PURE ALUMINA
ACN 072 692 365

Update of Hargraves Resource **29 May 2020**

ASX Code: PUA, PUAOC

Hargraves Mineral Resource Estimate Update

Key highlights

- **The Mineral Resources Estimate for the Hargraves Project defined Gold Mineral Resources totaling 2,318,986 t @ 2.38 g/t for 177,652 oz.**
- **The Resource estimate conducted by SRK Consulting (Australasia) Pty Ltd (SRK) aligns Hargraves Mineral Resources with the current JORC 2012 Edition Reporting Guidelines.**

Classification	Tonnes (t)	Au Average Grade (g/t)	Au Metal Content (t. oz)
Indicated	1,108,651	2.73	97,233
Inferred	1,210,335	2.07	80,419
Total	2,318,986	2.38	177,652

Resources reported at a cut-off of 0.8g/t Au

- **Approximately half of the total Hargraves Mineral Resources were classified as Indicated, due to confidence in the geological continuity and grade of mineralisation in well-drilled regions of the project.**
- **Gold mineralisation has been geologically modelled within folded, quartz saddle reefs. High-grade trends within the model are believed to represent intersections of feeder structures (faults) and reefs. High-grade mineralization is focused along these trends and extends out along bedding locally.**
- **The combined Resource inventory for the Hill End and Hargraves projects amounts to 501,552oz @ 3.3 g/t**

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Pure Alumina Limited (ASX: PUA) is pleased to announce that the review of the Resource at Hargraves has been completed by SRK Consulting (Australasia) Pty Ltd (SRK). The review was based on the existing geological data for the deposit and is compliant with 2012 edition of the JORC guidelines.

Updated Hargraves 2012 JORC-compliant Mineral Resources

	Classification	Tonnes (t)	Grade (Au g/t)	Contained oz
Hargraves	Indicated	1,108,651	2.7	97,233
	Inferred	1,210,335	2.1	80,419
Total		**2,318,986**	**2.4**	**177,652**

- Hargraves: 0.8 g/t reporting cut-off

The updated Mineral Resource estimate at Hargraves compliments Pure Alumina's pre-existing Resource inventory which includes JORC 2012-compliant Mineral Resources from the Red Hill\Reward project, assessed by Hill End Gold Limited and summarised below:

	Classification	Tonnes (t)	Grade (Au g/t)	Contained oz
Red Hill	Indicated	413,000	1.4	18,600
	Inferred	1,063,000	1.8	61,400
Total		**1,475,000**	**1.7**	**80,000**

- Red Hill: 0.5 g/t per block, ordinary kriging grade interpolation, classified Mineral Resources limited to 160mRL below surface

ASX announcement 30 Nov 2015: https://www.asx.com.au/asxpdf/20151130/pdf/433f59prb9x8km.pdf

In addition, Pure Alumina also has previously reported JORC 2004-compliant Mineral Resources at its Hawkins Hill - Reward Project, assessed by Hill End Gold Limited and summarised below:

Existing Hawkins Hill\Reward 2004 JORC-compliant Mineral Resources

	Classification	Tonnes (t)	Grade (Au g/t)	Contained oz
Hawkins Hill - Reward	Measured	77,400	11.3	28,100
	Indicated	180,400	6.5	37,700
	Inferred	627,800	8.8	178,100
Total		**885,600**	**8.6**	**243,900**

Cut-off grades:

- Hawkins Hill – Reward: 0.5 g/t and inverse distance squared grade interpolation

ASX announcement 13 Oct 2013: https://www.asx.com.au/asxpdf/20101013/pdf/31t2q5df28qlgb.pdf

The Hawkins Hill - Reward information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

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Combined Mineral Resource Inventory

	Classification	Tonnes (t)	Grade (Au g/t)	Contained oz
JORC 2012	Indicated	1,521,651	2.4	115,833
	Inferred	2,273,335	1.9	141,819
	Sub-total	**3,794,986**	**2.1**	**257,652**
JORC 2004	Measured	77,400	11.3	28,100
	Indicated	180,400	6.5	37,700
	Inferred	627,800	8.8	178,100
	Sub-total	**885,600**	**8.6**	**243,900**
Total		**4,680,586**	**3.3**	**501,552**

The total gold Resource base for the Company currently sits at 501,552 oz at 3.33 g/t spread across the three project areas.

Mineral Resource Overview

Pure Alumina Limited sought an updated Mineral Resource estimate for the Hargraves gold project (Hargraves). Mineral Resources were last publicly stated on 30 April 2013 in accordance with the 2004 edition of the Joint Ore Reserves Committee (JORC) Code guidelines.

The goals of this updated assessment were:

1. To assess and report Mineral Resources in compliance with the 2012 edition of the JORC Code guidelines.
2. To obtain a coherent estimate over the core project area. The last stated Mineral Resource consisted of two independent Mineral Resource Estimates, each modelled using different techniques and workflows.

No additional exploration activities were conducted over the Hargraves project area following the 2013 estimation.

The key outcomes of the 2020 Hargraves Mineral Resource estimate are:

- The defined Mineral Resources represent a decrease in average grade, reported tonnes and contained metal relative to the previously announced 2013 Mineral Resource estimate. This decrease is primarily attributable to the treatment and sensitivity of the previous model to extreme grade samples.
- Extreme grade samples have the potential to dramatically alter the modelled grade distribution and different approaches have resulted in a lack of consistency between Mineral

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Resource estimates. The latest estimate better addresses the impact of high-grade samples on the block grade distribution with grade thresholding.

- SRK's modelling demonstrated geostatistical predictability of Hargraves mineralisation up to 30g/t Au, while acknowledging that high-grade mineralisation beyond this point has limited spatial continuity. The use of geostatistically-derived parameters and ordinary kriging has resulted in a modelled grade distribution that closely honours the drill data.

- Well-structured variograms were produced from untransformed assays. This calls into question the assertions that the mineralisation is extremely 'high nugget'. In SRK's experience, 'high nugget' gold deposits such as Ballarat and Bendigo often show no variogram structure whatsoever, even after unfolding or Gaussian transformation.

The confirmation of the geological model and the improved understanding of the mineralisation will allow the company to progress with analysis of the most effective way to generate value from Hargraves. The key next steps are:

- Detailed review of the data and model developed by SRK
- Identification of the limitations of the data and how best to remove those limitations where possible.
- Planning for the next stage of exploration and development

This is a key step in the development of Hargraves. While the Resource is slightly smaller than the previous estimate, it provides much greater confidence on the robustness of the model and the data.

The release of this announcement was authorised by the Managing Director, Mr David Leavy, on behalf of the Board.

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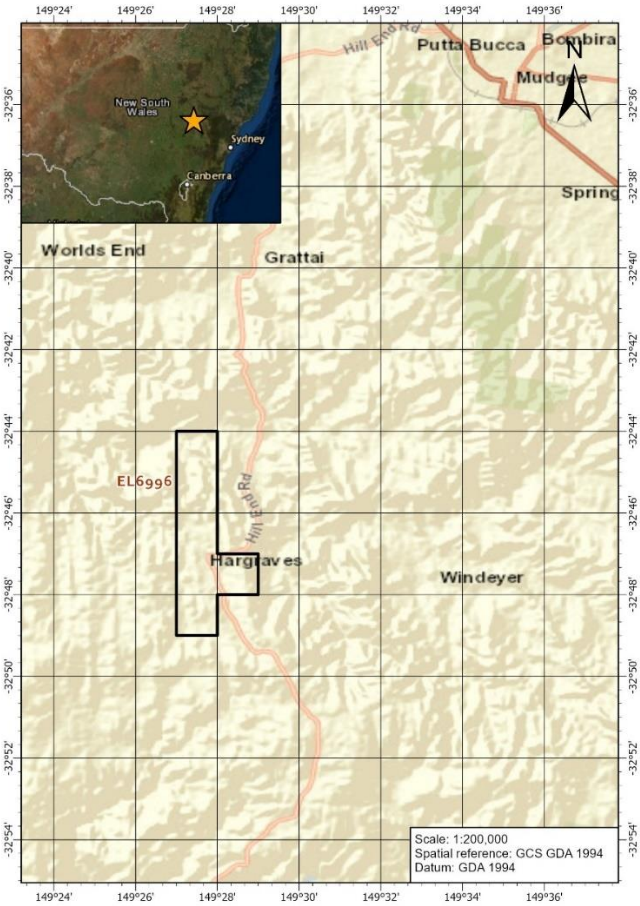
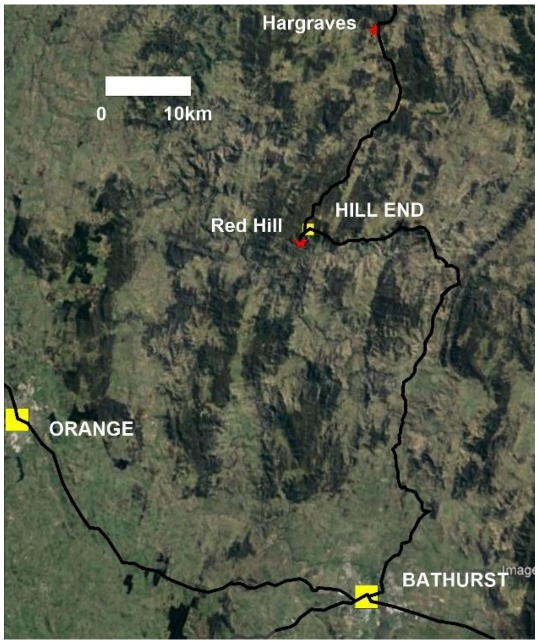
Introduction

Hargraves is located within Exploration Licence EL6996 which is held 100% under Pure Alumina Limited.

The Hargraves project is located immediately west of the historical village of Hargraves in central-western New South Wales. The project is located 20 km southwest of Mudgee, 35 km north of Hill End and approximately 250 km from Sydney



Location of EL6996 and Hargraves Project



Location of Hargraves relative to Hill End

Geology

Hargraves is a structurally controlled, mesothermal gold system, hosted within the mid-Silurian to mid-Devonian Hill End Trough of the Palaeozoic Lachlan Fold Belt. Local geology comprised a thick sequence of turbidites and volcaniclastics which were subjected to multi-phase deformation and metamorphism, resulting in a series of north-south trending anticlines and synclines.

Gold mineralisation is hosted within quartz saddle reefs, cleavage-parallel veins and steeply west dipping fault zones within the axial region of the locally dominant Big Nugget Hill anticline. Mineralisation association with quartz veining was confirmed; however, multiple phases of quartz occur and not all were mineralised.

Narrow, low-displacement faults, striking parallel to the axis of the anticline and westerly-dipping, are referred to as feeder structures and may represent former conduits for auriferous

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fluids. High gold grades are associated with the intersection of feeder structures with bedding parallel veins. Fault zones are up to 10 m wide in fold hinge zones and may extend along strike for up to 100 m.

