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ASX Announcement 15 August 2024

GOLD PROSPECTIVITY ENHANCED AT BLACK SWAN AND LAKE JOHNSTON

Geological setting at Black Swan confirmed to be favourable for gold

- Gold bearing structures identified throughout the geological sequence
- Geological setting shown to be very similar to nearby gold mines including Kanowna Belle and Gordon Sirdar
- 52 gold nuggets found so far from the interpreted gold bearing structures
- Low-cost soil sampling program to be completed this month to better define the emerging gold trends. Anomalies identified will be followed up with drilling

Felsic intrusive copper-gold system indicated at Lake Johnston

- LJPD0032 intersection of 2.26g/t Au and 2.36% Cu confirmed as a mineralised felsic intrusive
- Association of a broad, open ended, Cu-Au soil anomaly at Billy Ray and the likely link to the mineralised Cu-Au drill intersection beneath supports the prospectivity for a larger Cu-Au system
- The Billy Ray Cu-Au soil anomaly is open and strikes into the newly acquired Mantis tenement, presenting a high priority opportunity to undertake a systematic, multi-element soil sampling program for the first time

Windarra along trend of known gold mineralisation

- Windarra is interpreted to contain strike extensions to the main mineralised gold trend which
 controls nearby gold camps Lancefield and Beasley Creek
- Promising gold in soil anomalies within the tenements and over this prospective corridor will also be followed up with modern day soil programs

Poseidon Nickel (ASX: POS, the Company) is pleased to provide an update of its gold exploration programs across its three projects.

CEO, Brendan Shalders, commented, "*Recent exploration activities have further enhanced the gold prospectivity at Black Swan and Lake Johnston.*

Black Swan is located within the Boorara Geological Domain which hosts a number of gold mines including the nearby Kanowna Belle, Mungarra and Gordon Sirdar projects. The 52 gold nuggets recovered to date enhances the prospectivity of the interpreted gold structures that intersect with the geological sequences at Black Swan.

The team plans to complete a soil sampling program at Black Swan this month to further test the gold prospectivity at the project.



At Lake Johnston, further assessment of the open-ended broad Billy Ray gold in soil anomaly has also confirmed coincident copper anomalism. When considering the likely link to the previously reported LJPD0032 drill intersection grading 2.26g/t Au and 2.36% Cu in a mineralised felsic intrusive, support is building for a larger Cu-Au system in the area. Planned soil sampling across the Mantis tenement will include other important pathfinder elements useful in targeting intrusive related gold systems (Bi-Sb-Tb-As-Te-Ag), which were not assayed historically.

When considering the historical nickel focus at all of our projects, there has been very little sustained exploration for other commodities despite all three projects being located in the heart of the Eastern Goldfields region of Western Australia.

The recently reported gold anomalies at Windarra, the increased gold prospectivity at Black Swan and the growing Cu-Au potential at Lake Johnston all offer exciting opportunities to carry out low-cost, high reward exploration programs whilst maintaining our nickel resources and infrastructure options.

The pleasing progress reported today and planned programs remain consistent with our strategy to assess the greenfields potential for multiple commodities across all three of Poseidon's projects."

Black Swan Geology Setting Favourable for Gold Mineralisation

The Black Swan project is situated west of the Mt Monger Fault amongst a series of interpreted secondary structures emanating from the primary fault which are commonly associated with gold mineralisation. The secondary structures are similar to those controlling the Golden Valley and Kanowna Sequence which hosts a number of large gold deposits including Kanowna Belle and Gordon Sirdar (see Figure 1).

