August 13, 2018

Tando identifies yet another major cluster of vanadium pipes at SPD

Photograph of NE vanadium pipe (dark rocks).

Tando Resources (ASX: TNO) is pleased to announce the confirmation of a major new cluster of vanadium pipes at its SPD Vanadium Project in South Africa.

Tando announced earlier this month that a magnetic survey had identified a new 400m by 400m target in the north-east of the project (Figure 1, refer ASX Announcement 2 August 2018).

Since then, Tando has mapped and sampled the target area, confirming the presence of a new cluster of vanadium pipes. Analytical results from these samples are pending, but on-ground inspection indicates that these pipes are very similar to those already mapped and sampled.

As a result, Tando has included this cluster on the list of targets which will be drilled as part of its upcoming program at the SPD Vanadium Project.

Confirmation of the presence of this new cluster provides more strong evidence of the potential for a low-cost DSO operation at SPD.

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Mapping and sampling has already delineated a host of shallow, high-grade vanadium pipes, which sit within a 3km radius of the established vanadium deposit at SPD, however the high resolution survey has defined the dimensions of these pipes as well as identifying the additional cluster referred to above.

Surface sampling conducted by Tando prior to the survey at many of these pipes returned high-grade vanadium assays which were consistently above 2% V_2O_5 (see ASX releases dated July 5, 2018 and May 7, 2018). The latest cluster was not sampled at the time because it was only identified in the recent survey.

Tando is now in the throes of expediting plans for a maiden drilling program at these vanadium pipes.

To help fast-track this strategy, Tando is investigating flying in a heli-rig rather than bringing in a drilling rig over land. This is expected to enable drilling to start earlier than if earthmoving was required.

Tando is also commissioning a marketing study into the potential market and pricing for the DSO product, specifically the product specifications desired by end users.

