

## ASX ANNOUNCEMENT

04 April 2022

ASX : GED

**EXCEPTIONAL COPPER-VANADIUM-LEAD INTERSECTION FROM SURFACE AT NOSIB****53.52m @ 3.6% Copper Equivalent\* (1.15% Cu, 0.62% V<sub>2</sub>O<sub>5</sub>, 3.49% Pb, 4.57g/t Ag)***\*See copper equivalent (CuEq) calculation Appendix 1****- Latest intersection paves way for maiden resource estimate & project development studies***

➤ Exceptionally thick, high-grade, diamond drillhole intersection in vertical hole NSBDD008, that tested the shallow copper-vanadium-lead-silver oxide zone at the Nosib Prospect, including:

- **53.52m @ 1.15% Cu, 0.62% V<sub>2</sub>O<sub>5</sub>, 3.49% Pb, 4.57 g/t Ag (3.6% CuEq\*) from surface**

Including: **25.74m @ 1.71% Cu, 1.17% V<sub>2</sub>O<sub>5</sub>, 6.57% Pb, 4.92 g/t Ag (6.3% CuEq\*) from 2.26m**

Including: **11.74m @ 2.67% Cu, 1.42% V<sub>2</sub>O<sub>5</sub>, 9.21% Pb, 7.12 g/t Ag (8.5% CuEq\*) from 2.26m**

*\*See copper equivalent (CuEq) calculation Appendix 1*

➤ Completion of diamond drilling definition at the **Nosib Prospect** now allows **maiden resource estimation and open pit mine optimisation studies to commence.**

➤ **Metallurgical testwork planned on aggregated drill-core samples from Nosib, to include:**

- 1) **Gravity testwork to generate high-grade vanadium-copper-lead concentrate, and,**
- 2) **Hydrometallurgical leach testwork to determine vanadium and base metal extraction rates for generation of high-value vanadium products with copper, lead, zinc & silver by-products.**

➤ **Bulk trial mining sample (>3 tonnes) to be excavated from surface at Nosib for large scale, Stage 2, metallurgical testing to follow the Stage 1 testwork outcomes.**

➤ **Positive Results from this staged testwork program will be incorporated into an integrated mining and processing plan for both the Nosib and Abenab<sup>1</sup> high-grade vanadium +/- copper-lead-zinc-silver projects.**

➤ **This work will determine potential for near-term development and production of high-value copper and vanadium products, as well as lead, zinc and silver by-products, to feed the rapidly growing renewable energy battery and energy storage markets.**

Diamond drillhole, **NSBDD008**, produced an intersection from surface of:

- Vertical diamond drillhole NSBDD008 tested the moderately dipping mineralisation from surface through the entire mineralised Nosib arenite unit (see Figure 1). A second, sulphide, intersection in this hole was produced on the footwall: **10.60m @ 0.75% Cu, 3.75g/t Ag from 64m incl. 2.47m @ 1.75% Cu, 8.05g/t Ag.**



The intersection in NSBDD008 is within the **shallow, high-grade, copper-vanadium-lead-silver supergene zone** at **Nosib**, that produced previous diamond drilling results including the very high-grade intersection from **NSBDD002**<sup>2</sup> below:

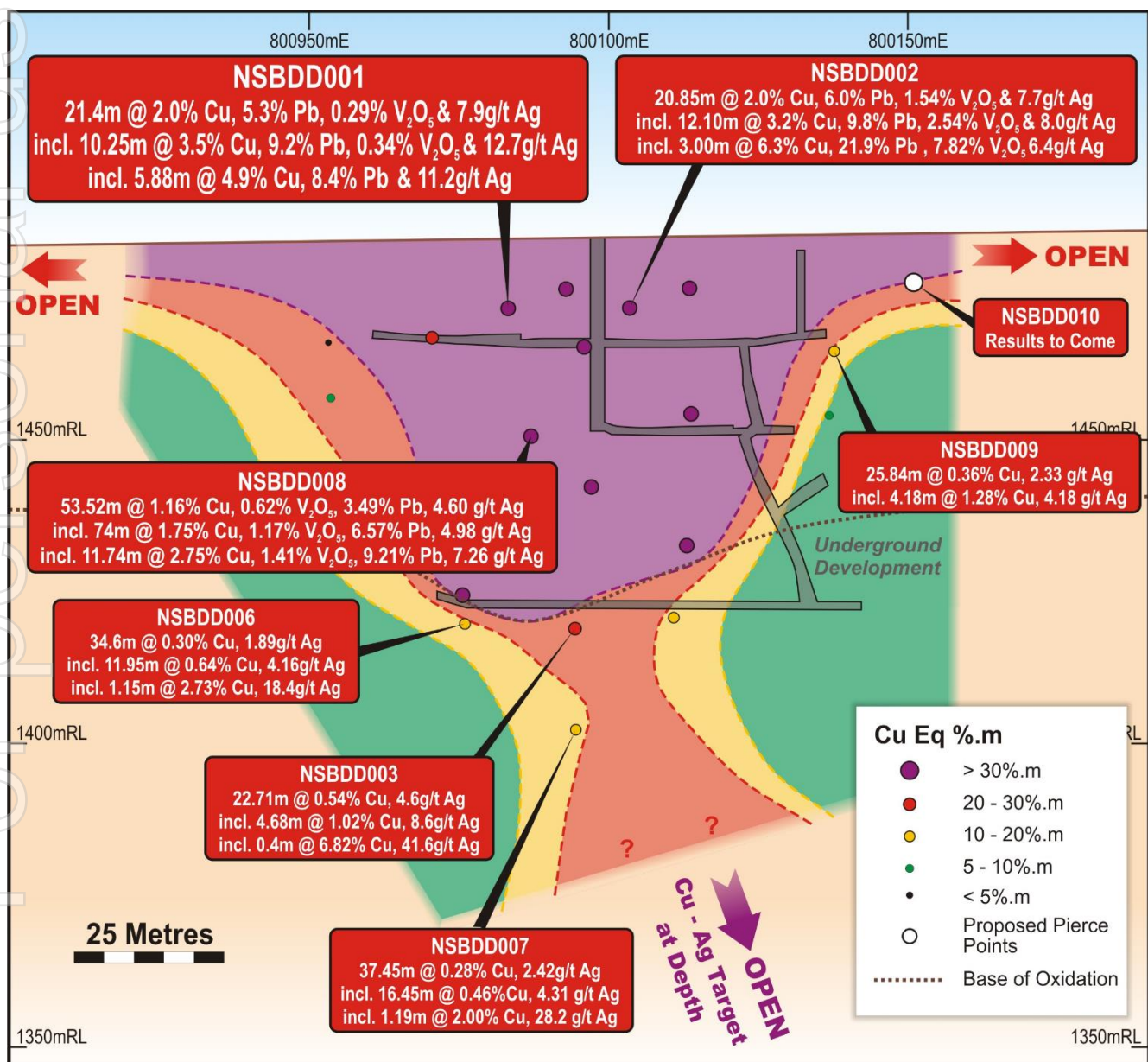
**NSBDD002: 20.85m @ 2.0% Cu, 1.54% V<sub>2</sub>O<sub>5</sub>, 6.0% Pb, 7.7 g/t Ag (6.4% CuEq\*) from 0m**

