ASX Announcement

1st August 2022



# MULTIPLE NEW CONDUCTORS IDENTIFIED AT THE POLAR BEAR NICKEL PROJECT, WESTERN AUSTRALIA

**Key Points**

- **An ultra-sensitive, deep penetrating electromagnetic (EM) survey at the Polar Bear nickel project in Western Australia has identified multiple new conductors in areas considered prospective for nickel sulphide mineralisation**
- **These conductors are located in favourable positions along basal ultramafic stratigraphy and proximal to nickeliferous outcrops and/or anomalous nickel and copper identified in previous shallow drilling**
- **Polar bear is a fertile nickel system with three known zones of nickel sulphide mineralisation at the Halls Knoll, Taipan and Gwardar prospects with prior drill intercepts including:**
  - **4.1 metres at 3.8% Ni, 2.45% Cu, 0.08% cobalt and 2.5 g/t Pd+Pt from 104.4 metres (Taipan),**
  - **17.8 metres at 0.75% Ni from 183.0 metres, incl. 0.75 metres at 2.4% Ni from 194.5 metres and 0.7 metres at 3.31% Ni, 0.4% Cu from 200.2 metres and 3.3 metres at 1.4% Ni, 0.2% Cu from 223.7 metres (Gwardar), and**
  - **9.0 metres at 1.0% Ni, 0.22% Cu, 0.2 g/t Pd+Pt from 2.0 metres (Halls Knoll)**
- **S2 plans to drill these new conductions in the coming months as soon as a suitable drill rig becomes available**

S2 Resources Ltd ("S2" or the "Company") advises that the recently completed EM survey at the Polar Bear Project in Western Australia using a low temperature superconducting quantum interference device (SQUID) instrument has successfully identified multiple conductors located in zones considered prospective for nickel sulphide mineralisation.

The Company holds 100% of the nickel and associated metal rights over an area of 435 square kilometres at the Polar Bear project, which covers the southeast extension of the prolific Kambalda and Widgiemooltha nickel belts (Figure 1). To date, S2 and its predecessor Sirius Resources ("Sirius"), have intermittently drilled only 10% of the prospective ultramafic stratigraphy at Polar Bear, due to most of it being located beneath salt lake sediments not amenable to conventional

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EM techniques. Access to the SQUID technology, which can see through the hypersaline (and conductive) overburden, has now expanded the nickel search space tenfold.

Commenting on the results of the EM survey, S2's Chief Executive Officer Matthew Keane said "as anticipated, this survey has generated some very exciting drill targets. We regard Polar Bear as one of the most prospective nickel sulphide projects in Western Australia as it has many of the hallmarks we seek, including the right rocks (cumulate channel facies komatiites), the right processes (sulphur saturation), lots of smoke (widespread nickel sulphide mineralisation), little prior drilling under the lake, and now confirmation of multiple EM conductors. We have finally been able to get access a technique capable of seeing through the salt lake and it has yielded good results. The next step is to drill".

