

20 June 2018

Discovery of another 7 vanadium pipes highlights immense potential to grow SPD Project

Key points

- **Fieldwork identifies another 7 vanadium-bearing pipes at Tando's SPD Vanadium Project in South Africa**
- **A total of 12 vanadium pipes have now been identified at SPD**
- **Previously-reported assays of rocks taken from 2 of these pipes returned high grades of vanadium (>2% V₂O₅)**
- **These grades are higher than operating vanadium mines globally**
- **Samples from the new pipes are being assayed with results expected in a fortnight**
- **The pipes sit within a 3km radius of the well-established vanadium deposit at SPD, which has a "foreign resource" of more than 500Mt**
- **Tando is preparing an extensive drilling program to bring this historic resource into JORC Code compliance**
- **This drilling program includes holes to test these high grade vanadium pipes**

Tando Resources ("Tando" or "the Company") is pleased to report more strong exploration results which highlight the outstanding growth potential at its SPD Vanadium Project in South Africa.

Field activities, including visual inspections, assays from rock chips and a ground magnetic survey, have resulted in another 7 vanadium pipes being identified at SPD (Figures 1 and 2). This takes the total number of pipes identified to 12.

These pipes are considered highly prospective because assay grades are very high, at over 2% V₂O₅, and they start from surface (refer ASX Announcement 7 May 2018). This means they could be a highly valuable source of Direct Shipping Ore (DSO) vanadium.

The pipes are located within a 3km radius of the central vanadium deposit at SPD (Figure 3), which has a resource of over 500Mt as measured by the South African (SAMREC) Code making it a qualifying "foreign resource" as defined by the ASX Listing Rules (detailed in Table 1 below and in the ASX Announcement of 22 March 2018).



Tando is in the advanced stages of preparations for a confirmatory and infill drilling program to convert this resource into a Mineral Resource as defined in the JORC Code (refer ASX Announcement 12 June 2018). At the same time as this drilling is conducted, it is planned to test these highly prospective vanadium pipes nearby.

Tando Managing Director Bill Oliver said the discovery of the latest vanadium pipes provided more firm evidence of the huge upside at SPD.

“Every round of results gives us more reason to believe that SPD is an outstanding vanadium project by global standards,” Mr Oliver said.

“The existing vanadium deposit is, by itself, highly attractive due to its grade and size. But the potential to establish a high-grade, DSO operation utilising these shallow pipes would be a huge game-changer for us.

“The grades of the rock chip assays from the pipes are exceptional, bettered only by those from the Maracas Menchen Mine in Brazil, and their proximity to the surface would make any mining operation low-cost and quick to develop.”

Details of Vanadium Pipes

A total of 26 samples taken from the pipes across the property have been submitted for analysis with results anticipated in two weeks. Previous samples from Cluster 1 and Cluster 2 returned high-grade results of **2.08% V₂O₅** and **2.02% V₂O₅** (Figure 3, ASX Announcement 7 May 2018). It should be emphasised that these are **whole rock (or in situ) results, not concentrate** grades, and compare favourably to the already-high in-situ grade of the SPD Project (0.78% V₂O₅).

As outlined in the ASX Announcement of 7 May, geochemical studies into the Bushveld Complex which hosts the SPD Project have identified that the first magnetite layers formed are the most enriched in vanadium, with successive layers containing progressively lower V₂O₅ contents. Therefore, Clusters 4 and 5 are anticipated to contain the higher V₂O₅ grades relative to the pipes sampled and the layers drilled (Figure 4) because these pipes are to the east and are therefore older. Analyses is awaited to confirm this hypothesis.

In addition to the field reconnaissance, preliminary data from the Company's ground magnetic survey is being received, as shown in Figure 4. The ground magnetic survey has effectively delineated the pipes in Clusters 4 and 5 and it is anticipated the survey will be able to effectively delineate both the pipes and the layers which comprise the central vanadium deposit.

Metallurgical results indicate that material from the magnetic pipes could represent a DSO material which, after a relatively simple concentration process, may be able to be sold to an end-user as feedstock for a downstream processing plant or processed cost-effectively using a different method (refer ASX Announcement 5 June 2018).



