

2 April 2020 ASX Announcement

# **Total Gold Mineral Resource increases to 2.2Moz**

Total Mineral Resource (all drilling to 31 December 2019) – 37.44Mt @ 1.8g/t Au (2.2Moz)

M & I (49%) 18.95Mt @ 1.7g/t Au (1.1Moz)

Inferred (51%) 18.49Mt @ 1.9g/t Au (1.1Moz)

Oxide (30%) 13.56Mt @ 1.5g/t Au (0.64Moz)

Free Milling (29%) 11.03Mt @ 1.8g/t Au (0.62Moz)

Sulphide (41%) 12.83Mt @ 2.2g/t (Au) (0.90Moz)

29% increase in contained gold ounces

Consistent average gold grade at 1.8g/t

Withnell Total (↑ 40%) 7.49Mt @ 2.5g/t for 599,900oz

Withnell Underground (个9%) 2.50Mt @ 3.9g/t for 317,100oz

Toweranna (↑47%) 7.35Mt @ 2.2g/t for 524,100oz

Mallina (↑91%) 6.76Mt @ 1.4g/t for 307,400oz

\*\*Hemi is not included in this new resource upgrade and provides substantial resource upside\*\*

Andy Beckwith, Technical Director commented:

"We are very pleased to have achieved 2.2M ounces based on all drilling to the end of 2019. Importantly, we have maintained the high average grade of 1.8g/t, all deposits commence from surface making them readily amenable to open pit mining and all remain open.

Our new Hemi discovery is shaping up as a game changer and is not included in this resource statement. The thickness of mineralisation at Hemi is an order of magnitude larger than our existing deposits which provides an exciting opportunity to significantly grow our resources. As we have repeatedly stated, our next corporate goal is to achieve +3M ounces and we strongly believe this will be eclipsed by the end 2020.

Substantial increases in the project economics are anticipated with the inclusion of the Hemi deposit. Accordingly, the economic studies will be updated once the scale and resources are defined at Hemi. Ongoing feasibility activities including detailed metallurgical test work and long lead items such as environmental, infrastructure and water studies will continue during the Hemi resource drilling.

At Hemi, drilling is continuing with two diamond and one RC rig into the foreseeable future. The next Hemi results are scheduled for early next week."



De Grey Mining Limited (ASX: DE GREY MINING LTD, "De Grey", "Company") is pleased to announce a significant 29% increase in overall Mineral Resources at the Mallina Project for drilling up to 31 December 2019 compared to the July 2019 Total Gold Mineral Resource (JORC 2012).

The resource upgrade includes updated resource models for Withnell open pit, Withnell Underground, Toweranna open pit depth extensions and Toweranna underground, together with significant and shallow extensions to the Mallina resource. The new resources are based on all drilling completed at each deposit up to the end of 31 December 2019. The open pit resources are quoted using a 0.5g/t lower cut-off grade and the Withnell and Toweranna underground resources using a lower cut-off grade of 2g/t. The resources at Mt Berghaus, Wingina, Amanda, Camel, Roe, Dromedary and Calvert remain unchanged and will be updated after further drilling is completed at each deposit.

Most significant resource changes occur in the following:

Overall ounces increased 29%

### Overall grade remains unchanged @ 1.8g/t

Withnell Underground (2.5Mt @ 3.9g/t Au for 317,100oz) continues to be reported separately from the Withnell Open Pit resource. The Mineral Resources (underground v open pit) have been limited by means of an open pit optimisation shell which was generated using a gold price of \$A2,400/oz. Key cost assumptions used in the generation of the open pit optimisation shells include an average mining cost of around A\$3.30 per tonne mined, a processing cost of A\$31/t processed and an average metallurgical recovery of 91%.

The underground resource grade now averages 3.9g/t Au with individual lodes ranging from 2.7g/t up to 7.3g/t. The mineralisation remains open along strike and at depth along the entire 6km of known strike potential from Withnell through Hester, Camel, Roe and Dromedary deposits.

Toweranna open pit (6.79Mt @ 2.1g/t Au for 459,600oz) resource model extends to 300m depth to reflect the recent infill and extensional drilling completed to the end of December 2019. The multiple stacked lodes remain open along strike and particularly at depth. Mineralisation is now shown to 600m vertical depth and has resulted in consideration of a potential underground mineable component of 0.56Mt @ 3.6 g/t for an additional 64,500 oz (Total 7.35Mt @ 2.2g/t for 524,100oz). The underground component has been reported below 220mRL (300m vertical), using a cut-off grade of 2 g/t to reflect the likely higher costs of any underground mine development.

Mallina resource (6.76Mt @ 1.4g/t Au for 307,400oz) open pit model has been extended with a significant increase in ounces based predominantly on a 9,500m RC drilling program during late 2019 and increased depth of the reported resource to 150m vertical, reflecting recent deeper drilling. The Mallina resource currently exists within a 7km east west strike zone and remains open to the east and west and at depth.

Table 1 Total Gold Mineral Resource (March 2020) at the Pilbara Gold Project by Mining Centre

			Measured			Indicated			Inferred			Total	
Area	Туре	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz
	Oxide	0.98	1.8	57,500	3.49	1.5	166,800	2.35	1.4	102,300	6.82	1.5	326,600
Withnell Mining Centre	Fresh	0.66	1.7	34,800	8.23	1.9	496,700	9.87	2.4	766,600	18.75	2.2	1,298,200
Genere	Total	1.63	1.8	92,300	11.72	1.8	663,500	12.24	2.2	870,200	25.58	2.0	1,626,100
Aria atau Natatau	Oxide	2.68	1.8	152,100	1.84	1.5	87,600	2.21	1.1	74,900	6.74	1.5	314,500
Wingina Mining Centre	Fresh	0.40	1.6	20,500	0.68	1.6	34,900	4.04	1.3	168,400	5.12	1.4	223,800
Contro	Total	3.08	1.7	172,700	2.52	1.5	122,500	6.25	1.2	243,200	11.86	1.4	538,400
TOTAL BULL	Oxide	3.66	1.8	209,700	5.33	1.5	254,300	4.57	1.2	177,200	13.56	1.5	641,200
TOTAL Pilbara Gold Project	Fresh	1.06	1.6	55,400	8.91	1.9	531,700	13.90	2.1	935,000	23.87	2.0	1,522,000
Co.a. roject	Total	4.71	1.7	265,000	14.24	1.7	786,000	18.49	1.9	1,113,500	37.44	1.8	2,164,500



