

22nd April 2021

PIT SHELL OPTIMISATION INDICATES HIGH GRADE FEED OPPORTUNITY

HIGHLIGHTS

- ◆ Pit optimisation towards the Pre-Feasibility Study (PFS) has indicated that:
 - high V₂O₅ grade magnetite can preferentially be mined at the 2020 Scoping Study mine design throughput of 1.6Mtpa without changing any of the Scoping Study assumptions, thereby potentially leading to a significantly increased output of final V₂O₅ flake product from downstream processing,
 - medium grade ore currently classified as waste holds the potential to become feed for later life of mine periods, and;
 - there is potential to improve 2020 Scoping Study outcomes significantly.
- ◆ Trade-off studies are being conducted as part of the PFS to balance optimal production capacity with financial metrics including impact on Capex.
- ◆ The PFS is progressing on time and within budget with completion scheduled for May 2021.
- ◆ Initial cost estimates to complete the Feasibility Study (FS) are expected to range between USD\$3m and USD\$4m.
- ◆ Initiatives are being investigated to further reduce project carbon footprint through the inclusion of renewable energy supply into the design.

Eugene Nel, CEO of VR8 commented that: *“Following on from the Scoping Study results obtained last year, optimised mine design undertaken during the PFS has increased the potential V₂O₅ production on the same base case assumptions and metrics as used in the Scoping Study. A bonus of the new mine design is that VR8 has the opportunity (pending economic evaluations) to mine and process medium grade ore available for processing at zero mining cost, thereby affording the Company with the flexibility in considering various processing options and product streams during the initial base case life of mine period of 25 years or to retain it to support a subsequent life of mine. The option also exists to*

significantly increase pit design to facilitate a greater throughput than the design base case 1.6Mt in order to benefit from the Resource present at Steelpoortdrift.

We are excited with the prospects of potentially increasing the net present value of the project compared to the base case scenarios described in the scoping study results, and to possibly unlock a range of other processing strategies and opportunities which could de-risk the project even further and potentially lower operational expenditure of our Vanadium production capacity. Importantly, the increased concentrate production potential from medium grade ore could underpin the concurrent ESG project currently under investigation by VR8 without compromising the base-case Salt Roast process throughputs.”

PRE-FEASIBILITY STUDY PRELIMINARY OUTCOMES

Following the comprehensive geological drilling and modelling that was performed on the Steelpoortdrift project during completion of the Scoping Study (refer to ASX announcement 23 September 2020 – Scoping Study confirms viability of V2O5 production), VR8 embarked on a Pre-Feasibility Study (PFS) design and costing for the project during January 2021. With the assistance of recognised vanadium consultants and experienced engineering firm’s various production segments were refined, including mining and geology, concentrator, Salt Roast/Leach and tailings deposition.

Sound Mining Solution (Pty) Ltd was commissioned to prepare the mining and geology section of the study. Existing wireframe and drilling information (including declared JORC Resources), which had been developed to a significant level of detail during the Scoping Study, was used as the base case for the PFS study. Even though geological modelling was done in detail during the Scoping Study, limited pit shell optimisation work was completed. As a result, the PFS scope of work placed emphasis on optimising mining design and pit shell selection to maximise profitability of the ore body. The Scoping Study pit shell selection maximised magnetite production with concurrent Vanadium recovery but the PFS shifted focus slightly by aiming at maximising Vanadium production. From evaluating the various magnetite seams (Upper, Intermediate and Lower) present in the Steelpoortdrift deposit, the new pit design focused on the fact that the Vanadium content was not uniformly distributed throughout the stratigraphic package but was distinctively different within each individual seam despite that magnetite distribution was consistently present in all stratigraphic layers. This is the result of Vanadium deportment increasing towards the footwall of each seam, which resulted in significantly higher Vanadium grade in the lower sections of each seam.

Results from the geological modelling reported during the Scoping Study (see figure below and announcement of 23 September 2020) indicate that the two main mineralised seams have an average width of approximately 35m, with some of the higher-grade sections averaging widths of 9m. As bench heights during opencast mining is generally between 3-5m, the pit optimisation study identified this higher-grade Vanadium content in a wider mineralised zone as a potential opportunity to selectively high grade mine with the aim to increase plant feed grades at the same design throughputs as contemplated in the Scoping Study.

