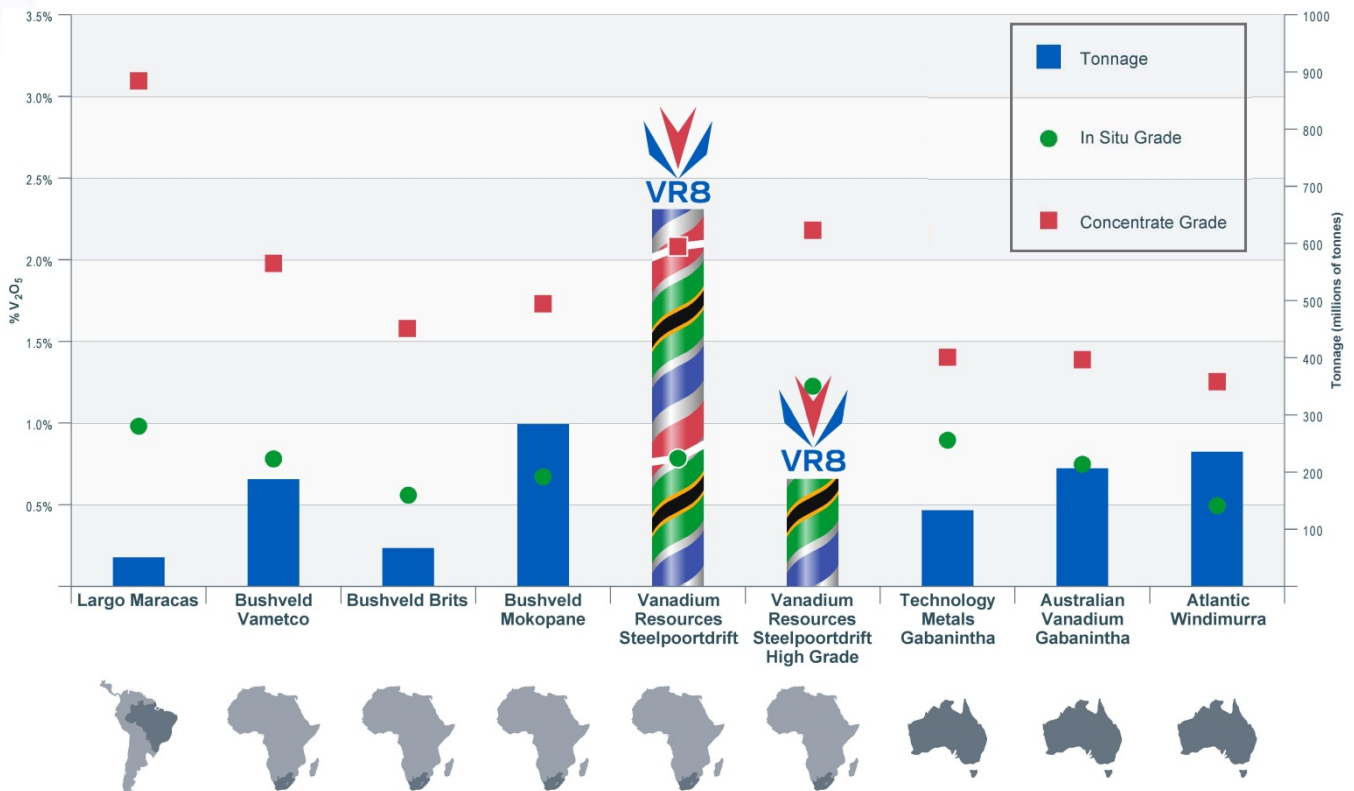


Figure 1. Global vanadium projects categorised by resource grade and grade in concentrate.

Chart compares resources reported under different codes and companies at different stages of development as detailed in Appendix 1. Only resources with a quoted in situ grade > 0.45% V₂O₅ are shown in figure.

