

27 July 2018

## **Mining Right granted at SPD Vanadium Project, paving way for drilling to start in August**

**Two-pronged drilling program aimed at converting existing high-grade deposit to JORC Resource and establishing DSO potential of surrounding vanadium pipes**

### **Key points**

- **Tando poised to unlock the huge potential of SPD Vanadium Project in South Africa, with Mining Right now granted**
- **Drill rigs engaged with Phase One drilling to start in August; SPD's 'foreign resource' expected to be converted to JORC Mineral Resource by October**
- **Drilling will also test high-grade vanadium pipes to support a DSO operation, potentially generating early cashflow at low cost**
- **Phase Two drilling program to upgrade JORC Resource to Indicated status will start immediately after Phase One**
- **Company fully funded to complete both phases of drilling**
- **Due Diligence completed with the grant of the Mining Right, Completion of the Acquisition of a 73.95% stake in SPD Vanadium Project expected to occur in late August**
- **Vanadium pentoxide prices have increased 200% this year**

### **Phase One and Two Drilling**

Tando Resources (ASX: TNO) is pleased to announce that it is set to start an extensive two-pronged drilling program at its SPD Vanadium Project in South Africa in August.

The imminent start of drilling follows notification of grant of the Mining Right for the SPD Project by the South African Department of Mineral Resources.

Drilling contractors have been engaged and will commence mobilising shortly. Site preparations are already well advanced.

Phase One of the drilling program will comprise 18 holes for 1,650m at the SPD deposit, where there is currently a resource of 513 million tonnes at a grade of 0.78% V<sub>2</sub>O<sub>5</sub> 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.



The drilling is aimed at converting this “foreign resource” to a Mineral Resource estimate (MRE) as defined in the JORC Code. Tando expects the MRE will be published by October, 2018.

Phase One will also include the first holes to be drilled at the shallow, high-grade vanadium pipes which sit within a 3km radius of the SPD deposit. Tando has reported a host of high-grade vanadium assays from samples taken from the surface of these pipes with assay results consistently above 2%  $V_2O_5$  (see ASX releases dated July 5, 2018 and May 7, 2018).

These vanadium grades highlight the strong potential for the pipes to underpin a simple, low-cost, high-grade DSO operation with a compressed development timetable.

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.

The cost to complete the entire Phase 1 and Phase 2 drilling programme and the resultant resource estimations is estimated at A\$1.4 million. The Company has current cash reserves in excess of A\$4 million and therefore is fully funded for the drilling programme as well as the metallurgical and mining studies which will follow completion of the drilling programme.