Figure 1. *Fieldwork at the SPD Vanadium Project.*



Figure 2. *Outcropping Vanadium Pipe at Cluster 4. Note the dark grey colour of the rocks vs the country rocks shown in Figure 1.*

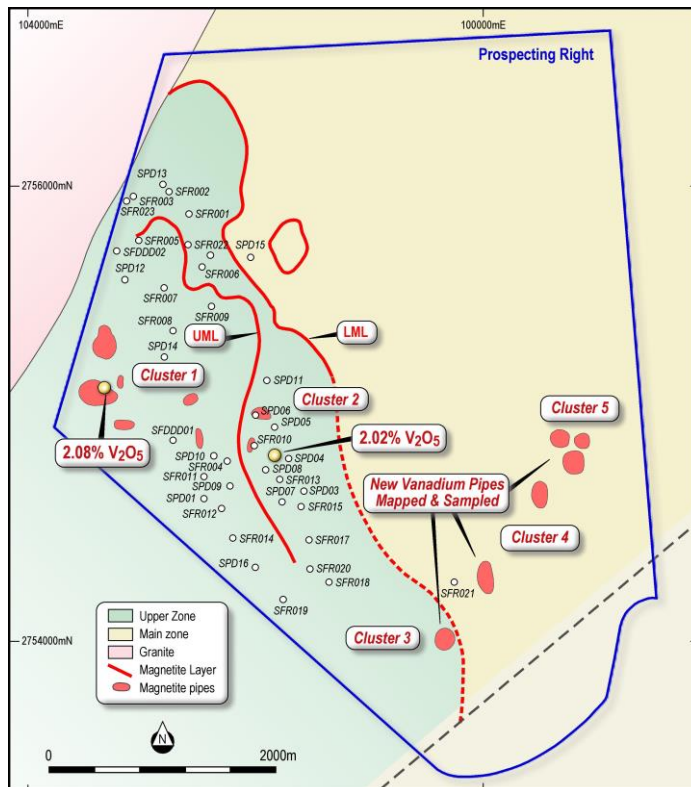


Figure 3. Plan showing location of surface samples and magnetite pipes at the SPD Vanadium Project along with historical drilling and geology.

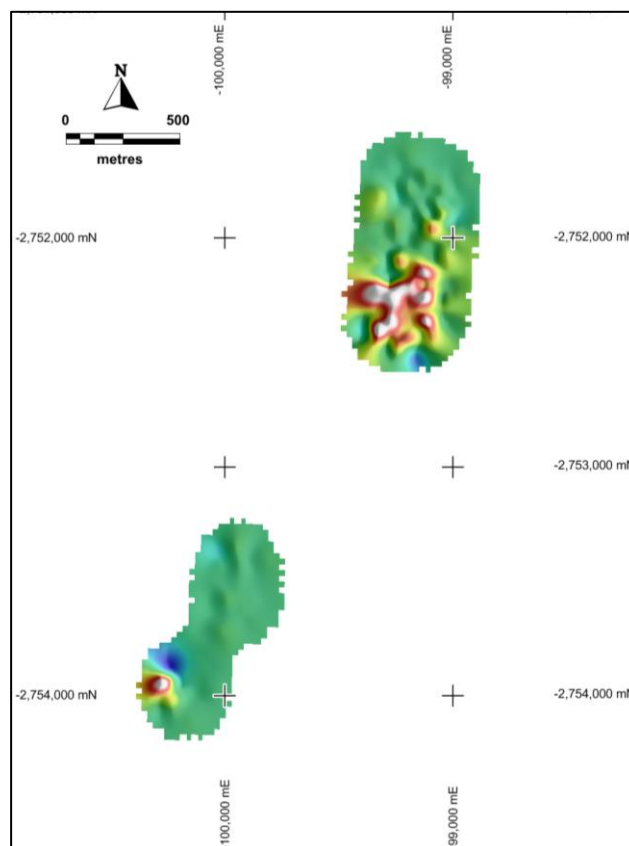


Figure 4. Plan showing results of ground magnetic survey at Clusters 4 and 5 "Hot spots" indicate magnetic material now confirmed as vanadium pipes.



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 5).

