

**ASX ANNOUNCEMENT**ASX code: **GED**

21 March 2022

**OUTSTANDING VANADIUM EXTRACTION OF UP TO 95% IN ABENAB LEACH TESTS**

***Representative bulk-concentrate being generated for further leach testing prior to upgraded Phase 2 studies for high-value vanadium and base metal production***

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- Outstanding vanadium extraction of up to 95% achieved in Phase 1 hydrometallurgical leach tests on gravity concentrate from the Abenab Vanadium ( $V_2O_5$  or V) - Zinc (Zn) - Lead (Pb) Project in Namibia – one of the highest grade vanadate projects in the world.
  - Direct ion-exchange (IX) testwork on the leach solution produced high vanadium recoveries into IX resin, that can be processed to produce high-value end products such as vanadium electrolyte for vanadium redox flow batteries (VRFBs) used in renewable energy storage.
  - Further gravity concentration testwork commenced on a new bulk sample representative of the high-grade resource at Abenab. This work will generate a high-grade gravity concentrate targeting 15X upgrade to 15%V, 30%Pb, 12%Zn, for Phase 2 hydrometallurgical leach testing.
  - A proposal has been received for Phase 2 hydrometallurgical leach testing on the high-grade gravity concentrate which is designed to optimise vanadium leach as well as direct IX recovery of vanadium and zinc, with lead recovery by gravity concentration of the residue.
  - This Phase 2 testwork will develop a two-stage flowsheet comprising gravity concentration on site followed by off-site down-stream hydrometallurgical processing to recover high-value vanadium products as well as lead, zinc and potentially copper.
  - The gravity then hydrometallurgical processing flow-sheet developed for Abenab will also be applied to gravity concentrate from the Nosib high-grade vanadium-copper-lead-mineralisation, located along strike from Abenab, where the Company is currently drilling.
  - The key next steps following this staged testing program will be to develop an integrated mining and processing plan for Abenab and Nosib at scoping study level, that may then be upgraded to a feasibility study and near-term development and production plan.
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Golden Deeps Limited (“Golden Deeps” or “Company”) is pleased to report **outstanding vanadium extraction rates of up to 95% vanadium recovery in Phase 1 hydrometallurgical testwork on gravity concentrate from the Abenab high-grade Vanadium-Lead-Zinc Project<sup>1</sup>** in the Otavi Mountain Land (OML) of Namibia (see location, Figure 2).

This Phase 1 hydrometallurgical test work on the Abenab concentrate sample was carried out by metallurgical consultants and processing engineers, Core Resources (“Core”) in Brisbane.

**The Phase 1 testwork produced a preliminary processing flowsheet to process vanadium-lead-zinc gravity concentrate from the Abenab deposit and produce down-stream high-value products such as vanadium electrolyte for Vanadium Redox Flow Batteries (VRFBs), as well as lead, zinc and potentially copper by-products.**

### **Results of the Abenab Phase 1 Hydrometallurgical Testwork:**

Previous gravity concentration testwork on high-grade underground resource material by Avonlea Minerals Ltd (ASX: AVZ) in 2012, **produced high concentrate grades of up to 21% V<sub>2</sub>O<sub>5</sub>, 14% Zn and 53% Pb<sup>2</sup>.**

Subsequent gravity concentration test work for Golden Deeps, by Mintek - South Africa, used low-grade surface stockpiles and tailings material from historical Abenab production, grading 0.30% V<sub>2</sub>O<sub>5</sub>, 1.29% Pb and 1.14% Zn (much lower grade than the Abenab resource) to generate a concentrate with an overall grade of up to **8.9 % V<sub>2</sub>O<sub>5</sub>, 30.5% Pb, 8.95% Zn, representing a 30 times upgrade of Vanadium<sup>3</sup>.**

A representative sample of this gravity concentrate grading **~6% V<sub>2</sub>O<sub>5</sub>, 20% Pb, 6.5% Zn** and weighing approximately five kilograms (5 kg) was provided to Core to carry out the Phase 1 downstream hydrometallurgical leaching testwork. This work included a series of sulphuric acid leach tests at different conditions, including varied pH, acid addition rates and temperature.

**The first test (Test 1) was controlled to PH 1 at 45°C, with a relatively high acid addition rate and produced vanadium recovery into solution of 95.4% V.** Similar recovery of zinc was achieved and the lead almost entirely precipitated into the residue, for later recovery.