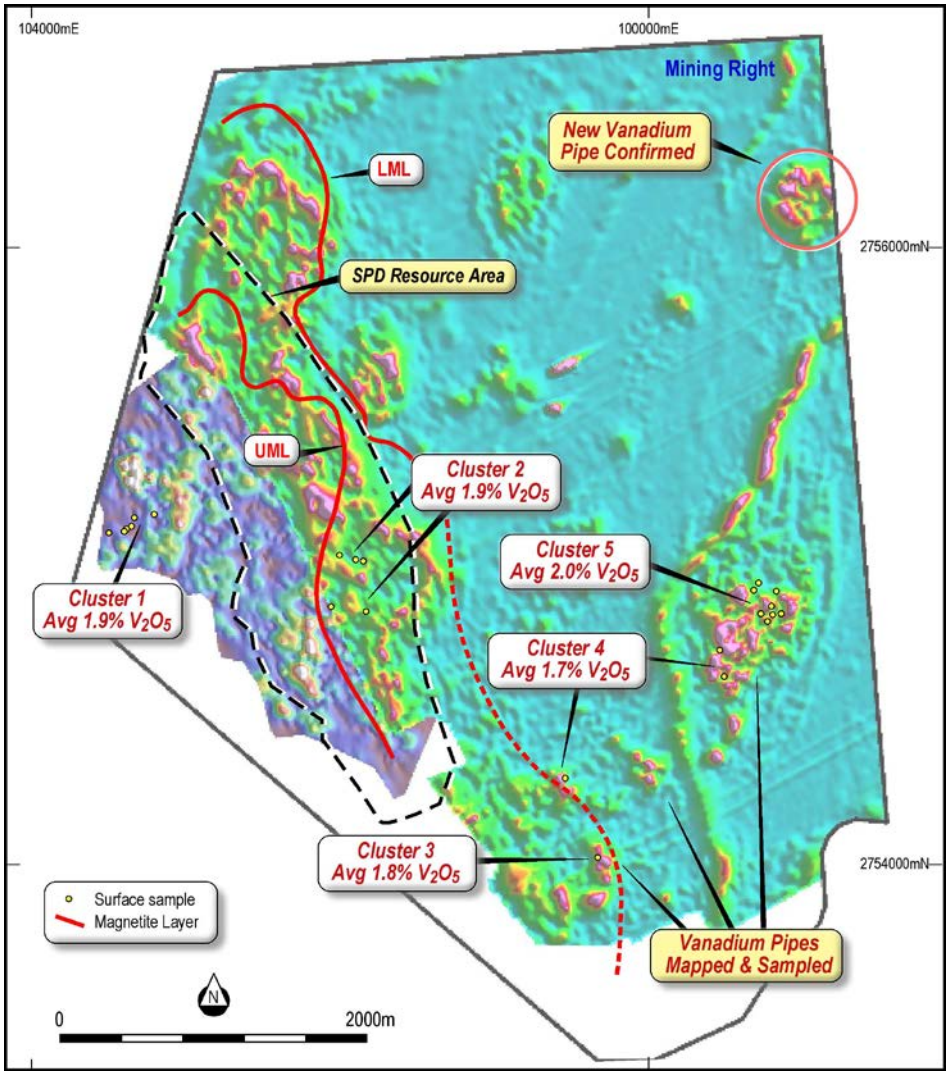

Figure 1. *Plan of analytical signal image from helimag data with results from surface sampling of vanadium pipes (refer ASX Announcement 5 July 2018).*

The vanadium pipes surround the SPD deposit, where there is currently a resource of 513 million tonnes at a grade of 0.78% V_2O_5 defined under the SAMREC code. This resource is a "foreign resource" (as defined in the ASX Listing Rules) and is detailed in Appendix 1 below.

Tando recently received notification of grant of the Mining Right for the SPD Project by the South African Department of Mineral Resources. This paves the way for drilling to start later this month at both the SPD deposit and the surrounding pipes.

Drilling at the SPD deposit will be aimed at converting the current "foreign resource" to a Mineral Resource estimate (MRE) as defined in the JORC Code. Tando expects the MRE will be published by October, 2018.

Following completion of the Phase One drilling program, Tando will move straight into Phase Two, which will be aimed at upgrading the maiden JORC Resource to an Indicated category (provided results are as anticipated). To achieve this goal Phase Two is currently designed to comprise 58 holes for 5,550m.

Background on the SPD Vanadium Project

Global vanadium projects are summarised in Figure 3. Currently approximately 85% of the world's vanadium is produced in China, Russia and South Africa. The SPD Vanadium Project is located in one of these producing regions and has the potential to be globally significant based on its tonnage and grade in concentrate (Figure 2).

