ARK MINES LTD.

16 December 2022

**ASX: AHK**

**Corporate Directory**

**Directors**

**Executive Chairman**
Roger Jackson

**Executive Director**
Ben Emery

**Non-Executive Director**
Ian Mitchell

**Projects**

- Gunnawarra Nickel-Cobalt
- Mt Jesse Iron – Copper
- Pluton Gold


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# MAIDEN JORC RESOURCE DELIVERED AT GUNNAWARRA NICKEL-COBALT PROJECT, NORTH QLD

## HIGHLIGHTS

- **Combined JORC (2012) Mineral Resource Estimate for the Gunnawarra Nickel-Cobalt Project totals 1.341 million tonnes at .53% Ni, 602,000 tonnes Cobalt at .066% and 191,500 tonnes of Copper at .054% at a .4% Ni cut off**
- **Ark is also well-advanced with beneficiation test work which is also key to fast-tracking the project's commercialisation**
- **Majority of high-grade intersections are shallow with little to no overburden – provides clear pathway for fast-tracked project development**
- **Deposit remains open in numerous directions – further drilling is planned in early 2023**

**Ark Mines Ltd** (ASX: AHK, "Ark" or the "Company") is pleased to report that the Company has completed an initial JORC (2012) mineral resource estimate for the Gunnawarra Nickel-Cobalt Project located south of Mt Garnet NQ Australia.

The Gunnawarra JORC mineral resource area is located within EPM 26560 and is located 15km south of Mt Garnet North Queensland.

As reported (see ASX announcement dated 1 December 2022), the recently completed 2nd phase drilling program targeted known Ni-Co mineralisation in shallow laterites as well as other potential mineralisation in some step out locations.

The timely completion of this drilling campaign has allowed the expedited delivery of a total JORC (2012) Mineral Resource Estimate at Gunnawarra of 1.341 million tonnes at .53% Ni, 602,000 tonnes Cobalt at .066% and 191,500 tonnes of Copper at .054% at a .4% Ni cut off (see below Table 1).

The mineral resource estimate was carried out by Hawker geological Consultants (HGS) an independent consultant to the Company.

Across both Phase 1 and Phase 2 drilling programs (refer to figure 1), Ark completed a total of 2,844m of Reverse Circulation drilling at Gunnawarra and drilling will remain ongoing (weather permitting) into 2023 with a significant number of untested drill targets still remaining at the project.

| Metal | Tonnes | Grade ppm | Tonnes Metal |
|---|---|---|---|
| Nickel | 1,341,000 | 5350 | 7,200 |
| Cobalt | 602,000 | 660 | 400 |
| Copper | 191,500 | 540 | 100 |

**TABLE 1: GUNNAWARRA JORC 2012 RESOURCE**

## MANAGEMENT COMMENTARY

**Commenting on the delivery of the maiden JORC Resource for Gunnawarra, Executive Chairman Roger Jackson said: "***The Directors are pleased to confirm this maiden Mineral Resource Estimate for Gunnawarra. The grade underpins our confidence that the nickel project we are developing here has potential to be commercial. With further drilling, we believe we will be able to increase the size of the MRE given we understand there are other nearby targets. Near-term work streams will focus on more drilling and beneficiation test work with first results due early in the new year".*

