# ASX ANNOUNCEMENT

Date: 5 May 2017
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## EXPLORATION UPDATE

## COBALT-COPPER-GOLD POTENTIAL OF THE BROKEN HILL PROJECT, NSW

Whilst Impact Minerals Limited (ASX:IPT) remains firmly focussed on the discovery of high grade nickel-copper-platinum group metal (PGM) cobalt mineralisation at its 100% owned Broken Hill Project in New South Wales, a recent review highlighted the significant potential for two styles of stand alone cobalt deposits (Figure 1 and see announcement 3rd March 2017).

Further review and synthesis of previous exploration data has now shown the potential for the two styles of stand alone cobalt deposits to also host copper and gold. The two styles are:

1. Thackaringa style pyrite-cobalt deposits similar to the Thackaringa Cobalt deposits now being considered for development (three deposits totalling 33 Mt at 0.08% cobalt, Figure 1); and
2. Ironstone related copper-cobalt-gold deposits similar, for example, to the large deposits at Starra (Selwyn) and Ernest Henry in the Mt Isa region of Queensland.

The review has confirmed that there has been little systematic exploration for either of these two deposit styles throughout Impact's significant tenement holding in the Broken Hill region which cover some 517 square kilometres and about 100 kilometres of strike extent south of the Broken Hill Mine (Figure 1).

In particular it is evident that very few soil, rock chip and drill samples have been assayed for gold even though it has long been known to be associated with both styles of mineralisation. For example at the Copper Blow Prospect (near to but **not on** Impact's tenements, Figure 1) historic drilling returned intercepts of up to 11.8 metres at 6.7% copper, 1.9 g/t gold and 13 g/t silver in ironstone.

However, where more detailed work has been done by previous explorers, significant results have always been returned and which have not been properly followed up. Two prospects on Impact's tenement holdings, Pine Creek and Copper King serve as examples for the Thackaringa style and ironstone-style deposits respectively.

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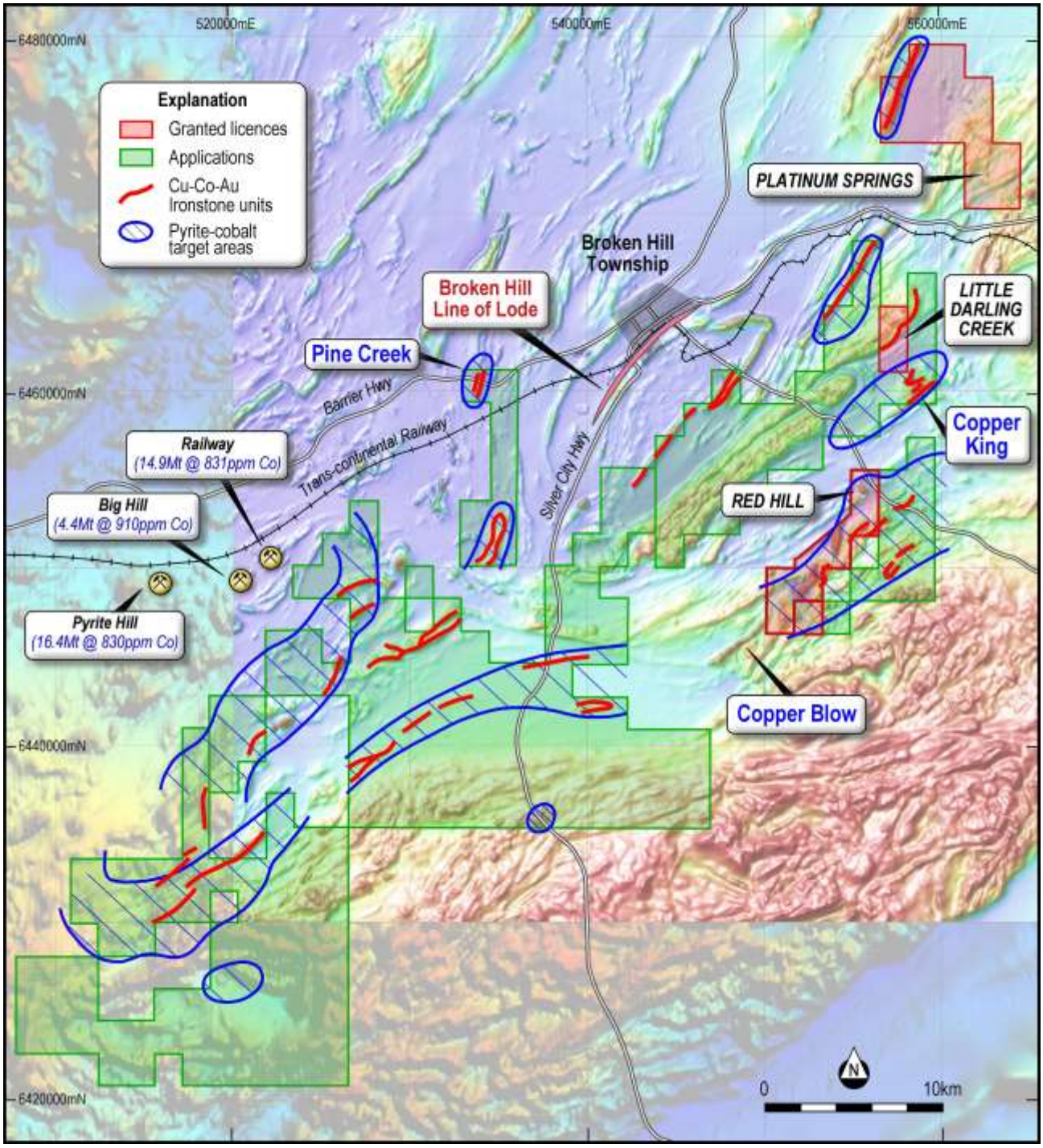