Further testwork was carried out to determine the best method for separating vanadium (V) from zinc (Zn) and iron (Fe) to produce saleable down-stream products. **Direct ion exchange (IX) recovery of vanadium from the leach solution was shown to be the most attractive processing option as vanadium can be stripped and processed to multiple high-value end products, including vanadium electrolyte precursors for VRFBs used in the renewable energy industry.**

**The results of the direct IX testwork indicated vanadium can be selectively recovered from iron and zinc with very-high recovery of vanadium from solution.** The effluent from the process can then be processed to generate a saleable zinc product. **This demonstrates direct IX is a suitable downstream processing method for precipitating vanadium after leach extraction from the Abenab concentrate.** Lead was recovered from the leach residue by gravity separation, recovering up to 96% Pb into a 45% Pb gravity concentrate, with Pb present as PbSO<sub>4</sub>, a saleable product to secondary lead smelters.

### **New, Gravity Concentrate Sample being generated from Abenab resource material:**

The concentrate sample used for the Phase 1 hydrometallurgical testwork was generated from low grade surface stockpiles with tailings contamination. This material is inferior to the underground, high-grade resources that would form the basis of any future development. Lower rates of acid consumption are expected from leach tests on higher grade “clean” concentrate from the underground resource.

For this reason, the Company has utilised existing drillcore from the Abenab diamond drilling program carried out in 2019 to generate a new bulk sample of underground resource material for further gravity concentration to produce a new batch of, representative, concentrate for Phase 2 leach testwork.

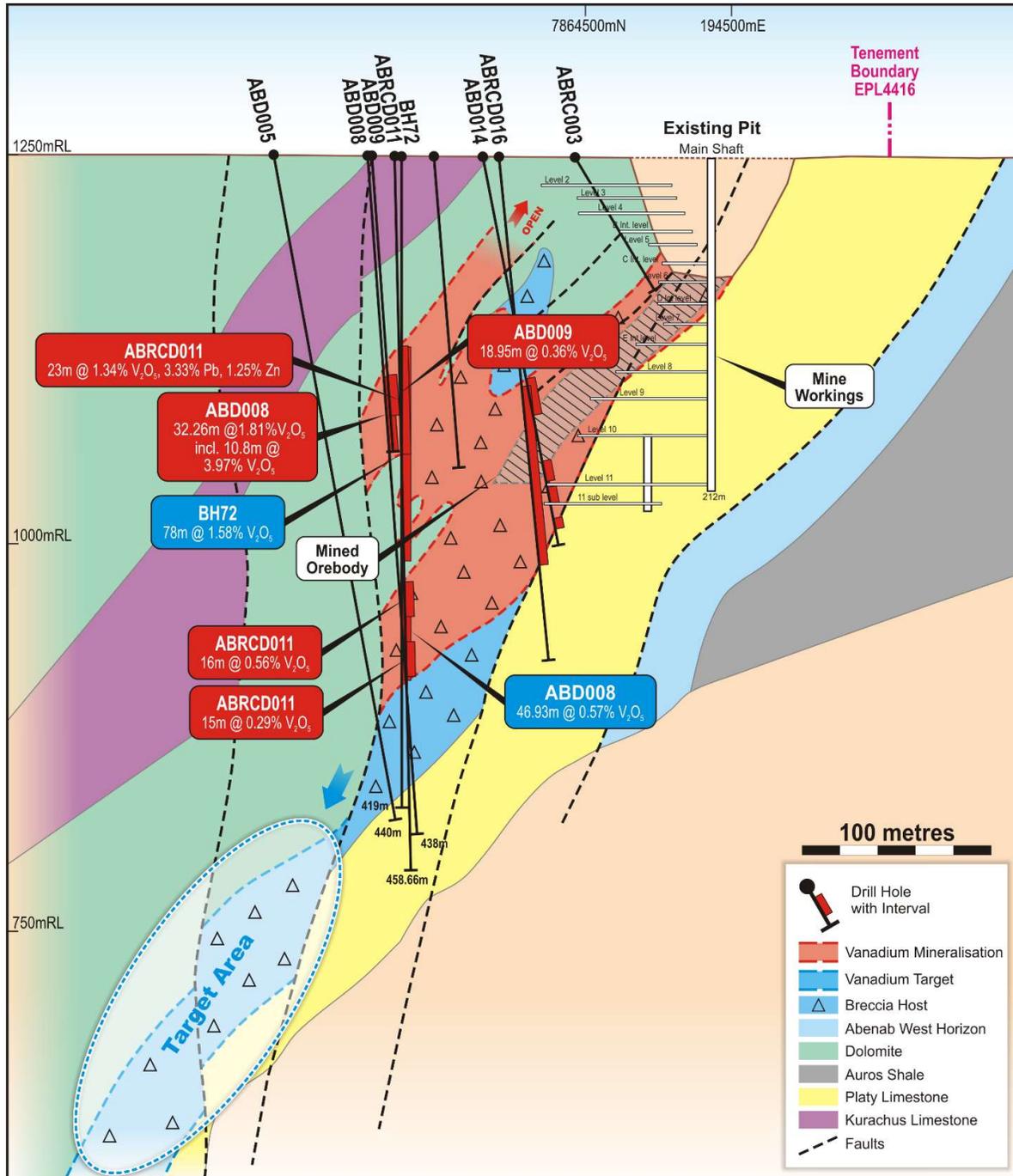
Drillcore from two diamond drillholes that intersected the Abenab high-grade resource were selected to produce the representative bulk sample. Intersections from these previous drillholes included:

- **ABD015 - 64.18 @ 0.90% V<sub>2</sub>O<sub>5</sub>, 2.01% Pb, 0.65% Zn** from 207m<sup>4</sup> and
- **ABRCD011 – 23m @ 1.34% V<sub>2</sub>O<sub>5</sub>, 3.33% Pb, 1.25% Zn** from 167m<sup>5</sup> (see cross section Figure 1).

Samples from these diamond drillholes have been aggregated to generate a 160kg bulk sample that grades approximately **1.0% V<sub>2</sub>O<sub>5</sub>, 2.2% Pb and 0.77% Zn.**

This bulk sample approximately represents the grade of the current Abenab Inferred Mineral Resources of:

- **2.80Mt @ 0.66% V<sub>2</sub>O<sub>5</sub>, 2.35% Pb, 0.94% Zn at a 0.2% V<sub>2</sub>O<sub>5</sub> cut-off<sup>1</sup> or**
- **1.12Mt @ 1.28% V<sub>2</sub>O<sub>5</sub>, 3.05% Pb, 1.25% Zn at a 0.5% V<sub>2</sub>O<sub>5</sub> cut-off<sup>1</sup>.**



**Figure 1: Cross section through Abenab breccia showing high-grade mineralisation and potential at depth**

The representative bulk sample was delivered to Nagrom Laboratories in Perth, Western Australia.

A three-stage program to generate a representative gravity concentrate bulk sample is now being carried out and consists of:

- i) Grinding sighter tests using various grind sizes, followed by water-based gravity separation.
- ii) Gravity separation optimisation using spirals with water table cleaning, and,
- iii) final concentrate production of 3 to 5kg of high-grade concentrate.

**The target grade for the gravity concentrate will be up to 15%  $V_2O_5$ , 30% Pb, 12% Zn (~15X upgrade).**

### **Further Phase 2 Hydrometallurgical Testing proposed for Abenab and the Nosib Prospect:**

A new proposal has been received from Core (metallurgical testing group) for a Phase 2 hydrometallurgical testwork program on the new, representative, concentrate sample generated by Nagrom. The Phase 2 testwork is designed to further develop the flowsheet for processing vanadium lead and zinc concentrate to high-value vanadium products, as well as recovering zinc, lead and potentially copper.

The Core proposal includes further acid leaching tests to optimise vanadium recovery and acid consumption, followed by tests on vanadium recovery via direct ion exchange, zinc recovery from effluent and, separately, lead recovery via gravity concentration of the leach residue.

The outcomes of both the gravity concentrate testwork, and the leaching and downstream products testwork, will provide processing cost inputs (capital and operating). This work will then be integrated with upgraded mining cost estimates to produce a scoping study for staged mining, gravity concentration and downstream processing of the high-grade Abenab high-grade V-Zn-Pb resource.

***“This Phase 2 testwork presents an opportunity to develop a down-stream processing flowsheet to allow mining development and initial gravity concentrate processing on site, followed by down-stream processing to high-value vanadium products and also recovery of zinc, lead and potentially copper,”*** said Golden Deeps CEO, Jon Dugdale.