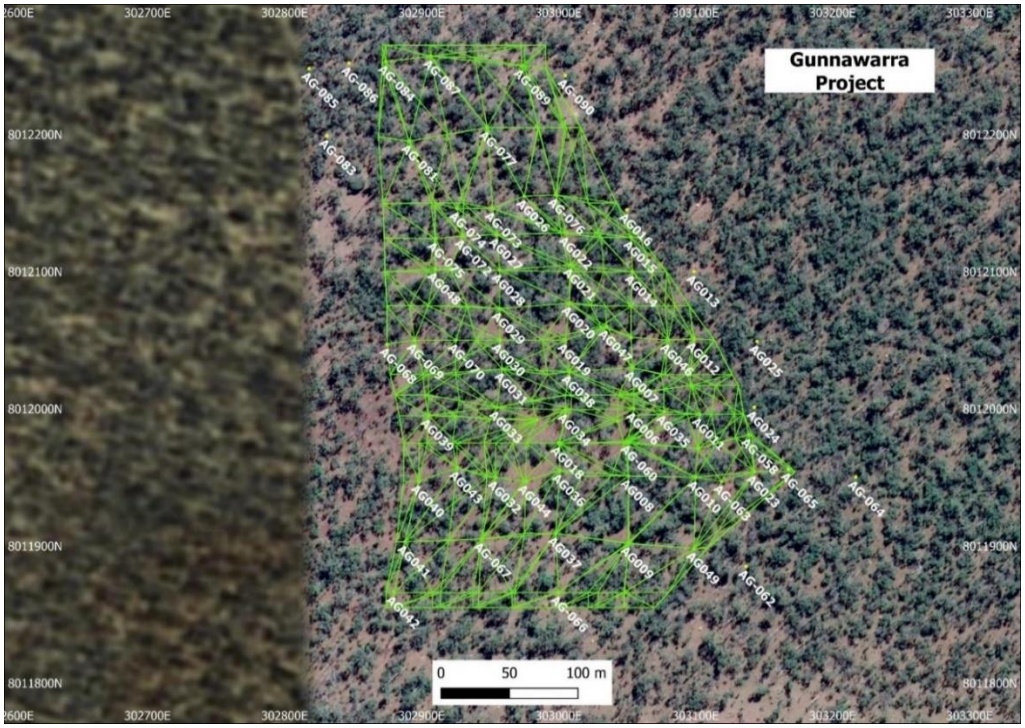


**Figure 1: Drill hole collar plan with interpretation wireframe. This shows the hole numbers and locations. The wirelines link the resource material together.**

## RESOURCE PARAMETERS

The mineral resource estimate is based on a number of factors and assumptions:

- The data was supplied by Ark in excel files.
- No validation work was conducted.
- Mineralised outlines were interpreted by HGS within the coordinates:
  - 8011850N – 8012312N
  - 302860E – 303210E
  - 580mRL – 680mRL
- The interpretation was used in compositing the sample data.
- Sample data was composited over 1m intervals for nickel, copper and cobalt.
- A surface topography profile was created by HGS using drill hole collars.
- Geological block models were constructed by HGS using Surpac. The primary model cell sizes are 14m N, 10m East and 5m RL.
- 727 samples bulk densities were supplied by Ark and interpolated into the model.
- Ordinary Kriging interpolation method was used for the evaluation of nickel, copper and cobalt.
- No high-grade cutting was conducted.
- The resource is classified as **inferred** due to no QAQC data, Hole collars picked up using a hand-held GPS and some surface collar RL position issues**.**

This announcement has been approved by the Board of Ark Mines Ltd.

## MINERAL RESOURCE STATEMENT

The resource estimates are classified in accordance with the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves (JORC, 2012). The Gunnawarra estimate was completed by Andrew Hawker of HGS Australia. Mr Hawker 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 Hawker consents to the inclusion in the reportof the matters based on his information in the form and context in which it appears. The resource is classified as Inferred. The classification was considered appropriate based on drill hole spacing, sample intervals, geological interpretation and representativeness of all available assay and density data. The classification reflects the low confidence in short range grade estimations in the model. The resource is based on the interpolated block gunnawarra_model_dec2022.mdl

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**About Ark Mines Limited**

Ark Mines is an ASX listed Australian mineral exploration company focused on developing its 100% owned projects located in the prolific Mt Garnet and Greenvale mineral fields of Northern Queensland. The Company's exploration portfolio consists of three high quality projects covering 65km$^2$ of tenure that are prospective for copper, iron ore, nickel-cobalt and porphyry gold:

**Mt Jesse Copper-Iron Project**

- Project covers a tenure area of 12.4km$^2$ located ~25km west of Mt Garnet
- Centered on a copper rich magnetite skarn associated with porphyry style mineralization
- Three exposed historic iron formations
- Potential for near term production via toll treat and potential to direct ship

**Gunnawarra Nickel-Cobalt Project**

- Comprised of 11 sub-blocks covering 36km$^2$
- Borders Australian Mines Limited Sconi project - an advanced Cobalt-Nickel-Scandium project in Australia
- Potential synergies with local processing facilities with export DSO Nickel/Cobalt partnership options

**Pluton Porphyry Gold Project**

- Located ~90km SW of Cairns near Mareeba, QLD covering 18km$^2$
- Prospective for gold and associated base metals (Ag, Cu, Mo)
- Porphyry outcrop discovered during initial field inspection coincides with regional scale geophysical interpretation

**JORC Compliance Statement:**

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Andrew James Hawker, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy (210569), and the Australian Institute of Geoscientists (5343). Mr Hawker is the Principal Geologist employed by HGS Australia.