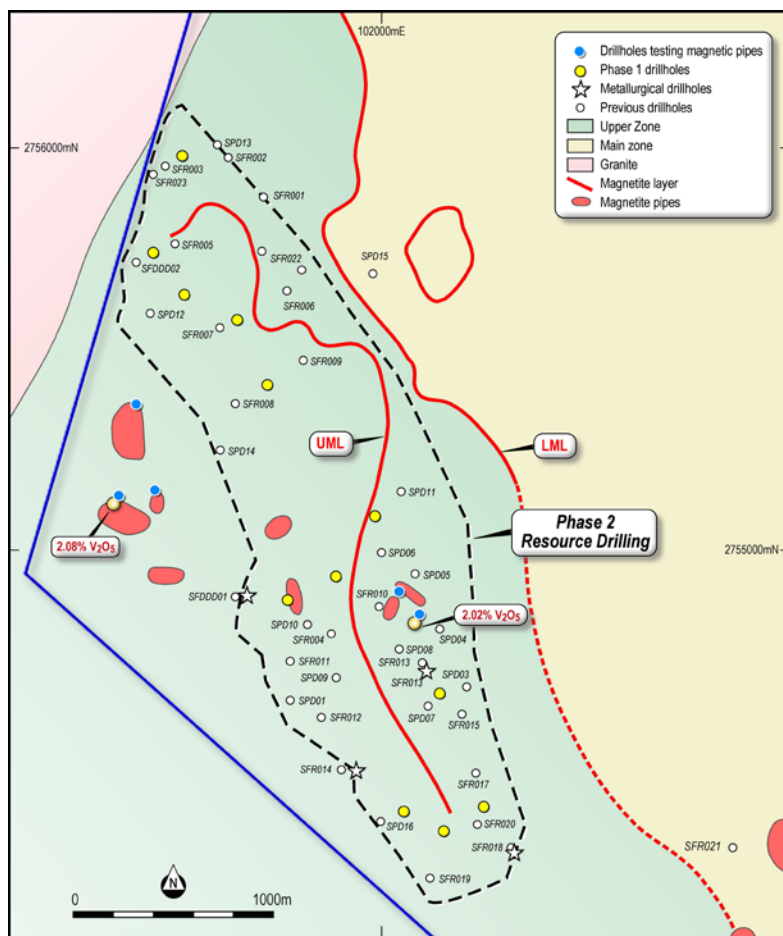


Figure 1. Phase 1 and Phase 2 drilling planned for the SPD Vanadium Project.



## Due Diligence and Completion

Following the grant of the Mining Right, formal due diligence on the SPD Vanadium Project is now complete. It is anticipated that acquisition of a 73.95% stake in the SPD Vanadium Project will occur in late August following satisfaction of the remaining conditions precedent, including South African Reserve Bank approval and approval by the Tando Shareholders (general meeting scheduled for 20 August).

Tando Managing Director Bill Oliver said the issue of the Mining Right was a significant step for the SPD Vanadium Project:

*"We believe SPD is a world-class vanadium asset. Our view is supported by the historical drilling results and more recently, the outstanding high grade results we have achieved from sampling the vanadium pipes on-site.*

*"We are confident that the imminent drilling program will justify our strong belief in the SPD Project, which we already know hosts an extensive deposit with high-grade vanadium.*

*"There is also substantial upside in the vanadium pipes, where the sampling results show there is potential to generate significant early cashflow via a low-cost DSO vanadium operation.*

*"With the energy sector undergoing a structural shift in favour of renewable energies and demand for vanadium forecast to grow strongly as a result, our work at SPD is timed perfectly."*