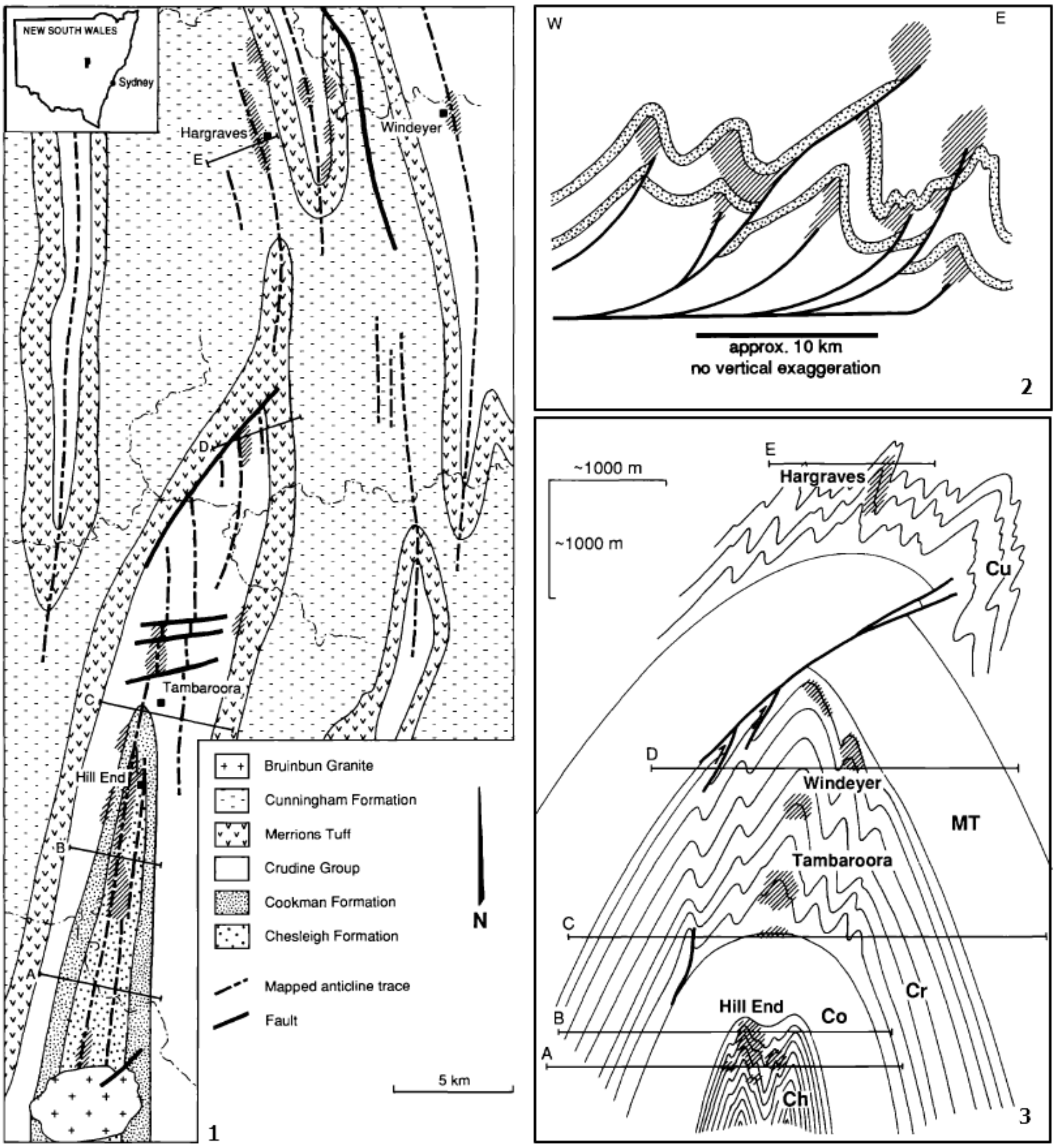

Figure 2 1. Geological map of Hargraves and Hill End region; 2. Blind thrust faulting forming feeder zones; 3. Folding through the Hill End Trough (Windh, 1995)

Project data

The model dataset consists of information gathered from 235 drill holes over 7 exploration programs between 1987 and 2012. Drilling consists of a mixture of reverse circulation and deeper diamond drill core holes. All drill holes were surveyed and logged for lithology and alteration. Additionally, vein types, downhole structural measurements and sample recoveries were recorded from diamond drill core. Drillhole collar locations are shown in Figure 3.

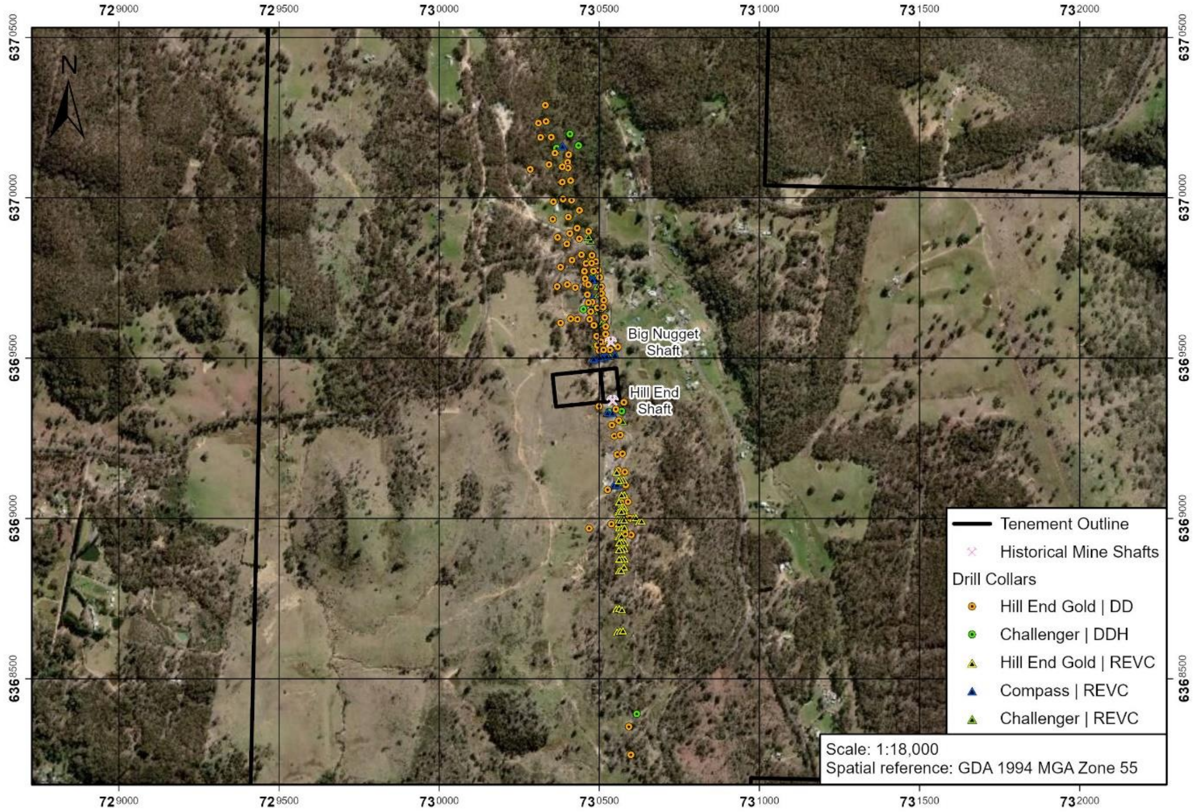

Figure 3. Location plan of modelled drillhole collars

Several sampling strategies were employed according to drilling type and program. Earlier diamond programs selectively sampled only quartz veins, whereas later exploration sampled at regular intervals.

Samples were assayed using nine methods at several laboratories (dominantly SGS). Obtaining representative samples and reliable assayed grades has proven challenging, due to the coarse gold mineralisation style. Fire assay was commonly used to identify gold-bearing samples for follow-up assay. Follow-up assays by screen fire assay or LeachWell were regarded as more reliable estimates of gold content, due to larger sub-sample sizes employed in the analyses. Reliable methods account for approximately half of the modelled assay population and include many higher-grade intercepts.

Field QAQC procedures were active during the HEG drilling programs. Certified Reference Materials and field blanks were included in submitted analytical batches. Sample pulps were also repeat assayed at the laboratory using alternate methods to assess performance. Documented QAQC results were assessed and found to be fit for purpose.

Geological modelling

SRK developed a geological model in Leapfrog Geo software. Following data visualisation, trends were identified and modelled, allowing definition of geological domains and creation of assets to supplement resource estimation. Bedding plane orientations were converted into a structural trend model which was used, in combination with composited assay data, to create a 0.1 g/t Au indicator grade shell aligned to the folded mineralisation geometry. This

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grade shell differentiated mineralisation from barren host rock and served as the main estimation domain (Figure 4).

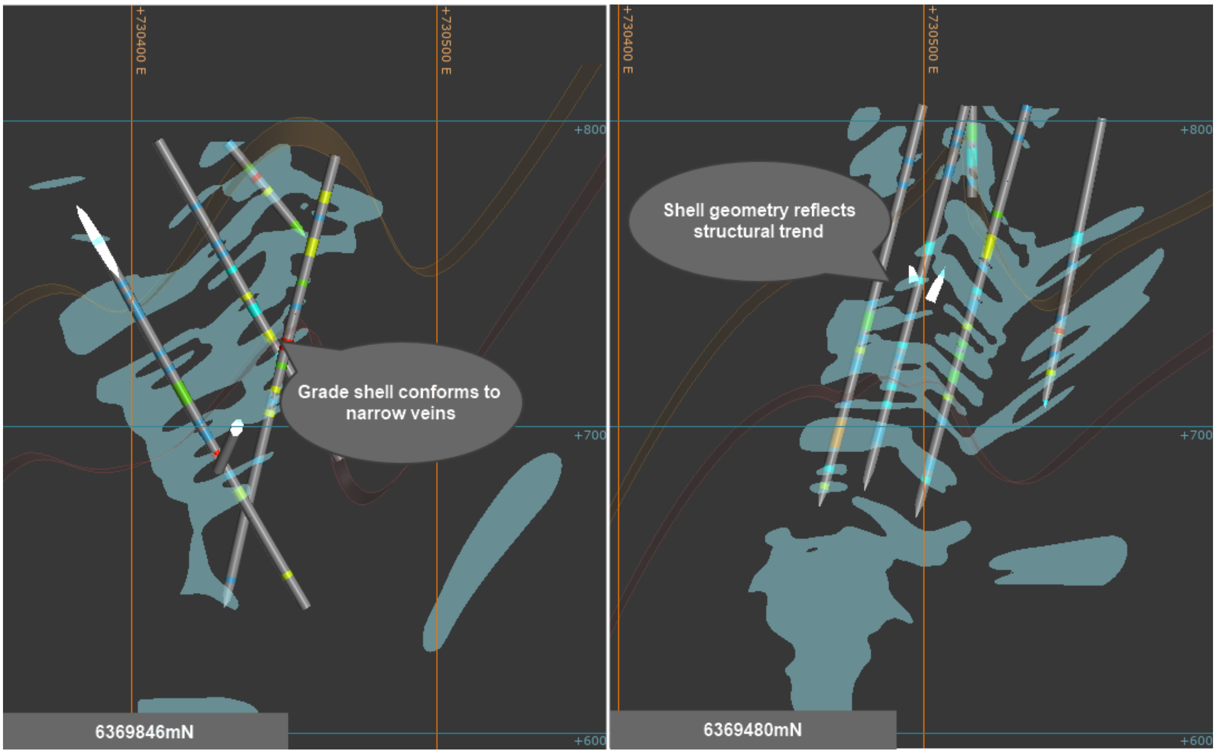

Figure 4: Cross-sections of mineralisation grade shell

Hargraves Mineral Resource estimation

Mineral Resource estimation was conducted in Leapfrog Edge. A block model was created within the estimation domain and grade interpolated and extrapolated using Ordinary Kriging into blocks measuring 3mX x 10mY x 2mZ. A variable orientation search ensured grade geometry conformed to local folding. Influence of extreme grade samples above 30 g/t Au on the modelled grade distribution was limited with a grade threshold, used to limit search distances.

Initial variography produced variograms with easily identifiable structure and ranges consistent with typical gold deposits. Variogram models were fitted and used to inform the grade interpolation.

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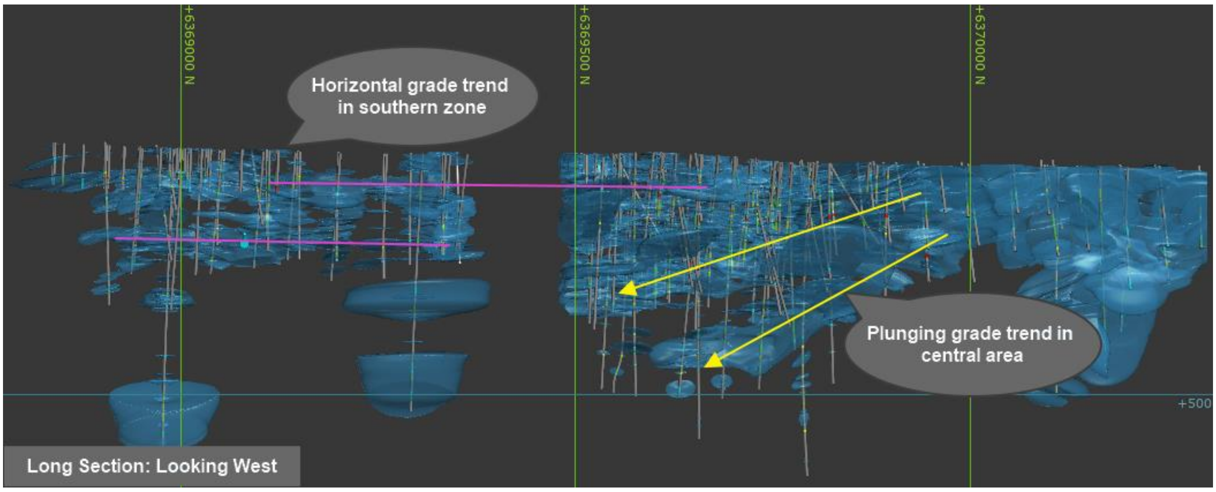

Figure 5: Long-section of mineralised grade shell showing high-grade trend locations and orientations

High-grade trends were identified within the model, suspected to represent intersections of feeder structures and quartz reefs. Mineralisation is focused along these trends and extends out along bedding in reef zones. Intersections appear as stacked high-grade trends, plunging to the south in the central area and sub-horizontal in southern zones (Figure 5).