Table 2 March 2020 Total Gold Mineral Resource (JORC 2012) by deposit

Withnell - Mining Centre

			Measured			Indicated			Inferred			Total	
Deposit	Туре	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz
	Oxide	0.63	1.4	28,500	0.36	1.2	14,400	0.15	1.1	5,300	1.14	1.3	48,200
Withnell Op Pit	en Fresh	0.63	1.6	33,200	2.68	1.9	163,500	0.53	2.2	38,000	3.85	1.9	234,700
- "	Total	1.26	1.5	61,700	3.05	1.8	177,800	0.68	2.0	43,300	4.99	1.8	282,900
) )	Oxide							0.00	2.5	300	0.00	2.5	300
Withnell Undergrou	Frach				0.11	4.3	15,600	2.38	3.9	301,100	2.50	3.9	316,700
	Total				0.11	4.3	15,600	2.39	3.9	301,400	2.50	3.9	317,100
	Oxide				0.71	1.3	30,200	1.68	1.3	72,300	2.39	1.3	102,500
Mallina	Fresh				0.90	1.2	33,900	3.47	1.5	171,100	4.36	1.5	204,900
\	Total				1.61	1.2	64,100	5.15	1.5	243,300	6.76	1.4	307,400
Towaran	Oxide				0.62	2.4	47,700	0.24	1.6	12,600	0.86	2.2	60,300
Toweranr Open Pit	Frach				3.71	2.1	245,500	2.21	2.1	152,500	5.92	2.1	398,000
Оронти	Total				4.33	2.1	293,200	2.46	2.1	166,400	6.79	2.1	459,600
T	Oxide												
Towerann Undergrou	Frach							0.56	3.6	64,500	0.56	3.6	64,500
2ao. g. ou	Total							0.56	3.6	64,500	0.56	3.6	64,500
\	Oxide	0.18	2.8	16,400	0.32	2.6	26,800	0.04	1.1	1,500	0.54	2.6	44,700
Camel	Fresh	0.01	2.1	600	0.14	1.4	6,500	0.14	1.8	8,600	0.29	1.7	15,700
ľ	Total	0.19	2.8	17,000	0.46	2.2	33,300	0.19	1.7	10,100	0.84	2.2	60,400
2	Oxide				0.43	1.3	17,900	0.05	0.8	1,400	0.48	1.3	19,300
Calvert	Fresh				0.56	1.3	23,800	0.23	1.2	9,300	0.79	1.3	33,100
	Total				0.99	1.3	41,700	0.28	1.2	10,700	1.27	1.3	52,400
	Oxide	0.06	2.7	5,500	0.13	1.5	6,000	0.11	1.6	5,700	0.30	1.8	17,200
Roe	Fresh	0.01	2.5	1,000	0.07	2.3	5,300	0.21	2.2	14,800	0.30	2.2	21,100
1	Total	0.08	2.7	6,500	0.20	1.8	11,300	0.33	2.0	20,500	0.60	2.0	38,300
	Oxide	0.10	2.2	7,200	0.03	1.6	1,400	0.04	1.6	2,200	0.17	1.9	10,800
Dromeda	y Fresh				0.03	1.6	1,700	0.08	1.8	4,700	0.12	1.7	6,400
	Total	0.10	2.2	7,200	0.06	1.6	3,200	0.12	1.7	6,900	0.29	1.9	17,200
	Oxide				0.86	0.7	19,300				0.86	0.7	19,300
Leach Pa	d Fresh												
	Total				0.86	0.7	19,300				0.86	0.7	19,300
)	Oxide				0.04	2.1	3,000	0.03	1.3	1,100	0.07	1.8	4,100
Hester	Fresh				0.01	2.1	900	0.05	1.4	2,100	0.06	1.6	3,100
<b>\</b>	Total				0.06	2.1	3,900	0.07	1.4	3,300	0.13	1.7	7,200
	Oxide	0.98	1.8	57,500	3.49	1.5	166,800	2.35	1.4	102,300	6.82	1.5	326,600
Withnell Mir	ning Fresh	0.66	1.7	34,800	8.23	1.9	496,700	9.87	2.4	766,600	18.75	2.2	1,298,200
Centre	Total	1.63	1.8	92,300	11.72	1.8	663,500	12.24	2.2	870,200	25.58	2.0	1,626,100
										•			
Wingina	- Mining Ce	entre											
			Measured			Indicated			Inferred			Total	
)	Туре	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz
	Oxide	2.68	1.8	152,100	0.65	1.3	27,000	0.34	1.3	14,400	3.67	1.6	193,500
Wingina	Fresh	0.40	1.6	20,500	0.34	1.5	16,300	1.08	1.7	57,400	1.82	1.6	94,200
	Total	3.08	1.7	172,700	0.99	1.4	43,300	1.42	1.6	71,700	5.49	1.6	287,700
	Oxide				0.68	1.8	38,900	0.99	1.1	35,800	1.67	1.4	74,700
Mt Bergha					0.27	1.7	14,400	2.40	1.2	91,800	2.67	1.2	106,300
	Total				0.95	1.7	53,300	3.39	1.2	127,600	4.34	1.3	181,000
)		1											46,300
)	Oxide				0.51	1.3	21,700	0.89	0.9	24,700	1.40	1.0	40,300
Amanda	Oxide Fresh				0.51 0.07	1.3 1.8	21,700 4,200	0.89 0.56	0.9 1.1	24,700 19,200	1.40 0.63		
Amanda					0.51	1.3	4,200 25,800	0.89	1.1	19,200 43,900	0.63	1.0	23,300
Amanda	Fresh	2.68	1.8	152,100	0.07	1.8	4,200	0.56	1.1	19,200	0.63	1.2	23,300

Win	ngina - Mi	ning Ce	ntre											
				Measured			Indicated			Inferred			Total	
		Туре	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz	Mt	Au g/t	Au Oz
		Oxide	2.68	1.8	152,100	0.65	1.3	27,000	0.34	1.3	14,400	3.67	1.6	193,500
V	Vingina	Fresh	0.40	1.6	20,500	0.34	1.5	16,300	1.08	1.7	57,400	1.82	1.6	94,200
		Total	3.08	1.7	172,700	0.99	1.4	43,300	1.42	1.6	71,700	5.49	1.6	287,700
		Oxide				0.68	1.8	38,900	0.99	1.1	35,800	1.67	1.4	74,700
Mt I	Berghaus	Fresh				0.27	1.7	14,400	2.40	1.2	91,800	2.67	1.2	106,300
		Total				0.95	1.7	53,300	3.39	1.2	127,600	4.34	1.3	181,000
		Oxide				0.51	1.3	21,700	0.89	0.9	24,700	1.40	1.0	46,300
Α	Amanda	Fresh				0.07	1.8	4,200	0.56	1.1	19,200	0.63	1.2	23,300
		Total				0.58	1.4	25,800	1.44	0.9	43,900	2.03	1.1	69,700
\A/ima	wina Minima	Oxide	2.68	1.8	152,100	1.84	1.5	87,600	2.21	1.1	74,900	6.74	1.5	314,500
	gina Mining Centre	Fresh	0.40	1.6	20,500	0.68	1.6	34,900	4.04	1.3	168,400	5.12	1.4	223,800
		Total	3.08	1.7	172,700	2.52	1.5	122,500	6.25	1.2	243,200	11.86	1.4	538,400



## Withnell Open Pit and Underground models

The Withnell deposit includes all drilling to the end of 2019, which incorporates significant drill campaigns exploring for depth extensions, and a focus upon improving the delineation of the higher grade lodes beneath the existing shallow open pit and the larger proposed 1.2km long open pit cut back (Figure 1).

