GOLDEN DEEPS LIMITED

ASX ANNOUNCEMENT

22 August 2019

ASX code: **GED**

Pathway to Production Secured through 30x Increase in Vanadium Concentrate Grade from Existing Abenab Stockpiles

Highlights:

- **30 times upgrade achieved on existing above ground stockpiles using simple gravity separation**
- **Final bulk concentrate sample produced at 8.9% V_2O_5, 30.5% Pb and 8.95% Zn from above ground stockpiles and indicates capability to achieve *>19% V_2O_5* grade from the main ore body assuming a 30 times upgrade factor can be applied**
- **Confirmation that the above ground stockpiles can be used for initial operations at the Company's Abenab Project in advance of the below ground mineral resource**
- **Consistency of process demonstrated across both higher and lower head grades**
- **Additional recovery is possible through:**
    - **Optimising the final design**
    - **Selection of appropriate spiral and separation technologies**
    - **Use of recycle streams**
- **Utilising the above ground stockpiles will be a positive environmental benefit for the site and surrounding area**
- **Excellent support from the Namibian Government to commence initial operations under a simplified Works Approval process**

Golden Deeps Limited ("Golden Deeps" or "the Company") **(ASX: GED)** the Namibian focused explorer targeting low cost vanadium production, is pleased to provide the following update based on the preliminary results from the Company's recent metallurgical testing undertaken on bulk samples from its 100% owned Abenab Vanadium, Lead and Zinc Project, located in North Eastern Namibia.

<u>Executive Chairman Michael Minosora commenting on the Pathway to Production stated:</u>

"Identifying that the above ground stockpiles as amenable to simple gravity separation result in a significantly upgraded (x30) concentrate is a huge milestone for the Company. This has the potential to reduce the time to production for the Abenab Project by 12 months, generating early cash flow for the operations whilst the below ground mineral resource is developed.

"In addition, the Company has been advised by the Namibian Ministry of Mines and Energy that the processing of the above ground stockpiles will not require a full mining licence and that a simplified plant scope works approval could be utilised. This has the benefit of reducing the approvals process and further reducing the development timeline to production.

"As a reminder to investors, the development of the Abenab Project is designed on the basis of producing a very high grade Vanadium, Lead and Zinc concentrate which is to be shipped to third party refineries for the extraction of Vanadium, Lead and Zinc."

<u>Metallurgical Test Work Program</u>

Previous test work identified that Abenab ore is able to be very substantially concentrated through simple gravity separation. While previous success has been achieved through utilising spiral separation, the Company examined additional technologies during the recent metallurgical test work program including shaking tables, centrifuges and Mozley tables. MINTEK of Johannesburg, a highly regarded South African specialist metallurgical testwork company in South Africa was commissioned 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 and collected in one tonne lots. 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% Zinc, or a 30x upgrade on Vanadium units.**

The bulk sample produced will be dispatched for testing with refineries for extraction of the Vanadium, Lead and Zinc minerals.

Further improvements in recovery and grade should be possible through the introduction of recycle streams and this assessment is continuing to identify the optimum grade and recovery for an operating plant.