**incl. 12.10m @ 3.2% Cu, 2.54% V<sub>2</sub>O<sub>5</sub>, 9.8% Pb, 8.0 g/t Ag (10.3% CuEq\*) from 0m**

**incl. 3.00m @ 6.3% Cu, 7.82% V<sub>2</sub>O<sub>5</sub>, 21.9% Pb, 6.4 g/t Ag (25.9% CuEq\*) from 7.3m**

*\*See copper equivalent (CuEq) calculation Appendix 1 of release dated 02 December 2021<sup>2</sup>*

This shallow, high-grade, copper-vanadium-lead-silver mineralised zone has now been tested over a 100m strike length and continues from surface to approximately 50m vertical depth. The zone remains open to the northeast and southwest at surface (see longitudinal projection, Figure 2).



**Figure 2: Nosib Prospect, longitudinal projection with NSBDD008 and other key intersections**



Deeper diamond drilling produced a thick stratabound intersection of copper-silver mineralisation in **NSBDD007: 16.45m @ 0.46% Cu, 4.31 g/t Ag from 94m incl. 1.19m @ 2.00% Cu, 28.2 g/t Ag**. This intersection is of similar “tenor” to the previously reported intersection in NSBDD003<sup>3</sup> (see Figure 1) of:

- **NSBDD003: 35.84m @ 0.45% Cu, 3.8 g/t Ag (0.53% CuEq\*) from 71.0m**
- incl. 22.71m @ 0.54% Cu, 4.6 g/t Ag (0.64% CuEq\*) from 71.0m**
- incl. 4.07m @ 1.13% Cu, 9.3 g/t Ag (1.27% CuEq\*) from 89.03m**
- incl. 0.40m @ 6.81% Cu, 41.6 g/t Ag (7.3% CuEq\*) from 92.7m**

*\*See copper equivalent (CuEq) calculation Appendix 1 of release dated 22 February 2022<sup>3</sup>*

In addition, diamond drillhole NSBDD009 tested extensions along strike to the northeast of the mineralised zone, intersecting **25.84m @ 0.36% Cu, 2.33 g/t Au from 7.16m incl. 4.18m @ 1.28% Cu, 6.65 g/t Au**, which is open to the northeast with NSBDD0010 results to come (see Figure 2).

Table 1 includes a full list of intersections in this release.

#### **Next Steps – Metallurgical Testwork and a Maiden Resource Estimate for the Nosib Prospect:**

Samples of diamond drill-core from NSBDD008 and other previous intersections (e.g. NSBDD002) will now be aggregated to produce a bulk sample for gravity concentration testwork, along similar lines to the testwork being carried out on the Abenab high-grade vanadium-lead-zinc deposit<sup>1</sup>, located 20km to the northeast of Nosib (see Figure 3).

The gravity concentration testwork will aim to generate 3 to 5kg of material, targeting a 15 times upgrade of vanadium and lead, as well as copper.

The **Nosib gravity concentrate sample will then be subjected to Stage 1 Hydrometallurgical leach testwork** based on the new-flowsheet developed for the Abenab project (see release dated 21 March 2022 “Outstanding Vanadium Extraction of up to 95% in Abenab Leach Tests”)<sup>1</sup>.

The results of the initial testwork on the Nosib mineralisation will then be up-scaled to apply to a bulk-trial mining sample of approximately three (3) tonnes being excavated from surface.

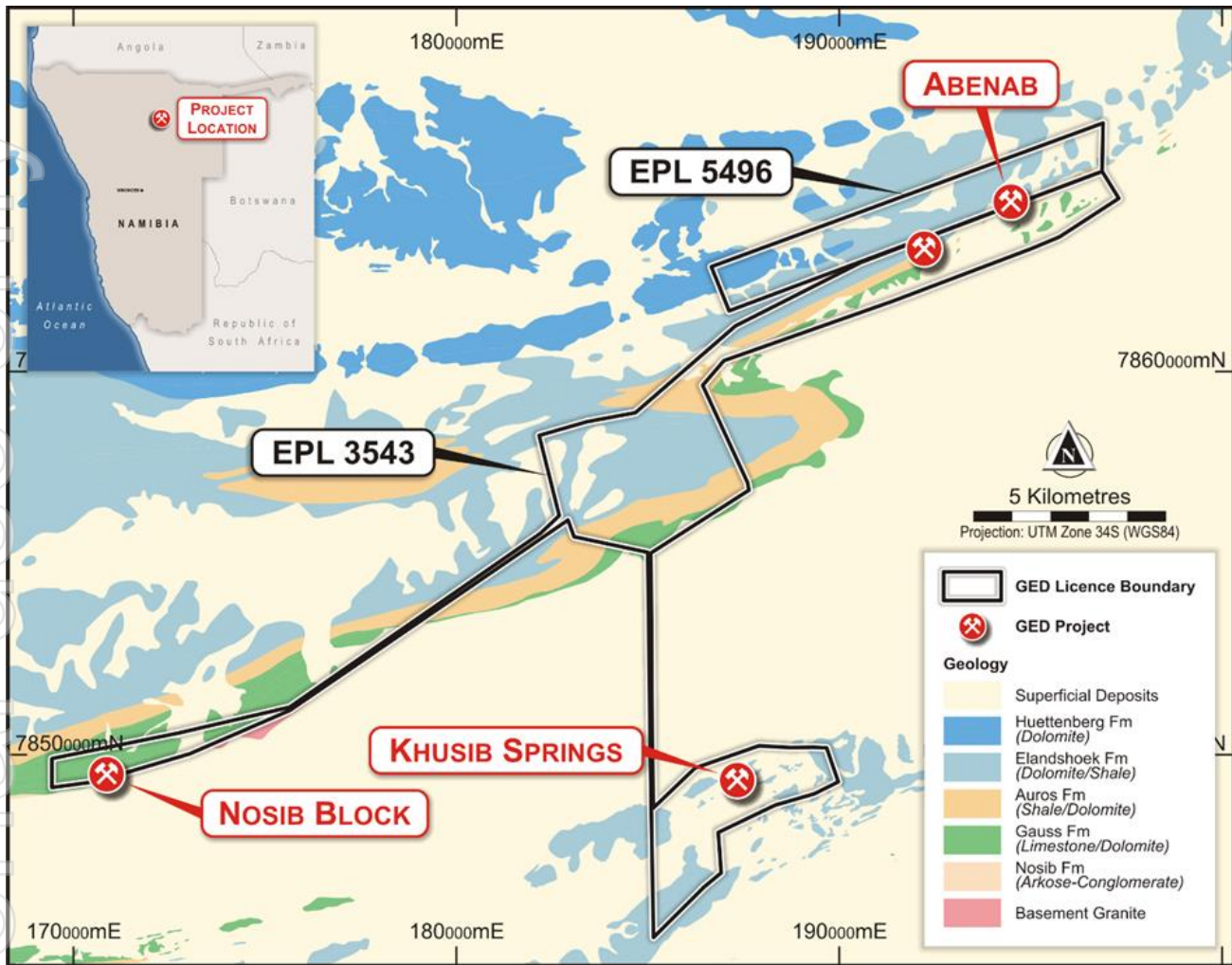
In parallel with the testwork, **a maiden resource estimate will be produced for the Nosib supergene vanadium-copper-lead-silver mineralisation** prior to initial open-pit optimisation and mining studies.