The Withnell Open Pit resource now comprises 4.99Mt @ 1.8g/t for 282,900 oz with 84% in the Measured and Indicated categories. The resource is reported at a 0.5g/t lower cut-off grade.

The **Withnell Underground** model comprises **2.50Mt** @ **3.9g/t** for **317,062100oz**. Mineralisation remains open and further drilling is expected to improve resource categories with most of these resources in the Inferred category, reflecting the exploratory drilling for extensions both along strike and at depth. The underground resource has been reported using a 2g/t lower cut-off grade.

Figure 1 Withnell Plan view showing proposed open pit cutback and interpreted underground lodes.



## Toweranna Open Pit model

The **Toweranna Open Pit** resource comprises **6.79Mt** @ **2.1g/t** for **459,600oz** with **64%** in the Indicated category. The open pit resource includes all new drilling to 31 December 2019 and extends from surface to 300m vertical depth. The resource is defined using a 0.5g/t lower cut-off grade and the modelled lodes are shown in Figure 2.

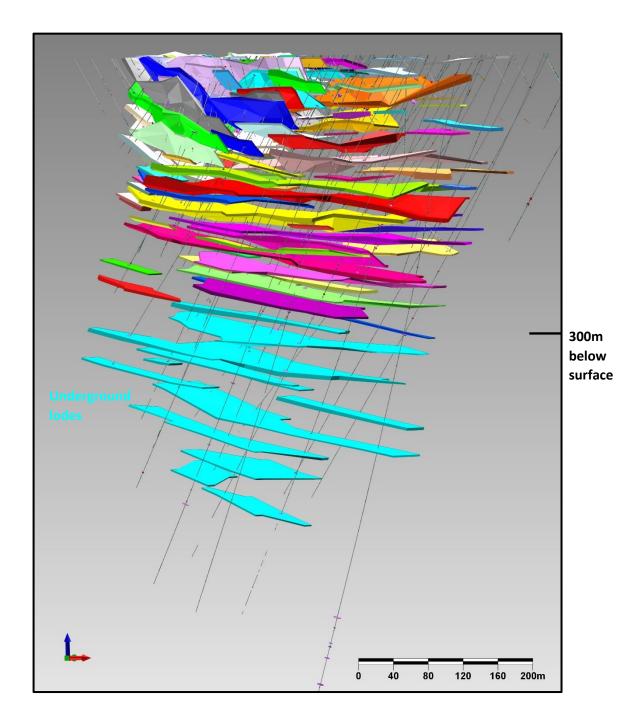
The multiple stacked lodes are relatively flat nested and "saucer shaped" structures that extend to the base of current drilling, which demonstrates that mineralisation exists to at least 600m depth.

## Toweranna Underground

The **Toweranna Underground** resource (all Inferred) comprises **0.56Mt @ 3.6g/t for 64,500oz**. The underground resource includes all new drilling to 31 December 2019 and has been reported below 220mRL (300m vertical) using a 2g/t lower cut-off grade.



Figure 2 Toweranna - showing 3D view looking NW of the nested multiple stacked lodes to 600m depth.



# Mallina Open Pit model

The Mallina Open Pit resource comprises 6.76Mt @ 1.4g/t for 307,400 oz with 20% in the Indicated category. The open pit resource includes all new drilling to 31 December 2019 and extends from surface to 150m depth. The resource is defined using a 0.5g/t lower cutoff grade and the modelled lodes are shown in Figure 3.



Figure 3 Mallina - showing gold resource lodes at 40m RL.



## 2019 - 2020 Exploration Focus

The drilling programs at Mallina and Withnell were completed in mid-December 2019, and shortly thereafter the Company released the initial assay results from the discovery holes along the Scooby to Antwerp Trend (ASX Release: New Gold Discoveries at Hemi and Antwerp, 17 December 2019), the highlights being;

Hemi - 43m@ 3.7 g/t Au from 36m; and 25m @ 2.7 g/t from 32m

Scooby - 14m @ 3.5 g/t from 37m

Antwerp - 6m @ 10.7 g/t from 4m; and 4m@ 21.7 g/t from 32m

On the recommencement of drilling in early 2020, the Company immediately followed up with further aircore drilling at the Hemi prospect and is yet to follow up at either Scooby or Antwerp — with initial results demonstrating significant high grade and thick mineralisation.

The Company is continuing to carry out RC and diamond drilling to scope out the extent of this major discovery and anticipates defining an initial Inferred Resource to 400m depth.

The Company has two Diamond rigs and one RC rig on site and has offered staff extended rosters to assist the rigs to keep drilling as it continues to define this exciting discovery.



#### This ASX report is authorised for release by the De Grey Board.

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#### **Competent Persons Statements**

#### **Exploration Results**

The information in this report that relates to **Exploration Results** is based on, and fairly represents information and supporting documentation prepared by Mr. Phil Tornatora, a Competent Person who is a Member of The Australian Institute of Geoscientists. Mr. Tornatora is an employee of De Grey Mining Limited. Mr. Tornatora 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 Resource and Ore Reserves". Mr. Tornatora consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

#### **Mineral Resources**

The Information in this report that relates to **Mineral Resources** is based on information compiled by Mr Paul Payne, a Competent Person who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Payne is a full-time employee of Payne Geological Services. Mr Payne 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 Payne consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



## **Appendix 1 Resource Summaries**

## **Resource Summaries**

# 1. Resource Summary – Withnell and Hester Gold Deposits

## Geology

The Withnell area is dominated by a sequence of Archaean turbidite sediments intruded by a series of granitic plugs. Multiple zones of mineralisation lie within the regionally extensive, east-west trending Withnell Shear Zone.

Gold mineralisation at Withnell and the adjacent Hester deposit is associated with quartz veins, quartz-sulphide lodes, disseminated sulphides and associated carbonate alteration and hosted by altered and poly-deformed folded sediments. The mineralised zones are typically sub-vertical however folding and deformation of the sequence has resulted in some complexity to the interpreted geometry. Thickness of the mineralisation is typically 5m to 20m wide but in excess of 40m wide in some parts of the deposit.

The weathering profile comprises a veneer of calcrete or hardpan overlying weathered bedrock to a typical depth of 50m but ranging from 10m to 80m in depth. No true saprolite occurs throughout the deposits and the mineralisation has been divided into "oxide" and "sulphide" zones. The lower limit of the oxide zone is delineated by an interpreted base of weathering which has been defined as the occurrence of sulphides in the mineralised zones.