The generation of a viable, two stage, processing flow-sheet for the Abenab resource, with recovery and costing information, will then be **applied to testwork on the Nosib high-grade copper-vanadium-lead mineralisation** (Figure 2) where the company is currently completing a diamond drilling program.

**Nosib Prospect** is located 20km to the southwest of Abenab (see Figure 2 below) and has similar vanadium (descloisite) mineralogy to Abenab. In addition to vanadium, the Nosib mineralisation contains high-grade copper and lead in the shallow, supergene zone.

It is expected the mineralisation from the Nosib deposit, similarly to the mineralisation at Abenab, will be amenable to upgrade by simple gravity concentration.

Diamond drilling of the Nosib deposit has generated sufficient core, with results to come, to generate a metallurgical sample of Nosib high-grade V-Cu-Pb mineralisation for a gravity concentration testwork program which will follow the Abenab work.

Leach testing using the Abenab flowsheet, with an added copper recovery stage, will then be applied to the Nosib concentrate. In addition to vanadium, lead and zinc - copper is expected to leach into solution with precipitation and separation of copper (and zinc) to follow vanadium recovery via direct ion-exchange.

Successful application of the Abenab flow-sheet to the Nosib mineralisation will then be up-scaled to apply to a trial mining bulk sample of near surface high-grade vanadium-copper-lead mineralisation that is currently being excavated. **Approximately three tonnes (3t) of high-grade V-Cu-Pb mineralised material from Nosib will be produced for gravity concentration prior to down-stream hydrometallurgical testing to feasibility study level.**

### **Summary:**

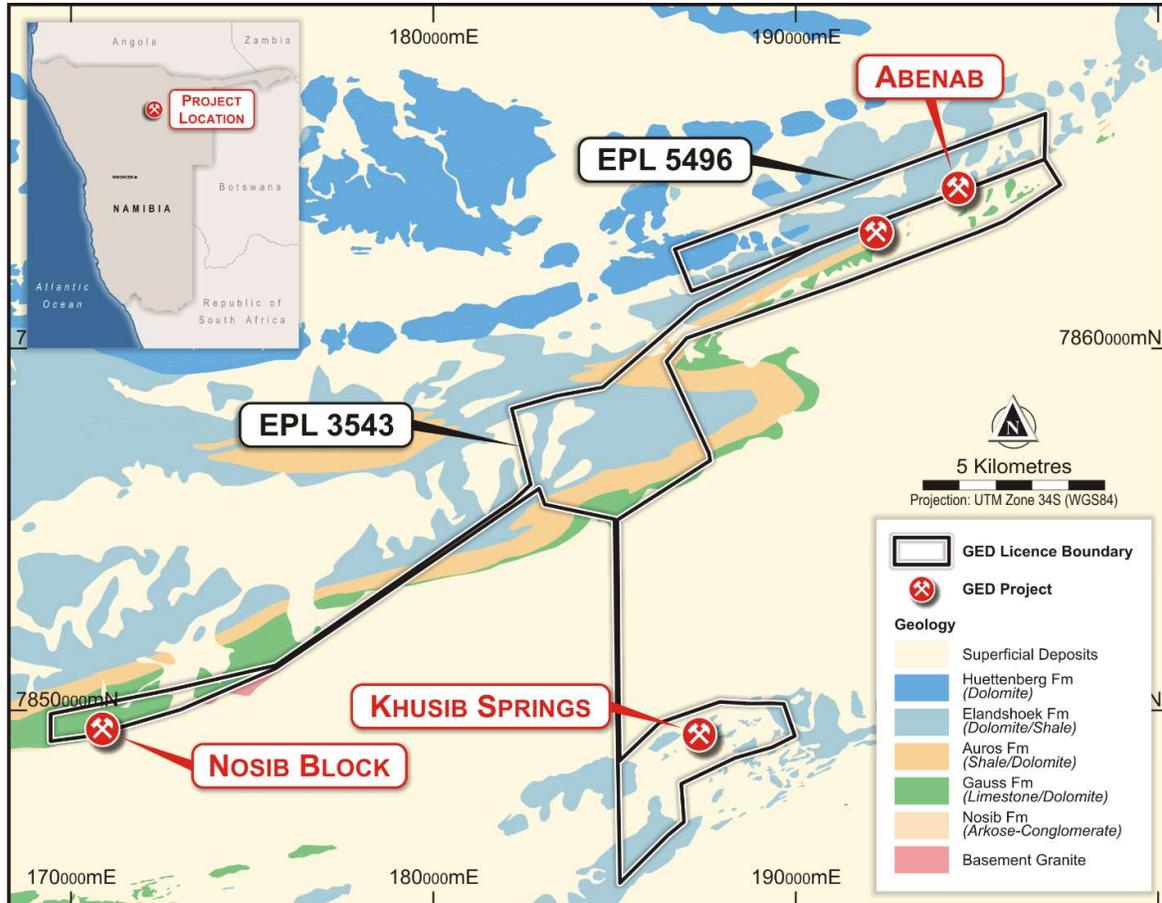
The Company is working towards developing an integrated processing flowsheet for both the Abenab high-grade V-Pb-Zn resource and the Nosib high-grade V-Cu-Pb mineralisation.