**Figure 1.** Impact's exploration licences in the Broken Hill area showing priority cobalt targets

### 1. Thackaringa Style Deposits: Pine Creek

The Pine Creek Prospect is located 10 km west of Broken Hill and occurs in the same rocks that host the Thackaringa deposits some 30 km to the south (Figure 1). Exploration in the 1980's identified two north-south trending units of felsic gneiss with extensive disseminated pyrite.

Two drill holes intersected the western gneiss unit and intersected extensive pyrite (5-20%) with cobalt grades from 0.02% to 0.15% over at least 122 m and ended in mineralisation (Figure 2).

Assay results returned: **92 metres of 0.04% cobalt** (true thickness of about 45 metres, Figure 2).

Of note, a 20 metre thick intercept of low grade gold occurs in the last 20 metres of the hole and is also open at depth and associated with an increase in magnetite content (Figure 2). The best intercept in the hole is 10 metres at 0.1 g/t gold and this is considered significant and worthy of follow up.

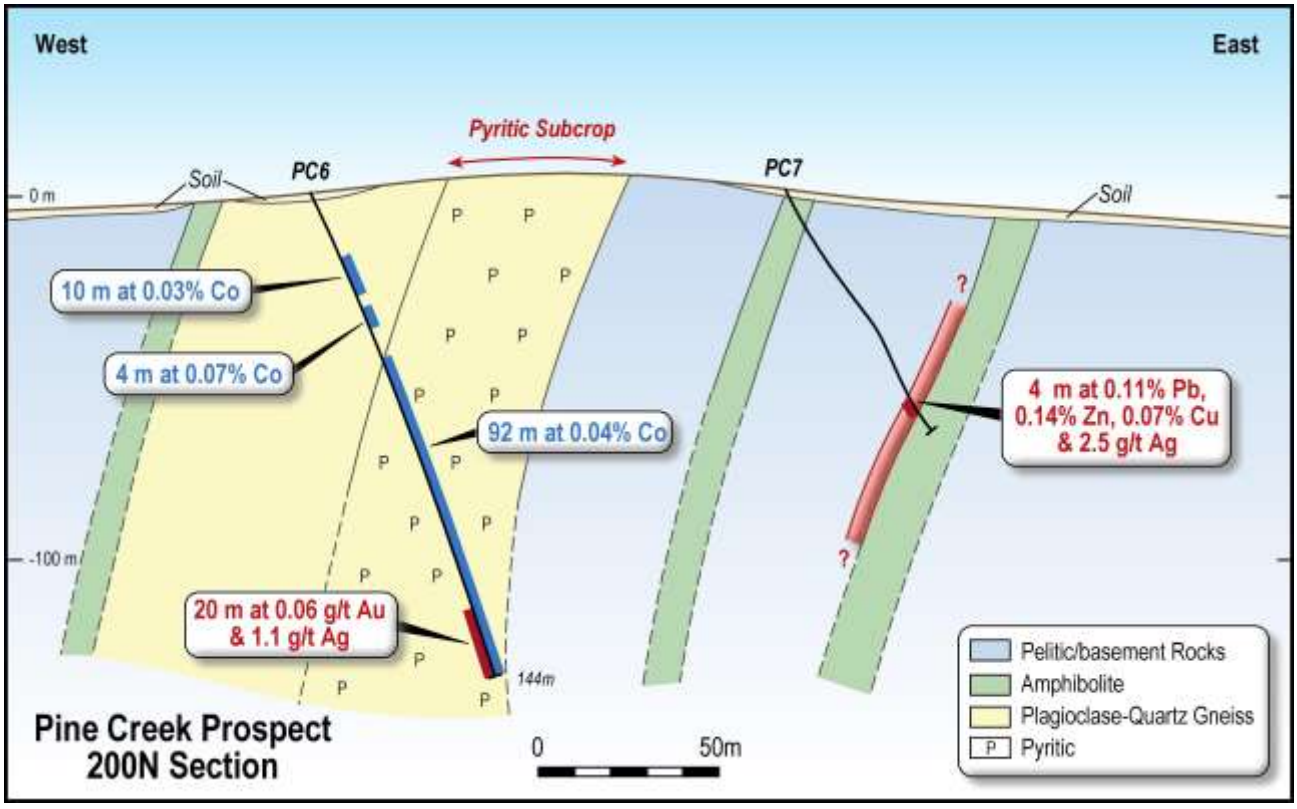


**Figure 2.** Geology and significant drill results of the Pine Creek Project. Note the mineralisation is open at depth.

These are very encouraging results and may indicate the possibility of a large cobalt resource similar to Big Hill-Pyrite Hill in the area that may also have significant gold credits. The airborne magnetic data indicates two sub-parallel zones of interest that extend for at least one kilometre along trend on Impact's licence. In addition IP and EM data completed by the previous explorers identified many anomalies for disseminated and massive sulphide targets that have not been followed up or drilled.

**2. Copper King**

The Copper King area is a series of historic copper occurrences and workings located in the east of Impact's tenements (Figure 1). Previous work has identified an anomalous copper-cobalt-gold trend up to 3.5 kilometres long which is in part defined by variably magnetic ironstone units. However the focus was mainly on copper exploration and assays for both gold and cobalt are minimal.