Mineral Resources were classified according to drill-spacing, quality of local data and QAQC, and estimation parameters, including the number of samples and kriging regression slope. Irregular classification envelopes were manually drawn around the block model in long section defining Inferred and Indicated Mineral Resources. Depletion from historical production was excluded from the model using a distance buffer around surveyed workings.

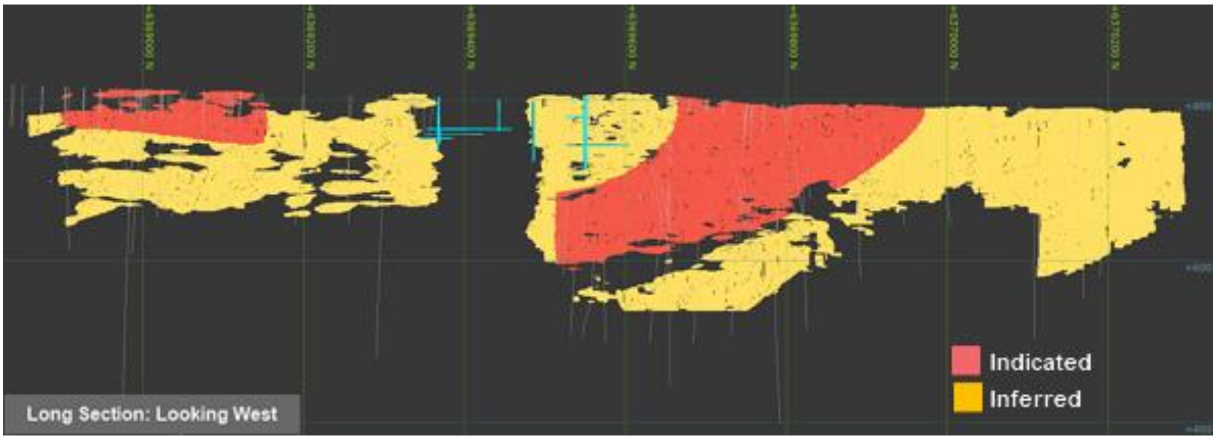

Figure 6: Long-section showing Mineral Resource classification and historical workings (blue)

Visual and statistical validation of the model showed strong reconciliation between block and sample grades (Figure 7), instilling confidence in the modelled grade distribution.

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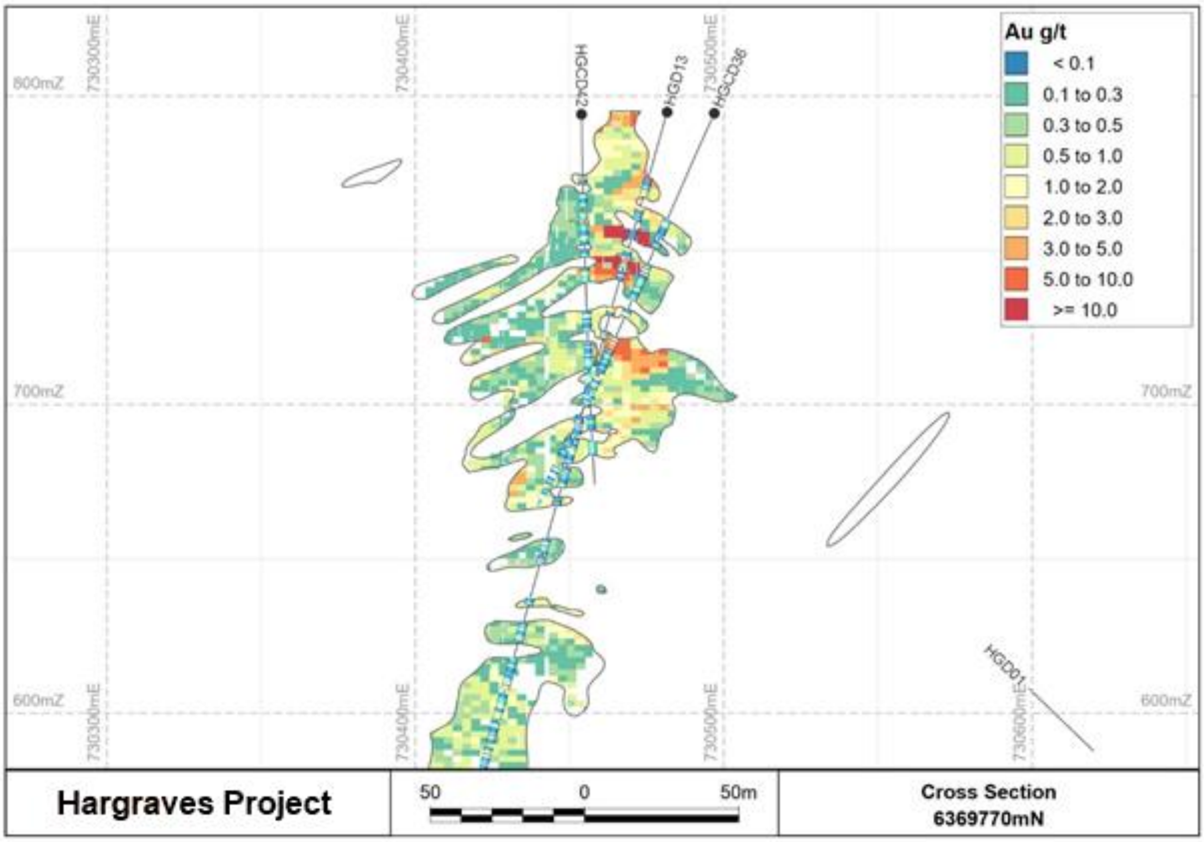

Figure 7: Cross-section through block model (Central Zone)

Bulk density values were calculated from measured samples for weathering zones and used to calculate tonnages.

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Mineral Resources summary

Grade and tonnage curves for total Mineral Resources are shown in Figure 8. Grade trends within the modelled Mineral Resources remain spatially continuous up until a cut-off of 1.5 ppm Au is reached, at which point the model starts to fragment.

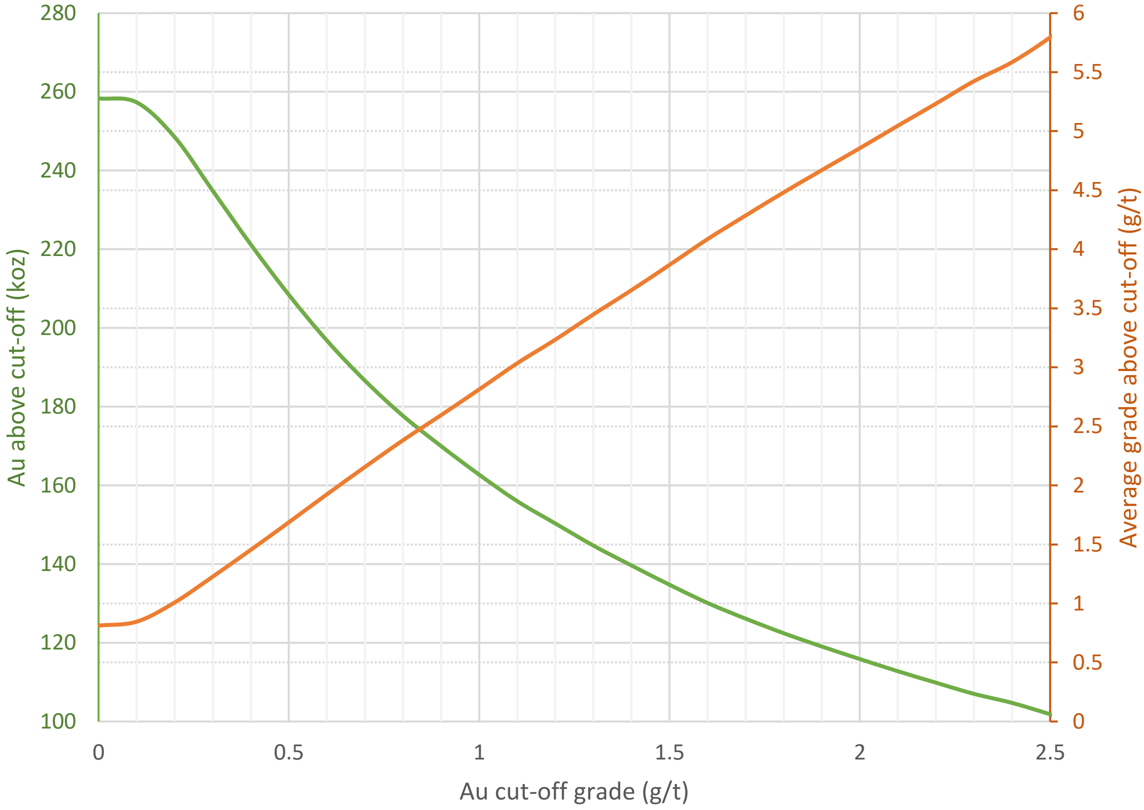

Figure 8: Grade and tonnage curves for total Au Mineral Resources

The defined Mineral Resources represent a decrease in average grade, reported tonnes and contained metal relative to the previously-announced 2013 Mineral Resource estimate. This decrease is primarily attributable to the sensitivity of the model to extreme grade samples and suspected overestimation of grade in previous models.

The latest estimate better addresses the impact of high-grade samples on the block grade distribution with grade thresholding. The use of geostatistically-derived parameters and ordinary kriging has resulted in a modelled grade distribution that closely honours the drill data.

Changes in assigned bulk densities have also impacted tonnages. Previously, bulk densities were assigned a value of 2.7, regardless of weathering state or material, whereas SRK has used densities calculated from measured data. SRK considers this approach is more representative of the modelled material.

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Modifying Factors

Both open-cut and underground potential mining strategies have been proposed historically for Hargraves.

SRK considers an underground mining strategy is more plausible, given the size of the Mineral Resource and environmental issues associated with the proximity of the potential mine site to the Hargraves historical village.

The Mineral Resource has been reported at a cut-off of 0.8 ppm Au. This value reflects the anticipated underground mining method and mineralisation continuity.

Bench-scale test work demonstrated gold is readily gravity-recoverable from Hargraves samples. Exceptionally high recoveries were achieved, indicating recoveries over 90% should be feasible in a simple, low-cost gravity recovery process plant.

There are no deleterious elements associated with Hargraves mineralisation. Visual estimates of the sulphide content of the Hargraves mineralisation range from 0-3% which would be expected to be recovered in gravity concentrates and not report to the waste dump or tails.

Competent Person's statement

The information in this report that relates to Exploration Results and Mineral Resources for the Hargraves project is based on information compiled by Oliver Willetts, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (membership No. 312940).

Oliver Willetts is an employee of SRK Consulting. Neither SRK nor any of the authors of this Report have any material present or contingent interest in the outcome of this Report nor do they have any pecuniary or other interest that could be reasonably regarded as being capable of affecting their independence or that of SRK. SRK has no beneficial interest in the outcome of the technical assessment being capable of affecting its independence. SRK's fee for completing this report is based on its normal professional daily rates plus reimbursement of incidental expenses. The payment of that professional fee is not contingent upon the outcome of the report.

Oliver Willetts 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 Willetts consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The total gold Mineral Resource inventory held by Pure Alumina and referenced in this announcement is the combination of three separate Mineral Resource assessments defined at Hargraves, Red Hill and Hawkins Hill prospects respectively. SRK Consulting assessed the Mineral Resource potential of the Hargraves project only.

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JORC Table 1

Section 1: Sampling Techniques & Data

Sampling Techniques

Nature & quality of sampling

Year	Company	Drill type	Interval	Details
1987	Challenger	RC (114 mm)	1 m (regular)	Cuttings recovered from cyclone (12-25kg sample)
1987-88	Challenger	DD (HQ)	0.1-1 m (selective)	Quartz mineralised intervals identified in geological logging; core ½ split longitudinally
1993-94	Geoservices	RC (1993: 138 mm; 1994: unknown)	1 m (regular)	Unknown
2008-11	Hill End Gold	DD (HQ3)	0.05-0.5 m (selective)	Quartz mineralised intervals identified in geological logging; core ½ split longitudinally; 0.27 m average sample interval;
2008-11	Hill End Gold	DD (HQ3)	1 m (target)	Additional sampling of previously unsampled quartz veined intervals between 2011-13 at regular 1 m intervals
2011	Hill End Gold	RC (108 mm)	1 m (regular)	Cuttings bagged at cyclone; quartz-bearing samples were quarter split by riffle splitter
2011	Hill End Gold	RC (108 mm)	1 m (regular)	In 2012, 451 additional RC samples containing quartz were identified; quarter splits by riffle splitter
2012	Hill End Gold	DD (HQ3)	1 m (target)	Quartz mineralised intervals identified in geological logging; core ½ split longitudinally; 0.8-1.2 m intervals geologically sampled; all quartz sampled

Measures taken to ensure sample representivity

- No specific discussion on sample representivity is recorded for the RC drill program operated by Challenger Mining and Geoservices Pty Ltd. The samples from these programs have been discarded by previous explorers and so are no longer available for inspection.
- Core recoveries and RQD are recorded for the diamond drilling programs operated by Challenger Mining and HEG. Drill core recovery is poor for Challenger mining in the upper 10-20 m of the drill hole (oxide) and good for the remainder for the hole. HEG drilling used triple tube drilling to obtain good recoveries throughout the drill hole.