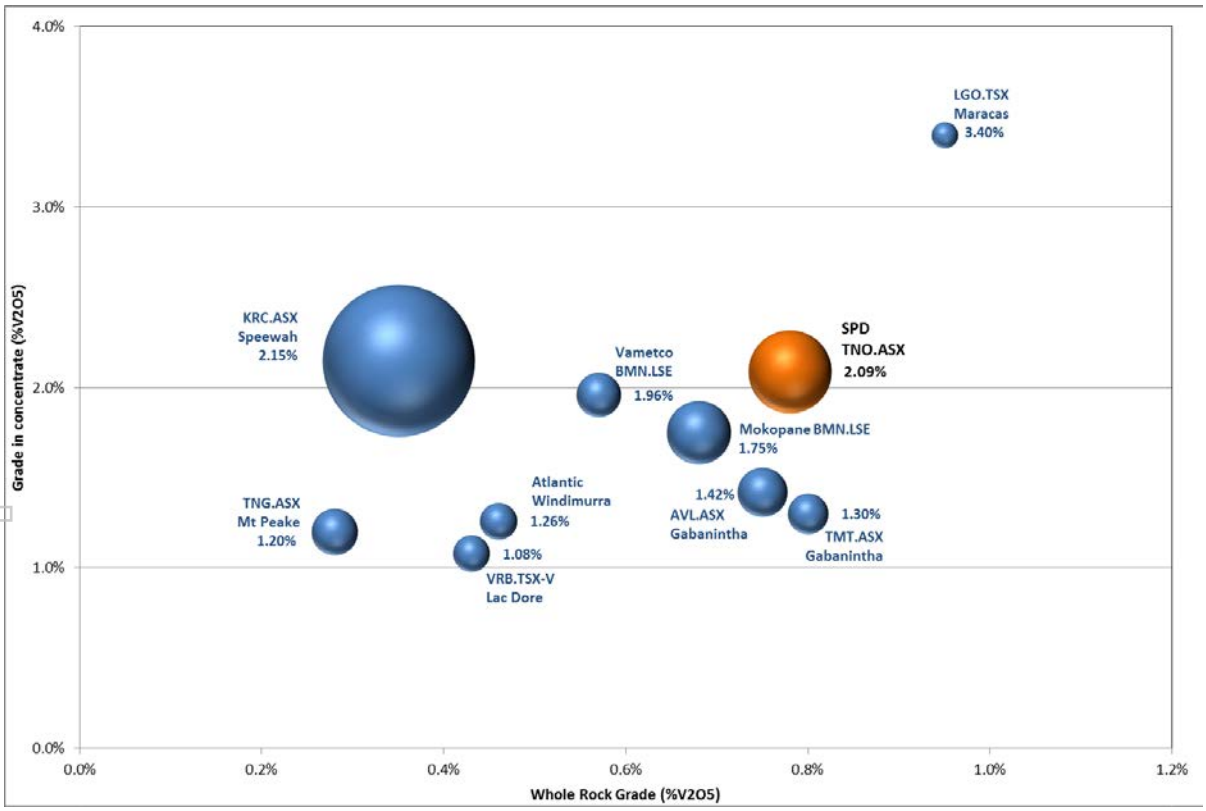

Figure 2. *Global vanadium projects categorised by resource grade and grade in concentrate.*
Label states concentrate grade based on reported testwork. Bubble size denotes tonnage. Tonnes and grade based on reported total resources, due to different host exchanges these are reported under differing reporting regimes (JORC, 43-101 or SAMREC).
Source: Company websites, ASX / TSX / LSE announcements.

The SPD Vanadium Project is located in a similar geological setting to the mining operations of Rhovan (Glencore), Vametco (Bushveld Minerals) and Mapochs (International Resources Ltd) in the Gauteng and Limpopo provinces of South Africa (Figure 3). Both the Rhovan and Vametco processing plants include refining to generate products used in the global steel making industry and aim to develop downstream processing to produce materials used in the battery market. The SPD Vanadium Project is located only 30km from the currently dormant Mapochs mine which has a processing plant and railway infrastructure.

The region around the SPD Vanadium Project contains critical infrastructure such as:

- High voltage power lines and sub stations operated by the state provider ESKOM,
- Water resources including the De Hoop Dam 15km south of the project,
- Rail links,
- Sealed roads around the project area,
- Mining service companies and support business in the immediate area,
- Available skilled workforce within the local community and the region.