## Drilling

A total of 885 RC holes and 61 DD holes define the Withnell OP Mineral Resource (including the Hester deposit). A total of 266 RC holes and 64 DD holes, define the Withnell UG Mineral Resource. Rotary air blast ("RAB") drilling is included in the database but the RAB holes were excluded from the estimates. Drilling at the deposit has occurred over multiple campaigns from 1997 to 2019. The majority of holes were drilled by Range River Gold ("RNG") prior to 2008 and by De Grey since 2017. The majority of the Withnell OP deposit has been drilled at 6m to 10m hole spacings on 12.5m and 25m spaced N-S cross sections and the Withnell UG deposit has been drilled on 20m to 50m hole spacings on 25m to 50m sections spacings, with some broad spaced drilling up to 100m.

De Grey hole collars were surveyed by contract surveyors using DGPS. Historic drill hole collars were surveyed in AMG coordinates using RTK GPS and have since been transformed to MGA grid. Down hole surveys were recorded for the majority of holes at 50m intervals using a single shot Eastman camera or a Reflex multi-shot tool.

#### Sampling and Sub-Sampling Techniques

For De Grey RC drilling, a face-sampling hammer was used with samples collected at 1m intervals from mineralised zones with composite sampling of typically 4m in the unmineralised rocks. Samples were collected through a rigmounted cone splitter. Samples were visually assessed for recovery and were kept dry throughout the mineralised zones.

The historical RC drilling was sampled at 1m intervals and split using an 87.5:12.5 conventional riffle splitter.

Diamond core was NQ2 and HQ3 size and sampled to geological intervals or on a 1 metre basis from half core cut with a diamond saw.

#### **Sample Analysis Method**

For all De Grey drilling, whole samples were crushed then pulverised and analysed for gold at a contract laboratory using a fire assay technique. QAQC protocols were in place for the drilling programs and has confirmed the quality of the sampling and assaying.



The majority of historic RC and diamond drilling was assayed at contract laboratories using a fire assay method. QAQC data has not been reviewed, but the tenor and geometry of mineralisation is consistent with the recent De Grey drilling.

## **Estimation Methodology – Open Pit**

For the open pit portion of the deposit, the resource was largely estimated using ordinary kriging ("OK") grade interpolation of 1m composited data within wireframes prepared using nominal 0.2g/t Au envelopes. Interpolation parameters were based on geostatistical analysis of the main lodes and considered the geometry of individual lodes. A first pass search range of 20m or 30m was used with a minimum of 10 samples and a maximum of 24 samples. The first pass estimate informed 75% of the blocks. The search range was doubled, and minimum samples reduced to 6 for the second pass which filled the majority of the blocks. A small number of blocks required a search range of 120m. High grade cuts of between 10g/t and 30g/t were applied to the estimate.

The block dimensions used in the model were 10m EW by 5m NS by 5m vertical with sub-cells of 5m by 1.25m by 2.5m.

## Estimation Methodology – Underground

A separate estimate was completed for the portion of the Withnell deposit which displayed a higher tenor of mineralisation with potential for continuity of grade within a series of lode structures. The resource was largely estimated using ordinary kriging ("OK") grade interpolation of 1m composited data within wireframes prepared using nominal 1.0g/t Au envelopes. Small, isolated zones of mineralisation with few samples were estimated using inverse distance interpolation. Interpolation parameters were based on geostatistical analysis of the main lodes and considered the geometry of individual lodes. A first pass search range of 50m was used with a minimum of 6 samples and a maximum of 16 samples. The first pass estimate informed 62% of the blocks. The search range was increased to 100m and minimum samples reduced to 4 for the second pass which filled the majority of the blocks. A small number of blocks (2%) required a search range of 200m. High grade cuts ranging from 20g/t to 35g/t were applied to the estimate.

The block dimensions used in the model were 20m EW by 5m NS by 10m vertical with sub-cells of 0.625m by 0.625m by 0.625m.

## **Bulk Density**

Bulk density determinations from recent diamond drill core were used to determine density values for the deposit. Bulk density values applied to the Withnell estimate were 2.53t/m3 for oxide and 2.83t/m3 for sulphide mineralisation.

#### Mineral Resource Classification – Open Pit

To reflect the potential for extraction by open pit methods, the Open Pit Mineral Resource has been reported above a conceptual pit shell (Pit52.dtm) which was generated during the on-going Scoping/Pre-Feasibility Study using a gold price of \$2,400 per ounce. The pit shell extends to a maximum vertical depth of 195m. The Mineral Resource has been depleted for historic open pit mining.

The portions of the model defined by grade control drilling at a typical spacing of 6m to 10m on 12.5m spaced sections and displaying good continuity of grade and geometry have been classified as Measured Mineral Resource.

Adjacent to these zones, drilling is on 25m spaced sections and mineralisation displays good continuity. These areas have been classified as Indicated Mineral Resource. The remainder of the Withnell OP deposit defined by wider spaced drilling, or where continuity is less well defined at the closer spacing, have been classified as Inferred Mineral Resource.



## Mineral Resource Classification - Underground

The Underground Mineral Resource has been reported below a conceptual pit shell (Pit52.dtm) which was generated during the ongoing Scoping Study/Pre-Feasibility Study using a gold price of \$2,400 per ounce. The pit shell extends to a maximum vertical depth of 195m. There has been no historic mining within the extent of the underground Mineral Resource.

At the Withnell UG deposit, the main lodes have been defined by drill holes at 20m to 50m spacing on 25m to 50m sections. These areas display good continuity and have been classified as Indicated Mineral Resource. The remainder of the Withnell UG deposit defined by wider spaced drilling up to 100m spacing, or where continuity is less well defined at the closer spacing, have been classified as Inferred Mineral Resource.

#### **Cut-off Grades**

The shallow, sub-cropping nature of the deposits suggests good potential for open pit mining. As such, the Open Pit Mineral Resource has been reported at a 0.5g/t Au lower cut-off to reflect assumed exploitation by open pit mining.

For the Underground Mineral Resource, a cut-off grade of 2.0g/t Au has been applied to reflect the typically higher operating cost of underground mining. No economic studies of underground mining have been carried out by De Grey, however the cut-off grade is consistent with many similar scale underground operations in Western Australia.

## Metallurgy

Extensive metallurgical test work has been conducted on the mineralisation at Withnell. Oxide mineralisation is reported to have excellent metallurgical recoveries using conventional cyanide leaching with a +94% leaching. For sulphide mineralisation, flotation of the sulphides followed by oxidation of the concentrate is reported to allow gold recoveries of >90% to be achieved.

## **Modifying Factors**

No modifying factors were applied to the reported Mineral Resource estimate. Parameters reflecting mining dilution, ore loss and metallurgical recoveries will be considered during the planned mining evaluation of the project.

# 2. Resource Summary – Toweranna Gold Deposit

## Geology

At Toweranna, gold mineralisation occurs in numerous variously oriented pyrite-rich quartz veins which occur within, and marginal to, an intermediate granite stock. The stock has intruded a suite of moderate to steeply dipping meta-sandstones, greywackes, and argillites of Archaean age. The granite stock is ovoid at surface and approximately 250m in diameter. Lodes typically strike north-south, with a gentle to moderate easterly dip. The mineralisation and host rocks are weathered to a depth of up to 50m.