#### **Golden Deeps CEO, Jon Dugdale, commented:**

*“The diamond drilling program at Nosib has been very successful. Significant, thick and high-grade, copper-vanadium-lead and silver mineralisation has been defined with RC and diamond drilling, extending from surface to over 50m vertical depth.*

*“The high-grade zone, from surface, has an ideal geometry for open-pit mining and the project will now be fast-tracked with a maiden resource estimate, open-pit optimisation and metallurgical testing to be carried out prior to initial development and processing studies.*

*“The concept here is to combine the outcomes of the testwork on Nosib with the Abenab high-grade vanadium project studies to produce an integrated mining and processing plan for near-term production of high-value vanadium, copper, lead and zinc products to feed the ever-increasing demand for these metals for renewable energy battery industries.”*



**Figure 3: Otavi Mountain Land tenements with the location of the Company's key prospects**

**Table 1: Nosib diamond drilling intersections:**

Hole ID	From	To	m	Cu %	V <sub>2</sub> O <sub>5</sub>	Pb%	Ag g/t	Zn%	Cu Equ*	Cut off
<b>NSBDD007</b>	73.00	84.59	11.59	<b>0.25</b>	0.01	<0.01	<b>1.66</b>	0.11	0.33	>0.2%
incl.	94.00	110.45	16.45	<b>0.46</b>	0.01	<0.01	<b>4.31</b>	<0.01	0.51	>0.2%
incl.	96.81	98.00	1.19	<b>2.00</b>	0.01	<0.01	<b>28.16</b>	0.00	<b>2.23</b>	>2.0%
<b>NSBDD008</b>	0.00	74.60	74.60	<b>0.94</b>	<b>0.44</b>	<b>2.51</b>	<b>3.91</b>	0.02	<b>2.71</b>	>0.1%
<b>NSBDD008</b>	0.00	53.52	53.52	<b>1.15</b>	<b>0.62</b>	<b>3.49</b>	<b>4.57</b>	0.03	<b>3.60</b>	>0.4%
incl.	2.26	48.00	45.74	<b>1.27</b>	<b>0.70</b>	<b>3.90</b>	<b>4.99</b>	0.02	<b>4.04</b>	>0.5%
incl.	2.26	28.00	25.74	<b>1.71</b>	<b>1.17</b>	<b>6.57</b>	<b>4.92</b>	0.03	<b>6.31</b>	>0.8%
incl.	2.26	14.00	11.74	<b>2.67</b>	<b>1.42</b>	<b>9.21</b>	<b>7.12</b>	0.06	<b>8.55</b>	>1.0%
<b>NSBDD008</b>	64.00	74.60	10.60	<b>0.75</b>	0.01	<0.01	<b>3.75</b>	<0.01	<b>0.80</b>	>0.3%
incl.	66.53	69.00	2.47	<b>1.75</b>	0.01	<0.01	<b>8.05</b>	<0.01	<b>1.85</b>	>1.0%
<b>NSBDD009</b>	7.16	33.00	25.84	<b>0.36</b>	0.02	0.06	<b>2.33</b>	0.02	0.46	>0.2%
incl.	28.82	33.00	4.18	<b>1.28</b>	0.01	<0.01	<b>6.65</b>	<0.01	<b>1.36</b>	>0.4%
incl.	29.82	33.00	3.18	<b>1.55</b>	0.01	<0.01	<b>7.43</b>	<0.01	<b>1.64</b>	>1.0%

Appendix 1 shows the copper equivalent (CuEq) calculations.

Appendix 2 includes details of drilling completed to date with mineralised intervals.

Appendix 3 includes JORC Table 1, Sections 1 and 2.

### About the Company's Otavi Mountain Land Projects:

The **Nosib**, **Abenab** and **Khusib Springs** prospects are located approximately 20km apart, within EPL3543 and EPL5496 (Figure 3), in the world-class Otavi Mountain Land Copper District of Namibia (see Figure 4). This district includes major historical mines such as **Tsumeb**, 40km NW of the tenements, that produced **30Mt of ore grading 4.3% Cu, 10% Pb and 3.5% Zn<sup>4</sup>** between 1905 and 1996.

#### Nosib Prospect:

At the **Nosib Block** (Nosib) prospect, the Company recently completed a ten diamond drillhole program for 942m of drillcore.

The program included six holes that tested the shallow, high-grade, copper-lead-vanadium zone, both within the defined shoot for definition and metallurgical purposes, as well as along strike where the zone is open to the east.

A further four diamond drillholes have tested extensions of the thick, stratabound, copper-silver zone at depth that has produced significant true-width intersections of copper-silver mineralisation up to 45m thick, across the entire thickness of the host arenite unit<sup>5,6</sup>.