APPENDIX 1: Metallurgical Analyses from Cleaner Trials

Trial Process	V ₂ O ₅ %	TiO ₂ %	SiO ₂ %	Al ₂ O ₃ %	Fe %
Original Concentrate	2.19	12.0	3.25	4.82	54.6
Remilled wet high intensity magnetic separation (HIMS)	2.05	12.0	3.04	4.14	55.8
Remilled dry low intensity magnetic separation (LIMS)	2.08	12.0	2.51	4.02	56.6
Remilled wet LIMS	2.16	12.3	1.18	3.44	58.3

Notes:

- The samples used to generate the concentrate were sourced from bulk rejects from the Company's 2018 and 2019 drilling programmes at the Steelpoortdrift Vanadium Project.
- Details of the sampling and analytical methods for the original concentrate were fully described in the ASX Announcement of 18 Mar 2019.
- Drilling and sampling methods are described in detail, including information prescribed by the JORC Code, in ASX Announcements dated 12 Oct 2018, 25 Oct 2018, 28 Nov 2018 & 16 Jan 2019.
- Concentrate samples were analysed at SGS laboratory in Johannesburg using pressed disc XRF as detailed in ASX Announcements dated 14 Jan 2019, 29 Jan 2019, 18 Mar 2019 and 5 Aug 2019.

APPENDIX 2: Data and sources for Peer Comparison (Figure 1)

Company	Project	Stage	Resource Category	Resource Tonnes	Resource Grade	Concentrate Grade	Information Source
Largo LGO.TSX	Maracas	Production	Measured, Indicated & Inferred (43-101)	49.25	0.99	3.10	43-101 Technical Report dated 26/10/2017 http://www.largoresources.com/operations/maracas-menchen-mine
Bushveld BMN.LSE	Vametco	Production	Indicated & Inferred	186	0.78	1.98	Competent Persons' Report on the Vametco Vanadium Mine Jan 2020 https://www.bushveldminerals.com/technical-reports/
	Brits	Development	Indicated & Inferred	66.8	0.56	1.58	Competent Persons' Report on the Brits Vanadium Project Jan 2020 https://www.bushveldminerals.com/technical-reports/
	Mokopane	Development	Indicated & Inferred	285	0.68	1.75	Mokopane PFS Study Report Jan 2016 https://www.bushveldminerals.com/technical-reports/
TNG TNG.ASX	Mt Peake	Development	Measured, Indicated & Inferred	160	0.28	1.20	ASX Announcement 26/03/2013
King River KRR.ASX	Speewah	Development	Measured, Indicated & Inferred	4,712	0.30	2.11	ASX Announcement 01/04/2019 06/11/2019
Pursuit Minerals PUR.ASX	Koitelainen Vosa	Development	Inferred	116.4	0.11	2.25	ASX Announcement 06/02/2019
	Airijoki	Development	Inferred	44.3	0.23	1.70	ASX Announcement 08/03/2019
Australian Vanadium AVL.ASX	Gabanimtha	Development	Measured, Indicated & Inferred	208.2	0.74	1.39	ASX Announcement 04/03/2020, 17/03/2020
Technology Metals TMT.ASX	Gabanimth	Development	Indicated & Inferred	131	0.90	1.36	ASX Announcement 29/03/2019

APPENDIX 3: Mineral Resource Statement for the Steelpoortdrift Vanadium Project

Table 1. *Steelpoortdrift Vanadium Project Global Mineral Resource by Resource Category.*

Category	V ₂ O ₅ Cutoff	SG	Tonnes (Mt)	Whole Rock V ₂ O ₅ %	Tonnes V ₂ O ₅ in magnetite (kt)
Measured	0.45%	3.35	92	0.77	711
Indicated	0.45%	3.37	284	0.78	2,219
Inferred	0.45%	3.38	285	0.77	2,197
Total			662	0.77	5,098

Table 2. *Steelpoortdrift Vanadium Project Mineral Resource by Zone (Measured, Indicated & Inferred).*

Layer	V ₂ O ₅ Cutoff	SG	Tonnes (Mt)	Whole Rock V ₂ O ₅ %	Tonnes V ₂ O ₅ in magnetite (kt)
Upper Zone	0.45%	3.40	244	0.75	1,830
Intermediate Zone	0.45%	3.23	158	0.57	898
Lower Zone (all)	0.45%	3.43	260	0.94	2,414
Lower Zone (LM1A only)	0.45%	3.73	68	1.37	928
Total			662	0.77	5,098