#### Drilling

A total of 125 RC holes and 36 diamond holes define the Toweranna Mineral Resource. The majority of holes were completed by De Grey between 2017 and 2019. Historic drilling at the deposit occurred over multiple campaigns from 1970 to 1995. A small number of historic holes were included in the estimate.

The Toweranna deposit has been drilled at 20m hole spacing on 20m spaced E-W cross sections along the western and southern margins of the granite. The northern and eastern portions have drill hole spacings of up to 50m. The deeper extensions to the deposit have been drilled at spacings of 50m to 100m.



De Grey hole collars were surveyed by contract surveyors using DGPS. Historic drill hole collars were surveyed in AMG coordinates using RTK GPS and have since been transformed to MGA grid. Down hole surveys were recorded for the majority of holes at 50m intervals using a single shot Eastman camera or a Reflex multi-shot tool.

## **Sampling and Sub-sampling Techniques**

For De Grey RC drilling, a face-sampling hammer was used with samples collected at 1m intervals from mineralised zones with composite sampling of typically 4m in the unmineralised rocks. Samples were collected through a rigmounted cone splitter. Samples were visually assessed for recovery and were kept dry throughout the mineralised zones.

De Grey diamond core was NQ size and sampled to geological intervals or on a 1 metre basis from half core cut with a diamond saw.

Historical RC drill samples were collected at 1m intervals via a rig mounted multiple splitter. Samples were passed through a single stage riffle splitter to form 2m composites for analysis. Historic diamond drill core was sampled at 1m intervals or smaller selected intervals based on observed mineralogy or quartz veining, with half core sent for analysis.

## Sample Analysis Method

For all De Grey drilling, whole samples were crushed then pulverised and analysed for gold at a contract laboratory using a fire assay technique. QAQC protocols were in place for the drilling programs and has confirmed the quality of the sampling and assaying.

For historic holes used in the estimate, samples were prepared and a 50g split was collected and fire assayed using aqua regia digest and reading by AAS method. QAQC protocols were not in place for the various drilling programs. A degree of confidence in the assay results can be gained from the repeatability of results between the different generations of drilling over the 25 year exploration history. Only a small number of historic holes were included in the estimate.

#### Estimation Methodology

The deposit was estimated using ordinary kriging ("OK") grade interpolation of 1m composited data within wireframes prepared using 0.4g/t Au envelopes. Interpolation parameters were based on kriging neighbourhood analysis, the geometry of each zone and geostatistical parameters determined by variography. A first pass search range of 30m was used with a minimum of 6 samples and a maximum of 16 samples. Approximately 52% of the resource was estimated in the first pass. The search range was doubled for the second pass which filled a further 38% of blocks.

High grade cuts of between 10g/t and 35g/t were applied to the lodes.

The block dimensions used in the Toweranna model was 5m EW by 10m NS by 5m vertical with sub-cells of 1.25m by 1.25m.

The bulk densities applied in the block model were based on core measurements from the recent diamond drilling and were dependant on lithology, weathering type and mineralisation. These varied from 2.0t/m3 for sediment oxide, 2.78t/m3 for fresh, mineralised granite and 2.79t/m3 for fresh, mineralised sediment.

#### Mineral Resource Classification

The southern and western contact areas at Toweranna have been defined by a drill spacing of 10m to 20m hole spacings on 20m spaced sections. The areas showing good continuity of mineralisation along these lodes have been classified as Indicated Mineral Resource.



Deeper mineralisation in the central and eastern portions of the deposit have been drilled predominantly on 40m by 40m spacings and show good continuity of structure and grade. These have also been classified as Indicated Mineral Resource.

The remaining lodes at Toweranna have been defined by drill spacings generally up to 60m spacing or show poor continuity along strike and have been classified as Inferred Mineral Resource. A small number of the deepest lodes are defined by hole spacings of up to 100m. The deposit is reported to a maximum depth of 550m vertical.

#### Cut-off Grades

The shallow, sub-cropping nature of the deposits suggests good potential for open pit mining. An elevation of 220mRL (approximately 300m below the topographic surface) was selected to constrain the reporting of the open pit Mineral Resource based on a Whittle optimisation conducted on the previous estimate.

A higher cut-off grade of 2.0g/t Au was selected to report the Mineral Resource below -220mRL which is the portion of the deposit which could be amenable to underground mining.

## Metallurgy

Metallurgical test work completed by a previous operator in 1995 has demonstrated that the mineralisation at Toweranna is free milling. De Grey recently completed test work on two purpose specific diamond holes which has confirmed free milling ores with high gold recoveries of +94% in oxide and +96% in fresh material. Further test work is planned to provide variability throughout the deposit.

### **Modifying Factors**

No modifying factors were applied to the reported Mineral Resource estimate. Parameters reflecting mining dilution, ore loss and metallurgical recoveries will be considered during the planned mining evaluation of the project.

# 3. Resource Summary – Mallina Gold Deposit

### Geology

At Mallina, gold mineralisation and associated alteration zones occur as linear multiple stacked lodes hosted within metasediments. The gold is intimately associated with quartz veining, carbonate and sulphide alteration, in places along the margins of 2m to 30m wide porphyry intrusions within the east-west trending, 200m-wide structural corridor.

The weathering profile comprises a veneer of calcrete or transported sands overlying weathered bedrock to a depth of up to 50m.

#### Drilling

A total of 212 reverse circulation (RC) holes and 23 diamond (DD) holes define the Mineral Resource. The majority of holes in the resource were reverse circulation holes drilled by De Grey between 2017 and 2019. RAB and air core (AC) drilling is included in the database but these holes were excluded from the estimate. Drilling at the deposit has occurred over multiple campaigns from 1968 to 2019. The majority of the Mallina deposit has been drilled at 20m hole spacing on 25m or 50m spaced N-S cross sections. Small, peripheral portions of the deposit have been drilled at 100m spaced sections.

De Grey hole collars were surveyed by contract surveyors using DGPS. Historic drill hole collars were surveyed in AMG coordinates using RTK GPS and have since been transformed to MGA grid. Down hole surveys were recorded for the majority of holes at 50m intervals using a single shot Eastman camera or a Reflex multi-shot tool.



### **Sampling and Sub-Sampling Techniques**

For De Grey RC drilling, a face-sampling hammer was used with samples collected at 1m intervals from mineralised zones with composite sampling of typically 4m in the unmineralised rocks. Samples were collected through a rigmounted cone splitter. Samples were visually assessed for recovery and were kept dry throughout the mineralised zones.

The historical RC drilling was sampled at 1m intervals and split using an 87.5:12.5 conventional riffle splitter.

Diamond core was HQ3 size and sampled to geological intervals or on a 1 metre basis from half core cut with a diamond saw.