The diamond drilling has defined and extended the shallow, high-grade, copper- vanadium - lead zone over a strike-length of over 100m and to a depth of >50m below surface.

The diamond drilling has confirmed the previously announced reverse circulation (RC) high-grade drilling intersections of copper, vanadium and lead with silver from the shallow oxide zone<sup>5,6</sup>, that included:

- **NSBRC007<sup>5</sup>:** 24m @ 1.33% Cu, 4.77% Pb, 1.37% V<sub>2</sub>O<sub>5</sub>, 3.67g/t Ag from 3m incl. 6m @ 3.67% Cu, 14.9% Pb, 4.40% V<sub>2</sub>O<sub>5</sub>, 12.16g/t Ag from 6m, and,
- **NSBRC010<sup>6</sup>:** 29m @ 1.54% Cu, 4.49% Pb, 1.19% V<sub>2</sub>O<sub>5</sub>, 6.97g/t Ag from 2m incl. 9m @ 3.66% Cu, 11.91% Pb, 3.62% V<sub>2</sub>O<sub>5</sub>, 7.70g/t Ag from 3m

**The mineralisation at Nosib has been defined on <20m x 20m spacing with both RC and diamond drilling. Interpretation and modelling will now be carried out in order to prepare a maiden Mineral Resource estimate for the shallow high-grade supergene copper-vanadium-lead-silver zone.**

#### Khusib Springs High-Grade Copper-Silver Deposit:

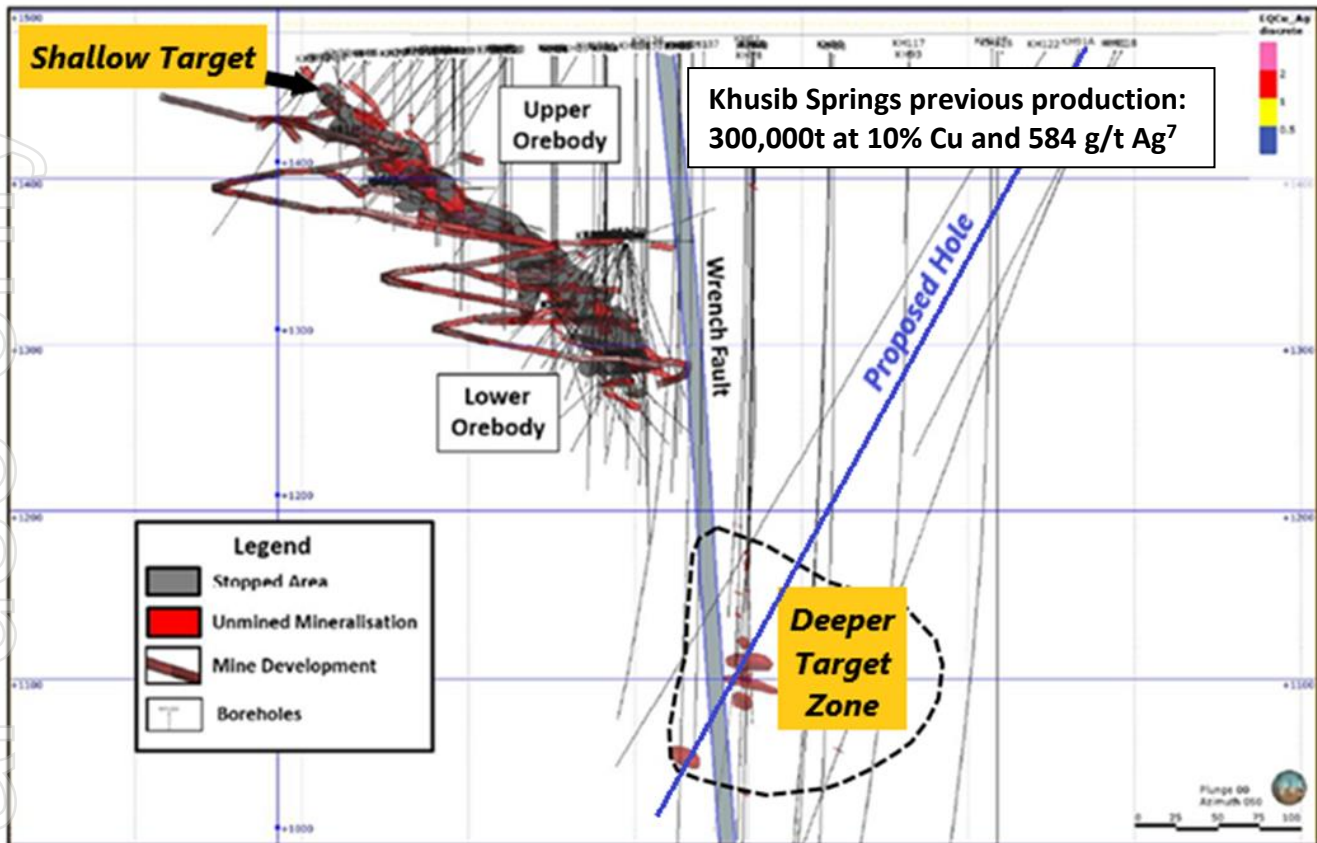
At **Khusib Springs** (see location, Figure 3), previous targeting work by South African based geological consultancy, Shango Solutions, in January 2021<sup>7</sup>, indicated that there is significant potential for a repeat of the very-high grade Khusib Springs copper-silver orebody at depth to the north of an apparent normal fault that is interpreted to have offset the mineralised zone.

**Mineralisation has been intersected previously to the north of the fault and deeper diamond drilling is planned to further test this highly prospective zone for a repeat of the very high-grade Khusib Springs copper-silver ore-body at depth** (see oblique cross section, Figure 5, below).



**Figure 4: Golden Deeps Projects in Namibia**





**Figure 5: Cross section of Khusib Springs Mine showing developed and stoped areas and un-mined zones**

#### **Abenab High-Grade Vanadium (Lead-Zinc) Project**

The **Abenab Project** is located 20km northeast of Nosib (Figure 3) and was 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 at exceptional grades of 16%  $V_2O_5$ , 13% Zn and 54% Pb<sup>8</sup>.**

The Company produced a Mineral Resource estimate for the Abenab Project in January 2019 of an Inferred **2.80Mt @ 0.66%  $V_2O_5$ , 2.35% Pb, 0.94% Zn at a 0.2%  $V_2O_5$  cut-off<sup>9,10</sup>**, including the previously reported Inferred Resource estimate of **1.12Mt @ 1.28%  $V_2O_5$ , 3.05% Pb, 1.25% Zn at a 0.5%  $V_2O_5$  cut-off<sup>9,10</sup>**, making **Abenab one of the largest known and highest-grade vanadate resources in the world.**

Further diamond drilling in 2019 produced high-grade intersections including **ABRCD011 – 23m @ 1.34%  $V_2O_5$ , 3.33% Pb, 1.25% Zn from 167m<sup>11</sup>** (not part of the current resource estimate).