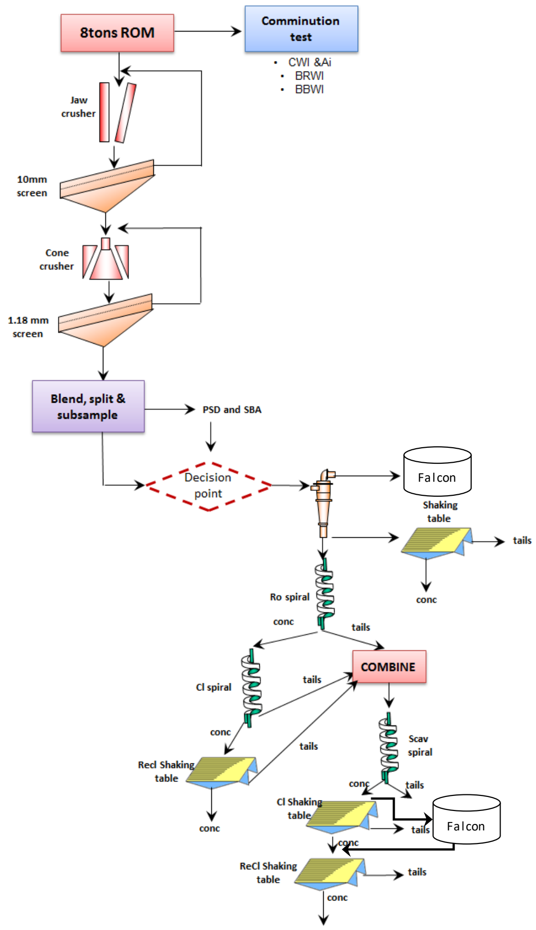

Fig 1: Test Program Flowsheet

Comminution Results

Comminution tests performed in line with an expected dolomite/limestone base offered typical crushing results in line with this base mineral. Of note is the low abrasion index.

Crushing Work Index (ave)	7.8 kWh/t
Bond Rod Work Index	19.4 kWh/t
Abrasion Index	0.03 g

This offers numerous off the shelf equipment crushing options to optimise the crushing circuit to achieve a sub 1mm particle.

Gravity Separation Results

The sample supplied for testing showed a bias towards the finer fraction and was successfully removed using a simple de-sliming hydro cyclone. This test successfully rejected 40% of the fine material with only a 6% loss of total Vanadium to reject. Additional testing of this tails stream using a Falcon centrifuge identified that ~ ½ of this can be recovered in an operating plant.

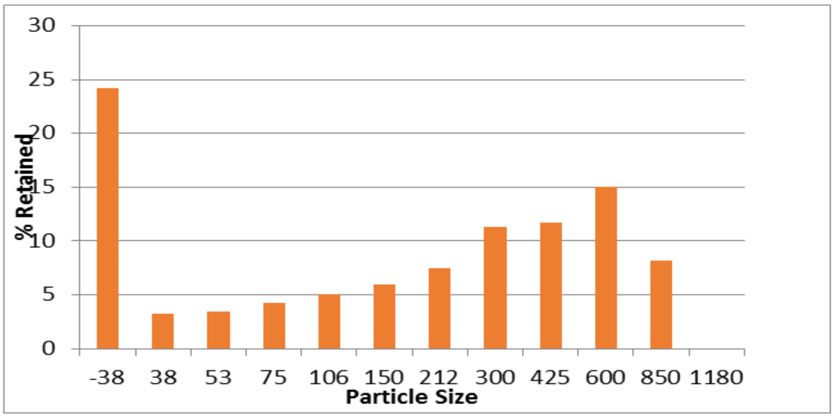

Fig 2: Head Grade Particle Size Distribution

The results of the first pass gravity separation test results are shown below. Noticeable is the darker hue towards the concentrate streams along with the removal of fines/slimes in the tailings streams.

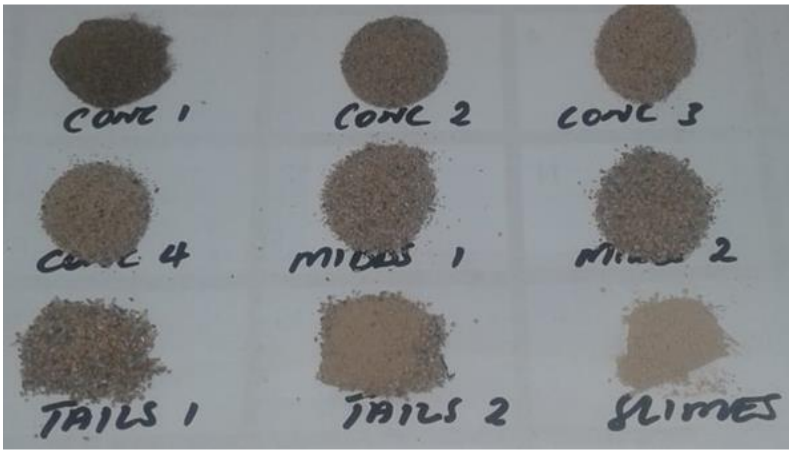

Fig 3: First Pass Separations

The primary and secondary spiral separations showed definitive signs of upgradability at each successive separation stage on the concentrate stream. Grade and/or recovery improvements were further noted with tertiary cleaning and the use of a scavenger circuit on the tailings achieving a Vanadium upgrade near to 30x the starting head grade.