Recovery/RQD category	Recovery			RQD		
	Count	%Total	Mean	Count	%Total	Mean
Very Poor	107	0.7%	0.10	1020	6.4%	16.97
Poor	203	1.3%	0.44	2158	13.5%	38.82
Fair	246	1.5%	0.65	3343	20.9%	63.78
Good	601	3.8%	0.86	3855	24.1%	86.04
Excellent	14829	92.8%	1.00	3959	24.8%	99.65
Total	**15986**			**14335**		

- HEG RC drill hole samples were weighed and moisture contents recorded to measure the representativity of the samples. Where samples are recorded as significantly overweight (>33 kg) or underweight (<15 kg) or the sample is wet, the interval is considered unrepresentative.

Aspects of the determination of mineralisation that are Material to the Public Report.

- Gold at Hargraves is contained in quartz veins reactivated and re-mineralised by repeated hydraulic fracturing events accompanying deformation and metamorphism. Samples of quartz commonly contain gold, but not all quartz contains gold.
- Numerous samples of altered and sulphide mineralised host rock have been collected and analysed for gold by various methods. None of these samples contain gold > 0.1 ppm. Consequently, following geological logging, only RC and DD core samples containing quartz veining were collected and sent for gold assay.
- RC samples collected over 1 m intervals and logged as containing quartz were collected at the drill rig in plastic bags. Quarter sub-samples were riffle split at the drill site and placed in a separate plastic bag in preparation for transport to the laboratory.
- DD core samples that are logged as containing quartz veins were sub-sampled over geologically determined intervals. The core interval to be sampled was cut longitudinally with a diamond saw and one half of the core was placed in a calico bag in preparation for transport to the laboratory.

Drilling Techniques

Drill type

- Drilling is a combination of diamond core (HQ and HQ3) and RC (114, 138 and 108 mm diameter) techniques.
- HQ (63.5 mm diameter) diamond core was collected by Challenger Mining in 1987-88.
- HQ3 (triple tube) drilling (61.1 mm diameter) was collected from all HEG drill holes.
- Oriented core was collected using a Reflex Act II HQ3 orientation tool in all the drill holes completed by HEG in 2012, over the North BNH drill program.

		DD		RC		Total	
Company	**Year**	**#Holes**	**Meterage**	**#Holes**	**Meterage**	**#Holes**	**Meterage**
Challenger	1987	12	1560.3	34	2310.2	46	3870.5
Geoservices	1993			27	1900	27	1900
Hill End Gold	2008	19	4230.4			19	4230.4
	2009	22	3749.34			22	3749.34
	2010	50	9245.5			50	9245.5
	2011	1	211.2	47	2466	48	2677.2
	2012	23	2720			23	2720
	Total	**115**	**20156.44**	**47**	**2466**	**162**	**22622.44**
Grand Total		**127**	**21716.74**	**108**	**6676.2**	**235**	**28392.94**

Drill sample recovery

Method of recording and assessing core and chip sample recoveries and results assessed.

- Core recoveries and RQD are recorded for the diamond drilling programs operated by Challenger Mining and HEG. Drill core recovery is poor for Challenger mining in the upper 10-20 m of the drill hole (oxide) and good for the remainder of the hole.
- HEG RC drill hole samples were weighed and moisture contents recorded to measure the representivity of the samples. Where samples are recorded as significantly overweight (>33 kg) or underweight (<15 kg) or the sample is wet, the interval is considered unrepresentative.

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Measures taken to maximise sample recovery and ensure representative nature of the samples

- No sample collection information is available to assess recovery and sample representivity of RC drilling for Challenger Mining (1987) and Geoservices Pty Ltd
- All HEG DD core was recovered in HQ3 (triple tube barrels) to maximize core recovery and enable more precise geotechnical assessment.
- Holes have been drilled across the hinge and limbs of the BNH Anticline to obtain representative 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.

- There is no relationship observed between sample recovery and grade in all drilling.
- For RC drilling completed by Challenger Mining (1987) and Geoservices Pty Ltd (1993-94), there is no information recorded on the moisture content of the sample and no mention made of wet samples. The results of the RC drilling have been compared to nearby DD holes to test for bias. The assay results from the RC drilling are comparable to the DD drill assays of nearby holes suggesting there is little bias in the RC drilling.
- For RC drilling completed by HEG, there is no correlation between sample weight and gold grade. Samples that were wet when collected were recorded at the time of drilling and were not sampled due to the likelihood of contamination.
- The large sample size from the RC drilling would theoretically provide for a more accurate sample than the HQ/HQ3 drill core, assuming limited contamination.

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.

- Logged attributes include lithology, weathering (oxidation), mineralisation, alteration, veining, recovery, RQD and structure. Logging is fit for Mineral Resource estimation purposes.

Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc)

- Logging for all programs non-HEG programs is descriptive rather than quantitative and notes on geological observations have been made. No geotechnical logging was possible from RC drill cuttings.
- HEG DD programs (2008 – 2012) – The 2012 DD program collected oriented drill core and core was geotechnically logged and marked up for recovery and RQD. The orientations of geological contacts veins, veins, faults, cleavage and other structures were measured from the oriented core.

  Between 2008 – 2011 the core was not oriented. Instead, structures were measured relative to the orientation of the dominant cleavage, which allowed measurement of other geological and structural features of interest.
- HEG RC program (2011) – 100% of the RC drill cuttings were logged for lithology, mineralisation and alteration (2,488.0 m). No geotechnical logging is possible from RC drill cuttings. Logging is descriptive rather than quantitative. Notes on the geological observations have been made.

The total length and percentage of the relevant intersections logged.

- Challenger Mining (1987) –100% of the RC drill cuttings were logged for lithology, mineralisation and alteration (2,310.2 m).
- Challenger Mining (1987-88) – 100% of the DD core was logged following mark-up for core recovery and RQD (1,560.3 m).
- Compass Resources NL in JV with Geoservices Pty Ltd (1993-94) – 100% of the RC drill cuttings were logged for lithology, mineralisation and alteration (1,900.0 m).

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- HEG DD programs (2008 – 2012) – 100% of the core was logged following mark-up for core recovery and RQD (20,156.44 m).
- HEG RC program (2011) – 100% of the RC drill cuttings were logged for lithology, mineralisation and alteration (2,466.0 m).

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.

- Challenger Mining (1987), CMC-1 – CMC-6 (first 6 RC holes): 1 m interval (12-25 kg) RC chip sample was submitted to AAL in Orange. The entire sample was dried and crushed to 500 microns. 3 kg was split out and ground to 100 microns. Four 50 g sub-samples were then split for fire assay (FA).
- Challenger Mining (1987), CMC-7 – CMC-34: The entire 1 m interval RC sample was sent to at Fox Anamet in Sydney where it was dried and ground to 200 microns. 3 kg of the ground material was then split. 1 kg sub-samples were split for screen fire assay (SFA) using a +80#. Fire assay of both the +80# and -80# (in duplicate) was done and results combined.
- Challenger Mining (1987-88), DD program: Samples of selected intervals of longitudinally cut ½ drill core were submitted to Comlabs Laboratory in Adelaide for SFA using the same procedure as the RC samples above.
- Compass Resources NL in JV with Geoservices Pty Ltd (1993-94) RC drilling program: 1 m interval RC samples which contained a high percentage of quartz or visible gold were subjected to 250 g screen fire assay without prior primary crushing or milling of the sample. RC samples were sieved at -75# for the 1993 drilling and -80# for the 1994 drilling. 1 m interval RC samples where no quartz or visible gold was observed were assayed using 50 g fire assay.
- Compass Resources NL submitted for analysis selected 1 m intervals of previously un-assayed RC drill samples from the 1987-88 (Challenger Mining) RC drill program. Original samples were re-bagged and a 3 kg sub-sample was split off for analysis. Standard fire assay (50 g) was done on 88 samples and screen fire assay was done on 149 samples.
- Compass Resources NL resubmitted 29 pulps from selected intervals of the Challenger DD program to test the original screen fire assay technique used by Challenger Mining. The repeat assays were analysed by fire assay and the original assays were -80# and -200# screen fire assay. The results correlate well although the fire assay results averaged approximately 10% lower than the screen fire assay results.
- Compass Resources also re-submitted 71 Challenger Mining 1 m RC samples for check analysis. A split of the original sample was submitted for standard fire assay (50 g charge). An additional 2 kg split which was then pan concentrated before being analysed by fire assay. Of these repeat samples, 58 have been reported and the other 13 samples contained ‘spurious results’ and so were not reported. There is considerable scatter in the results which correlate poorly, perhaps due to the pan concentration process.
- Compass Resources NL also submitted an additional 163 samples of 1 m RC chips from the Challenger Mining drilling which, when re-logged were found to contain greater than 10% quartz. 2 kg splits were pan concentrated, and concentrates assayed by 50 g fire assay at 2 separate laboratories. Concentrate rejects were not analysed.
- HEG DD programs (2008 – 2011): selected intervals were longitudinally cut into ½ core. Samples were placed in calico bags and sent to SGS Laboratories in Townsville. The entire sample was pulverized to 75 microns and analysed by LeachWell (bottle roll).
- In 2011 – 2013, selected intervals from 2008-2011 drilling that contain quartz veining but were not previously sampled were sampled. Longitudinally cut ½ core sample intervals between 0.8 and 1.2 m length (average 1.0 m) were sent to SGS Laboratories in West Wyalong. The entire sample was pulverized to 75 microns, split from the pulp and analysed by FA (50 g).

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- HEG RC program (2011): 1 m RC samples were quarter split in a riffle splitter and the sub-sample was transported to SGS laboratories in Townsville where the entire sub-sample was pulverized to 75 micron and analysed for gold by LeachWell (bottle roll).
- In 2012 additional samples containing previously unrecognized quartz were quarter split on site. The sub-sample was transported to SGS laboratories in West Wyalong where the entire sub-sample was pulverized to 75 microns. A 50 g fraction of the pulverized sample was then split for analysis by fire assay. For 80 samples that returned higher gold grades, the remaining pulp was sent to SGS laboratories in Townsville for gold analysis by LeachWell (bottle roll). The results correlated well for samples containing > 5 ppm gold and moderately well for samples containing 0.5 – 5.0 ppm gold.
- HEG DD program (2012): Longitudinally cut ½ core samples were sent to SGS in West Wyalong or SGS in Townsville. The entire sample was pulverized to 75 microns and a sub-split sample was analysed for gold by fire assay (50 g).
- Pulverized sample from intervals that contained visible gold, or were suspected to contain high gold grades and/or returned higher gold values from the fire assay were sent to SGS laboratories in Townsville where the entire pulverized sample was analysed for gold by LeachWell (bottle roll).
- 174 samples from SGS in West Wyalong and 30 samples from SGS in Townsville originally analysed by fire assay were check-assayed using the LeachWell (bottle roll) technique. The results correlated moderately well for samples > 5 ppm gold and poorly for samples containing 0.5 – 5.0 ppm gold. On average the LeachWell samples reported 25% lower values than the fire assay. There is no obvious sample technique, or metallurgical reason for the difference in the North BNH drill core samples.

For all sample types, the nature, quality and appropriateness of the sample preparation technique.

- The sample and sub-sample collection, storage, transport and analysis is appropriate for the style of mineralisation at Hargraves.

Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.

- There is little detail from previous explorers to gauge the sampling quality control procedures.
- HEG drill core sample intervals are selected by the geologists that log the core and who have experience in the style of mineralisation being sampled. Cutting of the core, sample numbering and placing the ½ core in the bag was undertaken by experienced field assistants under geological supervision. Sample checking and counting before sample dispatch to the laboratory was done by experienced field assistants. HEG RC samples were logged for moisture content and quarter riffle-split at the drill site before being re-bagged for dispatch to the laboratory.

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.

- Several close-spaced drill holes have been completed in the upper part of the deposit (top 100 m) which provides a measure of the representivity of the sample. Generally, the geology replicates well across close-spaced drill holes, although the gold grades are variable over intervals up to 10 m. Composites greater than 10 m replicate well between drill holes.
- Challenger Mining (1987-88) - duplicate RC samples from drill holes were not possible as the whole sample from 1 m intervals was submitted for assay and pulp rejects were not retrieved. Where Compass Resources NL submitted previously unsampled RC chips from Challenger Mining drilling, a 3 kg sub-sample was split which did allow for duplicate sampling by different assay methods as described above.
- Compass Resources NL (1993-94) – duplicate RC samples were taken from 3 kg riffle splits for analysis by different methods as described above. No other information is available on duplicate sampling.
- Selected HEG RC sample quarter split duplicates were submitted for assay by different assay techniques (FA and LeachWell bottle roll).