Mr Hawker 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 Hawker consents to the inclusion in the reportof the matters based on his information in the form and context in which it appears.

**Competent Persons Statement**

The Information in this report that relates to exploration results, mineral resources or ore reserves is based on information compiled by Mr Roger Jackson, who is a Fellow of the Australian Institute of Mining and Metallurgy and Fellow of the Australasian Institute of Geoscientists. Mr Jackson is a shareholder and director of the Company. Mr Jackson has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the `Australian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves' (the JORC Code). Mr Jackson consents to the inclusion of this information in the form and context in which it appears in this report.

**Forward Looking Statements and Important Notice**

This report contains forecasts, projections and forward-looking information. Although the Company believes that its expectations, estimates and forecast outcomes are based on reasonable assumptions it can give no assurance that these will be achieved. Expectations and estimates and projections and information provided by the Company are not a guarantee of future performance and involve unknown risks and uncertainties, many of which are out of Vertex Minerals' control.

Actual results and developments will almost certainly differ materially from those expressed or implied. Vertex Minerals has not audited or investigated the accuracy or completeness of the information, statements and opinions contained in this announcement. To the maximum extent permitted by applicable laws, Ark Mines makes no representation and can give no assurance, guarantee or warranty, express or implied, as to, and takes no responsibility and assumes no liability for the authenticity, validity, accuracy, suitability or completeness of, or any errors in or omission from, any information, statement or opinion contained in this report and without prejudice, to the generality of the foregoing, the achievement or accuracy of any forecasts, projections or other forward looking information contained or referred to in this report.

Investors should make and rely upon their own enquiries before deciding to acquire or deal in the Company's securities.

***JORC Code, 2012 Edition – Table 1***

***Section 1 Sampling Techniques and Data***

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Sampling techniques*** | • *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*<br>• *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*<br>• *Aspects of the determination of mineralisation that are Material to the Public Report.*<br>• *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.* | • 1763 1m 5.5inch face hammer RC drill chip sample was split by rig- mounted cyclone riffle splitter yielding 2kg to 3kg aliquots<br>• Drill holes were fully sampled.<br>• Some 1m samples had poor recovery (refer to Appendices 2).<br>• Sample was reduced by jaw crush, pulverised and sub sampled to yield a 50g charge for fire assay and pulp for four acid digest. |
| ***Drilling techniques*** | • *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | • 1m drill chips samples were obtained by RC using 5.5 inch face hammer (45 collars, Total 1763m.).<br>• Large air pack with air booster. |
| ***Drill sample recovery*** | • *Method of recording and assessing core and chip sample recoveries and results assessed.*<br>• *Measures taken to maximise sample recovery and ensure representative nature of the samples.* | • Recoveries were monitored visually in field and received sample weights recorded at NAL.<br>• Recoveries were maximised using an auxiliary and booster compressor delivering sample through a cyclone directly to a levelled rig mounted rifle splitter. |

| | | |
|---|---|---|
| | • *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.* | • Some wet sample was encountered (riffle splitter bypassed) but all instances were logged. No bias related to water is noted.<br>• QAQC analysis is not yet complete but as yet no correlation. |
| ***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.*<br>• *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.*<br>• *The total length and percentage of the relevant intersections logged.* | • Qualitative geological logging was carried out on all holes with Ark Mines geological logging protocols at the time were followed to ensure consistency in drill logs between the geological staff.<br>• Chips were logged for weathering, lithologies (primary and proto), mineralogy, colour and grainsize for each 1m interval. Chip trays (with chips) were photographed and retained for correlation with grade data.<br>• Of 1763m drilled, 1763m have been logged in metre intervals.<br>• The main logged materials were Hm (hematite rich soil), Lat (ferruginous laterite), Lsi (ferruginous laterite with silica boxwork), Sapr (saprolite), and Serp (serpentinite – fresh).<br>• The full sample lengths were logged. |