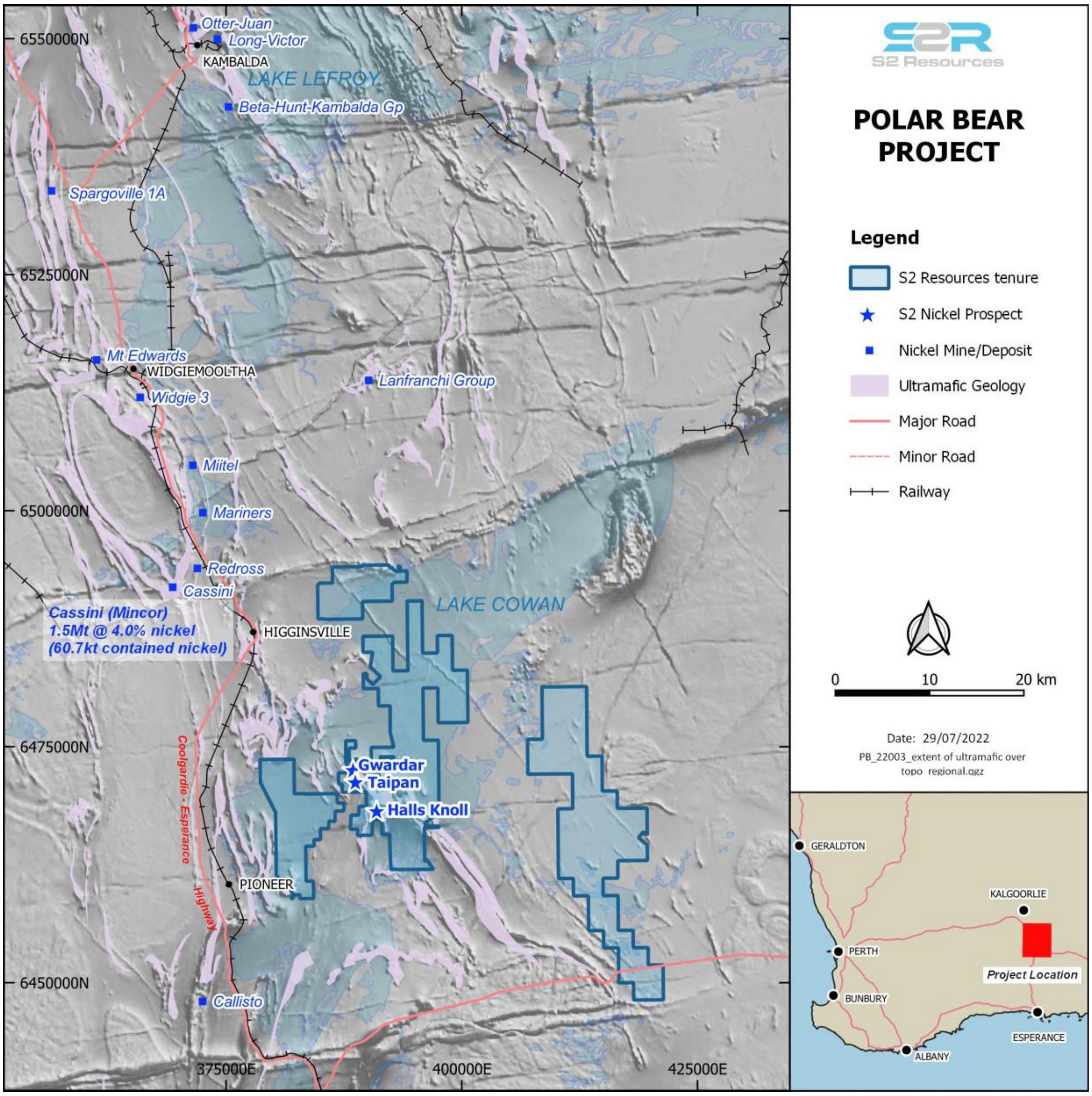


Figure 1. Location map of the Polar Bear Project relative to the Kambalda and Widgemooltha nickel fields, showing distribution of prospective ultramafic stratigraphy (in pink) and location of S2's prospects.

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**Modern geophysics defines new EM conductors**

EM surveys are a common early-stage tool deployed in the exploration of nickel sulphides. However, much of the prospective ultramafic geology at Polar Bear lies beneath Lake Cowan which is not amenable to conventional EM techniques due to the hypersaline sediments of the salt lake, which are highly electrically conductive and hide the subtle electrical signatures of deeper sulphide mineralisation. Consequently, the three known nickel occurrences defined to date, namely the Halls Knoll, Taipan and Gwardar prospects, were discovered from mapping of outcropping gossans or via surface geochemistry over the relatively small part of the project area that is not concealed beneath slat lake sediments.