The processing concept is for ore from both deposits to be gravity concentrated on site, then high-grade concentrate to be transported off site for downstream hydrometallurgical processing to produce high-value vanadium products as well as lead, zinc and copper by-products.

***“Our goal is to establish a production hub and supply high grade, in demand, critical minerals such as vanadium, copper, lead and zinc to renewable energy battery producers globally”***, concluded Mr Dugdale.

### About the Abenab High-Grade Vanadium-Lead-Zinc Project:

The Abenab high-grade vanadium-lead-zinc project is located on the Company's two Exclusive Prospecting Licences (EPLs) - EPL5496 and EPL3543 ("the Tenements"), that include the **Abenab Mine** as well as the **Khusib Springs** and **Nosib Block** Prospects (Figure 2).



**Figure 2: Location plan of the Abenab and Nosib Projects, EPL3543 and EPL5496, Otavi Copper-Belt, Namibia**

The Tenements cover a 35km strike-length mineralised corridor in the Otavi Mountain Land ("OML" or "Otavi Copper Belt") of northeast Namibia (see Figure 3 below). The region is a globally significant base metal province with major historical production from several mines including the **Tsumeb (30Mt @ 4.3% Cu, 10% Pb, 3.5% Zn<sup>6</sup>)** and **Kombat (32Mt @ 2.21% Cu, 1.33% Pb, 4.4 g/t Ag<sup>7</sup>)** deposits.

The region is well served by sealed roads, rail to port, high voltage power, telephone lines and water, and is close to major towns and other mining processing facilities.

The Abenab mineralisation is hosted by carbonates of the Otavi Group. The deposit consists of a pipelike karst structure filled with a breccia of collapsed country rocks associated with compacted red muds and cemented by coarse calcite and decloizite-vanadinite concretions. The Abenab Breccia Pipe lies on a steeply dipping sheared contact between a massive dolomite and a platy limestone.

The vanadium mineralisation at Abenab is in the form of the oxide minerals descloizite and vanadinite. The vanadium mineralisation takes several forms including breccia clast infill, fine grain fracture fill, open space crystal growth and clay-filled cavities.

The Abenab Mine operated as an open pit and underground mine from 1921 to 1947 by the South West Africa Company. **Historical mine production from Abenab included 176kt @ 16% V<sub>2</sub>O<sub>5</sub>, 13% Zn, 54% Pb.**

The company produced a Mineral Resource estimate for the Abenab Project in January 2019 of an Inferred **2.80Mt @ 0.66% V<sub>2</sub>O<sub>5</sub>, 2.35% Pb, 0.94% Zn at a 0.2% V<sub>2</sub>O<sub>5</sub> cut-off<sup>1</sup>**, including the previously reported Inferred Resource estimate of **1.12Mt @ 1.28% V<sub>2</sub>O<sub>5</sub>, 3.05% Pb, 1.25% Zn at a 0.5% V<sub>2</sub>O<sub>5</sub> cut-off<sup>1</sup>**, making **Abenab one of the largest known and highest-grade deposits of vanadate resources in the world.**

Further diamond drilling in 2019 produced high-grade intersections including **ABRC011 – 23m @ 1.34% V<sub>2</sub>O<sub>5</sub>, 3.33% Pb, 1.25% Zn from 167m<sup>5</sup>** (Figure 1). This drilling is not included in the current Inferred Resource estimate and will allow an upgrade to be produced to JORC 2012 Indicated Resource status, subject to the outcomes of mining and metallurgical studies currently in progress.