| | |
|---|---|
| **Code** | **Lithology** |
| LAT | Laterite |
| | |
| Sch | Schist |
| Si Sch | Siliceous Schist |
| Gr Sch | Graphitic Schist |
| Mi Sch | Mica Schist |
| Qz Mi Sch | Quartz Mica Schist |
| Si Mi Sch | Silicious Mica Schist |
| Chl Sch | Chlorite Schist |
| | |
| Slt | Siltstone |
| Si Slt | Siliceous Siltstone |
| Mi Slt | Micaceous Siltstone |
| Gr Slt | Graphitic Siltstone |
| Si Mi Slt | Siliceous Micaceous Siltstone |
| Si Gr Slt | Siliceous Graphitic Siltstone |
| Fe Slt | Ferruginous Siltstone |
| Mg | Magnesite |
| Qzt | Quartzite |

| | |
|---|---|
| Mi Qzt | Micaceous Quartzite |
| Gr Qzt | Graphitic Quartzite |
| Mt | Magnetite |
| Qz Br | Quartz Breccia |
| Fe Br | Ferruginous Breccia |
| Br | Breccia |
| VQZ | Vein Quartz |
| Myl | Shear Mylonite |
| Gr Myl | Shear graphitic mylonite |
| FG | Fault Gouge |
| Gr FG | Graphitic fault gouge |
| Peg | Pegmatite |
| Gnt | Granite |
| mGnt | Microgranite |
| Apl | Aplite |
| Serp | Serpentonite |
| Cly | Clay |
| Snd | Sand |
| Soil | Soil |
| Grv | Gravel |
| Fill | Fill |
| Sapr | Saprolite |
| Shr | Shear |
| Flt | Fault |
| N/S | No Sample |

| | | |
|---|---|---|
| ***Sub-sampling techniques and sample preparation*** | • *If core, whether cut or sawn and whether quarter, half or all core taken.*<br>• *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.*<br>• *For all sample types, the nature, quality and appropriateness of the sample preparation technique.*<br>• *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.*<br>• *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.*<br>• *Whether sample sizes are appropriate to the grain size of the material being sampled.* | • Chip samples were taken by metre, recovered dry and split by riffle splitter to yield 2kg to 3kg aliquots.<br>• Duplicates samples from all metre intervals were taken with field duplicates sent for assay at 1 in 25.<br>• RC drill samples referred to in this report were 2 to 3kg chip samples crushed / pulverized using standard lab protocols.<br>• Field duplicates from RC samples were taken at a rate of approximately 1 to 2 samples per drill hole. Field duplicates were taken at the rig by spear sampling selected retained B samples.<br>• Quality assurance of the sampling was carried out by submitting quality control samples including a duplicate sample collected at the rig The Competent Person is satisfied that the sampling system is up to industry standard. |

| | | |
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| ***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.*<br>• *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*<br>• *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.* | • Drill samples were sent to NAL laboratories in Pine Creek.<br>• Received sample weights were recorded by NAL for the original and duplicate samples. Sample prep procedure was to sort samples as per the sample logs provided by ARK onto drying trolleys. Samples were dried at 120C for eight hours, cooled and weighed so that a "Dry Weight" was reported. Samples were then Roll crushed two a nominal 1.6 mm and 250 gram split as the assay sample taken using a Jones Riffle Splitter. The split sub-sample was pulverised to a nominal 75Um in a Labtecnics LM2 pulveriser.<br>• Assay procedure as follows: A 300 mg sample aliquot was weighed on an analytical balance and digested in HCl/HNO3/HClO4/HF acids in a Teflon vessel to fumes of perchloric acid, the digest was cooled and leached in conc HCl and then diluted to volume with demineralised water, mixed and the elements assayed using ICP-OES. Each rack of fifty assays contains one blank, four standards[CRM's] and five duplicate [control] samples, the repeat rate is 1 in 8 samples. NAL used GEOSTATS CRM's as their reference standards, CRM's used are GBM 302-5, GBM 903-5, GBM908-10 and GBM311-6.<br>• All techniques used are considered total.<br>• Field duplicates were assayed at approximately 1 in 25 frequency. |
| ***Verification of sampling and assaying*** | • *The verification of significant intersections by either independent or alternative company personnel.*<br>• *The use of twinned holes.*<br>• *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.*<br>• *Discuss any adjustment to assay data.* | • All intercepts have been verified by Company CP. No independent CP has verified the significant intersections.<br>• No twinning analysis has been undertaken. There are historic proximal holes that may be accessed at a later time.<br>• Primary data (geological logging + sample intervals) entered directly onto spreadsheet at the rig with cross verification of hardcopy sample ledger using Ark Mines protocols.<br>• No adjustment to assay data applied. |
| ***Location of data points*** | • *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*<br>• *Specification of the grid system used.* | • All collar coordinates will be surveyed by licensed surveyors Twine Surveys using RTKdGPS with accuracy in x and y of 20mm, and in z of 20cm.<br>• No Down hole surveys were undertaken due to the shallow holes and the vertical orientation of the drill holes. |