## Sample Analysis Method

For all De Grey drilling, whole samples were crushed then pulverised and analysed for gold at a contract laboratory using a fire assay technique. QAQC protocols were in place for the drilling programs and has confirmed the quality of the sampling and assaying.

The majority of historic RC and diamond drilling was assayed at contract laboratories using a fire assay method. QAQC data has not been reviewed, but the tenor and geometry of mineralisation is consistent with the recent De Grey drilling.

## Estimation Methodology

At the Mallina deposit, the resource was largely estimated using ordinary kriging ("OK") grade interpolation of 1m composited data within wireframes prepared using nominal 0.4g/t Au envelopes. Interpolation parameters were based on geostatistical analysis of the main lode and considered the geometry of individual lodes. A first pass search range of 30m or 40m was used with a minimum of 10 samples and a maximum of 24 samples. The first pass estimate informed 35% of the blocks. The search range was increased to 80m for the second pass which filled the majority of the blocks. Minor lodes with few samples were estimated using inverse distance interpolation. A high grade cut of 12g/t was applied to the estimate.

The block dimensions used in the model were 10m EW by 5m NS by 5m vertical with sub-cells of 5m by 1.25m by 2.5m.

Bulk density data was obtained from recent diamond core and analysed for the different weathering and mineralisation types. Values applied to the Mallina estimate were 2.2t/m3 for oxide, 2.5t/m3 for transitional and 2.7t/m3 for sulphide mineralisation.

#### Mineral Resource Classification

The upper 50m of the main central lodes at Mallina have been defined by a drill spacing of 25m sections and 20m-25m hole spacing on each section. Portions of many of the peripheral lodes have also been drilled at 25m by 25m spacings. The areas showing good continuity of mineralisation along these lodes have been classified as Indicated Mineral Resource. The remaining lodes at Mallina have been defined largely by 50m spaced drilling or show poor continuity along strike and have been classified as Inferred Mineral Resource.

 $\pi$ o reflect the potential for extraction by open pit methods, the Mineral Resource has only been reported to a depth of 150m vertical.

#### Cut-off Grades

The shallow, sub-cropping nature of the deposits suggests good potential for open pit mining. As such, the Mineral Resource has been reported at a 0.5g/t Au lower cut-off to reflect assumed exploitation by open pit mining.



## Metallurgy

Preliminary metallurgical test work has been carried out on purposed drilled diamond at Mallina. Results show the oxide mineralisation is expected to have a recovery of +94% similar to most other oxide deposits. For the fresh sulphide rich material, test work shows the previously designed Withnell processing flowsheet comprising a coarse grind ( $-150\mu m$ ) followed by flotation and then oxidation of the concentrate produces an 86% gold recovery.

## **Modifying Factors**

No modifying factors were applied to the reported Mineral Resource estimate. Parameters reflecting mining dilution, ore loss and metallurgical recoveries will be considered during the planned mining evaluation of the project.



# JORC 2012 TABLE

# Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
Sampling techniques  Drilling techniques	<ul> <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> <li>Drill type (e.g. core, reverse circulation, openhole 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</li> </ul>	<ul> <li>Since 2017 all drilling at the project has been carried out by De Grey Mining Ltd ("De Grey").</li> <li>All De Grey RC holes were sampled on both a 1m and nominal 4m composite basis over the entire length of the hole. 4m composite samples were submitted for analysis for all intervals. Where assays over 0.2g/t Au were received for 4m composite sample results, 1m samples were then submitted for these zones.</li> <li>Both the 4m and 1m samples were taken from a cone splitter mounted on the drill rig cyclone. The cyclone was calibrated to provide a continuous sample volume accordingly to sample length.</li> <li>Each 4m and 1m sample ranges from a typical 2.5-3.5kg.</li> <li>De Grey diamond holes were NQ size and sampled to geological boundaries. Core was cut with a diamond saw to allow half core samples to be submitted for fire assay analysis.</li> <li>All De Grey drill holes are Reverse Circulation (RC) with a 5 1/2-inch bit and face sampling hammer.</li> <li>De Grey has also completed diamond holes drilled with NQ sized core.</li> </ul>
(A)	core is oriented and if so, by what method, etc.).	
Drill sample recovery	<ul> <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> <li>All samples were visually assessed for recovery. The competent nature of core resulted in good recoveries as noted in the hand written drill logs.</li> <li>Good recoveries for RC have been assumed based on the weights of the samples sent for analysis.</li> <li>Core recovery was measured and was consistently very good.</li> <li>No sample bias was observed.</li> </ul>
Logging	<ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul> <li>For the De Grey drilling, all holes were logged in detail for the entire hole.</li> <li>Historical drill logs have been preserved in digital copies. Detailed drill logs have been produced by qualified geologists to an appropriate level for use in a Mineral Resource estimation.</li> <li>Logging is qualitative in nature.</li> </ul>



Criteria	JORC Code explanation	Commentary
Sub-sampling techniques and sample preparation  Quality of assay data and laboratory tests	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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</li> </ul>	<ul> <li>Samples were collected with a diamond drill rig drilling NQ2 diameter core. After logging and photographing, NQ2 drill core was cut in half, with one half sent to the laboratory for assay and the other half retained. Holes were sampled over mineralised intervals to geological boundaries on a nominal 1m basis.</li> <li>RC samples were collected with a cone splitter on the rig cyclone and drill cuttings were sampled on a 1m and 4m basis.</li> <li>Industry prepared independent standards are inserted approximately 1 in 20 samples.</li> <li>Each sample was dried, split, crushed and pulverised.</li> <li>Sample sizes are considered appropriate for the material sampled.</li> <li>The samples are considered representative and appropriate for this type of drilling and for use in a resource estimate.</li> <li>De Grey samples were submitted to a commercial independent laboratory in Perth, Australia.</li> <li>Each sample was dried, crushed and pulverised.</li> <li>Au was analysed by a 50gm charge fire assay fusion technique with AAS finish.</li> <li>The techniques are considered quantitative in nature. Quality control protocols have confirmed the accuracy and precision of the assays.</li> </ul>
Verification of sampling and assaying	<ul> <li>precision have been established.</li> <li>The verification of significant intersections by either independent or alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>Sample results have been entered and then checked by a second geologist.</li> <li>Results have been uploaded into the company database (managed by independent consultants), checked and verified.</li> <li>No adjustments have been made to the assay data.</li> <li>Results are reported on a length weighted basis.</li> <li>Infill drilling completed by De Grey has largely confirmed the results of the historic drilling.</li> </ul>
Location of data points	<ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Historical drill hole collars were surveyed in AMO coordinates using RTK GPS.</li> <li>Down hole surveys were recorded at 50m intervals using a single shot Eastman camera.</li> <li>Holes were originally located using AMG datum and have since been transformed to GDA94 grid.</li> <li>Detailed topographic surveys have been carried out to show the extent of open pit mining.</li> <li>De Grey drill hole collar locations are located by Differentia GPS to an accuracy of +/-20cm.</li> <li>Locations are given in GDA94 zone 50 projection.</li> <li>Diagrams and location were previously reported.</li> </ul>