The Company completed a Mining Study in June 2021<sup>12</sup> that established that there is potential for a viable underground mining operation focused on the higher-grade portions of the current resource<sup>9,10</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.

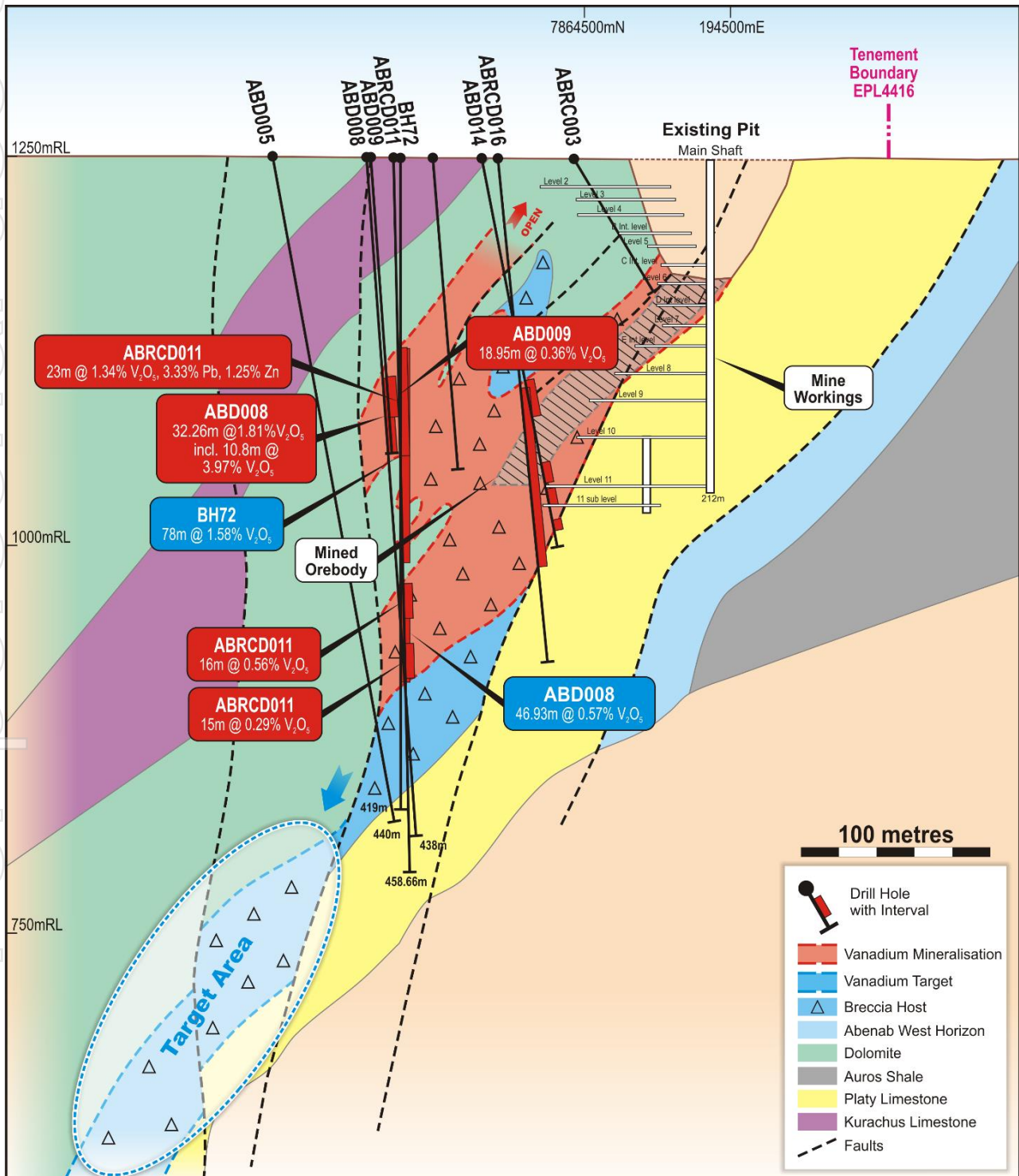
Previous gravity concentration testwork on high-grade underground resource material by Avonlea Minerals Ltd in 2012 **produced high concentrate grades of 21%  $V_2O_5$ , 14% Zn and 53% Pb<sup>13</sup>**. Further, Phase 1, gravity testwork for Golden Deeps, by Mintek - South Africa, utilised historical low-grade surface stockpiles and tailings material grading 0.30%  $V_2O_5$ , 1.29% Pb and 1.14% Zn to generate an overall concentrate grade of up to **8.9 %  $V_2O_5$ , 30.5% Pb, 8.95% Zn, representing a 30x upgrade of Vanadium<sup>14</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 ( $V_2O_5$ ).

**Phase 1 of this testwork produced high-vanadium extractions of up to 95.4%<sup>1</sup> 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 will be carried out on a new, representative, gravity concentrate sample being generated from aggregated drill-core samples, including **ABRCD011** (see cross section, Figure 6, below), through the Abenab high-grade vanadium-lead-zinc resource<sup>9,10</sup>.