The Company completed a Mining Study in June 2021<sup>8</sup> that established that there is potential for a viable underground mining operation focused on the higher-grade portions of the current Mineral Resource<sup>1</sup> at a targeted production rate of 14,500 tonnes per month (tpm) or 174,000 tonnes per annum (tpa) of high-grade vanadium ore.

Previous gravity concentration testwork on high-grade underground resource material by Avonlea Minerals Ltd in 2012 **produced high concentrate grades of 21% V<sub>2</sub>O<sub>5</sub>, 14% Zn and 53% Pb<sup>2</sup>**. Further, Phase 1, gravity testwork for Golden Deeps, by Mintek - South Africa, utilised historical low-grade surface stockpiles and tailings material grading 0.30% V<sub>2</sub>O<sub>5</sub>, 1.29% Pb and 1.14% Zn to generate an overall concentrate grade of up to **8.9 % V<sub>2</sub>O<sub>5</sub>, 30.5% Pb, 8.95% Zn, representing a 30x upgrade of Vanadium<sup>3</sup>**.

The Company commenced down-stream hydrometallurgical leach testwork on the Abenab concentrate with Core Resources (“Core”), in Brisbane in mid-2021. The objective of this work is to generate a potentially economic flowsheet to process vanadium-lead-zinc gravity concentrate from the Abenab deposit and produce down-stream high-value products such as vanadium electrolyte for vanadium redox flow batteries (VRFBs) as well as allow further processing to produce Vanadium Pentoxide (V<sub>2</sub>O<sub>5</sub>).

**Phase 1 of this testwork produced high-vanadium extractions of up to 95.4% into solution and demonstrated that direct ion-exchange can separate the vanadium from lead and zinc to produce downstream high-value vanadium products**, with lead, zinc and potentially copper as by-products.

Further, Phase 2, testwork is now planned on a new, representative, gravity concentrate sample being generated from aggregated drill-core samples, including **ABRC011** (Figure 1), through the Abenab high-grade vanadium-lead-zinc resource<sup>1</sup>.

**Potential has also been identified to significantly grow the resource through exploration in the immediate vicinity of the current mineralisation and by testing for the offset extension to the deposit at depth** (see cross section, Figure 1).

The Company has also identified a zone of shallow, high-grade, vanadium-copper-lead mineralisation at the **Nosib Prospect**, 20km to the southwest of Abenab (Figure 2). Two phases of drilling have been completed at Nosib and, following receipt of final results, drillcore samples will be aggregated to produce a metallurgical sample for gravity concentration, then leach testwork, following the Abenab program.

**The ultimate objective of this testwork program is to develop an integrated mining and processing plan for Abenab and Nosib at scoping study level then upgrade to feasibility study prior to mining lease applications and potential near-term development.**

## About Vanadium

Vanadium is a chemical element with symbol V and atomic number 23. It is a hard, silvery-grey, ductile, and malleable transition metal. It does not occur in native form but as a component of minerals.

Vanadium is mainly found in magnetite (iron oxide) deposits. It is also found in bauxite (aluminum ore), rocks with high concentrations of phosphorous-containing minerals, and high uranium content sandstones. Vanadium is also recovered from carbon-rich deposits such as coal, oil shale, crude oil, and tar sands.

The two main traded vanadium products are vanadium pentoxide ( $V_2O_5$ ) and ferrovanadium (FeV).  $V_2O_5$  is the most common intermediate product from treatment of magnetite iron ores, vanadium-bearing slags and secondary materials. It can be used directly by some non-metallurgical applications and in the production of vanadium chemicals and is also used as an intermediate product for the production of FeV - a vanadium alloy used as a strengthening or hardening agent in manufacturing of high-strength steel.

**The vanadium ( $V_2O_5$ ) price has been steadily rising over the last 12 to 18 months from a low of US\$5/lb (US\$11,020/t) in November 2020 to over US\$12/lb (US\$26,500/t) currently (www.vanadiumprice.com, 16<sup>th</sup> March 2022).**

This price increase is driven by a deficit in the vanadium market, arising from a growing demand by the steel sector, with limited new supply in the near future. Approximately 90% of vanadium consumption is from the steel industry. The steel market is thus set to continue supporting vanadium demand, which is expected to grow, supported by the increased intensity in use of steel in emerging markets, particularly in China.