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- HEG duplicate split diamond core pulps in the laboratory for assay by different assay techniques (FA and LeachWell bottle roll). No second ½ core sample duplicates have been taken for analysis by duplicate techniques as this would not increase 50 g FA or LeachWell assay interval precision. Second ½ core composites have been selected for metallurgical testing which provides a composite measure of gold content which compares well to original assay gold content over the same composite interval.

Whether sample sizes are appropriate to the grain size of the material being sampled.

- Sample sizes are appropriate for the style of mineralisation at Hargraves. Hargraves mineralisation contains coarse gold. Where high-grade gold is found by FA, or coarse visible gold is observed, assay procedures are modified to incorporate larger sub-samples, longer digests and optimal assay techniques.

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.

- Challenger Mining (1987), CMC-1 – CMC-6 (first 6 RC holes): Duplicate 50 g FA for samples from the first 6 RC drill holes using the procedure described above correlated poorly and so the sampling technique was reviewed for subsequent holes. The small (partial) sub-sample size (50 grams) for a FA of the higher-grade Hargraves material will result in loss of precision for these samples.
- Compass Resources NL in JV with Geoservices Pty Ltd (1993-94) RC drilling program. Sub-sample and analysis by SFA improved precision. SFA results did not necessarily correlate well with visible gold observed in the sample suggesting sub-sampling (partial sample) may have been a problem in these samples.
- 6 samples from 1994 RC drilling that were analysed by screen fire assay (SFA) were submitted for -200# SFA and by cyanide leach (approximately 6 kg). results were within expected error; however, definitive comparison of assay methods cannot be determined from 6 samples.
- 6 samples from the 1993 drilling were submitted for cyanide leach assay. The results correlated well with the original -75# SFA; however, definitive comparison of assay methods cannot be determined from 6 samples.
- A further 6 samples from the 1993 RC drilling were submitted for analysis by SFA (-200#). The SFA returned consistently lower assays that the original fire assay; however, definitive comparison of assay methods cannot be determined from 6 samples.
- HEG RC and DD samples used FA and LeachWell (bottle roll) methods. LeachWell of RC samples analysed a pulverised quarter-split of the original sample which provided high precision analysis. For FA of RC samples, the entire quarter-split was pulverised, removed from the grinding equipment and split in the laboratory to provide a 50 gram sub-sample. Where gold was detected, a follow-up LeachWell gold analysis of the remaining pulp was performed for a high precision analysis. For FA of diamond core the entire sample was pulverised and split to a 50 gram sub-sample. Gold detection triggered a follow-up LeachWell gold analysis of the remaining pulp.

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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.

- Challenger Mining (1987) RC program. No reports of standards, blanks or laboratory checks.
- Challenger Mining (1987-88) DD program. No reports of standards, blanks or laboratory checks.
- Geoservices Pty Ltd (1993-94) RC program. No reports of standards, blanks or laboratory checks
- HEG (2008 – 2012) DD programs and HEG (2012) RC program. Approximately 1 standard reference sample (standard) and 1 blank were inserted for every 20 samples submitted to the laboratory for analysis.
- The standards were commercially prepared pulp samples with gold grades chosen to reflect the expected grade range of the samples being tested.
- Blank samples used were approximately 2 kilograms of either quartz vein material from Prince Alfred Hill near Hill End which contains no gold or diorite gravel from a Bathurst quarry which contains no gold.
- HEG Samples were prepared and analysed at SGS Laboratories in Townsville (LeachWell gold, multielement by ICPMS) and/or SGS Laboratories in West Wyalong (FA gold).
- Documented procedures for the preparation and analysis of samples were prepared and sent to the laboratory managers before the laboratories were used.
- Laboratory visits to inspect equipment and procedures and reinforce documented laboratory procedures were made to both laboratories by HEG exploration management and found to be satisfactory.
- Laboratory internal standards, analytical duplicates and second split duplicates were reported from both laboratories and checked by HEG geologists.
- Batch standards and blanks were checked on receipt of final assay results. Where standards and blanks failed to return expected values within acceptable error limits the entire batch was resubmitted to re-assay.

Verification of sampling and assaying

The verification of significant intersections by either independent or alternative company personnel.

- Laboratory assay results were received by several people within HEG including the Managing Director, Exploration Manager, project geologists and senior field supervisor. Final assay results were digitally entered into the drill hole database by the Project Geologist and validated. Any significant intersections were checked by the Exploration Manager before public reporting.

The use of twinned holes

- Several close-spaced drill hole pairs (two holes within 10 m and some as close as 5 m) are present at Hargraves. Where these holes are present, the geology, alteration, structure and veining duplicate accurately. Individual interval assay values may vary over several metres but compare well over longer intervals.

Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.

- Assay data was received in preliminary and final form via e-mail in PDF and CSV format from the laboratory. Final assays that pass QAQC procedures are loaded digitally into the drill database and checked. PDF and CSV files are backed up on the HEG server and the database is also included in a daily back up.

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Discuss any adjustment to assay data.

- No adjustments were made to assay data.
- Assay method FAG35V was found to report exceptionally and consistently high assayed grades. This method was removed from the resource estimation following a detailed review. This gravimetric assay method appears poorly suited to low-grade samples.

Location of data points

Accuracy and quality of surveys used to locate drill holes (collar and downhole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.

Year	Company	Drill type	Collar survey	Downhole survey
1987	Challenger	RC (114 mm)	Measured from established 25 m grid and converted to MGA zone 55	Collar survey (at 0 m) using compass. No downhole surveys
1987-88	Challenger	DD (HQ)	Measured from established 25 m grid and converted to MGA zone 55	Eastman downhole surveys completed, but no data not recorded
1993-94	Geoservices	RC (1993; 138 mm, 1994; unknown)	Measured from established 25 m grid and converted to MGA zone 55	Single survey taken using downhole tool, depths unknown but probably near collar.
2008-10	Hill End Gold	DD (HQ3)	Differential GPS	Reflex digital downhole survey. Typically surveyed at 30-50 m intervals downhole
2010-11	Hill End Gold	DD (HQ3)	Total Station Survey	Reflex digital downhole survey. Typically surveyed at 30-50 m intervals downhole
2011	Hill End Gold	RC (108 mm)	Differential GPS	Collar survey only, no downhole survey
2012	Hill End Gold	DD (HQ3)	Differential GPS	Downhole surveys taken at 30 m intervals and end of hole using electronic, single-shot survey tool

- DGPS can be precise to 0.1 m and total field equipment is precise to 0.01 m.
- Downhole surveys were shot every 30-50 m and at the end of the hole using single-shot digital survey tools for DD holes.
- RC holes were not surveyed downhole. Surveys were taken from drill rig setup are assumed to be straight.

Specification of the grid system used.

- Prior to HEG, a local grid (50 m × 25 m) was employed on site. This was later converted to GDA94, MGA (zone 55).
- HEG drill collars are surveyed using either DGPS or total field equipment in GDA94 MGA (zone 55).

Quality and adequacy of topographic control.

- A LiDAR survey of the Hargraves area provides topographic control for pre-HEG drill collars.
- HEG drill collars are surveyed using DGPS or total field equipment and elevations validated against the LiDAR survey.

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Data spacing and distribution

Data spacing for reporting of Exploration Results.

- Drill spacing averages 25 m spacing to depths of 150 m in central and southern regions of the deposit.
- Below 150 m, drill spacing averages 50 m.
- The northern region of the deposit averages 50 m drill spacing.

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.

- Drill hole spacing, orientation and directions of drilling are adequate to provide a high-quality geological interpretation.
- The 25 m drill spacing and sampling is of sufficient quality to obtain a good control on the quantity and gold grade of the mineralisation. When combined with the geological control, these areas may be considered part of an Indicated resource but are unlikely to contain sufficient information to warrant a Measured resource classification.
- The 50 m drill spacing and sampling is of sufficient quality to obtain some control on the quantity and gold grade of the mineralisation. When combined with the geological control, these areas may be considered part of an Inferred resource but are unlikely to contain sufficient information to warrant an Indicated resource classification.

Whether sample compositing has been applied.

- Samples were not composited.

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.

- Gold mineralisation at Hargraves occurs as:
    1. Bedding-parallel veins folded around a tight anticline with a wavelength of 130-150 m and an amplitude of 130-150 m. The veins are clustered around the centre of the Big Nugget Hill Anticline in a zone that is 20 – 40 m wide at surface.
    2. Faults which are parallel to the axial plane of the anticline and concentrated around the hinge.
    3. Folded veins which have a spread of orientations with an average orientation of 21 degrees to the south-east.
- Drilling targets bedding-parallel reefs and faults clustered around the axial plane of the north-south striking Big Nugget Hill anticline. Drill holes either plunge steeply (65-80°) towards the west and are collared near to the axial plane, or they plunge moderately to the east (55-70°) and rake the axial plane. No single drill orientation provides an entirely unbiased sample orientation in the folded mineralisation.
- On most sections, the core of the anticline is mostly densely drilled because drilling from both orientations converges. Coverage in the fold limbs typically decreases away from the axial plane.
- The drill pattern is adequate to establish a geological model with a concentration of drilling at the axial plane of the anticline which may introduce a sampling bias towards the centre of the deposit where drill holes are only west plunging and not also east plunging.

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Sample security

The measures taken to ensure sample security.

- No information is available on sample security from exploration before HEG. RC samples collected by previous explorers were previously discarded. Drill core from exploration before HEG is stored at Hill End Exhibition Flat in metal trays which are stacked and covered to prevent weathering.
- Drill core from HEG drill holes was taken from the drill site to the core preparation area daily. After processing, photographing, logging and sampling the core was stacked on palates and covered to prevent weathering. Hargraves drill core was stored at the Hargraves core preparation facility. Sampled ½ core was placed in calico bags which were checked and placed into Bulka bags for dispatch to the laboratory.
- RC samples from HEG drill holes were logged and processed at the drill site. Drill intervals that were not sampled were stored on-site until final analysis of the drill program. Quarter splits of the sampled intervals were packaged into plastic bags, checked and collected in Bulka bags for transport to the laboratory. The remaining quarter splits of the sampled intervals were stored in plastic bags on palates in a storage shed at Hill End for future use. Unsampled intervals from the RC drill program were discarded.
- Samples for dispatch to the SGS Laboratory in West Wyalong were driven directly to the Laboratory by HEG personnel from Hill End and submitted upon arrival. Pulps and rejects previously prepared by the laboratory were loaded and returned directly to a Hill End storage shed.
- Samples for dispatch to the SGS Laboratory in Townsville were driven to a Bathurst courier contractor by HEG personnel from Hill End and submitted to the contractor. Pulps and rejects from SGS Townsville were returned to Hill End for storage by courier and were picked up in Bathurst by HEG personnel. Online courier tracking of the consignments was available. When a consignment arrived at the laboratory, samples were checked and counted by the Laboratory and advice of submission sent by e-mail to HEG.

Audits or reviews

The results of any audits or reviews of sampling techniques and data.

- Audits and reviews of both the SGS laboratories (West Wyalong and Townsville) were undertaken by HEG personnel at various times, often before a significant sampling program. Particular emphasis was placed on the sample receipt, preparation and storage procedures.
- HEG has provided written sample preparation and assay procedures for FA at SGS West Wyalong and for FA and LeachWell assay at SGS Townsville which have been adhered to for all HEG samples. Facilities and procedures at both the SGS laboratories were found to be good at the times of the HEG visits.

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Section 2: Reporting of Exploration Results

Mineral tenement and land tenure status

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.

- Exploration Licence (EL) 6996 (1992) is 100% operated by Pure Alumina Ltd. The resource is contained entirely within EL 6996.
- M(C)L 309 covers an area of 1.5 ha to a depth of 6 m below surface immediately south of Big Nugget Hill. This Licence is not held by HEG and so the area is excised from EL 6996.
- M(C)L 310 covers an area of 0.5 ha to a depth of 150 m below surface immediately south of Big Nugget Hill and adjoining M(C)L 309. This Licence is not held by HEG and so the area is excised from EL 6996.
- There are no joint ventures, partnerships, overriding royalties, native title interests, significant historical sites, wilderness, national parks or environmentally sensitive areas over EL 6996.

The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.

- Pure Alumina expects to be able to renew EL 6996 for a further two years from 21 December 2019 and have applied to renew to the NSW Department of Trade and Investment, Resources & Energy.
- Relinquishment of approximately 50% of the tenement was accepted in May 2020. The reduction in area will not include the area covering the resource at Hargraves.
- There are no known impediments to obtaining a licence to operate in the area.

Exploration done by other parties

Acknowledgement and appraisal of exploration by other parties.

