

**ASX ANNOUNCEMENT**

4 March 2021

**MINING STUDY HAS COMMENCED ON THE ABENAB  
VANADIUM RESOURCE IN NAMIBIA**

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**Highlights:**

- **Mining Study has commenced on the historic Abenab Vanadium Mine near Grootfontein, Namibia.**
  - **Abenab was known as the richest and largest deposit of vanadate ore in the world.**
  - **South Africa based mining consultancy Bara Consulting has been engaged to conduct the study which will comprise an evaluation of mining methods and costs.**
  - **The study together with metallurgical and processing testwork completed by Golden Deeps will enable the Company to progress towards a feasibility study and production.**
  - **Historical ore production at Abenab was ~1.8Mt @ 1.05% V<sub>2</sub>O<sub>5</sub> for approximately 102,000t of concentrate grading 18% V<sub>2</sub>O<sub>5</sub>, 13% Zn and 42% Pb<sup>2</sup>.**
  - **Abenab has a current JORC 2012 Mineral Resource of 2.8Mt at 0.66% V<sub>2</sub>O<sub>5</sub>, 2.35% Pb and 0.94% Zn at a cut-off grade of 0.2% V<sub>2</sub>O<sub>5</sub><sup>3</sup>.**
  - **Metallurgical testwork on low grade surface Abenab ore showed the ore can be easily and cheaply concentrated by gravity and produced a concentrate grade of 8.9 % V<sub>2</sub>O<sub>5</sub>, 30.5% Pb and 8.95% Zn<sup>5</sup>, a 30x upgrade of the vanadium content in surface ore.**
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Golden Deeps Limited (“Golden Deeps” or “Company”) is pleased to announce the commencement of a mining study on the Abenab Vanadium Mine in Namibia (Figure 1).

The mining study will be conducted by Bara Consulting, a respected South Africa based engineering consultancy that provides high quality consulting services to the global mining industry, with a presence in the UK, South Africa and Canada. Bara has undertaken a significant amount of work on similar mine study projects in Namibia including the Otjihase Copper Mine, Matchless Copper Mine and the Namib Lead-Zinc Mine.

The scope of work for the study primarily comprises an evaluation of the open pit and underground mining options and an estimation of mining costs. Specific areas that will be covered include:

- Open pit evaluation.
- Primary access trade off study.
- Underground mining method design.
- Estimation of mining costs.
- Cut-off grade estimation.
- Geotechnical evaluation.

The Company has previously conducted extensive metallurgical testwork on the Abenab ore and found it easy and cheap to process using gravity separation techniques. In comparison, ferrovandium type deposits require more complex and expensive processing.