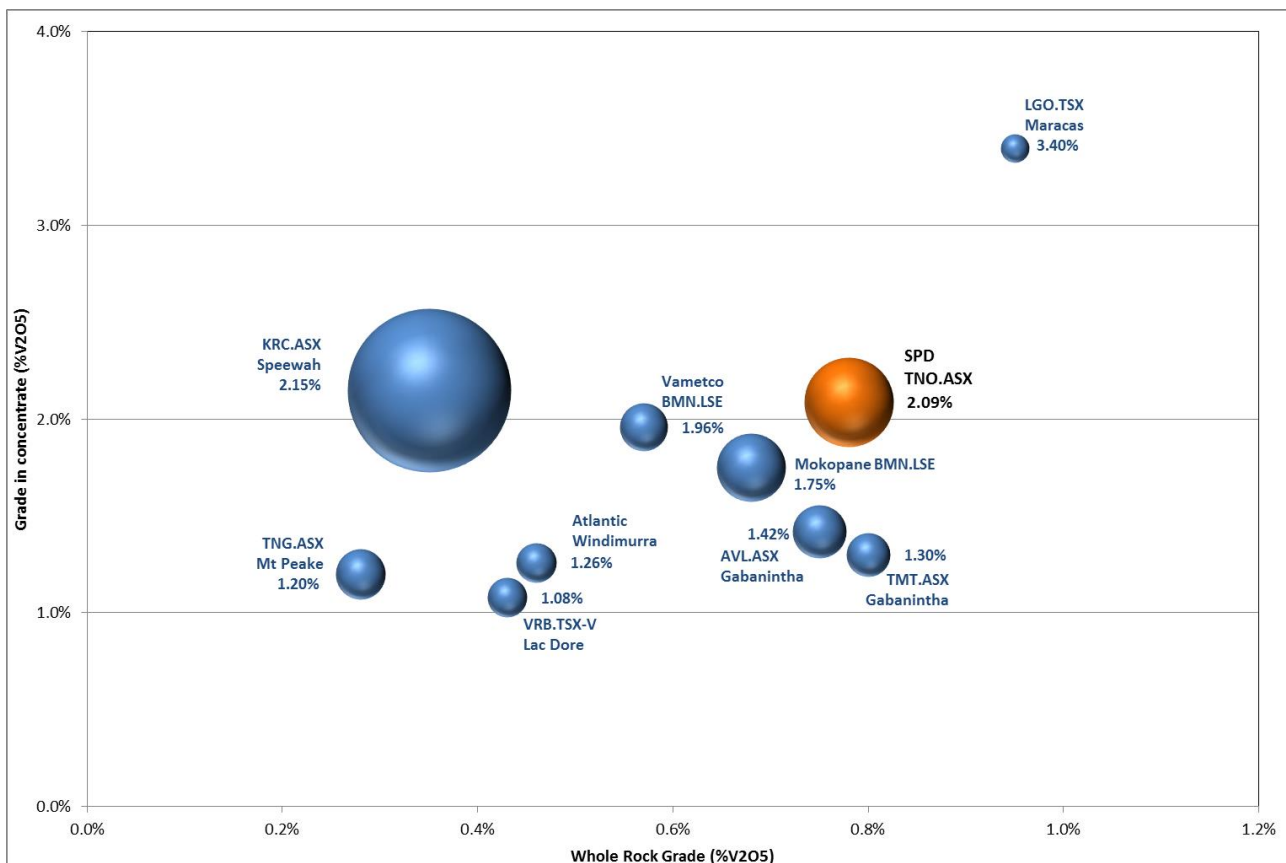


Figure 5. Global vanadium projects categorised by resource grade and grade in concentrate.

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 6). 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.