In July 2022, S2 completed an EM survey utilising an ultra sensitive, low temperature superconducting quantum interference device (SQUID) instrument, which was previously proprietary technology and has only become available in recent times to the broader exploration industry. Preliminary interpretation of this survey has identified multiple new conductors, several of which are located in zones considered prospective for nickel sulphide mineralisation based on independent evidence such as lithology, geochemistry and stratigraphic position (Figure 1). Detail of these conductors is provided below (refer to Figure 2):

*PBC22-1 Conductor*

This conductor is located approximately one kilometre east of the Halls Knoll prospect and coincides with a north-south magnetic anomaly that is interpreted as the fault offset, continuation of the ultramafic stratigraphy that hosts the Halls Knoll mineralisation. A single line of shallow aircore holes previously drilled above the conductor were anomalous in nickel and copper (i.e. 8 metres at 0.32% Ni and 0.03% Cu from 4 metres in SPBA3578).

*PBC22-2a and PBC22-2b Conductors*

These conductors are located on the southerly extension of the ultramafic sequence south of the Halls Knoll mineralisation. The conductors are difficult to model, due to interference with a large early time conductor which is most likely to be a sediment to the west, overprinting the more subtle late time response. Further enhancing the location of the conductors' prospectivity is their proximity to a previous Sirius/S2 drillhole that intersected 10.2 metres at 0.44% Ni, 0.1% Cu and 0.35g/t Pd+Pt from 60.8 metres (SPBD0008) in disseminated sulphides within a cumulate ultramafic, located up-dip on the northern edge of conductor PBC22-2a.

*PBC22-3 Conductors*

EM conductor PBC22-3 is located east of the Taipan prospect and is a discrete late-time anomaly. A single previous diamond hole drilled in 2006 by INCO intersected sediments with minor stringer sulphides, which was believed by INCO at the time to explain the original conductor and not sampled. However, subsequent downhole EM (DHEM) by Sirius demonstrated an off-hole conductor response, indicating the hole missed the uppermost edge of the conductor. The position of this DHEM conductor has been replicated by S2's recent SQUID survey, confirming the presence of an untested conductor immediately down dip of the historical intercept.

*PBC22-4 Conductors*

These conductors comprise several north-south oriented EM plates trending over 1.7 kilometres along the western margin of the ultramafic sequence along the Halls 5 trend (named after the outcropping nickeliferous Halls 5 gossan). This trend appears to be the same stratigraphic horizon that hosts mineralisation at Halls Knoll to the east. Whilst the conductors may reflect a response from conductive sedimentary rocks to the west of the ultramafic, the association with the Halls 5 gossan, which grades up to 1.0% Ni, 0.2% Cu and 0.12 g/t Pd+Pt immediately adjacent the surface projection of the conductor, enhances the potential for the presence of nickel bearing sulphides along this trend.

*PBC22-5 Conductors*

This series of conductors is located 600 metres south of the Taipan prospect and consists of several northwest striking conductive plates over a 1.5 kilometre strike length. The conductors align with nickel and copper anomalies in ultramafic rocks identified in previous shallow aircore drilling.

**Next steps**

S2 plans to commence drilling these conductors at Polar Bear in the second half of calendar 2022 as soon as a suitable salt lake-capable diamond and/or RC rig becomes available. This drilling will target the new conductors and also down-dip extensions of known nickel sulphide mineralisation.