Table 3. *Steelpoortdrift Vanadium Project Mineral Resource by Grade*

V ₂ O ₅ Range	Category	SG	Tonnes (Mt)	Whole Rock V ₂ O ₅ %	Tonnes V ₂ O ₅ in magnetite (kt)
> 0.90%	Measured	3.65	26	1.22	321
> 0.90%	Indicated	3.67	83	1.24	1,032
> 0.90%	Inferred	3.67	78	1.22	957
Sub Total	> 0.90%		188	1.23	2,309
0.45% - 0.90%	Measured	3.25	66	0.59	389
0.45% - 0.90%	Indicated	3.26	201	0.59	1,187
0.45% - 0.90%	Inferred	3.28	207	0.60	1,241
Sub Total	0.45% - 0.90%		474	0.59	2,818
Total			662	0.78	5,098

Table 4. *Steelpoortdrift Vanadium Project Mineral Resource within 100m of surface by Grade*

V ₂ O ₅ Range	Category	SG	Tonnes (Mt)	Whole Rock V ₂ O ₅ %	Tonnes V ₂ O ₅ in magnetite (kt)
> 0.90%	Measured	3.65	22	1.22	268
> 0.90%	Indicated	3.66	53	1.19	635
> 0.90%	Inferred	3.67	52	1.19	614
Sub Total	> 0.90%		127	1.20	1,518
0.45% - 0.90%	Measured	3.25	60	0.59	353
0.45% - 0.90%	Indicated	3.26	159	0.60	953
0.45% - 0.90%	Inferred	3.29	113	0.60	677
Sub Total	0.45% - 0.90%		332	0.60	1,984
Total			459	0.76	3,486

These tables should be read in conjunction with the notes and supporting information detailed in the ASX Announcement of 29 April 2020. The Company confirms that all material assumptions and parameters underpinning the Mineral Resource Estimates and the Production Targets reported in the market announcements dated 2 May 2019 and 29 April 2020 continue to apply and have not materially changed, and that it is not aware of any new information or data that materially affects the information that has been included in this announcement.

Competent Persons Statement

The information in this announcement that relates to Mineral Resources, including the Mineral Resources contained within the Production Target, complies with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**) and has been compiled, assessed and created by Mr Kerry Griffin BSc.(Geology), Dip Eng Geol., a Member of the Australian Institute of Geoscientists and a Principal Consultant at Mining Plus Pty Ltd, consultants to the Company. Mr Griffin has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Griffin is the competent person for the resource estimation and has relied on provided information and data from the Company, including but not limited to the geological model and database. Mr Griffin consents to the inclusion in this announcement of matters based on his information in the form and context in which it appears. Further details on the Mineral Resource can be found detailed in the ASX Announcement of 29 April 2020.

The information in this announcement that relates to Exploration Results and other technical information relating to drilling, sampling and the geological interpretation derived from the Exploration Results complies with the JORC Code and has been compiled and assessed under the supervision of Mr Bill Oliver, the Managing Director of Vanadium Resources Ltd. Mr Oliver is a Member of the Australasian Institute of Mining and Metallurgy and the Australasian Institute of Geoscientists. He has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the JORC Code. Mr Oliver consents to the inclusion in this announcement of the matters based on his information in the form and context in which it appears. The Exploration Results are based on standard industry practises for drilling, logging, sampling, assay methods including quality assurance and quality control measures as detailed in the ASX Announcement of 29 April 2020.

The information in this announcement that relates to metallurgical testwork results has been compiled and assessed under the supervision of Mr Eugene Nel, a Professional Engineer of the Engineering Council of South Africa and a Member of the South African Institute of Mining & Metallurgy (both Recognised Professional Organisations as defined in the JORC Code). Mr Nel is the Principal Consultant at ENC Minerals (Pty) Ltd, consultants to the Company, and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Mr Nel consents to the inclusion in this announcement of matters based on his information in the form and context in which it appears..

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Some of the statements appearing in this announcement may be in the nature of forward looking statements. You should be aware that such statements are only predictions and are subject to inherent risks and uncertainties. Those risks and uncertainties include factors and risks specific to the industries in which VR8 operates and proposes to operate as well as general economic conditions, prevailing exchange rates and interest rates and conditions in the financial markets, among other things. Actual events or results may differ materially from the events or results expressed or implied in any forward looking statement. No forward looking statement is a guarantee or representation as to future performance or any other future matters, which will be influenced by a number of factors and subject to various uncertainties and contingencies, many of which will be outside VR8's control.

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