Whilst there is growing demand for vanadium, supply remains constrained with very limited new suppliers expected to come on stream. Over 70% of vanadium produced is through co-production of steel products, mostly from China, derived low grade vanadium bearing magnetite ores. This source of vanadium is also significantly constrained due to high input costs as a result of mining and processing low grade captive ores.

There is also the growing application of VRFBs (Vanadium Redox Flow Batteries). The impact of the development of VRFBs is being driven by the energy storage market that has seen aggressive growth in the past few years. Whilst electronics and electric vehicles have attracted more media coverage in the past, utility scale applications are growing and are expected to claim a significant share of the overall energy storage market, with recent studies showing that stationary energy storage demand is growing rapidly and will exceed 300GWh by 2030. **Current forecasts estimate that VRFBs will account for 20% of vanadium consumption by 2030.**

More than 88% of global vanadium production comes from (low grade) vanadiferous magnetite ores, with the balance mainly in sedimentary form such as oil residues or shales.

The mineralisation style at Abenab is rare, with the main mineral being descloizite, a lead-zinc vanadate  $(Pb,Zn)_2(OH)VO_4$ . **This, high-grade, descloizite mineralisation at Abenab is contained in a breccia pipe, with the majority of vanadium minerals contained within a red clay. Descloizite is easily recovered by simple crushing and gravity separation with grades up to 21%  $V_2O_5$  achieved after concentrating. Titanomagnetite ores typically produce 1-3%  $V_2O_5$  after concentrating.**

Capital costs for a concentrator and downstream processing and refining would be expected to be much lower for the Abenab vanadate ores due to the simplicity of the gravity separation process and a higher-grade concentrate that is produced. The refining process is less complex (lower energy and reagent use) with the ability to process through chemical/hydrometallurgical processes compared with the large complex metallurgical processing with high energy use required for Titanomagnetite ores.

## References

<sup>1</sup> Golden Deeps Ltd ASX release 31 January 2019: Golden Deeps Confirms Major Resource Upgrade at Abenab Vanadium project.

<sup>2</sup> Avonlea Minerals Limited (ASX:AVZ) ASX release 8 March 2012: Positive Vanadium Gravity Separation Test Work.

<sup>3</sup> Golden Deeps Ltd ASX release 22 August 2019: Pathway to Production Secured through 30x Increase in Vanadium Concentrate Grade from Existing Abenab Stockpiles.

<sup>4</sup> Golden Deeps Ltd ASX release 14 August 2019: Phase 1 Drilling Complete - High-Grade Vanadium Intersected.

<sup>5</sup> Golden Deeps Ltd ASX release 17 September 2019: 7.8%  $V_2O_5$  Intersected at Abenab Project (ABRCD011 results).

<sup>6</sup> Tsumeb, Namibia. PorterGeo Database: [www.portergeo.com.au/database/mineinfo.asp?mineid=mn290](http://www.portergeo.com.au/database/mineinfo.asp?mineid=mn290).

<sup>7</sup> Porter Geo Database: <http://www.portergeo.com.au/database/mineinfo.asp?mineid=mn2905>.

<sup>8</sup> Golden Deeps Ltd announcement, 11<sup>th</sup> June 2021. Abenab Vanadium Project, Positive Results of Mining Study.

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

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

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**Cautionary Statement regarding Forward-Looking information**

*This document contains forward-looking statements concerning Golden Deeps Ltd. 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 report that relates to exploration results, metallurgy and mineral resources has been reviewed, compiled and fairly represented by Mr Jonathon Dugdale. Mr Dugdale is a consultant to Golden Deeps Ltd and a Fellow of the Australian Institute of Mining and Metallurgy ('FAusIMM'). Mr Dugdale has sufficient experience, including over 34 years' experience in exploration, resource evaluation, mine geology, development studies and finance, relevant to the style of mineralisation and type of deposits under consideration to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee ('JORC') Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr Dugdale consents to the inclusion in this report of the matters based on this 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 on Mineral Resource estimates or exploration results. 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.*

## Appendix 2

### JORC 2012 Edition - Section 1 Sampling Techniques and Data

No further exploration results reported. The Mineral Resource that forms the basis of the Mining Study was reported by Golden Deeps Ltd in the ASX release dated 31 January 2019 with accompanying JORC Table Section 1.