## References

- <sup>1</sup> Golden Deeps Ltd announcement, 21st March 2022. Outstanding Vanadium Extraction of up to 95% from Abenab.
- <sup>2</sup> Golden Deeps Ltd announcement, 02 December 2021. Another Exceptional Copper-Vanadium Intersections at Nosib.
- <sup>3</sup> Golden Deeps Ltd announcement, 22 February 2022. Nosib Very High-Grade Copper & Vanadium Intersected.
- <sup>4</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>5</sup> Golden Deeps Ltd announcement, 21st June 2021. Nosib More Exceptional Copper, Lead, Vanadium intersections.
- <sup>6</sup> Golden Deeps Ltd announcement, 15<sup>th</sup> June 2021. Nosib Exceptional Copper, Lead & Vanadium intersections.
- <sup>7</sup> Golden Deeps Ltd announcement, 5<sup>th</sup> February 2021. New High-Grade Copper-Silver Targets at Khusib Springs Mine.
- <sup>8</sup> [www.goldendeeps.com/projects/abenab-mine-history/](http://www.goldendeeps.com/projects/abenab-mine-history/)
- <sup>9</sup> Golden Deeps Ltd announcement, 31 January 2019. Major Resource Upgrade at Abenab Vanadium Project.
- <sup>10</sup> Golden Deeps Ltd ASX release 31 January 2019: Golden Deeps confirms major Resource Upgrade at Abenab.
- <sup>11</sup> Golden Deeps Ltd ASX release 17 September 2019: 7.8% V<sub>2</sub>O<sub>5</sub> Intersected at Abenab Project (ABRCD011 results).
- <sup>12</sup> Golden Deeps Ltd announcement, 11<sup>th</sup> June 2021. Abenab Vanadium Project, Positive Results of Mining Study.
- <sup>13</sup> Avonlea Minerals Limited (ASX:AVZ) ASX release 8 March 2012: Positive Vanadium Gravity Separation Test Work.
- <sup>14</sup> Golden Deeps Ltd ASX release 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:**

Jon Dugdale  
Chief Executive Officer  
Golden Deeps Limited  
+61 (08) 9481 7833

Michael Muhling  
Company Secretary  
Golden Deeps Limited  
+61 (08) 9481 7833

## 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 has been reviewed, compiled and fairly represented by Mr Jonathon Dugdale. Mr Dugdale is the Chief Executive Officer of 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 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. 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 1: Copper Equivalent Calculation

### Equivalent Copper (CuEq) Calculation

The conversion to equivalent copper (CuEq) grade must take into account the plant recovery/payability and sales price (net of sales costs) of each commodity.

Approximate recoveries/payabilities and sales price are based on preliminary and conservative leaching information<sup>1</sup> from equivalent mineralogy samples from the Abenab vanadium, lead, zinc +/- copper, silver deposit located approximately 20km along strike from the Nosib Block Prospect.

The prices used in the calculation are based on current (31/03/22) market for V<sub>2</sub>O<sub>5</sub> as well as Cu, Pb, Zn and Ag sourced from the website [www.vanadiumprice.com](http://www.vanadiumprice.com). The saleable vanadium product is assumed to be Vanadium Pentoxide, V<sub>2</sub>O<sub>5</sub> (98% pure).

**Table 2** below shows the grades, process recoveries and factors used in the conversion of the poly metallic assay information into an equivalent Copper Equivalent (CuEq) grade percent.

Metal	Average grade (%)	Metal Prices		Overall Recovery/payability (%)	Factor	Factored Grade (%)
Cu	1.15	\$4.70/lb	\$10,359/t	0.60	1.00	1.15
V <sub>2</sub> O <sub>5</sub>	0.62	\$12.20/lb	\$26,889/t	0.62	2.60	1.61
Zn	0.03	\$1.87/lb	\$4,121/t	0.54	0.40	0.01
Pb	3.49	\$1.09/lb	\$2,402/t	0.62	0.23	0.81
Ag	0.000457	\$24.83/oz	\$798,300/t	0.80	77.06	0.04
					<b>CuEq</b>	<b>3.62</b>

Using the factors calculated above the equation for calculating the Copper Equivalent (CuEq) % grade is:

$$\text{CuEq\%} = (1 \times \text{Cu\%}) + (2.60 \times \text{V}_2\text{O}_5\%) + (0.23 \times \text{Pb\%}) + (0.40 \times \text{Zn\%}) + (77.06 \times \text{Ag\%})$$

In the example above, applying these factors to the NSBDD008 intersection of 53.52m @ 1.15% Cu, 0.62% V<sub>2</sub>O<sub>5</sub>, 3.49% Pb, 4.57 g/t Ag, 0.03% Zn produces the following CuEq grade percent:

$$(1 \times 1.15\%) + (2.60 \times 0.62\%) + (0.23 \times 3.49\%) + (0.40 \times 0.03\%) + (77.06 \times 0.000457\%) = 3.62\% \text{ CuEq}$$

**APPENDIX 2: Current drillhole details and mineralisation referred to in this release:**

Drillhole	Coordinates UTM		RL	Grid Orientation		Depth		Mineralisation		
Hole_ID	East	North	Mts	Dip°	Azi.°	From	To	Mineralisation in interval	From	To
NSBDD001	800,986	7,849,970	1,465	-59.7	176.2	0.00	80.80	Pervasive malachite associated with specs of born and chalc	6.87	12.33
								Pervasive malachite	17.8	21.0
								Fracture-fill malachite, poorly distributed	32.7	34.7
								Malachite, fracture coating	45.2	45.7
NSBDD002	801,006	7,849,971	1,465	-60	180	0.00	46.30	Mineralised rubble from surface to ~4m, malachite, azurite and mottramite.	0.0	4.0
								6.5-7.30m Strongly fractured (recovered core=.37m), ferruginous unit with mottramite	6.5	7.3
								Poorly disseminated specs of bornite	37.35	37.85
								Fracture-veener malachite, poorly distributed	38.75	39.39
								Fracture-fill/veener malachite, well distributed	41.03	42.07
								Fracture-fill/veener malachite, well distributed	44.51	46.3
NSBDD003	800,996	7,850,032	1,460	-60.6	172.7	0.00	141.10	Pods and patches of malachite, poorly to moderately distributed	71.3	71.82
								Finely disseminated specs of sulphides, predominantly covellite, associated with chalcopryrite at times	71.82	75.78
								Malachite veneer in fractures, poorly distributed	75.78	82.66
								Visible sulphide traces well disseminated. Specs of covellite, chalcopryrite, bornite and pyrite. Occasional Semi-massive bornite associated with chalcopryrite, grading up to 6% Cu (XRF)	82.66	93.05
								Vug-fill malachite, poorly to moderately distributed and occasional sulfide specs, predominantly bornite.	93.71	95.74
								Vug-fill malachite, poorly to moderately distributed and occasional sulfide specs, predominantly bornite.	97.23	97.78
								Pods and Patches of mal, occasionally associated with bornite and fracture-veener mal	100.87	103.44