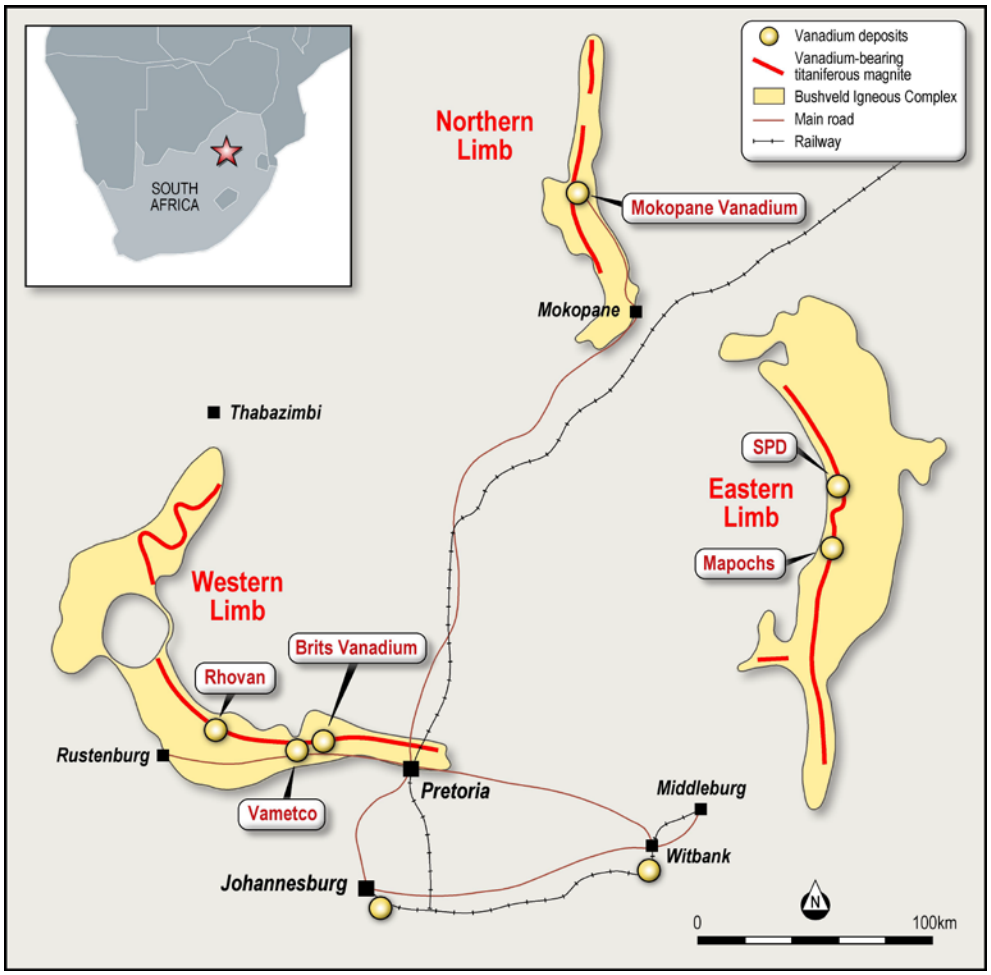

***Figure 3**. Location of the SPD Vanadium Project and other vanadium deposits in the Bushveld Igneous Complex.*

Background on Vanadium

The Company has targeted vanadium as a commodity of interest due to its usage in energy storage, specifically vanadium redox flow batteries (**VRFB**). It is anticipated that forecast increase in battery usage for large scale energy storage will lead to a significant increase in the demand for vanadium. VRFB technology was developed in Australia and has the following advantages:

- a substantially longer lifespan than most current batteries (up to 20 years),
- being able to hold charge for a substantial time (up to 12 months),
- the ability to discharge 100% of its charge without damage,
- scalability to enable larger scale storage facilities to be constructed, and
- greater chemical stability as only a single element is present in the electrolyte.

These features make VRFBs attractive for household or small town sized energy storage requirements. According to research conducted by Lazard (NYSE.LAZ) VRFB's already have a levelised cost of storage that exceeds Li-ion battery storage by 26% to 32% on a comparative basis (full report available at https://www.lazard.com/perspective/). Current VRFB facilities in usage or in development are located in China and Japan with development of further facilities constrained by an absence of supply of "battery grade" V_2O_5.

The price for >98% Vanadium Pentoxide (V_2O_5), a more commonly traded intermediate product, has increased from US$3.50/lb at the start of 2017 to current prices approaching US$18/lb (source: Metal Bulletin) and a substantial premium is currently ascribed for higher purity "battery grade" vanadium electrolyte.

Current day demand for vanadium arises from its use in steel making. Vanadium is principally used to add strength via various alloys as well as other speciality uses. This usage accounts for over 90% of current vanadium demand in today's market (with the balance supplying chemical usages). Demand from steel makers is forecast to increase with stricter standards on the strength of steel to be used in construction (specifically rebar).