	V_2O_5	Pb	Zn
Head Grade	0.30%	1.29%	1.14%
Concentrate Grade	8.93%	30.54%	8.95%
Upgrade Factor	30	24	8

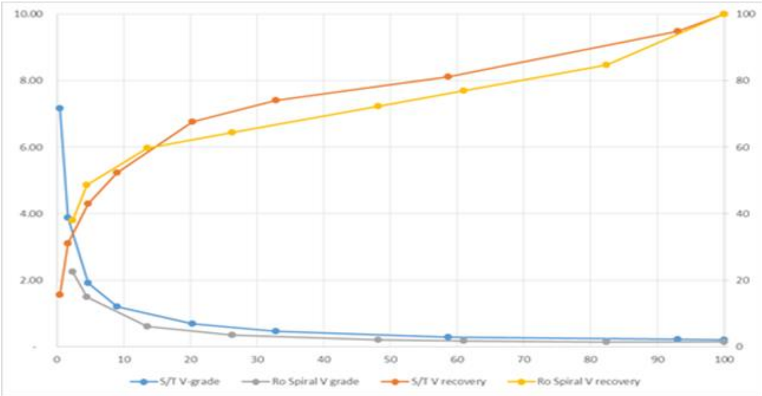

Fig 4: Grade Recovery Profile – Stage 1

This is in line with, if not slightly better than that achieved from the previously reported Avonlea test works undertaken on Abenab ore with a much higher starting grade using less stages of separation. This is a huge positive for the Project given the starting grade of the sample tested @0.30% V_2O_5, and the larger scale of this test work program provides confidence that simple gravity separation techniques are suitable for this application across a varied range of starting head grades.

Assuming an upgrade factor of 30 times can be applied to the main orebody, with a starting grade of 0.66% V_20_5*, then a concentrate grade of >19% V_2O_5 would be expected utilising a similar flowsheet design.

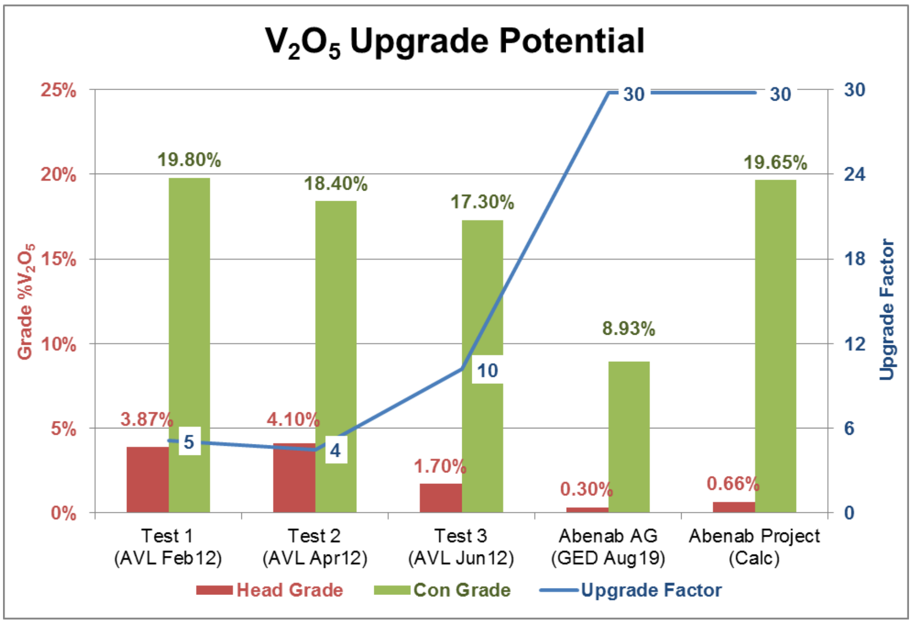

Fig 5: Comparison of Upgradability from Various Abenab Testwork

Process Control Benefit

Another benefit the test work has achieved is proving the use of density measurement as a suitable process control method. To reduce cost and time, density assessment of the material was investigated as an alternative for full chemical analysis. This has proven very successful with a correlation of 99.6% and creates a significant opportunity for simplified process control within an operating plant.