Drillhole	Coordinates UTM		RL	Grid Orientation		Depth		Mineralisation		
Hole_ID	East	North	Mts	Dip°	Azi.°	From	To	Mineralisation in interval	From	To
NSBDD004	801,036	7,849,973	1,465	-60.8	172.1	0.00	81.3	Frequent pods and patches of malachite staining, at times, parallel to bedding.	24.51	35.96
								Well distributed fine sulphide specs, bornite, chalcopyrite & pyrite occasionally associated with malachite.	35.96	39.00
								Well distributed pods and Patches of malachite, occurring as fracture coatings at times.	44.04	46.47
								Poorly distributed specs of malachite, frequently in small vugs & seldomly occurring as fracture veneer	46.47	52.36
NSBD005	801,016	7,850,029	DDH	-60	180	0.00	140.3	Well distributed pyrite specs, at times associated with chalcopyrite and bornite, prominent in fractures	63.47	67.34
								Fairly distributed fine specs of and galena	67.34	70.27
								Poorly disseminated fine pyrite and scarcely distribute vug-filling malachite	70.27	74.91
								Fairly distributed fine pyrite with chalcopyrite at times, pervasive malachite at 75m, fracture-coating descloizite at 79m	74.91	79.00
								Fairly distributed fine pyrite with chalcopyrite at times, pervasive malachite at 75m, fracture-coating descloizite at 79m	79.00	83.30
								Poorly distribute mal in fine vugs, seldomly occurring as fracture coating	83.83	98.30
NSBD006	800,975	7,850,038	1,465	-60	180	0.00	130.9	Well distributed specs of pyrite, at times associated with chalcopyrite. Pervasive mal at start of min zone. Fine native Cu, disseminated in a fracture at 75.4m	76.81	79.60
								Fairly disseminated fine sulphides, fine pyrite cubes predominate with some chalcopyrite. Mal veneer is some fracture faces	79.60	84.44
								Well distributed specs of pyrite associated with chalcopyrite at times. Semi-massive bornite and chalcopyrite 94.44 to 94.7m	84.44	95.21
								Poorly distributed mal, common in fine vugs and some fractures.	95.21	102.30

Drillhole	Coordinates UTM		RL	Grid Orientation		Depth		Mineralisation		
Hole_ID	East	North	Mts	Dip°	Azi.°	From	To	Mineralisation in interval	From	To
								Poorly distributed mal, common in fine vugs and some fractures, trace sulphides in subordinate arkosic layers 102.3-104.68m	102.30	104.68
								Well distributed specs of pyrite, at times associated with chalcopyrite. Pervasive mal at start of min zone. Fine native Cu, disseminated in a fracture at 75.4m	76.81	79.60
NSBD007	800,996	7,850,035	1,465	-67	180	0.00	131.30	Fracture-fill mal, localised at the upper and lower lith contact, fairly distributed specs of bornite at times associated with chalcopyrite and some pyrite	73.97	77.61
								Fairly distributed fine malachite specs, at times associated with specs of bornite	77.61	80.56
								Finely disseminated and patchy specs of pyrite	80.56	96.81
								Fairly distributed specs of bornite and or covellite commonly associated with chalcopyrite; Semi-massive bornite localized at the upper lith contact	96.81	100.03
								Malachite specs common in fine vugs, fairly distributed. Fracture-veener malachite and minor specs of bornite associated lithological change	100.03	110.35
NSBD008	800,992	7,849,969	1.465	90	180	0.00	76.31	Fracture-fill mal, localised at the upper and lower lith contact, fairly distributed specs of bornite at times associated with chalcopyrite and some pyrite	73.97	77.61
								Fairly distributed fine malachite specs, at times associated with specs of bornite	77.61	80.56
								Finely disseminated and patchy specs of pyrite	80.56	96.81
								Fairly distributed specs of bornite and or covellite commonly associated with chalcopyrite; Semi-massive bornite localized at the upper lith contact	96.81	100.03
								Malachite specs common in fine vugs, fairly distributed. Fracture-veener malachite and minor specs of bornite associated lithological change	100.03	110.35

Drillhole	Coordinates UTM		RL	Grid Orientation		Depth		Mineralisation		
Hole_ID	East	North	Mts	Dip°	Azi.°	From	To	Mineralisation in interval	From	To
NSBD009	801,040	7,849,957	1.465	60	180	0.00	53.6	Pervasive malachite	15.80	17.00
								Patchy malachite specs, infrequent mottlamite in fractures and patchy specs of sulphides	17.00	23.00
								Poor to fairly distributed malachite, common in fractures	29.60	36.50
NSBD009	801,056	7,849,956	1.465	60	180	0.00	60.0	Mild malachite present from ~12.5m to about 36m, sporadically occurring in patches and in fractures.	12.50	36.00



## APPENDIX 3

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

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li>Nature and quality of sampling (e.g., 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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g., '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 (e.g., submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>Previous exploration drillholes at Khusib Springs and Nosib the reverse circulation drilling was used to obtain 1 m samples from which approximately 3 kg were pulverised from which a small charge will be obtained for multi-element analysis using the ICP-MS method.</li> <li>Current diamond drilling sampled on approximately 1m intervals (varied subject to geological contacts) and analysed using the same procedure.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li>Drill type (e.g., core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g., core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).</li> </ul>	<ul style="list-style-type: none"> <li>Exploration drillholes at Khusib Springs and Nosib were Reverse Circulation percussion drilling method (RC drilling).</li> <li>Current drilling is diamond drillcore, NQ sized core.</li> </ul>
<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Diamond drilling recovery is reported in the detailed log. Where lost core is recorded assay grades are assumed to be zero.</li> <li>RC drilling from the exploration drillholes at Khusib Springs and Nosib were bagged on 1m intervals and an estimate of sample recovery has been made on the size of each sample.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>The cyclone is shut off when collecting the sample and released to the sample bags at the completion of each metre to ensure no cross contamination. If necessary, the cyclone is flushed out if sticky clays are encountered.</li> <li>Samples were weighed at the laboratory to allow comparative analysis.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li><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></li> <li><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></li> <li><i>The total length and percentage of the relevant intersections logged.</i></li> </ul>	<ul style="list-style-type: none"> <li>All holes were logged for lithology, structure and mineralisation.</li> <li>Diamond drilling logging intervals based on geological contacts.</li> <li>Logging of RC samples from exploration drillholes at Khusib Springs and Nosib based on 1m intervals.</li> </ul>
<b>Sub-sampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></li> <li><i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></li> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><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></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>No information is provided on the sampling method for the historical drillholes.</li> <li>For exploration drillholes at Khusib Springs and Nosib               <ul style="list-style-type: none"> <li>Every 1m RC interval was sampled as a dry primary sample in a calico bag off the cyclone/splitter.</li> <li>Diamond drilling sampling half to quarter core sampled on approximately 1m intervals using core-saw or splitter.</li> <li>Drill sample preparation (Intertek, Namibia) and analysis (Intertek, Perth) carried out at registered laboratory.</li> </ul> </li> <li>Field sample procedures involve the insertion of registered Standards every 20m, and duplicates or blanks generally every 25m and offset.</li> <li>Sampling is carried out using standard protocols as per industry practice.</li> <li>Sample sizes range typically from 2 to 3kg and are deemed appropriate to provide an accurate indication of mineralisation.</li> </ul>