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Competent Persons Statement

The information in this announcement that relates to Exploration Results and other technical information 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 and assessed under the supervision of Mr Bill Oliver, the Managing Director of Tando 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 2012 Edition of 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, surveying, logging, sampling, assay methods including quality assurance and quality control measures as detailed in Appendix 2.

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APPENDIX 1.

The resource for the SPD Vanadium Project as shown in Table 1 was estimated by GEMECS Pty Ltd based on all available drilling data in accordance with the SAMREC Code (2007) and is therefore a "qualifying foreign resource estimate" as defined in the ASX Listing Rules (further detail below and in the ASX Announcement of 22 March 2018). The resource was classed as inferred under the SAMREC Code. Bill Oliver, Managing Director of Tando, is acting as the Competent Person and has reviewed reports and data compiled and used in the resource estimation. The authors of the report on the 2010 exploration activities and resource estimate have confirmed that there are no material changes to the resource or underlying data since the date of the report (June 2010), and that the information presented here is consistent with the data it reported.

Table 1. *SPD Vanadium Project resource (classed as inferred under the SAMREC Code).*

Reef	Avge Thickness (m)	Tonnes (Mt)	Whole Rock V_2O_5%	Mt%	Magnetite Tonnes	V_2O_5% in Magnetite
Upper Layer	24	184.2	0.73	42.4	78.1	1.99
Lower Layer	22	329.1	0.81	41.6	136.0	2.20
Averages & Totals	**23**	**513.3**	**0.78**	**41.9**	**215.0**	**2.09**

Table 1 Notes: While this foreign resource is not reported in compliance with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (**JORC Code**), it is the Company's opinion (and the opinion of the Competent Person for this document), that the data quality and validation criteria, as well as the resource methodology and check procedures, are reliable and consistent with criteria as defined by the JORC Code. All tabulated data has been rounded to one decimal place for tonnage and two decimal places for grades. %V_2O_5 is derived from XRF analysis by multiplying %V by 1.785.

The resource for the SPD Vanadium Project is based on two phases of drilling detailed in the ASX Announcement of 22 March 2018 (also refer Figure 1). Initial exploration by Vantech in 1997 comprised 16 diamond core drill holes for 1051.6m as well as detailed geological mapping. Exploration by VanRes comprised 23 RC drillholes for 1,073m and 2 diamond core drillholes for 278m drilled in 2010. Best whole-rock drilling results from the SPD Vanadium Project include:

- 9m at 1.34% V_2O_5 + 10.5% TiO_2 from 9m (SFR019)
- 13m at 1.13% V_2O_5 + 7.43% TiO_2 from 10m (SFR017)
- 14m at 1.08% V_2O_5 + 7.07% TiO_2 from 9m (SFR013)
- 20m at 0.96% V_2O_5 + 8.35% TiO_2 from 11m (SFR011)
- 15m at 0.92% V_2O_5 + 6.44% TiO_2 from 8m (SFR018)
- 12.2m at 0.90% V_2O_5 from 127.2m & 26.9m at 0.80% V_2O_5 from 43.1m (SFDD001)

Drill samples were passed through a Davis Tube to obtain a magnetic concentrate. Vanadium and titanium content analyses in the concentrate are very consistent, **averaging 2% V_2O_5 and 13% TiO_2** (refer ASX Announcement 22 March 2018 for full list of concentrate analyses).

The Competent Person has not yet completed sufficient review on the qualifying foreign resource estimate to classify it in accordance with the JORC Code at this time and consequently it is uncertain that, following evaluation and/or further exploration work that the qualifying foreign resource estimate will be able to be reported as a Mineral Resource in accordance with the JORC Code. As detailed in this announcement the Company plans to implement a drilling programme to establish a Mineral Resource and, provided results are consistent with previous drilling, carry out further drilling aimed at increasing the confidence in the Mineral Resource.

APPENDIX 2.

The following Tables are provided to aid compliance with the JORC Code (2012 Edition) requirements for the reporting of Exploration Results at the SPD Project.