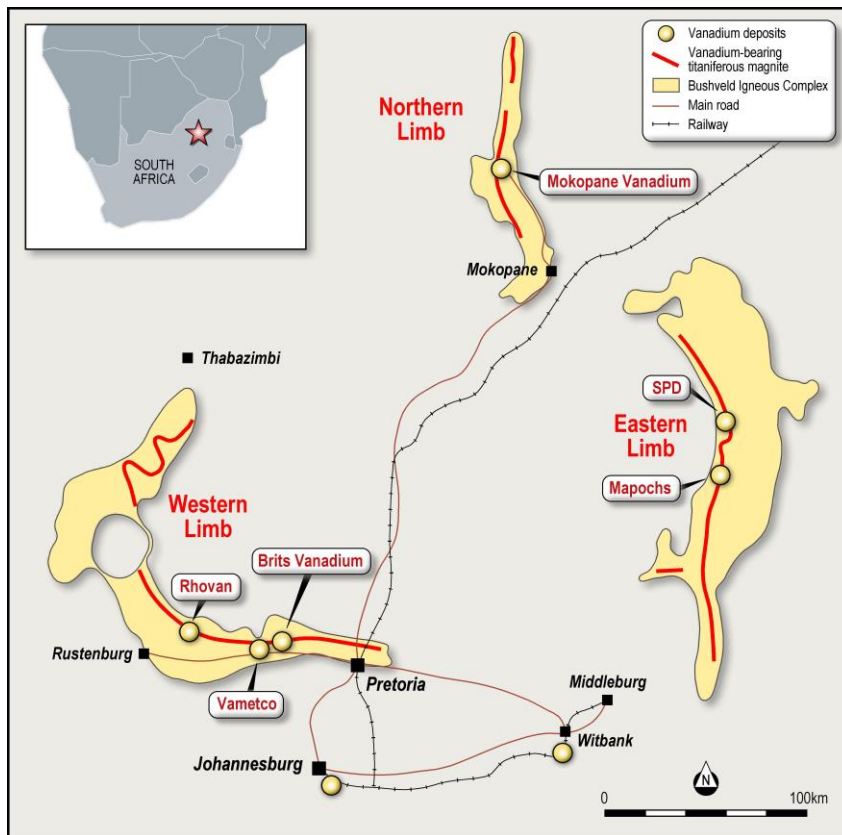


Figure 6. Location of the SPD Vanadium Project and other vanadium deposits in the Bushveld Igneous Complex.

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,
- Skilled workforce within the local community and the region.

The SPD Vanadium Project was discovered in the 1990's during a regional exploration campaign to find new supply for active vanadium operations including the Kennedy's Vale Mine. Vanadium mineralisation at the SPD Project is hosted in two vaniferous titanomagnetite layers, the Upper Magnetite Layer and Lower Magnetite Layer, which dip shallowly (10-12deg) to the west (Figure 5). Initial exploration by Vantech in 1997 comprised 16 diamond core drill holes for 1051.6m (refer Figure 5 and ASX Announcement 22 March 2018) as well as detailed geological mapping.

VanRes held a prospecting right over the SPD Project from 2009 until 2015 when an application for a Mining Right was lodged. Exploration by VanRes comprised 23 RC drillholes for 1,073m and 2 diamond core drillholes for 278m drilled in 2010, culminating the estimation of a resource under the SAMREC Code (Table 1). 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% V₂O₅ and 13% TiO₂** (ASX Announcement 22 March 2018).



Best whole-rock drilling results from the SPD Vanadium Project include:

- 9m at 1.34% V₂O₅ + 10.5% TiO₂ from 9m (SFR019)
- 13m at 1.13% V₂O₅ + 7.43% TiO₂ from 10m (SFR017)
- 14m at 1.08% V₂O₅ + 7.07% TiO₂ from 9m (SFR013)
- 20m at 0.96% V₂O₅ + 8.35% TiO₂ from 11m (SFR011)
- 15m at 0.92% V₂O₅ + 6.44% TiO₂ from 8m (SFR018)
- 12.2m at 0.90% V₂O₅ from 127.2m & 26.9m at 0.80% V₂O₅ from 43.1m (SFDD001)

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

Reef	Avg Thickness (m)	Tonnes (Mt)	Whole Rock V ₂ O ₅ %	Mt%	Magnetite Tonnes	V ₂ O 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. %V₂O₅ is derived from XRF analysis by multiplying %V by 1.785.

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.

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. The Company plans to implement a drilling programme to verify the Mineral Resource and, provided results are consistent with previous drilling, carry out further drilling aimed at increasing the confidence in the Mineral Resource.



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 around US\$15/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).

For and on behalf of the board:

Mauro Piccini

Company Secretary



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, logging, sampling, assay methods including quality assurance and quality control measures as detailed in Appendix 1.

Disclaimer

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 Tando 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 Tando's control.

Tando does not undertake any obligation to update publicly or release any revisions to these forward looking statements to reflect events or circumstances after today's date or to reflect the occurrence of unanticipated events. No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions or conclusions contained in this announcement. To the maximum extent permitted by law, none of Tando, its Directors, employees, advisors or agents, nor any other person, accepts any liability for any loss arising from the use of the information contained in this announcement. You are cautioned not to place undue reliance on any forward looking statement. The forward looking statements in this announcement reflect views held only as at the date of this announcement.

This announcement is not an offer, invitation or recommendation to subscribe for, or purchase securities by Tando. Nor does this announcement constitute investment or financial product advice (nor tax, accounting or legal advice) and is not intended to be used for the basis of making an investment decision. Investors should obtain their own advice before making any investment decision.



APPENDIX 1.