Gold is mostly reported in rock chip samples with values reported of up to 0.75 g/t gold. Soil samples and drill samples were not assayed for gold. Rock chip samples for cobalt range up to 0.13% cobalt but there are no drill hole assays.

Three trenches dug in 2012 across parts of the trend near old workings returned up to:

**23 metres at 1.5% copper and 4 g/t silver including 1.5 metres at 3.2% copper.**

The shafts and workings were extensively sampled with good grades and returned up to 3.3% copper, 1.2% lead, 1.2% zinc and 40 g/t silver. This data and limited shallow drilling was used to define a small non-JORC compliant resource estimate for copper. Gold and cobalt were not assayed.

The work done by previous explorers at these and other prospects has often been piecemeal and poorly conceived and executed. There is clear scope within Impact's licences to make multiple discoveries of deposits of copper-cobalt-gold.

**Other Targets**

Magnetic ironstones that are potential hosts for cobalt-copper-gold mineralisation are identifiable in the regional airborne magnetic data. An interpretation of this data and regional geological maps shows that there are many strike kilometres of prospective ironstones within Impact's ground (Figure 1). In addition there are large tracts of ground that may contain the same rocks prospective for the Thackaringa style of pyrite-cobalt(-gold) deposits (Figure 1).

**NEXT STEPS**

Impact remains firmly focussed on its exploration for deposits of high grade nickel-copper-PGM at Broken Hill and follow up work for this style of deposit will be a priority, in particular follow up field work in the eight areas identified by the VTEM survey in the Rockwell-Little Broken Hill Trend (see announcement 3rd May 2017).

However the ongoing review of previous exploration data continues to reveal the potential for other styles of mineralisation including cobalt-copper-gold and silver-lead-zinc, all of which deserve further work.

Accordingly Impact is considering various options to fund exploration for these other styles of deposit.