Section 1: Sampling Techniques and Data

(Criteria in this section applies to all succeeding sections)

Criteria	JORC Code explanation	Commentary
Sampling techniques	*Nature and quality of sampling (eg 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.*	Rockchip samples taken from outcrops of vandiferous titanomagnetite.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Multiple rocks taken from each location across the width of the outcrop to improve representivity.
	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 (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.	All aspects of the determination of mineralisation are described in this table. The sampling method is considered appropriate as a first pass test for the presence of mineralisation. All of the samples (whole rock and magnetic separates) have been sent to a commercial laboratory for crushing, pulverising and chemical analysis by industry standard practises.
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 of standard tube, depth of diamond tails, face-sampling bit or other type, whether core is orientated and if so, by what method, etc).*	No drilling is being reported.
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	No drilling is being reported.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	No drilling is being reported.
	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 is being reported.
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.*	Appropriate geological observations noted.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Both qualitative (eg. colour) and quantitative (eg. minerals percentages).
	The total length and percentage of the relevant intersections logged.	No drilling is being reported.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	No core drilling is being reported.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	Entire sample submitted to laboratory.
	For all sample types, the nature, quality and	The sampling techniques are appropriate, nothing this

Criteria	JORC Code explanation	Commentary
	appropriateness of the sample preparation technique.	is a first pass test for presence of mineralisation.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Entire sample submitted to laboratory.
	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.	Multiple rocks taken from each location across the width of the outcrop to improve representivity.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	The material and sample sizes are considered appropriate given the style of mineralisation being targeted.
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.*	No assay results are discussed.
	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.	Hand held assay devices have not been reported.
	Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	QA/QC samples will be inserted blind into the sample batch. This comprised CRMs of similar material sourced from the Bushveld Complex (supplied by AMIS) and blanks. Laboratory standards were also checked.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	No drilling is being reported.
	The use of twinned holes.	No drilling is being reported.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Primary data is collected in the field and entered into logsheets or Excel worksheets.
	Discuss any adjustment to assay data.	No adjustment to assay data.
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.*	Locations surveyed using handheld GPS.
	Specification of the grid system used.	The grid system is a UTM grid (Zone 35, WGS84 projection).
	Quality and adequacy of topographic control.	Adequate.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	Rockchips samples are taken on an ad hoc basis.
	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.	Data spacing and sample type not appropriate for Mineral Resouce. Drill data required.
	Whether sample compositing has been applied.	No sample compositing has been applied.
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 is being reported.
	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 is being reported.

Criteria	JORC Code explanation	Commentary
Sample security	*The measures taken to ensure sample security.*	Samples were submitted to the laboratory by consultants to the Company.
Audits or reviews	*The results of any audits or reviews of sampling techniques and data.*	No independent audits have been undertaken.

Section 2: Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section)

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 SPD Project comprises a Mining Right covering the farm Steelpoortdrift 365 KT.
	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 tenure is in good standing.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	The Project has previously been explored for magnetite-hosted Fe-V-Ti deposits.
Geology	*Deposit type, geological setting and style of mineralisation.*	Vanadium mineralisation at the SPD Project is located close to the contact between the Upper Zone and Main Zone of the Bushveld Igneous Complex and adjacent to the Steelpoort Fault. Mineralisation is hosted in two layers, the Upper Magnetite Layer (UML) and Lower Magnetite Layer (LML), which dip shallowly (10-12deg) to the west.
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.*	No drilling is being reported.
	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.	Not applicable, information has been included.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.*	No averaging or aggregating has been completed.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation	No drilling is being reported.

Criteria	JORC Code explanation	Commentary
	should be stated and some typical examples of such aggregations should be shown in detail.	
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are being used for reporting exploration results.
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 (eg 'down hole length, true width not known').*	No drilling is being 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.*	Appropriate plans are shown in the text.
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.*	No assay results are discussed.
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.*	Exploration data is contained in previous ASX Announcements.
Further work	*The nature and scale of planned further work (eg 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.*	Drilling to verify and infill historical drilling and provide a sub surface test of the extent of the pipes.