### JORC 2012 Edition - Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>This release is on metallurgical test results completed on the Abenab Vanadium Project located on Golden Deeps Limited (Huab Energy Ltd) EPL3543 and EPL5496 located near the town of Grootfontein in northeast Namibia.</li> <li>EPL3543 and EPL5496 both expire on 6<sup>th</sup> July 2022. Renewal applications will be submitted in April 2022 and mining lease applications are planned to ensure security of tenure.</li> <li>There are no material issues or environmental constraints known to Golden Deeps Ltd which may be deemed an impediment to the continuity of EPL3543 or EPL5496.</li> </ul>
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>The Abenab Vanadium prospect was primarily drilled by Avonlea Resources Ltd with further drilling by Golden Deeps Ltd in 2019<sup>4,5</sup>.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The Abenab mineralisation is situated on the faulted contact between laminated grey limestone and grey dolomite. The ore bodies, which are cylindrical, spiral downwards to a depth of at least 425 m, are hosted by a pipe-like mass of cemented brecciated country rock. The base metal (Pb-Zn +/- Cu) mineralisation at Abenab is interpreted to have formed due to introduction of</li> </ul>

Criteria	JORC Code explanation	Commentary
		<p>hydrothermal fluids along regional deep-seated thrust plane discontinuities during orogenesis and reverse faulting. The introduction of Vanadium is ascribed to later, supergene, processes where Vanadium minerals were precipitated within the sulphide-mineralised breccia under oxidising conditions from circulating groundwaters. Significant normal faulting has been observed in drill-core to have deformed and offset the sulphide mineralisation, but have also acted as conduits for the secondary Vanadium mineralisation.</p>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>• <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"> <li>○ <i>easting and northing of the drill hole collar</i></li> <li>○ <i>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</i></li> <li>○ <i>dip and azimuth of the hole</i></li> <li>○ <i>down hole length and interception depth</i></li> <li>○ <i>hole length.</i></li> </ul> </li> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results in this ASX announcement.</li> <li>• Details of drilling intersections referred to in this release are included in the GED ASX release of 14 August 2019: Phase 1 Drilling Complete - High-Grade Vanadium Intersected and the GED ASX release of 17 September 2019: 7.8% V<sub>2</sub>O<sub>5</sub> Intersected at Abenab Project (ABRCD011 results).</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>• <i>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</i></li> <li>• <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></li> <li>• <i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results in this ASX announcement.</li> <li>• Details of drilling intersections referred to in this release are included in the GED ASX release of 14 August 2019: Phase 1 Drilling Complete - High-Grade Vanadium Intersected and the GED ASX release of 17 September 2019: 7.8% V<sub>2</sub>O<sub>5</sub> Intersected at Abenab Project (ABRCD011 results).</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>• <i>These relationships are particularly important in the reporting of Exploration Results.</i></li> <li>• <i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></li> <li>• <i>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. ‘down hole length, true width not known’).</i></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results in this ASX announcement.</li> <li>• The orientation of drillholes with respect to mineralisation varies from orthogonal to a low angle to the mineralisation as shown on Figure 1, a cross section through the Abenab mineralisation and resource.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• Figure 1 is a representative cross section through the Abenab deposit.</li> <li>• Figure 2 shows the location of the Abenab deposit with regional geology and tenement locations.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results in this ASX announcement.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• No new exploration results in this ASX announcement.</li> <li>• Details of drilling intersections referred to in this release are included in the GED ASX release of 14 August 2019: Phase 1 Drilling Complete - High-Grade Vanadium Intersected and the GED ASX release of 17 September 2019: 7.8% V<sub>2</sub>O<sub>5</sub> Intersected at Abenab Project (ABRCD011 results).</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <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></li> </ul>	<ul style="list-style-type: none"> <li>• The Company is currently reviewing the previous exploration targeting report by Shango Solutions and evaluating targets for deeper extensions of the Abenab deposit prior to planning deeper diamond drilling.</li> <li>• Figure 1 shows the area of possible extensions to the Abenab mineralisation at depth that may be targeted with further diamond drilling.</li> </ul>