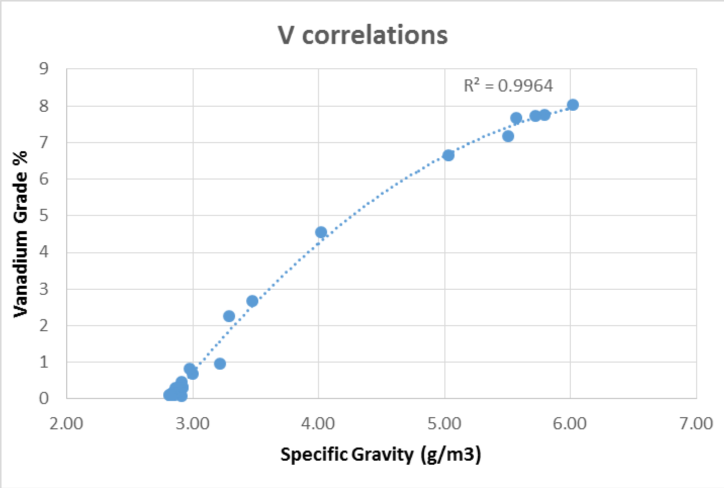

Fig 6: Density v Grade Correlation

*****ENDS*****

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

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**Refer to ASX announcement 31 January 2019 "Major Resource Upgrade at Abenab Vanadium Project". The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement. 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 announcement.*

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 Metallurgical testing is based on information compiled by Mr Brett Crossley. Mr Crossley is a Consultant to Golden Deeps Limited and 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 Crossley consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

APPENDIX

Crushing Work Index Results

CWI Test Results

Project Name:		Abenab			
Project Number:		MPC-220001			
Sample Identification:					
Test Date:		7-May-19			
Rock Specimen Number	Rock impact thickness (mm)	Impact angle (degrees)	Impact Energy E_B (N.m = Joules)	Impact Strength C_B (Joules/mm)	Work Index C_{WI} (kWh/tonne)
1	65	65	67.554	1.039	18.84
2	65	45	34.269	0.527	9.56
3	80	60	58.500	0.731	13.26
4	65	40	27.373	0.421	7.64
5	67	40	27.373	0.409	7.41
6	70	30	15.675	0.224	4.06
7	70	50	41.794	0.597	10.82
8	70	25	10.962	0.157	2.84
9	65	35	21.159	0.326	5.90
10	77	30	15.675	0.204	3.69
11	75	40	27.373	0.365	6.62
12	75	25	10.962	0.146	2.65
13	70	30	15.675	0.224	4.06
14	65	45	34.269	0.527	9.56
15	62	40	27.373	0.441	8.00
16	65	70	76.984	1.184	21.47
17	69	30	15.675	0.227	4.12
18	70	40	27.373	0.391	7.09
19	63	30	15.675	0.249	4.51
20	70	55	49.892	0.713	12.92
21	65	25	10.962	0.169	3.06
22	74	30	15.675	0.212	3.84

Rock SG:		**Work Index:**		
2.95	t/m^3	Minimum	2.6	kWh/tonne
		Maximum	21.5	kWh/tonne
		Average	7.8	kWh/tonne
		75th Percentile	10.2	kWh/tonne

Bond Rod Work Index Results

Sample ID	Limiting Screen (µm)	F80 (µm)	P80 (µm)	Net Production (g/rev)	Work Index (kWh/t)
Abenab	1180	9123.43	773.25	4.95	19.40

Typical classifications for BBWI and BRWI are shown in the following table:

Bond work index (k	7 - 9	10 - 14	15 - 20	> 20
Classification	soft	medium	hard	Very hard

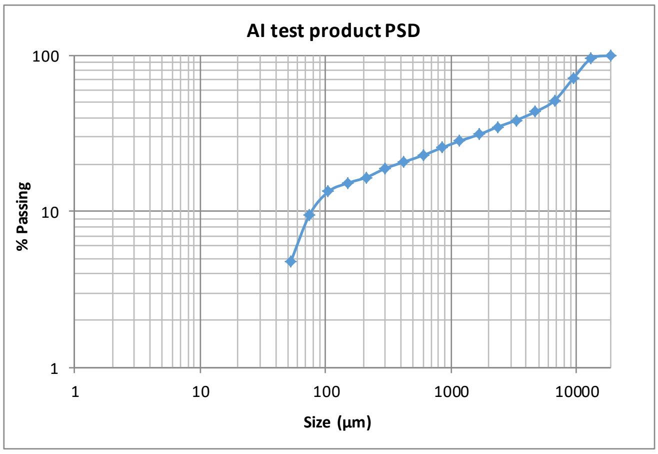
Abrasion Index Results

Abrasion Index

Project Name: Abenab	
Project Number: MPC-220001	
Sample Identification: Abenab	
Test Date: 03/06/2019	
Paddle mass before test (g)	84.18
Paddle mass after test (g)	84.15
Bond abrasion index (g)	0.03

Particle size distribution on test product

Sieve size (mm)	Mass retained (g)	Mass %	Cumulative Passing %
20000	0.00	0.00	100.00
19000	0.00	0.00	100.00
13200	88.20	4.41	95.59
9500	483.39	24.18	71.41
6700	403.38	20.18	51.23
4750	151.95	7.60	43.63
3350	101.80	5.09	38.54
2360	74.58	3.73	34.81
1700	70.55	3.53	31.28
1180	59.65	2.98	28.29
850	53.45	2.67	25.62
600	54.64	2.73	22.89
425	41.55	2.08	20.81
300	39.04	1.95	18.86
212	46.43	2.32	16.53
150	26.92	1.35	15.19
106	35.26	1.76	13.42
75	77.42	3.87	9.55
53	95.66	4.79	4.77
38	55.37	2.77	2.00
-38	39.90	2.00	
Total	**1999.14**	**100.00**	



Ai (g)	*< 0.1*	*0.1 – 0.4*	*0.4 -0.6*	*0.6 – 0.8*	*> 0.8*
Classification	*Non abrasive*	*Slightly abrasive*	*Medium abrasive*	*Very abrasive*	*Extremely abrasive*

Head Assay Results

		V	V2O5	Zn	ZnO	Pb	PbO	Fe	Al	Ca	Co	Cr	Cu	Mg	Mn	Ni	Si	Ti	As	Cd
Description	**Rep**	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	ppm	ppm
-1mm V ROM head	1	0.17	0.30	1.14	1.42	1.26	1.36	1.44	0.87	22.5	<0.05	<0.05	<0.05	6.49	0.072	<0.05	3.03	0.062	127	<0.1
-1mm V ROM head	2	0.17	0.30	1.13	1.41	1.31	1.41	1.46	0.88	22.7	<0.05	<0.05	<0.05	6.53	0.074	<0.05	3.02	0.061	129	<0.1
Average		0.17	0.30	1.14	1.41	1.29	1.38	1.45	0.875	22.6	-	-	-	6.51	0.073	-	3.025	0.0615	128	<0.1