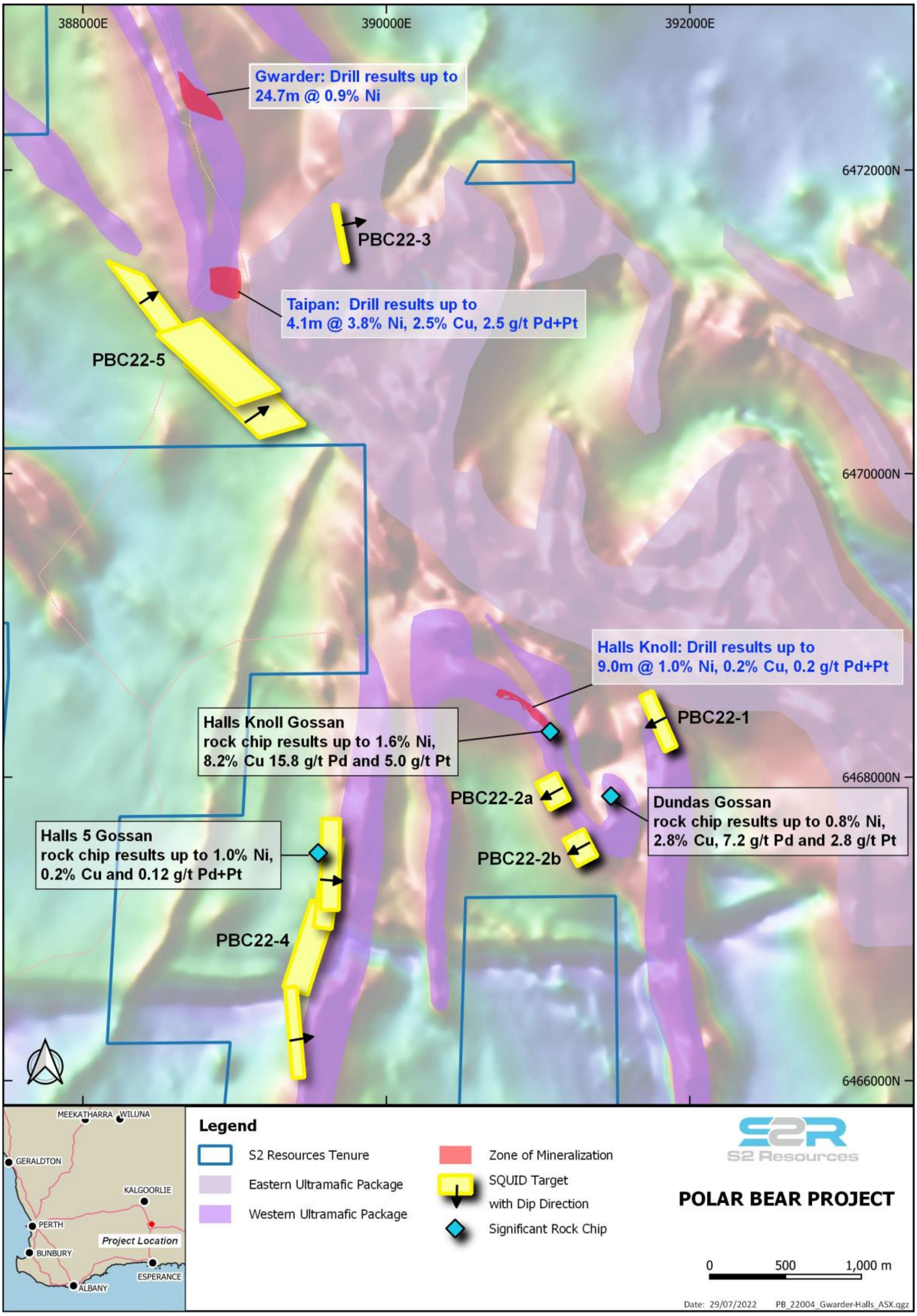


Figure 2. Location of electromagnetic conductors identified in a recent SQUID survey at the Polar Bear Project, over regional magnetics and interpreted geology. The location of known nickel sulphide occurrences at the Gwardar, Taipan and Halls Knoll prospects are also shown.