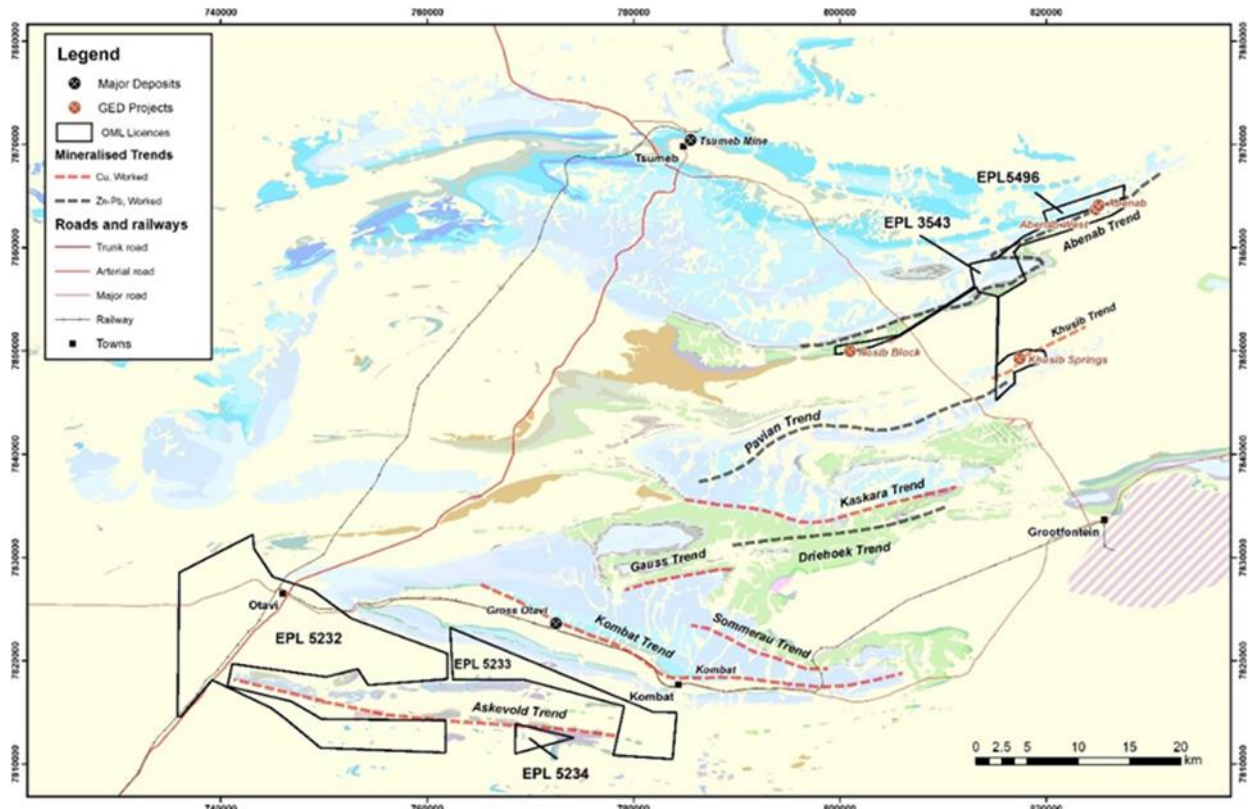


Figure 1: Abenab Mine location plan and Golden Deeps' EPLs in the Otavi Mountain Land area

The study will allow Golden Deeps to assess the economic viability of mining the Abenab Vanadium Project based on current commodity prices, exchange rates and mining costs. With the growing need to combat climate change, governments around the world are planning to transition to zero emissions through electrification. This has resulted in recent increases in the prices of the so-called EV metals, including vanadium, which is used in vanadium flow batteries.

Once complete, the study will allow the Company to prioritise and schedule additional work aimed at developing the project further. Further work may include drilling to increase the existing resource adjacent to the open pit and at depth as well as refinement of the process flowsheet.

## Background

The Abenab group of deposits was discovered in the early 20th century and mined up until 1958. The Abenab and Abenab West mines were known as the “world’s richest” and largest known deposits of base metal vanadate ore, producing a substantial amount of very high-grade concentrate<sup>1</sup>.

The historical Abenab Mine was a major open pit and underground vanadium and base metal mining operation in the Otavi Mountain Land (Figure 2-3), with reported historical ore production of **~1.8Mt @ 1.05% V<sub>2</sub>O<sub>5</sub> for approximately 102,000t of concentrate grading 18% V<sub>2</sub>O<sub>5</sub>, 13% Zn and 42% Pb**<sup>2</sup>. Historical exploration and more recent drilling indicate that there is potential for extensions of the mineralisation at depth and laterally. Potential exists to re-open the Abenab Mine and to process the high-grade V-Zn-Pb mineralisation using simple, low-cost processing methods.

<sup>1</sup> Boni, M. et. al. 2007. Genesis of vanadium ores in the Otavi Mountainland, Namibia. *Economic Geology*, v.102, pp.441-469.

<sup>2</sup> AVL ASX announcement 23 January 2012 ‘Exceptional high grade vanadium intercepts – Abenab, Namibia’

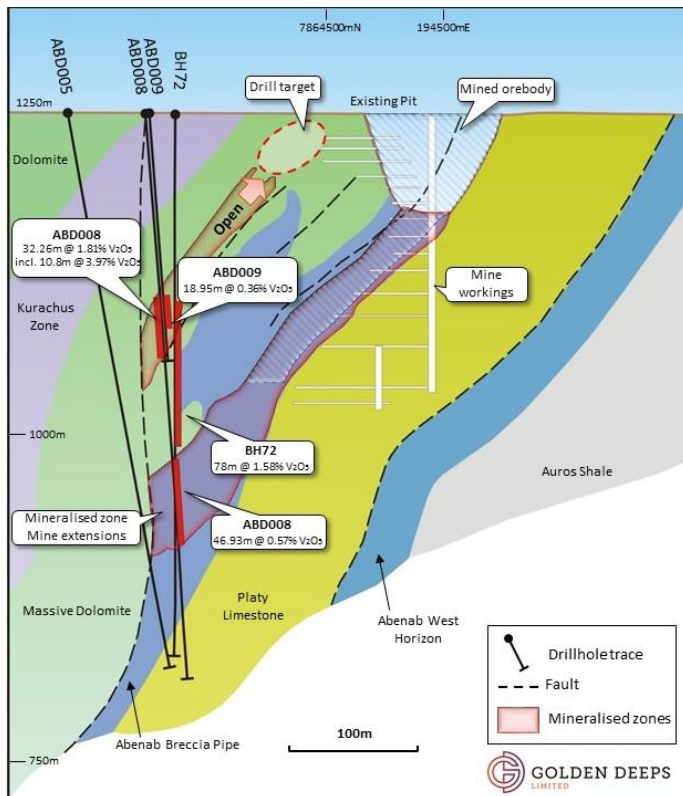


Figure 2: Cross section through the Abenab vanadium mine showing open pit and historic underground workings