| | | |
|---|---|---|
| | • *Quality and adequacy of topographic control.* | • Survey results will be reported in MGA2020 zone 55 and in MGA94 zone 55 for compatibility with historic project data.<br>• The collar locations in this report are hand-held GPS surveyed.<br>• The GPS locations are considered to be an approximate location of the actual collar coordinates.<br>• Topographic control outside the planned high accuracy RTK collar survey is by hydrologically enforced SRTM. |
| ***Data spacing and distribution*** | • *Data spacing for reporting of Exploration Results.*<br>• *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.*<br>• *Whether sample compositing has been applied.* | • Drill spacing was set to approximately 50 m x 50 m in Indicated areas. Drill spacing within centre of the drilling area was reduced to 25m by 25m.<br>• Samples were not composited at the sampling stage.<br>• These factors plus historic holes with incomplete sampling result in some data gaps that require infill.<br>• Variography to determine appropriateness of grade continuity for resource estimation has not yet been carried out.<br>• No resource or reserve is reported. |
| ***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.*<br>• *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.* | • Drill holes were drilled vertically which is considered to minimize any potential sampling bias with the laterite host lithology. Some late-stage faulting may be present, but any offset of laterite and / or mineralisation cannot be predicted at the Mineral Resource drill-out level.<br>• Any sampling bias resultant from the orientation of drilling and possible structural offsets of mineralisation is considered to be minimal. |
| ***Sample security*** | • *The measures taken to ensure sample security.* | • Drill samples were under the care and supervision of Ark Mines staff at all times until transportation by local couriers to the analytical laboratories in Pine Creek.<br>• Ark Mines have continued the secure holdings of chip trays and duplicates. |
| ***Audits or reviews*** | • *The results of any audits or reviews of sampling techniques and data.* | • Independent audit of RC data is currently underway. |