- The relevant exploration completed by previous Licence holders is documented in Section 1 (Sampling Techniques and Data) and the preceding Supporting Information.

Geology

Deposit type, geological setting and style of mineralisation.

- Details of the deposit style at Hargraves and the geological setting are provided in the introduction preceding Table 1 (Sampling Techniques and Data).

Drill hole Information

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:

- easting and northing of the drill hole collar
- elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar
- dip and azimuth of the hole
- downhole length and interception depth
- hole length.

- A summary of the drill hole information used in the resource estimate is provided in the introduction preceding Table 1 (Sampling Techniques and Data).
- No new drill hole intercepts are presented with the Hargraves resource estimate.
- Significant drill hole intercepts have been published previously in public documents.
- No new drill hole intercepts are presented with the Hargraves resource estimate.

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Hole_id	East	North	RL	EOH	Drill_company	Drill_type
CMC H-01	730464.0	6369701.1	797.60	55.0	Challenger	REVC
CMC H-02	730482.4	6369651.2	805.21	70.0	Challenger	REVC
CMC H-03	730518.9	6369557.1	804.93	41.0	Challenger	REVC
CMC H-04	730511.0	6369554.5	805.03	84.0	Challenger	REVC
CMC H-05	730519.6	6369557.1	804.22	93.3	Challenger	REVC
CMC H-06	730512.3	6369611.6	806.06	95.0	Challenger	REVC
CMC H-07	730508.9	6369658.1	802.85	95.7	Challenger	REVC
CMC H-08	730518.4	6369609.3	803.44	84.7	Challenger	REVC
CMC H-09	730530.8	6369511.0	803.80	69.0	Challenger	REVC
CMC H-10	730572.9	6369306.3	804.91	101.0	Challenger	REVC
CMC H-11	730530.0	6369331.6	806.12	56.0	Challenger	REVC
CMC H-12	730501.8	6369703.1	800.65	88.0	Challenger	REVC
CMC H-13	730500.6	6369758.6	794.09	97.0	Challenger	REVC
CMC H-14	730511.2	6369660.8	803.39	98.0	Challenger	REVC
CMC H-15	730500.5	6369659.4	803.83	35.5	Challenger	REVC
CMC H-16	730498.9	6369658.9	803.98	90.0	Challenger	REVC
CMC H-17	730507.3	6369610.0	806.25	89.0	Challenger	REVC
CMC H-18	730516.6	6369610.5	805.40	97.0	Challenger	REVC
CMC H-19	730520.4	6369555.5	804.01	90.0	Challenger	REVC
CMC H-20	730497.9	6369702.3	801.34	76.0	Challenger	REVC
CMC H-21	730506.1	6369703.9	800.20	82.0	Challenger	REVC
CMC H-22	730494.8	6369757.2	794.27	90.0	Challenger	REVC
CMC H-23	730473.3	6369870.7	790.59	36.0	Challenger	REVC
CMC H-24	730466.0	6369881.4	790.69	50.0	Challenger	REVC
CMC H-25	730495.7	6369727.9	798.99	74.0	Challenger	REVC
CMC H-26	730483.5	6369756.0	794.23	61.0	Challenger	REVC
CMC H-27	730488.8	6369805.3	793.88	40.0	Challenger	REVC
CMC H-28	730464.3	6369805.0	793.46	60.0	Challenger	REVC
CMC H-29	730493.6	6369659.5	804.12	74.0	Challenger	REVC
CMC H-30	730515.4	6369529.2	805.19	30.0	Challenger	REVC
CMC H-31	730497.8	6369560.9	806.01	30.0	Challenger	REVC
CMC H-32	730487.1	6369547.8	804.66	34.0	Challenger	REVC
CMC H-33	730495.4	6369547.7	805.48	41.0	Challenger	REVC
CMC H-34	730492.4	6369547.7	805.18	3.0	Challenger	REVC
CMH-DDH 1	730482.3	6369760.5	794.52	150.0	Challenger	DD
CMH-DDH 12	730450.5	6369652.4	799.35	95.5	Challenger	DD
CMH-DDH 13	730529.8	6369331.6	806.09	130.0	Challenger	DD
CMH-DDH 14	730617.0	6368390.0	840.66	83.6	Challenger	DD
CMH-DDH 15	730408.7	6370198.9	788.60	220.0	Challenger	DD
CMH-DDH 2	730480.9	6369656.9	804.90	150.7	Challenger	DD
CMH-DDH 3	730495.9	6369656.6	801.87	151.1	Challenger	DD
CMH-DDH 4	730570.3	6369334.6	803.83	133.7	Challenger	DD

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CMH-DDH 5	730567.4	6369112.1	809.33	47.7	Challenger	DD
CMH-DDH 6	730567.7	6369112.2	809.29	127.0	Challenger	DD
CMH-DDH 8	730367.0	6370154.9	786.70	17.0	Challenger	DD
CMH-DDH 9	730435.3	6370163.0	785.35	254.0	Challenger	DD
CRC-1	730384.9	6370164.8	788.58	40.0	Compass	REVC
CRC-10	730484.9	6369747.8	795.25	68.0	Compass	REVC
CRC-11	730490.9	6369746.7	795.33	60.0	Compass	REVC
CRC-12	730523.8	6369509.7	804.31	72.0	Compass	REVC
CRC-13	730504.5	6369553.3	804.32	66.0	Compass	REVC
CRC-14	730493.9	6369553.5	805.70	66.0	Compass	REVC
CRC-15	730499.5	6369550.9	804.13	48.0	Compass	REVC
CRC-16	730506.4	6369506.8	805.65	48.0	Compass	REVC
CRC-17	730511.3	6369507.6	805.29	42.0	Compass	REVC
CRC-18	730501.6	6369505.8	806.10	54.0	Compass	REVC
CRC-19	730548.9	6369513.6	802.71	36.0	Compass	REVC
CRC-1A	730384.9	6370164.0	788.46	129.0	Compass	REVC
CRC-2	730474.1	6369748.0	794.40	100.0	Compass	REVC
CRC-20	730491.4	6369607.0	806.61	48.0	Compass	REVC
CRC-21	730485.3	6369605.5	803.86	48.0	Compass	REVC
CRC-22	730471.3	6369700.8	799.94	48.0	Compass	REVC
CRC-23	730464.0	6369699.7	798.63	48.0	Compass	REVC
CRC-24	730474.8	6369654.1	801.19	54.0	Compass	REVC
CRC-25	730482.7	6369500.5	805.45	60.0	Compass	REVC
CRC-26	730482.0	6369607.6	805.63	48.0	Compass	REVC
CRC-3	730463.3	6369750.1	795.80	100.0	Compass	REVC
CRC-4	730526.0	6369332.7	806.57	125.0	Compass	REVC
CRC-5	730541.0	6369331.9	806.08	130.0	Compass	REVC
CRC-6	730545.4	6369107.2	810.64	106.0	Compass	REVC
CRC-7	730555.3	6369108.3	810.17	106.0	Compass	REVC
CRC-8	730454.1	6369752.1	795.29	90.0	Compass	REVC
CRC-9	730478.5	6369747.2	794.31	60.0	Compass	REVC
HGAD01	730599.8	6368263.1	841.54	204.0	Hill End Gold	DD
HGAD02	730598.9	6368262.6	839.89	164.8	Hill End Gold	DD
HGAD05	730593.3	6368350.4	836.30	131.1	Hill End Gold	DD
HGAD06	730592.5	6368350.3	835.92	36.5	Hill End Gold	DD
HGCD01	730513.5	6369658.7	803.67	225.0	Hill End Gold	DD
HGCD02	730533.6	6369525.8	805.22	221.8	Hill End Gold	DD
HGCD03	730499.4	6369524.0	805.31	182.9	Hill End Gold	DD
HGCD04	730494.1	6369540.1	804.87	200.7	Hill End Gold	DD
HGCD05	730513.3	6369525.8	804.98	201.0	Hill End Gold	DD
HGCD06	730491.8	6369568.4	804.85	181.5	Hill End Gold	DD
HGCD07	730524.0	6369555.8	806.32	207.0	Hill End Gold	DD

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HGCD08	730492.0	6369568.5	804.84	180.2	Hill End Gold	DD
HGCD09	730484.5	6369602.8	805.20	186.1	Hill End Gold	DD
HGCD10	730520.5	6369575.4	807.14	321.2	Hill End Gold	DD
HGCD11	730484.2	6369602.9	805.12	198.4	Hill End Gold	DD
HGCD12	730477.3	6369675.1	801.77	194.7	Hill End Gold	DD
HGCD13	730473.7	6369645.1	803.55	177.1	Hill End Gold	DD
HGCD14	730466.3	6369673.2	800.79	171.2	Hill End Gold	DD
HGCD15	730457.9	6369733.2	795.93	210.2	Hill End Gold	DD
HGCD16	730483.8	6369602.4	805.19	204.1	Hill End Gold	DD
HGCD17	730469.1	6369621.1	802.60	180.1	Hill End Gold	DD
HGCD18	730456.1	6369747.7	795.29	210.2	Hill End Gold	DD
HGCD19	730519.6	6369575.6	807.18	183.2	Hill End Gold	DD
HGCD20	730506.5	6369722.5	798.35	150.0	Hill End Gold	DD
HGCD21	730470.1	6369621.2	802.50	186.2	Hill End Gold	DD
HGCD22	730506.1	6369722.4	798.36	161.9	Hill End Gold	DD
HGCD23	730514.8	6369680.7	802.22	168.0	Hill End Gold	DD
HGCD24	730466.1	6369729.1	796.68	92.8	Hill End Gold	DD
HGCD25	730462.8	6369697.8	798.07	144.2	Hill End Gold	DD
HGCD26	730514.4	6369680.6	802.13	104.8	Hill End Gold	DD
HGCD27	730500.9	6369751.9	795.60	170.8	Hill End Gold	DD
HGCD28	730512.2	6369658.9	803.63	327.2	Hill End Gold	DD
HGCD29	730501.4	6369752.0	795.65	309.2	Hill End Gold	DD
HGCD30	730518.0	6369627.0	805.00	199.0	Hill End Gold	DD
HGCD31	730460.9	6369794.4	793.84	180.1	Hill End Gold	DD
HGCD32	730490.4	6369801.0	793.62	209.3	Hill End Gold	DD
HGCD33	730517.1	6369626.8	805.01	49.7	Hill End Gold	DD
HGCD34	730519.4	6369598.2	807.25	111.0	Hill End Gold	DD
HGCD35	730520.1	6369598.5	807.26	165.2	Hill End Gold	DD
HGCD36	730497.1	6369774.1	794.37	179.7	Hill End Gold	DD
HGCD37	730506.1	6369701.5	800.95	99.0	Hill End Gold	DD
HGCD38	730506.5	6369701.5	800.98	330.2	Hill End Gold	DD
HGCD39	730444.3	6369822.8	792.86	120.0	Hill End Gold	DD
HGCD40	730479.1	6369820.8	793.11	288.3	Hill End Gold	DD
HGCD41	730477.4	6369820.7	793.09	135.4	Hill End Gold	DD
HGCD42	730454.0	6369770.8	794.03	120.2	Hill End Gold	DD
HGCD43	730511.4	6369549.6	805.47	150.1	Hill End Gold	DD
HGCD44	730558.0	6369535.0	801.00	222.3	Hill End Gold	DD
HGCD45	730520.0	6369575.0	807.00	329.0	Hill End Gold	DD
HGD01	730425.4	6369720.2	795.83	290.0	Hill End Gold	DD
HGD02	730400.1	6369729.5	796.83	181.2	Hill End Gold	DD
HGD03	730370.5	6369723.5	797.33	209.0	Hill End Gold	DD
HGD04	730431.8	6369621.0	799.19	221.0	Hill End Gold	DD