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	<i>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.</i>	Ground magnetic survey.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	Magnetometer calibrated daily.
	<i>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.</i>	All aspects of the determination of mineralisation are described in this table. The magnetic survey detects magnetite which is the host for the vanadium mineralisation. It does not determine grade, and will also detect other magnetic materials. Therefore sampling will be required to confirm the presence of mineralisation.
Drilling techniques	<i>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).</i>	No drilling is being reported.
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	No drilling is being reported.
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	No drilling is being reported.
	<i>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.</i>	No drilling is being reported.
Logging	<i>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.</i>	Appropriate geological observations noted.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	Both qualitative (eg. colour) and quantitative (eg. minerals percentages).
	<i>The total length and percentage of the relevant intersections logged.</i>	No drilling is being reported.
Sub-sampling techniques and sample preparation	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	No core drilling is being reported.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	No sampling is being reported.



Criteria	JORC Code explanation	Commentary
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	No sampling is being reported.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	No sampling is being reported.
	<i>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.</i>	No sampling is being reported. Survey is regularly checked by repeat stations.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	No sampling is being reported.
Quality of assay data and laboratory tests	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	No assays are being reported.
	<i>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.</i>	Geotron G5 proton Magnetometer calibrated daily. Reading times of 2 minutes per station.
	<i>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.</i>	No sampling is being reported. Data is checked visually and utilising statistical analysis to determine if there is any drift on a daily basis.
Verification of sampling and assaying	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	No drilling is being reported.
	<i>The use of twinned holes.</i>	No drilling is being reported.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Primary data is collected in the field and uploaded to both the Company and the contractor for review and validation.
	<i>Discuss any adjustment to assay data.</i>	No assays are being reported.
Location of data points	<i>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.</i>	Locations surveyed using inbuilt GPS.
	<i>Specification of the grid system used.</i>	Primary data is collected in latitude and longitude (WGS84 datum). The grid system shown in Figure 4 is the South African Gauss-Kruger grid, LO 33.
	<i>Quality and adequacy of topographic control.</i>	Adequate.
Data spacing and distribution	<i>Data spacing for reporting of Exploration Results.</i>	Survey lines are 100m apart which is reduced to 25m or 50m in areas of magnetite outcrop.
	<i>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.</i>	Data spacing and sample type not appropriate for Mineral Resource. Drill data required.
	<i>Whether sample compositing has been applied.</i>	No sample compositing has been applied.
Orientation of data in relation to geological structure	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	Traverses oriented perpendicular to known (mapped) stratigraphy.
	<i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to</i>	No drilling is being reported.



Criteria	JORC Code explanation	Commentary
	<i>have introduced a sampling bias, this should be assessed and reported if material.</i>	
Sample security	<i>The measures taken to ensure sample security.</i>	No sampling is being reported.
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	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	<i>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.</i>	The SPD Project comprises a single prospecting right, covering the farm Steelpoortdrift 365 KT, and an application for a Mining Right.
	<i>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.</i>	The tenement is represented to be in good standing. Title DD will verify this.
Exploration done by other parties	<i>Acknowledgment and appraisal of exploration by other parties.</i>	The Project has previously been explored for magnetite-hosted Fe-V-Ti deposits.
Geology	<i>Deposit type, geological setting and style of mineralisation.</i>	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	<i>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:</i> <ul style="list-style-type: none"> • <i>easting and northing of the drill hole collar</i> • <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i> • <i>dip and azimuth of the hole</i> • <i>down hole length and interception depth</i> • <i>hole length.</i> 	No drilling is being reported.
	<i>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.</i>	Not applicable, information has been included.
Data aggregation methods	<i>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.</i>	No averaging or aggregating has been completed.



Criteria	JORC Code explanation	Commentary
	<p><i>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.</i></p> <p><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></p>	<p>No drilling is being reported.</p> <p>No metal equivalent values are being used for reporting exploration results.</p>
<p>Relationship between mineralisation widths and intercept lengths</p>	<p><i>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').</i></p>	<p>No drilling is being reported.</p>
<p>Diagrams</p>	<p><i>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.</i></p>	<p>Appropriate plans are shown in the text.</p>
<p>Balanced reporting</p>	<p><i>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.</i></p>	<p>All results have been reported.</p>
<p>Other substantive exploration data</p>	<p><i>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.</i></p>	<p>Exploration data will be reviewed and compiled as part of the DD process.</p>
<p>Further work</p>	<p><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p> <p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<ul style="list-style-type: none"> • Due diligence investigations. • Magnetic survey and sampling to identify further pipes • Drilling to verify and infill historical drilling and provide a sub surface test of the extent of the pipes.