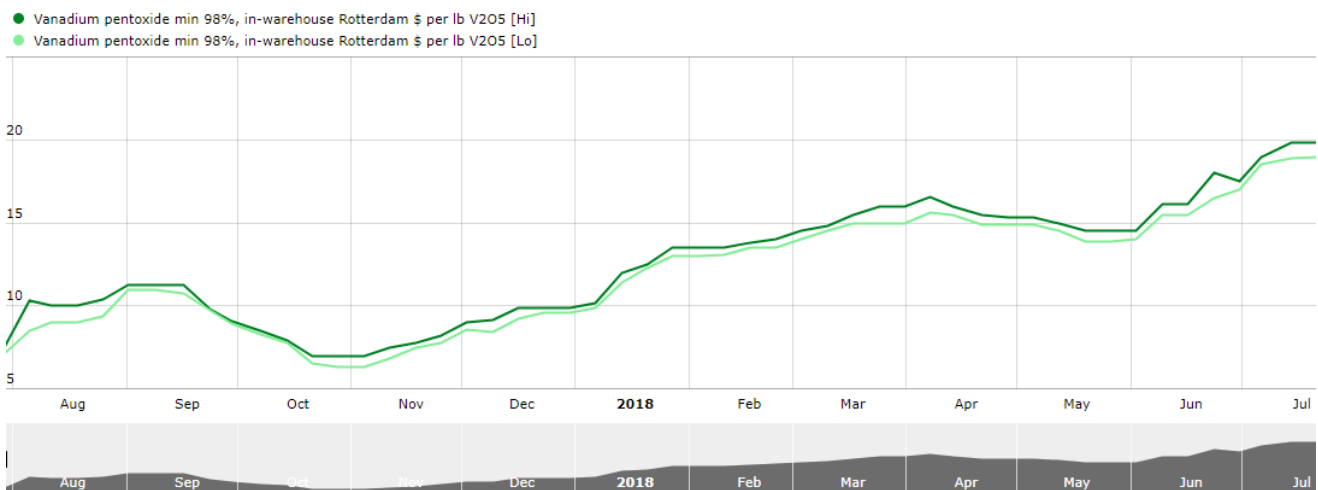
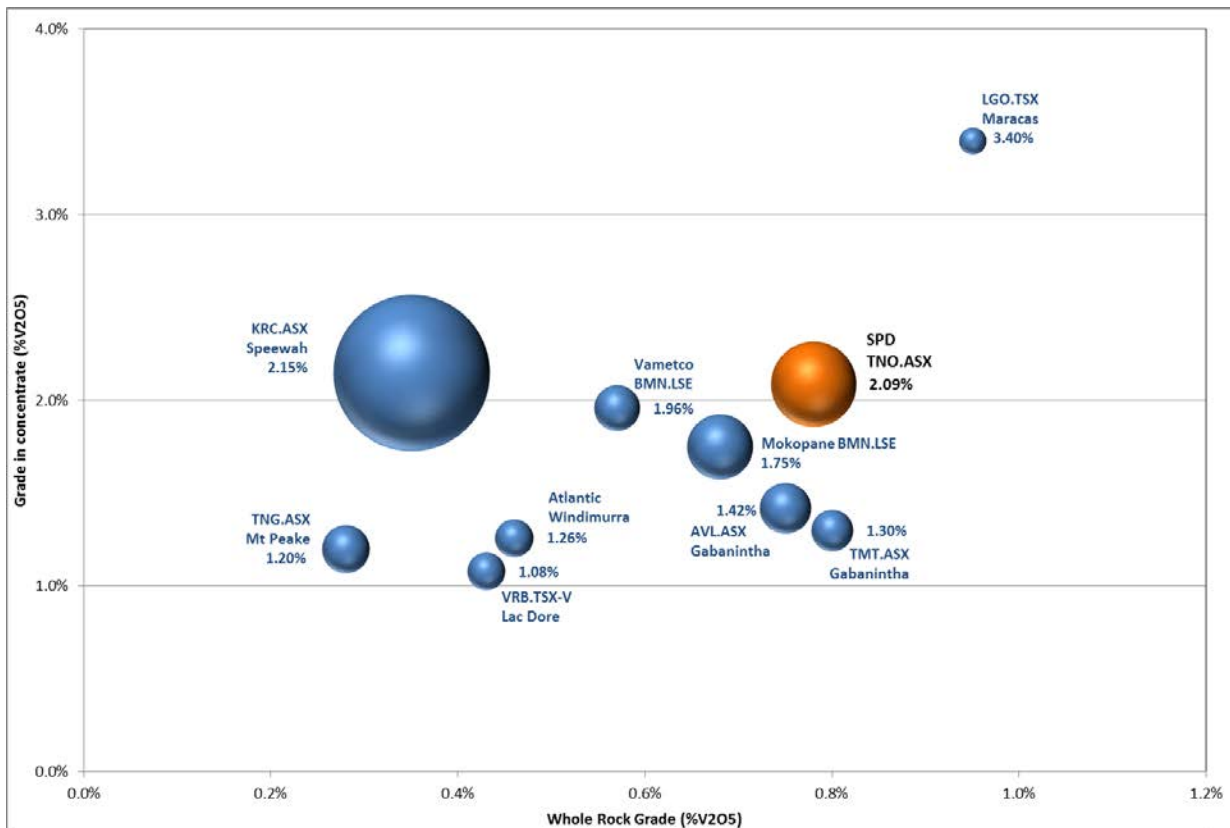


Figure 2. Vanadium Price Chart from Aug 2017 to present (Source: Metal Bulletin)

## 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 3.** 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 4). 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.