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HGD05	730411.0	6369622.6	799.55	242.0	Hill End Gold	DD
HGD06	730379.0	6369609.8	801.43	179.0	Hill End Gold	DD
HGD07	730368.5	6369723.3	797.42	234.0	Hill End Gold	DD
HGD08	730414.9	6369805.7	794.62	197.6	Hill End Gold	DD
HGD09	730381.1	6369785.4	797.00	224.3	Hill End Gold	DD
HGD10	730378.9	6369783.5	797.06	161.1	Hill End Gold	DD
HGD11	730458.5	6369795.2	794.15	59.3	Hill End Gold	DD
HGD12	730476.1	6369796.6	793.99	409.7	Hill End Gold	DD
HGD13	730481.8	6369771.5	794.72	246.2	Hill End Gold	DD
HGD14	730494.6	6369657.1	802.57	372.5	Hill End Gold	DD
HGD15	730505.5	6369551.2	805.95	309.9	Hill End Gold	DD
HGD16	730343.1	6370103.7	795.77	110.7	Hill End Gold	DD
HGD17	730431.0	6369905.3	793.14	80.0	Hill End Gold	DD
HGD18	730466.6	6369895.3	788.73	215.8	Hill End Gold	DD
HGD19	730401.3	6370111.0	789.25	287.1	Hill End Gold	DD
HGD20	730499.2	6369349.4	807.00	141.8	Hill End Gold	DD
HGD21	730577.1	6369362.2	804.27	143.9	Hill End Gold	DD
HGD22	730551.8	6369340.6	803.30	135.1	Hill End Gold	DD
HGD23	730539.4	6369291.0	806.23	141.1	Hill End Gold	DD
HGD24	730560.9	6369305.4	803.18	336.1	Hill End Gold	DD
HGD25	730546.9	6369257.0	805.69	159.1	Hill End Gold	DD
HGD26	730565.8	6369260.5	805.32	141.1	Hill End Gold	DD
HGD27	730556.1	6369199.4	807.44	138.9	Hill End Gold	DD
HGD28	730572.2	6369201.7	805.92	171.0	Hill End Gold	DD
HGD29	730558.9	6369150.5	807.31	135.0	Hill End Gold	DD
HGD30	730580.0	6369144.8	806.50	143.9	Hill End Gold	DD
HGD31	730526.3	6369089.4	809.33	116.9	Hill End Gold	DD
HGD32	730582.5	6369104.3	807.72	156.0	Hill End Gold	DD
HGD33	730570.1	6369048.4	809.56	121.0	Hill End Gold	DD
HGD34	730589.9	6369051.9	808.27	168.0	Hill End Gold	DD
HGD35	730576.5	6368990.6	810.36	429.0	Hill End Gold	DD
HGD36	730595.7	6369001.7	810.59	210.0	Hill End Gold	DD
HGD37	730573.5	6368993.8	811.30	159.0	Hill End Gold	DD
HGD38	730537.9	6368982.3	810.31	95.5	Hill End Gold	DD
HGD39	730468.4	6368968.8	816.02	185.6	Hill End Gold	DD
HGD40	730599.8	6368948.4	813.03	171.8	Hill End Gold	DD
HGD41	730581.6	6368951.2	812.18	155.4	Hill End Gold	DD
HGD42	730575.3	6369026.1	811.44	163.0	Hill End Gold	DD
HGD43	730578.1	6368903.8	819.72	211.2	Hill End Gold	DD
HGD46	730438.1	6369961.1	789.78	69.7	Hill End Gold	DD
HGD47	730413.6	6369992.6	789.99	69.3	Hill End Gold	DD
HGD48	730387.0	6369996.4	791.52	120.4	Hill End Gold	DD

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HGD49	730410.7	6370053.7	790.68	69.8	Hill End Gold	DD
HGD50	730381.6	6370048.8	790.26	111.9	Hill End Gold	DD
HGD51	730402.5	6370093.0	790.52	72.6	Hill End Gold	DD
HGD52	730384.6	6370096.9	790.23	126.2	Hill End Gold	DD
HGD53	730404.5	6370134.7	789.39	69.7	Hill End Gold	DD
HGD54	730350.3	6370189.3	789.21	120.7	Hill End Gold	DD
HGD55	730333.9	6370238.4	789.56	120.6	Hill End Gold	DD
HGD57	730284.6	6370089.0	797.06	71.7	Hill End Gold	DD
HGD58	730403.2	6369940.1	792.27	126.2	Hill End Gold	DD
HGD59	730361.6	6370139.6	789.80	126.7	Hill End Gold	DD
HGD60	730408.3	6369889.1	793.83	120.7	Hill End Gold	DD
HGD61	730354.7	6369933.2	795.08	177.6	Hill End Gold	DD
HGD62	730356.9	6369987.9	793.22	174.0	Hill End Gold	DD
HGD63	730369.9	6369876.7	794.69	177.7	Hill End Gold	DD
HGD64	730398.8	6369856.3	794.21	129.7	Hill End Gold	DD
HGD65	730437.8	6369872.3	793.89	68.2	Hill End Gold	DD
HGD67	730331.6	6370289.0	789.76	120.7	Hill End Gold	DD
HGD68	730310.0	6370233.0	791.45	171.7	Hill End Gold	DD
HGD69	730316.9	6370188.5	791.00	183.6	Hill End Gold	DD
HGD71	730384.6	6370049.2	790.61	120.6	Hill End Gold	DD
HGRC001	730561.7	6369032.1	811.80	55.0	Hill End Gold	REVC
HGRC002	730569.4	6369034.6	811.40	55.0	Hill End Gold	REVC
HGRC003	730578.0	6369037.9	811.10	55.0	Hill End Gold	REVC
HGRC004	730562.0	6368975.0	813.10	56.0	Hill End Gold	REVC
HGRC005	730570.0	6368975.0	813.10	55.0	Hill End Gold	REVC
HGRC006	730558.1	6369022.7	812.25	55.0	Hill End Gold	REVC
HGRC007	730578.0	6369012.5	812.00	56.0	Hill End Gold	REVC
HGRC008	730554.7	6369147.9	809.50	62.0	Hill End Gold	REVC
HGRC009	730575.5	6369123.3	809.00	55.0	Hill End Gold	REVC
HGRC010	730568.0	6369122.2	809.20	55.0	Hill End Gold	REVC
HGRC011	730560.8	6369121.1	809.60	55.0	Hill End Gold	REVC
HGRC012	730577.9	6369077.4	810.50	55.0	Hill End Gold	REVC
HGRC013	730569.8	6369076.4	810.60	55.0	Hill End Gold	REVC
HGRC014	730561.6	6369054.7	810.90	55.0	Hill End Gold	REVC
HGRC015	730577.3	6369026.5	811.40	55.0	Hill End Gold	REVC
HGRC016	730561.9	6369009.2	813.10	56.0	Hill End Gold	REVC
HGRC017	730561.5	6368998.6	812.90	55.0	Hill End Gold	REVC
HGRC018	730561.2	6368986.3	813.10	55.0	Hill End Gold	REVC
HGRC019	730578.5	6368974.6	813.00	55.0	Hill End Gold	REVC
HGRC020	730561.4	6368946.9	813.70	55.0	Hill End Gold	REVC
HGRC021	730569.6	6368948.6	814.10	55.0	Hill End Gold	REVC
HGRC022A	730579.2	6368928.2	814.80	55.0	Hill End Gold	REVC

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HGRC023	730570.1	6368928.8	814.80	55.0	Hill End Gold	REVC
HGRC024	730562.2	6368927.4	814.60	55.0	Hill End Gold	REVC
HGRC025	730578.4	6368909.4	815.70	55.0	Hill End Gold	REVC
HGRC026	730569.8	6368906.3	815.80	55.0	Hill End Gold	REVC
HGRC027	730561.1	6368904.6	815.60	55.0	Hill End Gold	REVC
HGRC028	730579.6	6368876.8	817.40	55.0	Hill End Gold	REVC
HGRC029	730570.5	6368876.3	817.60	55.0	Hill End Gold	REVC
HGRC030	730561.8	6368876.2	817.50	55.0	Hill End Gold	REVC
HGRC031	730577.2	6368851.9	818.90	55.0	Hill End Gold	REVC
HGRC032	730560.9	6368838.9	819.70	55.0	Hill End Gold	REVC
HGRC033	730568.5	6368840.8	819.60	55.0	Hill End Gold	REVC
HGRC034	730569.0	6368997.3	812.90	55.0	Hill End Gold	REVC
HGRC035	730577.3	6368998.7	813.00	55.0	Hill End Gold	REVC
HGRC036	730561.6	6369023.5	812.10	55.0	Hill End Gold	REVC
HGRC037	730569.2	6369025.0	811.80	55.0	Hill End Gold	REVC
HGRC038	730606.6	6369004.1	812.10	30.0	Hill End Gold	REVC
HGRC039	730614.4	6369005.6	812.10	30.0	Hill End Gold	REVC
HGRC040	730624.5	6368993.7	812.20	30.0	Hill End Gold	REVC
HGRC041	730632.3	6368995.1	812.10	30.0	Hill End Gold	REVC
HGRC042	730553.1	6368720.7	824.50	51.0	Hill End Gold	REVC
HGRC043	730562.1	6368722.3	824.80	50.0	Hill End Gold	REVC
HGRC044	730570.8	6368718.4	825.25	50.0	Hill End Gold	REVC
HGRC045	730555.9	6368649.1	827.80	50.0	Hill End Gold	REVC
HGRC046	730564.8	6368650.9	827.70	50.0	Hill End Gold	REVC
HGRC047	730574.0	6368652.7	827.50	50.0	Hill End Gold	REVC

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Data aggregation methods

In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.

- The Hargraves Mineral Resource estimate is reported to an 0.8 ppm Au cut-off grade. Intersection cut-off grades are not relevant to the reporting of the resource estimate.

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.

- Not relevant for the Hargraves Mineral Resource estimate

The assumptions used for any reporting of metal equivalent values should be clearly stated.

- No metal equivalents used in reporting of Hargraves Resources (gold only).

Relationship between mineralisation widths and intercept lengths

- Not relevant to the understanding of the Hargraves Mineral Resource estimate.

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.

- Diagrams of the Hargraves resource estimate are provided in the public release announced to the ASX.

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.

- Gold mineralisation occurs within quartz veins and intercept thicknesses vary according to vein style and position within the fold. In axial regions of the anticline, quartz reefs attain thicknesses of around 12m, thinning down to 1-2m in the limbs.
- Intercept widths also vary according to drilling type and exploration program. RC drilling typically sampled at regular 1m intervals and intercepts are quoted as multiples thereof. Early HEG diamond drilling sampled selectively and individual veins down to 10cm were reported, whereas later programs sampled regular 1m intervals.
- Typical mineralisation representative of the estimation domain would average 4m at a grade of approximately 2g/t Au.
- Extreme grades exceeding 30g/t possess limited spatial continuity and tend to be intersected in one or two holes at most. These intercepts are often surrounded by a high-grade halo, extending several meters.
- Host rock is not mineralised and the mean grade of all material external to the estimation domain is 0.01g/t Au.
- Examples of intercept reporting are included in the following historical ASX announcements:

  https://www.asx.com.au/asxpdf/20120926/pdf/428yv1r1qxdjtk.pdf
  https://www.asx.com.au/asxpdf/20100317/pdf/31pb6sxj3b73sw.pdf
  https://www.asx.com.au/asxpdf/20110608/pdf/41z3j0ctqyx780.pdf

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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 substantive exploration data is relevant to the Hargraves resource estimate.
- Previously completed metallurgical test work has been reported to the ASX.
- There are no potential deleterious elements in the Hargraves deposit.

Further work

- The nature and scale of planned further work on the Hargraves project will be determined after review of the revised Mineral Resource estimation.

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Section 3: Estimation & Reporting of Mineral Resources

Database integrity

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.

- HEG recorded geological observations onto paper logs at the core logging facility and transferred to spreadsheet afterwards. Spreadsheets were imported to the centralised database and the paper original archived.
- HEG collar and downhole survey data is received in digital (CSV) format and is digitally loaded into the database.
- Final assay data for all HEG drill holes was received digitally in PDF and CSV format. The data was loaded into the database from the CSV files and validated.
- Previous exploration data (Challenger Mining and Compass Resources NL) was reported in Annual Reports to Government. Reported data was manually transcribed from the paper copies and loaded into the project database. Digital and paper copies of the report are available for future reference.
- The project database degraded following closure of the site office and the move away from enterprise data management (aQuire) to personal databases (Access). The copies supplied to SRK contained a variety of issues which had to be rectified as part of the Mineral Resource estimate. SRK created a staging database in Microsoft SQL Server to supply clean data to the model.

Data validation procedures used.

- Historically, the database was used by HEG personnel and independent consultants for analytical work including geological interpretation, construction of 3D geological surfaces, analysis of assay data and resource estimation. Data was repeatedly validated during these tasks and errors were corrected in the original database.
- Leapfrog modelling software was connected to the SRK staging database and data validation was automatically run over each imported dataset. Errors with the potential to impact modelling were corrected in both the database and Leapfrog project.

Site visits

Comment on any site visits undertaken by the Competent Person and the outcome of those visits

- A site visit was not conducted as part of SRK's 2020 Mineral Resource estimation. The Hill End field office is currently in shutdown and there is no ongoing exploration work or mining activity, so there was little value in visiting site.
- Mr Willetts has previously visited the Hill End field office on several occasions between 2010 and 2011 while employed by Geos Mining. During those visits, he witnessed site procedures, engaged with the geological team and assisted with site data management, geological modelling and resource estimation.

Geological interpretation

Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.

- Geological controls on mineralisation are reasonably understood and can be discerned from the observed data.
- Fold geometry is well-described by logged structural data, albeit with some uncertainty around the relative dip to cleavage measurement methodology.

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Nature of the data used and of any assumptions made.