**An underexplored fertile nickel system**

Polar Bear has three known zones of confirmed nickel sulphide mineralisation associated within cumulate facies ultramafic channels at the Halls Knoll, Taipan and Gwardar prospects (Figure 1). However, only 10% of the prospective ultramafic stratigraphy has been explored to date and much of the historic aircore drilling was gold focussed and not assayed for base metals. Details of defined nickel sulphide occurrences are as follows:

*Taipan Prospect*

Two zones of nickel sulphide mineralisation have been defined at the Taipan prospect within a thick shallow northerly plunging cumulate ultramafic channel. The west zone is characterised by the classical Kambalda style zonation with massive sulphide on the basal contact grading upward into matrix / net-textured sulphide then into disseminated sulphides. The East Zone is primarily disseminated sulphides. Better intercepts from previous drilling at the Taipan prospect include:

- 4.1 metres at 3.8% Ni, 2.5% Cu, 0.08% Co, 2.5g/t Pd+Pt from 104.4 metres, including 2.2 metres at 5.8% Ni, 3.7% Cu, 0.12% Co 2.8g/t Pd+Pt from 106 metres in SPBD0046 (Taipan – West Zone),
- 20 metres at 0.62% Ni, 0.10 % Cu, 0.02% Co, 0.59g/t Pd+Pt platinum from 113 metres including 2.0 metres at 1.5% Ni, 0.4% Cu, 0.03% Co, 2.4g/t Pd+Pt from 131 metres in SPBC0062 (Taipan – West Zone),
- 53 metres at 0.5% Ni, 0.05% Cu and 0.01% Co, 0.29g/t Pd+Pt from 23 metres in SPBC0070 (Taipan – East Zone), and
- 10 metres at 0.7 g/t Ni, 0.1% Cu, 0.01% Co, 0.34g/t Pd+Pt 90 metres in SPBC0074 (Taipan – East Zone).

Mineralisation at Taipan has been defined over a 250 metres strike length, with a dip extent of at least 150 metres and remains open both north and south. Previous drilling intersected a narrow zone of remobilised nickel sulphide within the ultramafic sequence 300 metres north of the prospect, with no drilling in-between.

*Gwardar Prospect*

The Gwardar prospect is located approximately one kilometre north of Taipan. Mineralisation is primarily disseminated with narrow zones of massive sulphide (<0.30 metres) on the basal contact. Drilling has also identified localised zones of remobilised vein and stringer sulphide extending up to 30 metres into the footwall sequence. Better drill results from the Gwardar prospect include:

- 17.8 metres at 0.75% Ni from 183 metres, including 0.8 metres at 2.4% Ni from 194.53 metres and 0.7 metres at 3.3% Ni, 0.4% Cu from 200.1 metres and 3.3 metres at 1.4% Ni, 0.2% Cu from 223.67 metres, and
- • 24.7 m at 0.9% Ni from 241.0 metres, including 8.1 metres at 1.3% Ni from 241.94 metres and 7.8 metres at 0.6% Ni from 306.0 metres.

Drilling to date has defined a 100 metre thick channel with multiple mineralised flows over a strike of at least 150 metres and at least 400 metres down plunge. The mineralisation remains open at depth and along strike, however to the north, the basal contact of the ultramafic channel has been partially stoped out by felsic porphyry which has to date obscured continuity.

*Halls Knoll Prospect*

Mineralisation at Halls Knoll occurs near the fold hinge of the ultramafic sequence, proximal to a regional northwest trending fault. It occurs as primary blebby and disseminated sulphides within the cumulate ultramafic rocks, as well as remobilised veins of semi massive sulphide. Better grades from drilling at Halls Knoll include:

- 9.0 metres at 1.0% Ni, 0.2% Cu and 0.17 g/t Pd+Pt from 2.0 metres, and
- 10.2 metres at 0.4% Ni, 0.1% Cu, 0.4 g/t Pd+Pt from 60.8 metres

Two high-grade gossans (Halls Knoll and Dundas gossans) are situated south along strike, however the primary source of this mineralisation is yet to be defined. The Halls Knoll gossan grades up to 20.8g/t Pd+Pt, 8.2% Cu and 1.6% Ni Figure 3).

Figure 3. Photograph of a rock specimen from the Halls Knoll Gossan

This announcement has been provided to the ASX under the authorisation of the S2 Board.