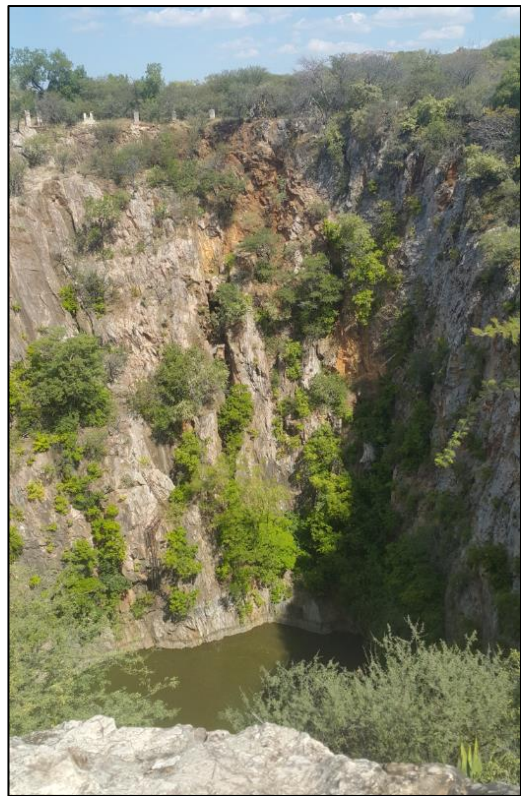


Figure 3: Abenab vanadium mine open pit

In January 2019, Golden Deeps reported an upgrade in the resource following detailed geological reviews and creation of a new geological model. The new Inferred Mineral Resource reported is **2.8Mt at 0.66% V<sub>2</sub>O<sub>5</sub>, 2.35% Pb and 0.94% Zn at a cut-off grade of 0.2% V<sub>2</sub>O<sub>5</sub>**<sup>3</sup>. In April 2019, the Company commenced a resource definition drilling program designed to in-fill and extend the resource. Results from the program included **64.18 at 0.90% V<sub>2</sub>O<sub>5</sub>, 2.01% Pb, 0.65% Zn from 207m in ABD0015**<sup>4</sup>.

The extraordinarily high grade of the concentrate produced at Abenab is primarily due to the mineralogy of the deposit, which is dominated by the secondary minerals descloizite, a lead-zinc vanadate with the chemical formula  $Pb_2Zn(VO_4)(OH)$ ; and the lead-vanadium chloride mineral vanadinite,  $Pb_5(VO_4)_3Cl$  (Figure 4). Descloizite and vanadinite are both dense minerals (SG of 6.2 and 6.9, respectively) and occur as coarse grained aggregates that are ideally suited to simple recovery and concentration by gravity-based processing methods. This well tested processing technology has high recoveries and the advantages of requiring simple, low-cost equipment and of having low operating costs.

<sup>3</sup> GED ASX announcement 31 January 2019 'Major Resource Upgrade at Abenab Vanadium Project'.

<sup>4</sup> GED ASX announcement 14 August 2019 'Phase 1 resource definition and drilling program complete – High-grade vanadium intersected.'