- Drillhole data was used to develop the geological model. Absence of stratigraphic marker horizons within the turbidite host rock required Au grade shells to be used as a proxy for mineralised reef positions. A structural geological model, constructed from downhole measurements, guided the grade shell geometry and ensure conformation with local structural fabric.
- Sub-vertical feeder structures have been assumed barren. They form part of the geological model; however, they were not considered estimation domains.

The effect, if any, of alternative interpretations on Mineral Resource estimation.

- Treating feeder zones as mineralised increases modelled gold inventory by approximately 3000 oz, which is not material to the resource inventory. The domain possesses questionable statistical characteristics, likely because it is poorly defined in drilling and rarely mineralised.
- Several iterations of domain model volume were completed during the modeling phase varying orientation, grade shell and interval composition parameters. Each of these provided a different local interpretation of the possible mineralized volume. Larger volumes produce higher geological dilution, lower grades and higher tonnage but similar overall metal.

The use of geology in guiding and controlling Mineral Resource estimation.

- Geologically modelling was conducted in Leapfrog Geo software.
- Structural observations were processed into data-driven structural trend models and used to steer grade interpolators around the folded reef geometry.
- Weathering data was modelled into coherent units and used for bulk density assignment.
- Attempts were made to model lithology; however, lack of stratigraphic marker horizons limited the usefulness of the model.
- Feeder fault zones were modelled as veins as a conceptual tool only because the reef modelling process captured almost all economic mineralisation and the typically barren zones were not required in the estimation phase.

The factors affecting continuity both of grade and geology.

- The gross structural continuity of the Big Nugget Hill anticline is consistent along and across strike, and at depth; however, form and local geometry of folding evolves with position. This changing geometry affects the position and form of reefs and associated veins – key sites of mineralisation.
- Economic mineralisation is thought to concentrate close to intersections of feeder structures and quartz reefs. Intersections manifest as stacked high-grade trends, plunging to the south in the central zone and sub-horizontal in southern/south-central regions. The change in plunge orientation between south-central and central zone trends currently cannot be attributed to any logged structure.
- Grade continuity up to 30 ppm Au is geostatistically demonstrable through the Hargraves estimation domain. Extreme grades beyond this point in the distribution are encountered, but uncommonly intersected, likely because continuity is very short-range (<10 m). While the deposit is classified as a nuggety, coarse gold deposit, grade continuity over long distances is observed.

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.

- Hargraves deposit extends approximately 1,500 m along strike, 160 m cross strike and up to 300 m down dip.

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Estimation and modelling techniques

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.

- Leapfrog Geo software was used for data validation and analysis, geological modelling, estimation domain preparation and sample compositing.

  Leapfrog Edge module within Leapfrog Geo was used for grade interpolation, classification, model validation and reporting.
- A grade indicator shell was created to define anomalous gold mineralisation and serve as the sole estimation domain. An indicator value of 0.1 ppm Au was statistically determined as appropriate for capturing mineralisation and incorporation of sufficient dilution to prevent excessive grade estimation.

  Assays were composited to 2 m using an economic compositing method for grade shell creation. This bulked mineralisation into economically viable proportions.

  Shell geometry was controlled by the structural trend, constructed during geological modelling. A fine mesh resolution allowed capture of thin intersections.
- The estimation domain boundary was treated as hard, following analysis.
- 0.5 m composites were created within mineralisation domain. The composite length was intended to reconcile with the fine mesh resolution of the estimation domain and parent block dimensions.
- Au grade was estimated using Ordinary Kriging. Variogram models were fitted to observed data and used to assign sample weights during interpolation.
- Search orientation was varied on a per-block basis according to a structural trend produced during geological modelling. This technique is used to accommodate fold geometry in grade estimation.
- No top cuts are used for the estimation. A grade threshold is applied during estimation which reduces the search range and influence of high-grade samples beyond a statistically determined threshold of 30 ppm Au. The threshold range was varied, and sensitivity assessed on the estimated grade distribution.
- Estimation was performed in a single pass with interpolation and extrapolation limited by data search distances, sample eligibility and ellipsoid search options.
- Maximum extrapolation for Inferred material is 30 m. Indicated material is not extrapolated.
- Resource depletion from historical production has been accommodated through exclusion of stope wireframes supplied by HEG.

The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.

- There are no modern mine production records that can be compared with the resource estimate.
- Production in the late 1800's involved hand-sorting and picking high grade from the ore which resulted in higher than average grades reporting to crushing. No records were kept of the proportion of quartz vein mineralisation that was processed and rejected.
- Previously-announced Mineral Resource estimates from 2011 and 2013 were reviewed. The 2013 Mineral Resources totalled 2.85Mt @ 2.7 ppm Au for 165 koz (0.5 ppm cut-off).

  The grade of Mineral Resources declined following the initial 2011 estimate of 1.44Mt @ 5.1 ppm Au for 234 koz, which SRK believes to represent a significant overestimate.

The assumptions made regarding recovery of by-products.

- No by-products are associated with the Hargraves gold deposit.

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Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).

- There are no deleterious elements associated with Hargraves mineralisation. Visual estimates of the sulphide content of the Hargraves mineralisation range from 0-3%. Most of the ore has less than 2% sulphide. Sulphides include pyrite, arsenopyrite, galena, sphalerite and chalcopyrite.
- Most of the sulphide is expected to be recovered in gravity concentrates and so will not report to the waste dump or tails. The concentrate is expected to be 6% of the tonnage processed.
- Independent metallurgical test work indicates sulphides do not impede gravitational gold recovery and are not considered deleterious. Unrecovered fine gold from the concentrate is expected to be sent, with the sulphides to an established gold leach processing facility (not at Hargraves).

In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.

Block Model Attribute	Metric
Base point:	730375.574mE, 6368609.279mN, 850mZ
Parent block size:	3 mX × 10 mY × 2 mZ
Number of parent blocks:	122X × 170Y × 228Z = 4,728,720
Sub-blocking:	3 × 5 × 2
Minimum sub-block height:	1 m
Number split:	220,225 (4.7%)
Number of sub-blocks:	6,606,750
Total blocks:	11,115,245
Dip:	0°
Azimuth:	352°
Boundary size:	366 m × 1700 m × 456 m
Bounding box:	
Minimum:	730100mN, 63690000mE, 394mZ
Maximum:	730700mN, 63700000mE, 850mZ

- Drill spacing averages 25 m spacing to depths of 150 m in central and southern regions of the deposit. Below 150 m, drill spacing averages 50 m. The northern region of the deposit averages 50 m drill spacing
- Parent blocks are sized between 20-40% of the data spacing, depending upon local data density. This block dimension is regarded as geostatistically valid.
- Grades are evaluated onto parent blocks only. Sub-blocking is used to constrain the block model volume to the estimation domain indicator shell.
- Data search orientation is variable, adjusted per-block according to local structural trend model.

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Data Search Attribute	Metric
Dimensions:	
Maximium:	60 m
Intermediate:	35 m
Minimum:	12 m
Samples:	
Maximum:	24
Minimum:	4
Sector search	Quadrant
Samples per sector:	
Maximum:	4
Minimum:	2
Samples per drill hole:	
Maximum:	4

Any assumptions behind modelling of selective mining units.

- Estimation block sizes are compatible with underground mining, but in many cases the mineralisation wireframe is thinner than the estimation block size and therefore defines the selectivity. The minimum wireframe width is 1m.

Description of how the geological interpretation was used to control the resource estimates.

- A structural trend model, built from measured and observed structural data defined the geometry of both the estimation domain grade shell and the variable orientation grade search used in Ordinary Kriging.

Discussion of basis for using or not using grade cutting or capping.

- No top cuts are used for the estimation. A grade threshold was used to limit the influence of samples beyond 30 ppm Au

The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.

- Statistical comparison of the de-clustered mean composite grade (0.81 ppm Au) against the block model mean grade at a zero cut off (0.80 ppm) reconciled extremely well. This suggests alignment between composites and modelled grades.
- Visual validation of block grades was conducted on section, along the cardinal planes, revealing no inconsistencies with grade geometry or comparison to drilling. The block model was viewed at a range of different grade cut-offs to highlight grade trends.
- Swath plots were produced for easting, northing and elevation. Modelled grades appear to reconcile well against declustered composites in all directions and the degree of grade-smoothing is expected and acceptable

Moisture

Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content

- Tonnage and assays are on a dry basis

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Cut-off parameters

The basis of the adopted cut-off grade(s) or quality parameters applied.

- The Mineral Resource has been reported at a cut-off of 0.8 ppm Au. This value reflects the anticipated underground mining method and mineralisation continuity.

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

- Part of the deposit outcrops, so a very small open pit operation may be possible for near-surface material. Proximity of the project to Hargraves village may impact the viability of this strategy.
- High-grade trends continue to depths of at least 250 m below surface and are focused in the axial region of the Big Nugget Hill anticline. A focused underground operation, driving down and along trend plunge is assumed to be a viable strategy.

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

- Bench-scale test work demonstrated gold is readily gravity recoverable from Hargraves samples. Recoveries above 90% using simple, low-cost gravity recovery process are considered feasible.

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

- Any potential mining operations at Hargraves would be located close to the historical village of Hargraves. Additional environmental considerations may be required due to the proximity of potential operations to residential property.
- The free, coarse gold component of Hargraves mineralisation is unlikely to present significant mine waste issues. Water may be the main consideration.
- Most sulphides are expected to be recovered in gravity concentrates and processed off-site, at an established gold leach processing facility (not at Hargraves).

Bulk density

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.

- 58 relative density measurements from 9 HEG diamond drill holes were available in the database. Density was assessed using the water displacement method and core samples were waxed to exclude pore spaces.

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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.

- Bulk density was assigned by weathering zone (oxidised: OX, partially oxidised: POX, fresh: FR). The population of bulk density measurements was too low to produce a statistically valid block estimate, so a global value was statistically derived for each weathering zone

Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.

- The global density values employ measurements from both inside and outside of the estimation grade shell. Limiting the measurements to those within the grade shell excessively reduced the small initial sample population excessively.
- Previous estimates used a global density of 2.7 to reflect mineralised quartz vein. The current estimation domain comprises a more representative mixture of host rock and mineralised vein material and densities are reduced accordingly.

Classification

The basis for the classification of the Mineral Resources into varying confidence categories.

- Classification is based on drill-spacing, quality of local data and QAQC, and estimation parameters, including the number of samples and kriging regression slope.
- The estimation domain effectively delineated mineralisation and excluded large volumes of waste from the block model. Mineralisation was well-constrained around samples, which prevented excessive extrapolation and minimised zones of reduced confidence within the estimate before classification.
- Low confidence, isolated blocks were purged from the model at depth by imposing a minimum sample count of 5 samples on each block eligible for classification. In combination with the data search parameters, this ensured all blocks classified as Resources were informed by two or more drill holes.
- Irregular classification envelopes were manually drawn around the block model in long section defining Inferred and Indicated Resources. Blocks within the envelopes were assigned their respective classification.
- Inferred Resources were defined in the southern zone between surface and approximately 650 mRL. The depth limit corresponded to the floor of the majority of diamond drilling.

  In the central zone, Inferred Resources were defined between surface and irregular floor ranging between 530 mRL and 560 mRL. The deeper floor reflects plunging high-grade trends in the southern part of the central zone.
- Indicated resources were defined in the southern zone in the region covered by the 25 m-spaced HGRC drill program. Here, blocks with a kriging slope of regression >0.5 form a coherent body. Resources were classified down to 85 m, corresponding with the topmost reef.
- In the central zone, blocks with a kriging slope of regression >0.5 were concentrated around 25 m spaced diamond drill holes in the southern-central region. The floor of the Indicated resource classification plunges south in long section, paralleling a plunging high-grade trend.

Whether appropriate account has been taken of all relevant factors (ie 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).

- The current Mineral Resources use a distance buffer of 10m around historical workings to factor for depletion. Much depletion lies within mining claims in the central region of the deposit, so validation of modelled, extracted material against historical production is not possible.
- Historical production figures do not differentiate between surficial and underground workings, further complicating any comparison.
- There is risk that depletion may be more extensive than the current assessment indicates.

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Whether the result appropriately reflects the Competent Person's view of the deposit.

- The classification reflects the Competent Person's view of the deposit.

Audits or reviews

The results of any audits or reviews of Mineral Resource estimates.

- The current Mineral Resource estimate has not been audited or reviewed.
- Previous estimates have been reviewed internally and by independent consultants in preparing the current Mineral Resource estimate.

Discussion of relative accuracy/ confidence

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.

- Accuracy and confidence in the estimate are expressed by the Indicated and Inferred classification applied.
- No statistical evaluation of confidence or confidence intervals was undertaken.

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.

- Not applicable – see previous statement.

These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.

- No recent mining or production has taken place. Historical production records from the 1800's do not relate to modern mining practices and are not suitable for comparison.

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