Criteria	JORC Code explanation	Commentary
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><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></li> <li><i>Nature of quality control procedures adopted (e.g., standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e., lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>All samples are submitted to the Intertek Laboratories sample preparation facility at the Tschudi Mine near Tsumeb in Namibia where a pulp sample is prepared. The pulp samples are then transported to Intertek in Perth Australia for analysis.</li> <li>Pulp sample(s) have been digested with a mixture of four Acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric Acids for a total digest.</li> <li>Cu, Pb, Zn, V, Ag have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.</li> <li>Hand-held XRF spot readings on drill-core are used to provide a guide regarding mineralised intervals and cannot be used for the purposes of estimating intersections.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>For current Khusib Springs and Nosib drilling all significant intercepts are reviewed and confirmed by two senior personnel before release to the market.</li> <li>No adjustments are made to the raw assay data. Data is imported directly to Datashed in raw original format.</li> <li>All data are validated using the QAQCR validation tool with Datashed. Visual validations are then carried out by senior staff members.</li> <li>Vanadium results are reported as V<sub>2</sub>O<sub>5</sub> % by multiplication by atomic weight factor of 1.785.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li><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></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>The majority of the drill data was captured using the UTM33S grid.</li> <li>Location of the exploration drillholes at Khusib Springs and Nosib provided in Appendix 2.</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral</i></li> </ul>	<ul style="list-style-type: none"> <li>Exploration drill holes were drilled at close spacing, commonly 15m to 20m or less because of the relatively</li> </ul>



Criteria	JORC Code explanation	Commentary
	<i>Resource and Ore Reserve estimation procedure(s) and classifications applied.</i> <ul style="list-style-type: none"> <li>• <i>Whether sample compositing has been applied.</i></li> </ul>	short strike length of the initial target and the plunging orientation of the Nosib mineralisation.
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>• <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></li> <li>• <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Holes were angled to best intersect the plunging mineralisation.</li> <li>• The majority of the angled holes were drilled on azimuth 143 magnetic / 180 degrees grid at a dip of -60 degrees (UTM33S grid).</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li>• <i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Recent drilling at Khusib Springs and Nosib - secure transport to registered laboratories.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li>• <i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>• All previous drill data relating to the Khusib Springs project generated by Goldfields Namibia or other companies was reviewed and validated in detail by Shango Solutions, a geological consultancy based in South Africa.</li> <li>• The data review included scanning level plans and cross sections to verify the position of drill holes in the 3D model.</li> <li>• No previous exploration drilling is recorded for the Nosib prospect, apart from the work conducted by Golden Deeps Ltd.</li> </ul>

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

(Criteria listed in the preceding section also apply to this section.)

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>Drilling results are from the Nosib Block copper-vanadium-lead-silver prospect located on Golden Deeps Limited (Huab Energy Ltd) EPL3543 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>No prior drilling identified for the Nosib Block Prospect. Previous work limited to underground sampling of historical workings.</li> <li>The Khusib Springs copper prospect was primarily drilled by Goldfields Namibia from 1993 onwards following the intersection of massive tennantite in drill holes KH06 and KH08.</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 Nosib Mine was worked historically to produce copper and vanadium. The deposit is arenite / sandstone-hosted with chalcopyrite, bornite, galena and pyrite as well as secondary descloizite (Lead-Vanadium hydroxide). The mineralization is associated with prominent argillic alteration and occurs within an upper pyritic zone of the Nabis Formation sandstone, which is locally gritty to conglomeratic. The main zone of mineralization at Nosib cross-cuts the stratigraphy and also includes stratiform mineralization with significant chalcopyrite, striking northeast-southwest and dipping moderately to NW.</li> </ul>

Criteria	JORC Code explanation	Commentary
		<ul style="list-style-type: none"> <li>The Khusib Springs deposit is a small but high-grade pipe-like body that plunges steeply within brecciated carbonate rocks. The deposit resembles the Tsumeb deposit near the town of Tsumeb to the northeast.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <li>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:               <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>hole length.</li> </ul> </li> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Appendix 2 of the ASX announcement for drillhole details.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	<ul style="list-style-type: none"> <li>All exploration results are reported by a length weighted average. This ensures that short lengths of high-grade material receive less weighting than longer lengths of low-grade material.</li> <li>Voids/lost core intervals are incorporated at zero grade.</li> <li>The assumptions used for reporting of metal equivalent values are detailed in Appendix 1 of this release.</li> </ul>
<b>Relationship between mineralisation widths and</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> </ul>	<ul style="list-style-type: none"> <li>Drill holes and drill traverses were designed to intersect the targeted mineralised zones at a high angle where possible. Intersections reported approximate true width.</li> </ul>



Criteria	JORC Code explanation	Commentary
<b>intercept lengths</b>	<ul style="list-style-type: none"> <li>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').</li> </ul>	
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Refer to Figure 1, a representative cross section through the Nosib Block Prospect, Figure 2 for a longitudinal projection of the Nosib deposit and Figure 5 is an oblique section through the Khusib Springs deposit. Figure 6 is a cross section through the Abenab deposit.</li> <li>Figure 3 is a regional scale plan-view showing geology and prospect locations.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Intersections in all drillholes above designated cut-off grades are reported in Table 1 of the release.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>No other data is material to this report.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (e.g., tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	<ul style="list-style-type: none"> <li>The diamond drilling results from the current program will now be interpreted and mineralised outlines modelled prior to a Mineral Resource estimate for the shallow high-grade mineralisation at Nosib.</li> <li>Metallurgical testwork on copper-vanadium-lead oxide mineralisation is also planned.</li> <li>Deeper targeting is planned for sulphide copper-silver mineralisation at depth at Nosib and deeper extensions of the Khusib Springs copper-silver orebody.</li> </ul>