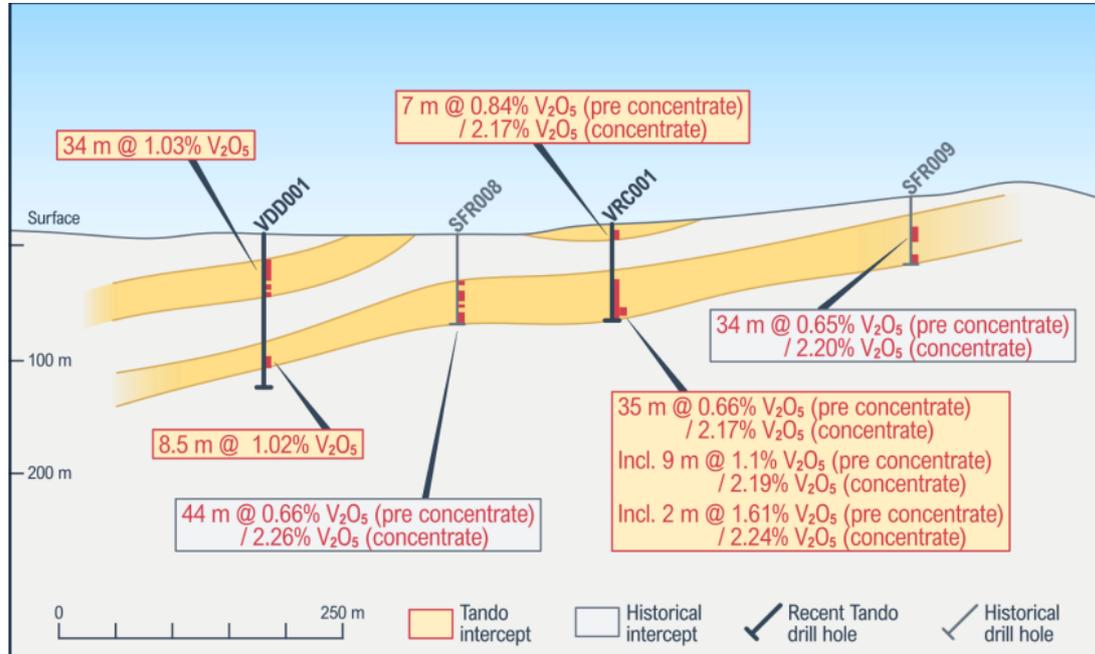


Figure 1: Mineralised zone widths

The pit shell optimisations and selection were utilising the existing signed off Resource base and geological data with a view on identifying the most profitable pit shell, which could sustain a minimum but constrained (for purposes of the financial metrics inherent to financial studies) life of mine of 25 years at a processing plant throughput rate of 1.6Mtpa (as per Scoping study) with specific focus on maximising Vanadium grade in RoM plant feed.

The medium grade ore mining has initially been included in the waste stripping for the high-grade ore, however if this were to be included in future into the long-term production plan the overall stripping ratio would reduce significantly. The significance of this is that given all the mining costs for this material has been included in the high-grade ore mining costs (i.e. low to no mining costs required when processing medium grade stockpile), the processing of this ore could be economically feasible in the future.

This medium grade material therefore affords VR8 several options to further expand production or to expand the life of mine pending further economic evaluation.

The outcomes of the pit shell design discussed above have now been included as the basis of design for the PFS mine and plant designs and economic evaluations are currently underway for inclusion in the PFS to determine impact on project fundamentals. This would include the potential impact on project Capex requirements.

PRE-FEASIBILITY STUDY PROGRESS AND CARBON FOOTPRINT REDUCTION PLAN

The current PFS is progressing within budget and on time for completion in Q2 2021. The first draft reports from consultant companies for the various work streams (including Concentrator, Mining, SRL etc) have been received and are in the process of review by VR8.

In addition to the base case process design as contained in the Scoping Study published in September 2020, VR8 has also investigated opportunities to reduce overall project carbon footprint through supplementing power supply with renewable energy. This is expected to be supplementary to the Company's acquisition of the ESG process technology as announced on the 1st of April 2021 and to the conventional salt roast leach process.

The revised pit shell and mine design discussed above has unlocked sufficient additional concentrate production, to form the basis for the ESG PFS design, which is expected to be completed with the current Salt Roast process design and without affecting the Salt Roast design and costing. These opportunities will form part of the PFS, and if successful, the selected technologies will be further progressed during the DFS phases.

With funding now secured through the Company's recent capital raising, commercial discussions have been initiated with the various consultants involved in the PFS to obtain fixed and firm quotes for the execution of the DFS. This will allow VR8 to rapidly progress directly into the DFS phase of the project upon completion of the PFS, while the Company runs its strategic marketing and pre-paid offtake discussions.

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

For and on behalf of the board:

Kyla Garic

Company Secretary

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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% V₂O₅ flake, as it can be used directly in steel making or converted to ferrovanadium for additional uses in steel making. Higher purity vanadium products are either produced by a modern plant (such as being planned by VR8) or are further processed from 98% V₂O₅ 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.

This month 98% V₂O₅ flake product continues to trade around \$7.00/lb (US\$15,420/tonne; Fastmarkets Metal Bulletin). Trade remains quiet globally with supply of product largely restored and buyers having re stocked in recent weeks, with any excess material being sold on Chinese markets due to higher prices versus European buyers.