## Section 2 Reporting of Exploration Results

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

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***Mineral tenement and land tenure status*** | • *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.*<br>• *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.* | • **EPM 26560 Gunnawarra** is 100% owned by Ark Mines Limited.<br>• There are no third party agreements.<br>• No known issues impeding on the security of the tenure of Ark Mines ability to operate in the area exist. |
| ***Exploration done by other parties*** | • *Acknowledgment and appraisal of exploration by other parties.* | • The area was first drilled by Norninco and then Metallica. |
| ***Geology*** | • *Deposit type, geological setting and style of mineralisation.* | Geology specific to site consists of these pre-Cambrian Halls Reward metamorphic rocks overlain by the Sandalwood Serpentinite (Proterozoic injections) and intruded by the Gunnawarra Bump Granite (pale pinkish, medium-grained porphyritic biotite monzogranite) in the late Carboniferous to early Permian. These rocks are buried by the Pleistocene vesicular to massive olivine "Depression" Basalt forming the northern and western margins of the area peripheral to Bell Creek and are largely obscured by late tertiary to Quaternary lateritic soils and alluvium.<br><br>The Sandalwood Serpentinite forms four outcrops of low topographical highs within EPM 26560, and trends north-west, south of Bell Creek. These are superficially separated by alluvium and/or lateritic clays. At Greys Creek in EPMA 26599, narrow serpentinite belts are associated with the Greys Creek Ultramafic Complex.<br><br>Deep chemical weathering during the Cainozoic caused the formation of a laterite profile which, where developed over the ultramafic units, contain enhanced nickel and cobalt values. Nickel enrichment >1% is concentrated both in layers in a ferruginous pisolithic laterite found in depressions adjacent to the Serpentinite outcrop and in the underlying weathered Serpentinite. The duricrust varies in depth up to 5m thick. Magnesite is commonly present in the lower parts of the |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | | duricrust. The duricrust is underlain either by hard, barren silicified Serpentinite or locally deeply weathered Serpentinite, the latter probably developed along fracture zones. |
| ***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:*<br>○ *easting and northing of the drill hole collar*<br>○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*<br>○ *dip and azimuth of the hole*<br>○ *down hole length and interception depth*<br>○ *hole length.*<br>• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.* | • Refer to Table in Appendix B |
| ***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.*<br>• *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.*<br>• *The assumptions used for any reporting of metal equivalent values should be clearly stated.* | • No high or Low-grade top/bottom-cut has been applied at this pre-resource stage of data processing.<br>• All reported grade averages are sample length weighted averages.<br>• Ni Equivalent grades were based on $82,000 USD per tonne Cobalt value and $27,000 USD per tonne Nickel value. X3 factor. |
| ***Relationship between mineralisation widths and*** | • *These relationships are particularly important in the reporting of Exploration Results.*<br>• *If the geometry of the mineralisation* | • Whilst the laterite mineralisation is generally considered to be horizontal. The thickness and depth will vary. This deposit tends to have deep gullys of laterite. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| ***intercept lengths*** | *with respect to the drill hole angle is known, its nature should be reported.*<br>• *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').* | |
| ***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.* | • There are no sections for this announcement<br>• Sections are under construction. |
| ***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.* | • All results are reported |
| ***Other substantive exploration data*** | • *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.* | • All data material to this report that has been collected to date has been reported textually, graphically or both.<br>• Absent material data including bulk density, metallurgical results, water table height and geotechnical characteristics is absent from the historical data record recovered so far, and current data is still undergoing analysis. This data are not relevant to the current pre-resource drill data release. |

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

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td>Database integrity</td><td>• 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.<br>• Data validation procedures used.</td><td>• The database was created by HGS Australia for the purpose of conducting a resource evaluation.<br>• The resource evaluation was conducted by HGS Australia.</td></tr>
<tr><td>Site visits</td><td>• Comment on any site visits undertaken by the Competent Person and the outcome of those visits.<br>• If no site visits have been undertaken indicate why this is the case.</td><td>• No site visits were conducted by HGS Australia.</td></tr>
<tr><td>Geological interpretation</td><td>• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.<br>• Nature of the data used and of any assumptions made.<br>• The effect, if any, of alternative interpretations on Mineral Resource estimation.<br>• The use of geology in guiding and controlling Mineral Resource estimation.<br>• The factors affecting continuity both of grade and geology.</td><td>• The resource area has been sufficiently interpreted by geological consultants and the geology matches grade and geological interpretations as anticipated.<br>• Criteria used in the interpretations were:<br>• Interpretations were based on nickel values only.<br>• A nominal 1000ppm nickel lower cut-off grade with flexibility for geological continuity.<br>• Sections extended 10m beyond the last interpreted section.</td></tr>
<tr><td>Dimensions</td><td>• 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.</td><td>• Mineralised outlines were interpreted by HGS within the coordinates:<br>○ 8011850N – 8012312N<br>○ 302860E – 303210E<br>○ 580mRL – 680mRL</td></tr>
<tr><td>Estimation and modelling techniques</td><td>• 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.<br>• The availability of check estimates,</td><td>• The models were created using Surpac software.<br>• Interpolation method used is Ordinary Kriging.<br>• Grade cutting was not required as there were no adverse outliers assays that would have any significant impact.<br>• Model sizes and parameters are:<br><table><tr><th>Type</th><th>Northing</th><th>Easting</th><th>Elevation</th></tr><tr><td>Minimum Coordinates</td><td>8011850</td><td>302860</td><td>580</td></tr></table></td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|