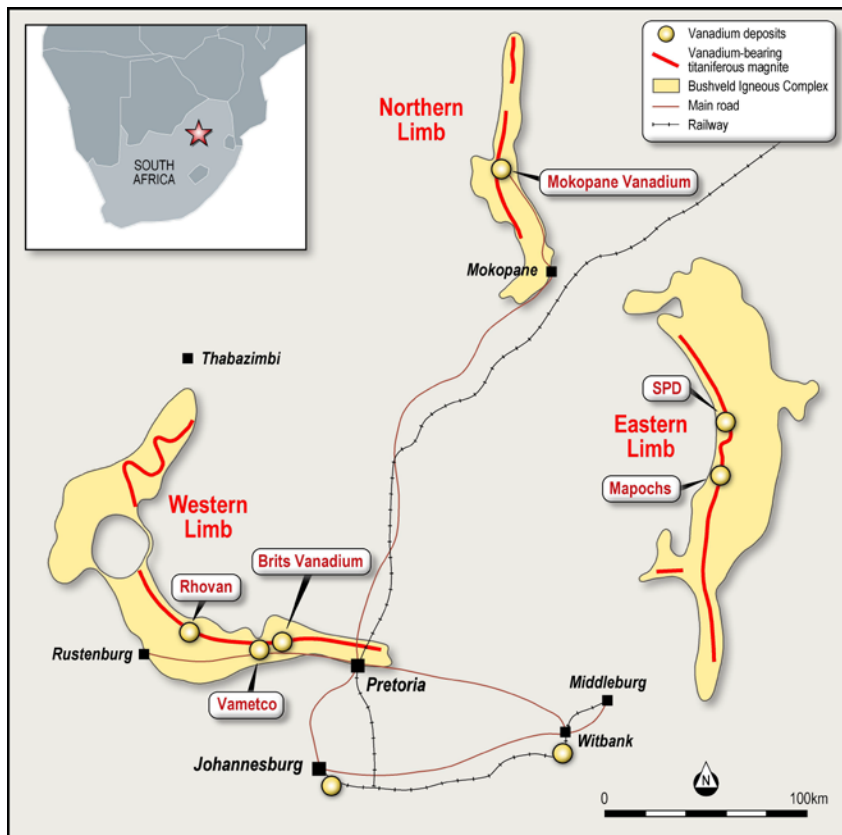


Figure 4. Location of the SPD Vanadium Project and other vanadium deposits in the Bushveld Igneous Complex.

## 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.

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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 <sub>2</sub> O <sub>5</sub> %	Mt%	Magnetite Tonnes	V <sub>2</sub> O <sub>5</sub> % 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
<b>Averages &amp; Totals</b>	<b>23</b>	<b>513.3</b>	<b>0.78</b>	<b>41.9</b>	<b>215.0</b>	<b>2.09</b>

**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<sub>2</sub>O<sub>5</sub> 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<sub>2</sub>O<sub>5</sub> + 10.5% TiO<sub>2</sub> from 9m (SFR019)
- 13m at 1.13% V<sub>2</sub>O<sub>5</sub> + 7.43% TiO<sub>2</sub> from 10m (SFR017)
- 14m at 1.08% V<sub>2</sub>O<sub>5</sub> + 7.07% TiO<sub>2</sub> from 9m (SFR013)
- 20m at 0.96% V<sub>2</sub>O<sub>5</sub> + 8.35% TiO<sub>2</sub> from 11m (SFR011)
- 15m at 0.92% V<sub>2</sub>O<sub>5</sub> + 6.44% TiO<sub>2</sub> from 8m (SFR018)
- 12.2m at 0.90% V<sub>2</sub>O<sub>5</sub> from 127.2m & 26.9m at 0.80% V<sub>2</sub>O<sub>5</sub> 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<sub>2</sub>O<sub>5</sub> and 13% TiO<sub>2</sub>** (ASX Announcement 22 March 2018).

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.