Criteria	JORC Code explanation	Commentary
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>RC drilling has typically been completed at 25m to 50m spacings.</li> <li>Much of the Withnell Open Pit Mineral Resource has been drilled with grade control holes at spacings from 6.25m to 12.5m.</li> <li>The close spaced drilling has confirmed the continuity of mineralisation consistent with the resource classifications.</li> <li>Drilling at Withnell UG is on a nominal 50-100m by 50m grid spacing.</li> <li>All holes have been geologically logged and provide a strong basis for geological control and continuity of mineralisation.</li> <li>Sample results and logging provide support for the results to be used in resource estimation.</li> <li>Sample compositing has been applied to samples prior to</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul>	<ul> <li>The drilling in all deposits is approximately perpendicular to the strike of mineralisation and therefore the sampling i considered representative of the mineralised zone.</li> <li>In some cases, drilling is not at right angles to the dip o mineralised structures and as such true widths are less that down hole widths. This will be allowed for in resource estimates when geological interpretations are completed.</li> </ul>
Sample security	The measures taken to ensure sample security.	De Grey samples were collected by company personnel an delivered direct to the laboratory via a transport contractor
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	No audits have been completed. Review of QAQC data have been carried out by company geologists and the Competer.



# **Section 2 Reporting of Exploration Results**

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<ul> <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 license to operate in the area.</li> </ul>	The drilling is on M47/476 which is located approximately 80km south of Port Hedland. The tenement is held by Indee Gold Pty Ltd, which is a 100% owned subsidiary of De Grey Mining Ltd.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.      Deposit type geological setting and style of	Extensive drilling of the various Indee orebodies leading to the definition of Ore Reserves and the development of a mining and processing operation was carried out mainly by Range River between 2003 and 2008.  The Indee deposits comparise bydeethermally emplaced and the compa
Géology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The Indee deposits comprise hydrothermally emplaced and sediment/quartz hosted gold mineralisation within a shear zone and are similar in style to many other Western Australian gold deposits.</li> <li>The Toweranna deposit differs in that it consists of a series of quartz vein structures located within a small granite plug within the broader greenstone sedimentary package.</li> </ul>
Drill hole Information	<ul> <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:</li> <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> <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</li> </ul>	Exploration results are not being reported.
Data aggregation methods	<ul> <li>this is the case.</li> <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</li> </ul>	Exploration results are not being reported.



Criteria	JORC Code explanation	Commentary
	stated.	
Relationship between mineralisation widths and intercept lengths	<ul> <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> <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>	<ul> <li>The drill holes are interpreted to be approximately perpendicular to the strike of mineralisation.</li> <li>Drilling is not always perpendicular to the dip of mineralisation and true widths are less than down hole widths.</li> </ul>
Diagrams	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.	Plans and sections have been included in previous releases of the exploration results.
Balanced reporting	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.	Exploration results are not being reported.
Other substantive exploration data	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.	No other exploration data has been identified.
Further work	<ul> <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> <li>Additional drilling is currently being planned to further test the deposit for resource extensions and deeper targeting of the higher-grade gold zones.</li> <li>Mining studies are also continuing to allow detailed evaluation of the deposits.</li> </ul>



# **Section 3 Estimation and Reporting of Mineral Resources**

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

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>The geological and assay data was captured electronically to prevent transcription errors.</li> <li>Validation included comparison of gold results to logged geology to verify mineralised intervals.</li> </ul>
Geological interpretation	<ul> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>A number of site visits have been undertaken by Paul Payne. The most recent was in May 2018 to examine geological features in outcrop, open pits, to locate drill collars from recent drilling and confirm that no obvious impediments to future exploration or development were present.</li> <li>The confidence in the geological interpretation for the deposits is considered to be high due to the high quality drilling, detailed recording of geological data and consistent mineralisation.</li> <li>The interpretation was based largely on good quality RC drilling, with a number of diamond holes. Infill grade control drilling has been carried out at the Withnell deposit.</li> <li>At Withnell the deposit consists of steeply dipping mineralised lodes. Folded structures at Withnell have been directly observed from open pit mining and pit wall observations.</li> <li>At Toweranna, mineralisation is hosted in a series of shallow dipping quartz lodes within a granite body.</li> <li>At Mallina, gold mineralisation and associated alteration occur as multiple tabular, stacked lodes hosted within metasediments.</li> <li>No alternate interpretations are likely due to the close spaced drilling.</li> <li>Geological logging has been used to define oxidation domains.</li> </ul>
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<ul> <li>The Withnell mineralisation extends over 1.3km and comprises multiple mineralised lodes over its 300m width. The main lode has been defined to a depth of 550m.</li> <li>The Mallina mineralisation extends over 3km and comprises multiple mineralised lodes over the 400m width of the shear zone. The main lode has been defined to a depth of 200m</li> <li>The Toweranna mineralisation extends over 500m EW and 300m NS. It comprises stacked, mineralised lodes over and has been reasonably well defined by drilling to a depth of 550m with a maximum intersection depth of 700m.</li> </ul>
Estimation and modelling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of byproducts.</li> <li>Estimation of deleterious elements or other nongrade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> </ul>	<ul> <li>Ordinary kriging (OK) was used at each deposit to estimate grade into the lodes.</li> <li>Surpac software was used for the estimation.</li> <li>Separate block models were created for the Withnell OP, Withnell UG, Toweranna and Mallina deposits.</li> <li>Samples were composited to 1m intervals. High grade cuts were applied to each deposit based on statistical observations.</li> <li>The parent block dimensions varied for each deposit to reflect geometry of mineralisation and drill hole spacing. Cell size was based on Kriging Neighbourhood Analysis (KNA).</li> <li>Previous estimates for each deposit were prepared by PayneGeo for De Grey between 2017 and 2019. Additional drilling since then has allowed the deposits to be extended or defined with greater confidence.</li> <li>No assumptions have been made regarding recovery of byproducts.</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>No estimation of deleterious elements was carried out. Only Au was interpolated into the block models.</li> <li>An orientated ellipsoid search was used to select data and was based on drill hole spacing and geometry of mineralisation.</li> <li>In general, three interpolation passes were used for each estimate. On occasions, a fourth search pass was required to areas of sparse drilling.</li> <li>Search passes and interpolation parameters were based on kriging neighbourhood analysis</li> <li>Selective mining units were not modelled in the Mineral Resource model. The block size used in the model was based on KNA, drill sample spacing and lode orientation.</li> <li>The Withnell OP and Hester wireframes were prepared using a nominal 0.2g/t Au cut-off and the Withnell UG wireframes were prepared using a nominal 1.0g/t Au cut-off.</li> <li>The Mallina and Toweranna wireframes were prepared using 0.4g/t Au envelopes.</li> <li>The mineralisation wireframes were applied as hard boundaries in the estimates.</li> <li>For validation, trend analysis was completed for the main lodes by comparing the interpolated blocks to the sample composite data within northing intervals.</li> </ul>
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages and grades were estimated on a dry in situ basis.     No moisture values were reviewed.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	<ul> <li>The portions of the deposits demonstrated by pit optimisation analysis to have open pit mining potential were reported at a 0.5g/t Au cut-off, based on assumptions about economic cut-off grades for open pit mining.</li> <li>The portions of the Toweranna deposit below 300m RL and the Withnell UG Mineral Resource below a \$2400/oz pit shell have based on assumptions about economic cut-off grades for underground mining.</li> </ul>
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	<ul> <li>Based on the previous production history at the Indee Project, it is assumed that open pit mining is possible at the project if demonstrated to be economically viable. In addition, it is likely that underground mining may be viable at Withnell and Toweranna below the limits defined by pit optimisation.</li> <li>The Withnell open pit Mineral Resources reported here have been limited by means of an open pit optimisation shell which was generated using a gold price of \$A2,400/oz. Key cost assumptions used in the generation of the open pit optimisation shells include an average mining cost of around A\$3.30 per tonne mined, a processing cost of A\$31/t processed with an average metallurgical recovery of 91%.</li> <li>No mining parameters or modifying factors have been applied to the Mineral Resources for the other deposits.</li> </ul>