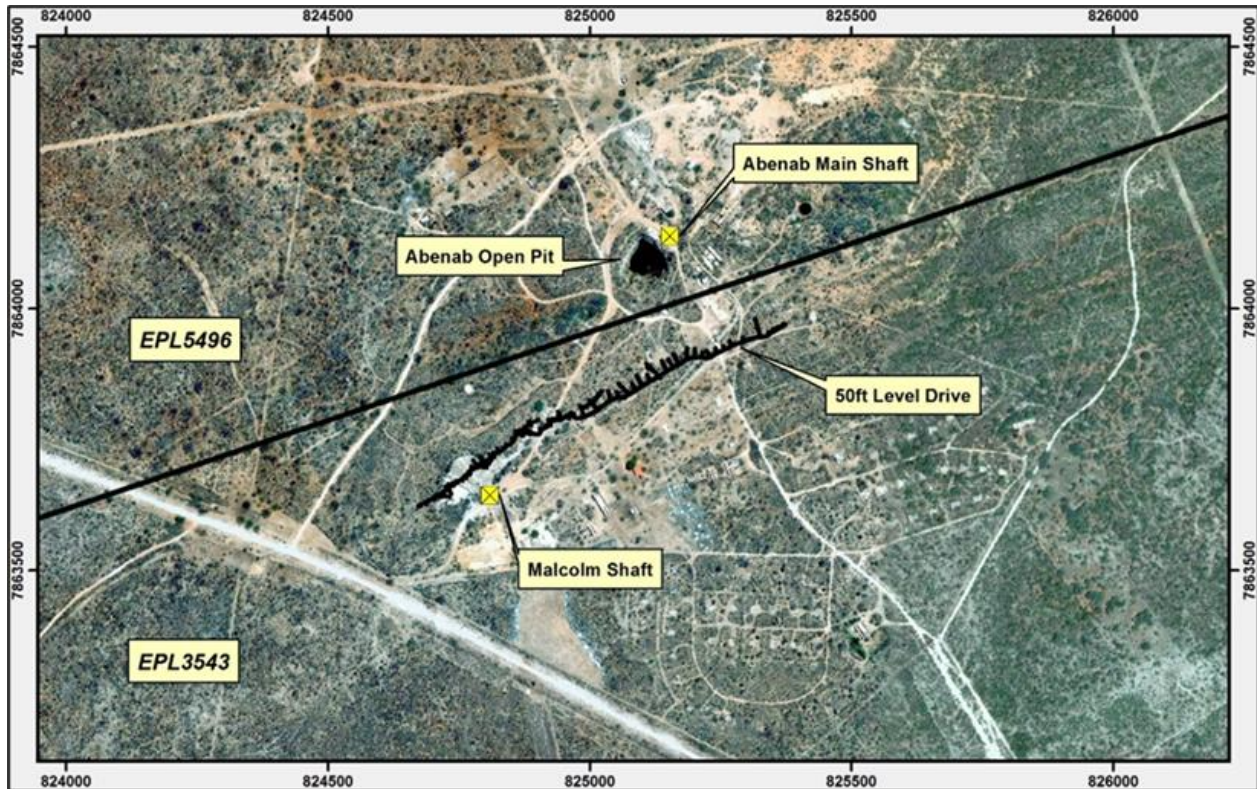


Figure 4: Aerial photograph of the Abenab vanadium mine showing mine infrastructure

In 2019, the Company commissioned MINTEK of Johannesburg, a highly regarded South African specialist metallurgical testwork company in South Africa to undertake the extensive test work program. An initial parcel of eight tonnes of ore was sourced from the existing above ground mineral material located on-site at Abenab. The initial composite eight tonnes was assayed at 0.30%  $V_2O_5$ , 1.29% Pb & 1.14% Zn and was jaw crushed and pulverised to a sub 1mm size prior to undergoing gravity separation through the various techniques. The separation process identified that a three stage rougher circuit, followed by a three stage Scavenger circuit, provided the best overall return for a concentrate grade of **8.9 %  $V_2O_5$ , 30.5% Pb and 8.95% Zn**, or a 30x upgrade on Vanadium units<sup>5</sup>.



Figure 5: Vanadium bearing breccia in diamond hole 241.98m in ABD014. Dolomite clasts - red brown, descloisite – yellow brown, spar calcite – white

<sup>5</sup> GED ASX announcement 22 August 2019 'Pathway to production secured through 30x increase in vanadium concentrate grade from existing Abenab stockpiles'.

This announcement was authorised for release by the Board of Directors.

**\*\*\*ENDS\*\*\***

**For further information, please refer to the Company's website or contact:**

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### **Caution Regarding Forward-Looking Information**

*This document contains forward-looking statements concerning Golden Deeps. Forward-looking statements are not statements of historical fact and actual events and results may differ materially from those described in the forward looking statements as a result of a variety of risks, uncertainties and other factors. Forward-looking statements are inherently subject to business, economic, competitive, political and social uncertainties and contingencies. Many factors could cause the Company's actual results to differ materially from those expressed or implied in any forward-looking information provided by the Company, or on behalf of, the Company. Such factors include, among other things, risks relating to additional funding requirements, metal prices, exploration, development and operating risks, competition, production risks, regulatory restrictions, including environmental regulation and liability and potential title disputes.*

*Forward looking statements in this document are based on the company's beliefs, opinions and estimates of Golden Deeps Ltd as of the dates the forward looking statements are made, and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.*

### **Competent Person Statement**

*The information in this announcement that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr. Martin Bennett. Mr Bennett is a consultant to Golden Deeps Limited and is a member of the Australian Institute of Geoscientists. Mr Bennett 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 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Bennett consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

*The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.*