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

- *The assumptions made regarding recovery of by-products.*
- *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).*
- *In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.*
- *Any assumptions behind modelling of selective mining units.*
- *Any assumptions about correlation between variables.*
- *Description of how the geological interpretation was used to control the resource estimates.*
- *Discussion of basis for using or not using grade cutting or capping.*
- *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*

| | | | |
|---|---|---|---|
| Maximum Coordinates | 8012312 | 303210 | 680 |
| User Block Size | 14 | 10 | 5 |
| Min. Block Size | 3.5 | 2.5 | 1.25 |
| Rotation | 0 | 0 | 0 |
| Total Blocks | 84308 | | |
| Storage Efficiency % | 94.29 | | |

| Attribute Name | Type | Decimals | Background | Description |
|---|---|---|---|---|
| ads | Float | 3 | -99 | |
| bv | Float | 3 | -99 | |
| classification | Integer | - | 0 | inferred=1, indicated=2 measured=3 |
| co_id2 | Real | 3 | 0 | inverse distance squared uncut for cobalt |
| co_ok | Real | 3 | 0 | ordinary kriged uncut value for cobalt |
| cu_id2 | Real | 3 | 0 | inverse distance squared uncut for copper |
| cu_ok | Real | 3 | 0 | ordinary kriged uncut value for copper |
| density | Real | 2 | 0 | interpolated density values |
| dns | Float | 3 | -99 | |
| ke | Float | 3 | -99 | |
| kv | Float | 3 | -99 | |
| lode | Integer | - | 0 | lode represents wireframe number = 1 |
| ni_id2 | Real | 3 | 0 | inverse distance squared uncut for nickel |
| ni_ok | Real | 3 | 0 | ordinary kriged uncut value for nickel |
| nos | Integer | - | -99 | |
| pass_no | Integer | - | 0 | Ni_ok interpolation pass number |
| sg | Float | 2 | 0 | Interpolated into the model from downhole data |

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Pass Number</th><th>Block Size (m)</th><th>Samples min-max</th><th>Max Search (m)</th></tr>
<tr><td>1</td><td>15m</td><td>30-40</td><td>30</td></tr>
<tr><td>2</td><td>15m</td><td>5-40</td><td>60</td></tr>
<tr><td>3</td><td>15m</td><td>2-40</td><td>100</td></tr>
</table>
</td></tr>
<tr><td>Moisture</td><td>• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</td><td>• Tonnages were estimated on a dry basis.</td></tr>
<tr><td>Cut-off parameters</td><td>• The basis of the adopted cut-off grade(s) or quality parameters applied.</td><td>• Univariate statistics were conducted, but an upper cut-off grade was not required.</td></tr>
<tr><td>Mining factors or assumptions</td><td>• 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.</td><td>• Resource economics identifies the probable lower cut-off to be 4000ppm Ni.</td></tr>
<tr><td>Metallurgical factors or assumptions</td><td>• 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.</td><td>• No metallurgical data was made available.</td></tr>
</table>

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *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.* | • No assessments have been made yet. |
| *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.*<br>• *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.*<br>• *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.* | • Bulk densities for 727 samples were conducted from the April drill program and interpolated into the model. Densities ranged from 1.83t/$m^3$ to 3.92 t/$m^3$ with an average of 2.77 t/$m^3$. |
| *Classification* | • *The basis for the classification of the Mineral Resources into varying confidence categories.*<br>• *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence* | • Due to insufficient QAQC sample data, and many hole collars not surveyed the resources can only be classified as INFERRED. The company plans to complete the survey in January.<br>• The results reflect the competent person. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *in continuity of geology and metal values, quality, quantity and distribution of the data).*<br>• *Whether the result appropriately reflects the Competent Person's view of the deposit.* | |
| *Audits or reviews* | • *The results of any audits or reviews of Mineral Resource estimates.* | • Not available. |
| *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.*<br>• *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.*<br>• *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | • The competent person has confidence in the interpretation with regards to accuracy for the classification announced.<br>• The interpolation process was run in inverse distance squared to compare a complex algorithm to a simple one.<br>• A background value based on statistical determination was used for the lower grade cut-off for interpretation.<br>• The competent person in confident of the accuracy of the resource. |

## Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| *Mineral Resource estimate for conversion to Ore Reserves* | • *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*<br>• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.* | • No reserves are present |