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Past Exploration results reported in this announcement have been previously prepared and disclosed by S2 Resources Ltd in accordance with JORC 2012. The Company confirms that it is not aware of any new information or data that materially affects the information included in these market announcements. The Company confirms that the form and content in which the Competent Person's findings are presented here have not been materially modified from the original market announcement. Refer to www.s2resources.com.au for details on past exploration results.

**Competent Persons statements**

The information in this report that relates to Exploration Results from Australia is based on information compiled by John Bartlett, who is an employee and shareholder of the Company. Mr Bartlett is a member of the Australian Institute of Mining and Metallurgy (MAusIMM) and has sufficient experience of relevance to the style of mineralization and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Bartlett consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

The following Tables are provided to ensure compliance with the JORC code (2012) edition requirements for the reporting of exploration results.

## 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 Polar Bear project consists of a number of exploration licenses, prospecting licenses, mining licenses and a mining license application. The tenements are owned by Polar Metals Pty Ltd, a wholly owned subsidiary of Karora Resources(KRR:TSE). S2 hold rights (100%) of any nickel mineralisation (and associated metals) within the Polar Bear project.<br><br>The Polar Bear Project is located within the Ngadju Native Title Claim (WC99/002). |
| | 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. | All of the Exploration Licences are in good standing and no known impediments exist on the tenements being actively explored. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Exploration done by other parties** | Acknowledgment and appraisal of exploration by other parties. | The first recorded exploration for nickel at Polar Bear was undertaken by Anaconda Nickel Ltd, who completed rock chip sampling, soil sampling, costean sampling as well as percussion and diamond drilling along interpreted ultramafic basal contact. Collar locations from historical drill holes have not been field verified.<br><br>INCO conducted a reconnaissance small loop Slingram type EM survey. Inco completed limited aircore drilling and six diamond holes within the Polar Bear project<br><br>Sirius Resources undertook targeted MLEM geophysical surveys over selected areas, regional aircore drilling as well as RC and diamond drilling at Halls Knoll, Taipan and Gwardar prospects.<br><br>The collar locations for all INCO and Sirius drill holes have been verified by S2 personnel. |
| **Geology** | Deposit type, geological setting and style of mineralisation. | The geology at Polar Bear is dominated by complexly deformed Achaean greenstone assemblages of the Norseman-Wiluna Greenstone Belt which have been metamorphosed to upper greenschist facies.<br><br>The Eundynie Mafic Sequence (EMS) consists of tightly folded ultramafic and mafic intrusives and extrusives with minor interflow sediments. The rocks are frequently talc-carbonate altered and moderately well foliated. The ultramafic rocks are typically komatiites and komatiitic basalt.<br><br>The deposit style sought after is analogous to Kambalda-style nickel copper sulphide deposits. |
| **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. | No new drill holes reported - all historical drill holes referred to in this announcement have been reported previously. |
| **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. | Reported assay results for diamond drilling have been length and bulk density weighted. Intervals have been calculated using a 0.4% nickel lower cut-off, with maximum of 2m internal dilution. |
| | 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. | Individual sample intervals vary between 0.2 and 1.2 metres, selected based on lithological contacts. |
| | The assumptions used for any reporting of metal equivalent values should be clearly stated. | No reporting of metal equivalent has been used. |

| Criteria | JORC Code explanation | Commentary |
|---|---|---|
| **Relationship between mineralisation widths and intercept lengths** | These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. 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'). | All historical drill results reported are down hole lengths, with true widths not confirmed. |
| **Diagram** | 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 considered significant 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. | This report outlines the results of a recent MLEM program, completed by GEM Geophysics utilising a low temperature (liquid helium) superconducting quantum interference device (SQUID) in a slingram configuration. The survey was completed using 200m x 200m loops and station spacing of 100m and lines spacing of 200m |
| **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 | A drilling program (diamond +/- RC) is currently being planned to test the source of each of the conductors identified. This program will be completed once all relevant government approvals have been received and an appropriate drill rig has been secured.<br><br>Follow-up downhole EM is planned on each of the drill holes completed to confirm the source of the MLEM response has been tested. |