	%V	%Zn	%Pb	%Fe	%Al	%Ca	%Si
Head -1mm ROM	0.17	1.14	1.29	1.45	0.875	22.6	3.025

Summary of Gravity Separation Mass Balance Results and Grade Calculations

Circuit	No	Stream name	Grade (%)		
			V	Pb	Zn
Feed	1	Feed calc (calc)	0.19	1.11	0.91
Desliming	2	Desliming cyclone U/F(calc)	0.20	1.12	0.88
	3	Desliming cyclone O/F	0.12	0.94	1.26
Ro Spiral+Cl Spiral+ Recl shaking table circuit	4	Rougher spiral feed	0.20	1.12	0.88
	5	Rougher spiral conc	0.81	5.03	2.17
	6	Rougher spiral tails	0.10	0.51	0.67
	7	Cleaner spiral feed	0.81	5.03	2.17
	8	Cleaner spiral conc	1.87	11.53	3.89
	9	Cleaner spiral tails	0.25	1.66	1.27
	10	ReCleaner shaking table feed	1.87	11.53	3.89
	11	ReCleaner shaking table conc	5.00	30.57	8.96
	12	ReCleaner shaking table tails	0.24	1.64	1.26
Scavenger circuit	13	Scavenger spiral feed (6+9+12)	0.12	0.65	0.75
	14	Scavenger spiral conc	0.17	1.31	1.09
	15	Scavenger spiral tails	0.09	0.24	0.53
	16	Falcon feed	0.17	1.31	1.09
	17	Falcon conc	0.71	3.65	2.27
	18	Falcon tails	0.11	1.03	0.95
	19	Shaking table feed	0.71	3.65	2.27
	20	Shaking table conc	5.00	30.19	8.88
	21	Shaking table tails	0.53	2.51	1.99
	11+20	Final concentrate	5.00	30.54	8.95
	3+15+18+21	Final tails	0.11	0.63	0.78

JORC Code, 2012 Edition – Table 1 report template

Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg 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.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules) may warrant disclosure of detailed information.*	• Bulk samples of broken rock from the stockpile were collected from 8 sites using an excavator and weighed approximately 1000kg each. The samples were then combined to generate a 8 tonne bulk sample. Samples points were on an approximate 20m x 20m grid covering the stockpile. • The samples were taken from ~1m deep pits using the excavator bucket. • Mineralisation was determined by observing the descloizite and mottramite mineralisation in hand specimens from the sample pits.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).*	N/A
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *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.*	N/A

Criteria	JORC Code explanation	Commentary
Logging	• *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.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Lithological logging of the sample material was conducted.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Samples comprised 8x 1000kg of material taken from shallow pits ~1m deep dug on the surface of the stockpile. The material comprised coarse broken rock and finer grained rock fragments and clay. The samples were not split or sub-sampled. • The large sample size is considered to be representative of each sample point; however, the sample pit did not extend to the base of the dump. Internal variability within the stockpile may mean material taken from the top 1m is different to the material from 1m to the base of the stockpile.
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *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.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• The bulk sample was shipped by road to Mintek in South Africa for metallurgical testwork. • The procedures used for the metallurgical testwork were formulated by Mintek and Golden Deeps and are considered appropriate to meet the objectives of the testwork.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data*	• Field sampling and logging data was recorded using Microsoft Excelon Panasonic CF 19 toughbooks and uploaded to a desktop server and backed up on a portable hard drive.

Criteria	JORC Code explanation	Commentary
	verification, data storage (physical and electronic) protocols. • *Discuss any adjustment to assay data.*	
Location of data points	• *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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• A Garmin GPS 78 was initially used to locate sampling points. This was followed by surveying using a Trimble R8s geodetic GPS with an 8mm horizontal and 15mm vertical accuracy. • The grid system used is based on the WGS84 34 S datum. • Post Processing Positioning (PPP) Survey was submitted to the Australian positioning service (AUSPOS) providing World Geodetic System of 1984 (WGS84) coordinates with final satellite orbits, tropospheric, ionospheric correction and Earth Gravitational Model of 2008 applied to coordinates to provide a geoidal height which closely correlates to mean sea level
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Sampling was conducted on an approximately 20m x 20m grid. • The sample spacing is considered appropriate to generate a bulk sample approximately representative of the stockpile material. • Grade variability within the coarse stockpiled material could be moderate.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *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.*	• There is no relationship between the pit sampling and grade variability in the stockpile.
Sample security	• *The measures taken to ensure sample security.*	• All samples were sealed in bulk polyweave bags and delivered to the Mintek laboratory by a trucking contractor.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits were conducted.