**Dr Michael G Jones**
**Managing Director**

*The review of exploration activities and results contained in this report is based on information compiled by Dr Mike Jones, a Member of the Australian Institute of Geoscientists. He is a director of the company and works for Impact Minerals Limited. He has sufficient experience which is relevant to the style of mineralisation and types of deposits under consideration and to the activity which he is undertaking 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 (the JORC Code). Mike Jones has consented to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

## APPENDIX 1 - SECTION 1 SAMPLING TECHNIQUES AND DATA

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Sampling techniques** | *Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* | **Rock Chip Samples**<br>Random rock samples were taken at surface which represented favourable geology and alteration to known mineralisation in the region. Samples are variably weathered.<br>**Soil Samples**<br>Soil samples were taken at 50 m intervals from a hole 15-20 deep and sieved to -2mm to collect about 250 g of material.<br>**Diamond Drilling**<br>Diamond drilling was used to produce drill core either with a diameter of 63.5 mm (HQ) or 47.6 mm (NQ). A handheld XRF instrument was used to analyse the drill core at 50 cm intervals. |
| | *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used* | **Rock Chip Samples**<br>Representative rock chip samples at each sample site weigh between 0.8 and 1.2 kg. Soil samples are taken at a consistent depth below surface and sieved.<br>**Soil Samples and Drill Samples**<br>Sample representivity was ensured by a combination of Company Procedures regarding quality control (QC) and quality assurance / testing (QA).<br>Examples of QC include (but are not limited to), daily workplace and equipment inspections, as well as drilling and sampling procedures.<br>Examples of QA include (but are not limited to) collection of "field duplicates", the use of certified standards and blank samples approximately every 50 samples. |
| | *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information* | **Rock Chip and Diamond Drill Samples**<br>Rock samples and split diamond core were sent to Intertek Adelaide where they were crushed, dried and pulverised (total prep) to produce a 25-30 g sub-sample for analysis by four acid digest with an ICP/AES finish for ore grade base metal samples and either lead collection or nickel sulphide fire assay with AAS or MS finish for gold and the PGMs. Weathered samples contained gossanous sulphide material. Soil samples were sent to SGS Perth for analysis by the MMI digest.<br>The XRF data is qualitative only. A comparison between the XRF results and wet chemical assay data will be completed on receipt of final results. |
| **Drilling techniques** | *Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).* | Diamond Drilling comprises NQ (47.6 mm diameter) and HQ (63.5 mm diameter) sized core. Impact diamond core is triple tube and is oriented. Historical diamond core was not oriented. |
| **Drill sample recovery** | *Method of recording and assessing core and chip sample recoveries and results assessed* | Diamond core recoveries for all holes are logged and recorded. Recoveries are estimated to be approximately >97% for the Red Hill Prospect. No significant core loss or sample recovery problems are observed in the drill core. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *Measures taken to maximise sample recovery and ensure representative nature of the samples* | Diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the driller. |
| | *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.* | No sample bias has been established. |
| **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.* | Geological logging of samples followed company and industry common practice. Qualitative logging of samples included (but not limited to); lithology, mineralogy, alteration, veining and weathering. Diamond core logging included additional fields such as structure and geotechnical parameters.<br><br>Magnetic Susceptibility measurements were taken for each 0.5 m diamond core interval.<br><br>For diamond core, information on structure type, dip, dip direction, texture, shape and fill material has been recorded in the logs. RQD data has been recorded on selected diamond holes. Handheld XRF analysis was completed at 50 cm intervals on diamond core. |
| | *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* | All logging is quantitative, based on visual field estimates. Systematic photography of the diamond core in the wet and dry form was completed. |
| | *The total length and percentage of the relevant intersections logged* | All diamond drill holes were logged in full.<br><br>Detailed diamond core logging, with digital capture was conducted for 100% of the core by Impact's on-site geologist. |
| ***Sub-sampling techniques and sample preparation*** | *If core, whether cut or sawn and whether quarter, half or all core taken.* | All core samples were sampled by half core. Selected intervals of quarter core will be selected for check assays if required. |
| | *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* | No RC drilling results are reported. |
| | *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* | Company procedures were followed to ensure sub-sampling adequacy and consistency. These included (but were not limited to) daily work place inspections of sampling equipment and practices, as well as sub-sample duplicates ("field duplicates"). |
| | *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* | Laboratory QC procedures for rock sample and diamond drill core assays involve the use of internal certified reference material as assay standards, along with blanks, duplicates and replicates. |
| | *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.* | **Rock and Soil Samples**<br>Field duplicates were taken at selected sample sites. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| | *Whether sample sizes are appropriate to the grain size of the material being sampled.* | **Diamond Core Samples**<br>Quarter core duplicate samples are taken randomly every 50 samples. Sample sizes at Red Hill are considered adequate due to mineralisation style. |
| **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.* | An industry standard fire assay technique for samples using lead collection with an Atomic Absorption Spectrometry (AAS) finish was used for gold and aqua regia digest for base metals and silver. |
| | *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.* | No geophysical tools were used to determine material element concentrations. A handheld XRF was used for qualitative analysis only. |
| | *Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.* | **Rock Chip Samples**<br>For the rock chips, quality control procedures for assays were followed via internal laboratory protocols. Accuracy and precision are within acceptable limits.<br>**Diamond Drill Samples**<br>Reference standards and blanks are routinely inserted into every batch of samples at a rate of 1 in every 50 samples. |
| **Verification of sampling and assaying** | *The verification of significant intersections by either independent or alternative company personnel.* | The results have not been verified by independent or alternative companies. This is not required at this stage of exploration. |
| | *The use of twinned holes.* | No drilling results are reported. |
| | *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* | Primary assay data for rock chips has been entered into standard Excel templates for plotting in Mapinfo. All historical drill data has been entered digitally by previous explorers and verified internally by Impact. |
| | *Discuss any adjustment to assay data.* | There are no adjustments to the assay data. |
| **Location of data points** | *Accuracy and quality of surveys used to locate drillholes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* | Sample locations and drill holes were located by hand held GPS. |
| | *Specification of the grid system used.* | The grid system for Broken Hill is MGA_GDA94, Zone 54. |
| | *Quality and adequacy of topographic control.* | Standard government topographic maps have been used for topographic validation.<br>For the diamond holes, down-hole single shot surveys were conducted by the drilling contractor. Surveys were conducted at 15 m, 30 m and then approximately every 30 m down-hole. |
| **Data spacing and distribution** | *Data spacing for reporting of Exploration Results.* | Sample spacing for the soil survey was on a 50 m by 50 m grid.<br>Reconnaissance drill spacing is approximately 200 m. |
| | *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.* | Estimations of grade and tonnes have not yet been made. |