Criteria	JORC Code explanation	Commentary
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>Metallurgical testing has been conducted by De Grey on the Withnell deposit since 2017. The Withnell samples were chosen as the priority to concentrate on the pyrite dominant sulphide mineralisation assessment as it is currently the largest sulphide deposit at the IGP.</li> <li>The test work results have shown that high gold recovery can also be maintained from the fresh pyrite sulphide dominant mineralisation at coarser grind size. Previously proposed fine grinding has been eliminated in favour of a coarser sulphide flotation with a resultant small mass pull (5-9%) into sulphide concentrate followed by oxidation and standard CIL leaching to extract the contained gold. The preferred oxidation process is pressure oxidation ("POX"). Importantly, the POX component is expected to be significantly smaller with annual capacity of 50kt-100kt depending on final throughput volumes due to the strong volume reduction into the final sulphide concentrate.</li> <li>Overall, the flotation, POX and cyanide leach test work provided a peak recovery of 95.9% from the concentrate, so when combined with gravity and sulphide flotation recovery provides an overall average gold recovery of +90% of the contained gold. The fresh tail is proposed to be processed through the standard CIL tanks to ensure the highest recovery of gold extracted.</li> </ul>
Environmental factors or assumptions	• Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	<ul> <li>The area is not known to be environmentally sensitive and there is no reason to think that proposals for development including the dumping of waste would not be approved.</li> <li>The Indee project area is already highly disturbed with previous permitting granted for open pit mining and processing.</li> <li>The area surrounding the deposits is generally flat and uninhabited with no obvious impediments to the construction of dumps, haul roads and other mine infrastructure.</li> <li>Previous large-scale open pit mining has occurred at the Withnell deposit.</li> </ul>
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>The bulk densities applied in the block model were based on measurements from drill core and were dependant on weathering type and mineralisation.</li> <li>At Withnell, a bulk density of 2.52t/m³ was applied to transitional material, 2.83t/m³ applied to mineralised primary sulphide material and 2.86t/m³ applied to waste primary sulphide material.</li> <li>At Toweranna, a bulk density of 2.0t/m³ was applied to oxide material, and 2.78/m³ applied to mineralised primary granite hosted mineralisation.</li> <li>At Mallina, a bulk density of 2.2t/m³ was applied to oxide material, 2.5t/m³ applied to transitional material and 2.7t/m³ applied to primary sulphide material.</li> </ul>
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> </ul>	<ul> <li>Mineral Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC, 2012). The Mineral Resources were classified as Measured, Indicated and Inferred Mineral Resource on the basis of data quality, sample spacing, and lode continuity.</li> <li>At the Withnell OP deposit, the main lodes have been defined by drill holes at 6 to 10m spacing on 12.5m sections.</li> </ul>



Criteria	JORC Code explanation	Commentary
Criteria  Solution in the control of	• Whether the result appropriately reflects the Competent Person's view of the deposit.  • Competent Person's view of the deposit.	These areas of dense drilling show excellent continuity of mineralisation and have been classified as Measured Mineral Resource. Adjacent to these zones drilling is on 25m sections and mineralisation displays good continuity. These areas have been classified as Indicated Mineral Resource. The remainder of the Withnell OP deposit defined by wider spaced drilling, or where continuity is less well defined at the closer spacing, have been classified as Inferred Mineral Resource.  • At the Withnell UG deposit, the main lodes have been defined by drill holes at 20 to 50m spacing on 25 to 50m sections. These areas display good continuity and have been classified as Indicated Mineral Resource. The remainder of the Withnell UG deposit defined by wider spaced drilling up to 100m spacing, or where continuity is less well defined at the closer spacing, have been classified as Inferred Mineral Resource.  • At Toweranna, the southern and western contact areas have been defined by a drill spacing of 10m to 20m hole spacings on 20m spaced sections. The areas showing good continuity of mineralisation along these lodes have been classified as Indicated Mineral Resource.  Deeper mineralisation in the central and eastern portions of the deposit have been drilled predominantly on 40m by 40m spacings and show good continuity of structure and grade. These have also been classified as Indicated Mineral Resource.  • The remaining lodes at Toweranna have been defined by drill spacings generally up to 60m spacing or show poor continuity along strike and have been classified as Inferred Mineral Resource. A small number of the deepest lodes are defined by hole spacings of up to 100m. The deposit is reported to a maximum depth of 550m vertical.  • At Mallina, the upper 50m of the main central lodes have been defined by a drill spacing of 25m sections and 20m-25m hole spacing on each section. Portions of many of the peripheral lodes have also been drilled at 25m by 25m spacings. The areas showing good continuity of mineralisation along these
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Internal audits have been completed by PayneGeo which verified the technical inputs, methodology, parameters and results of the estimates.
Discussion of	a Whore engrousiate a statement of the selection	The review confirmed the suitability of the drilling data for use in Mineral Resource estimates.  The estimates for each deposit utilise good estimation.
Discussion of relative accuracy/confidence	<ul> <li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</li> </ul>	<ul> <li>The estimates for each deposit utilise good estimation practices, high quality drilling data and a number of the deposits have been updated to include observations and data from mining operations. These deposits are considered to have been estimated with a high level of accuracy.</li> <li>The data quality throughout the project is reported to be good and the drill holes have detailed logs produced by qualified geologists.</li> <li>The Mineral Resource statement relates to global estimates of tonnes and grade.</li> <li>Previous mining has been carried out at the Withnell deposit. No reconciliation data has been located and only global</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	production records have been reviewed.