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|---|---|---|
| | *Whether sample compositing has been applied.* | Sample compositing has not been applied. |
| **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.* | Not relevant to soil and rock chip results.<br>The orientation of mineralisation in RHD001 yet to be determined. |
| | *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.* | Not relevant to soil and rock chip results or early stage exploration drill results. |
| **Sample security** | *The measures taken to ensure sample security.* | Chain of custody is managed by Impact Minerals Ltd. Samples for Broken Hill are delivered by Impact Minerals Ltd by courier who transports them to the laboratory for prep and assay. Whilst in storage, they are kept in a locked yard. Tracking sheets have been set up to track the progress of batches of samples. |
| **Audits or reviews** | *The results of any audits or reviews of sampling techniques and data.* | At this stage of exploration a review of the sampling techniques and data by an external party is not warranted. |

## SECTION 2 REPORTING OF EXPLORATION RESULTS

| 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. | The Broken Hill Project currently comprises 1 exploration licences covering 100 $km^2$. The tenement is held 100% by Golden Cross Resources Ltd. Impact Minerals Limited is earning 80% of the nickel-copper-PGE rights in the licence from Golden Cross. No aboriginal sites or places have been declared or recorded over the licence area. There are no national parks over the license area. |
| | 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. | The tenement is in good standing with no known impediments. |
| **Exploration done by other parties** | Acknowledgment and appraisal of exploration by other parties. | There has been no significant previous work at this prospect. |
| **Geology** | Deposit type, geological setting and style of mineralisation. | Nickel-copper-PGE sulphide mineralisation associated with an ultramafic intrusion. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **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. | See Table in text. |
| **Data aggregation methods** | In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated. | All reported assays have been length weighted. No top cuts have been applied. A cut-off of approximately 0.1% Cu, 0.4% Cu and 1.0% Cu has been applied for reporting of exploration results. |
| | 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. | High grade massive sulphide intervals internal to broader zones of disseminated sulphide mineralisation are reported as included intervals. |
| | The assumptions used for any reporting of metal equivalent values should be clearly stated. | No metal equivalents have been reported. |
| **Relationship between mineralisation widths and intercept lengths** | These relationships are particularly important in the reporting of Exploration Results.<br>If the geometry of the mineralisation 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 (e.g. 'down hole length, true width not known'). | The orientation of mineralisation in RHD001 is yet to be determined. |
| **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. | Refer to Figures in body of text. |
| **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 reported are representative |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **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. | Assessment of other substantive exploration data is not yet complete however considered immaterial at this stage. |
| **Further work** | The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive | Follow up work programmes will be subject to interpretation of results which is ongoing. |