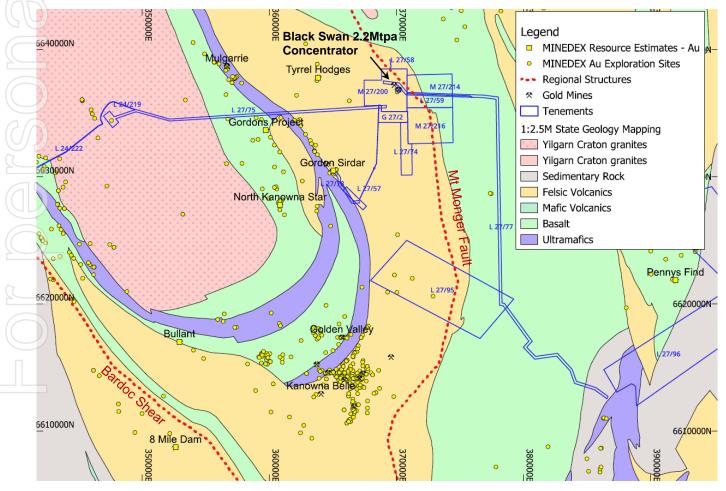


FIGURE 1: BLACK SWAN REGIONAL GEOLOGY MAP & TENEMENT LOCATIONS

ASX Announcement



Komatiitic nickel deposits such as Black Swan occur as channel like features that are interpreted to be following very early-stage crustal scale structures that remain active throughout the Earth's geological history. These long-lived structures may become reactivated during the gold mineralising events meaning that separate nickel and gold mineralisation events can share common structural associations (i.e. Beta Hunt).

Following on from the recently reported gold nuggets discovered at Black Swan, metal detecting programs have so far recovered a total of 52 gold nuggets with a combined weight of 17.9 grams.

The nuggets are small in size (typically <0.6 grams in weight) and angular, indicating limited mobility and in-situ formation from a likely nearby source. The nuggets have been found clustered in a single area with the remainder of the tenements not yet tested.

A recent field trip noted the gold nuggets are mapped within hangingwall felsic volcanics with areas of quartz veining and breccias, and ferruginous lag which could be a source for gold mineralisation.



FIGURE 2: EXAMPLES OF GOLD NUGGETS DISCOVERED AT BLACK SWAN

As announced previously, due to the historical focus on nickel there has been very limited gold exploration on the Black Swan tenements with only 5% of the sampling intervals from drilling assayed for gold. The gold in drilling results reported in ASX announcement "*Update on Gold Exploration Programs*" dated 30 July 2024 occur throughout geological sequence indicating all units are prospective for gold mineralisation.

The Company intends to complete a soil sampling program during the 2nd half of August 2024 to further define the gold opportunity and identify key targets which can be followed up with shallow aircore (AC) or reverse circulation (RC) drilling.



Copper - Gold Association at Lake Johnston

Further assessment of the gold opportunity at the Billy Ray Prospect has noted the previously reported copper-gold drill intersection in the region (LJPD0032: 0.2m @ 2.26g/t Au and 2.36% Cu from 149.62m, refer to ASX announcement "*Update on Gold Exploration Programs*" dated 30 July 2024) is hosted in a felsic intrusive setting within an ultramafic unit and could be part of a larger copper-gold event. Regionally in the Eastern Goldfields, felsic intrusive units have been identified as an important host for gold mineralisation.



FIGURE 3: GOLD/COPPER INTERSECTION LJPD0032: 0.2m @ 2.26G/T AU AND 2.36% CU HOSTED WITHIN A COARSE GRAINED INTRUSIVE

The existing core from Billy Ray has been located within the core farm at Lake Johnston and shows strong bleaching with disseminated chalcopyrite (see Figure 3). LJPD0032 will be relogged and sampled to characterise multi-element associations of the gold mineralisation event and will aid further refinement of the gold soil anomaly.

Continued assessment by the Company of the soil database has noted coincident copper anomalism with the in-soil gold anomaly at Billy Ray (see Figure 4). This Cu-Au association within the soils shows further encouragement for a felsic intrusive Cu-Au association that trends to the north-east, where the anomaly remains open and untested.

A soil sampling program has commenced to extend the Billy Ray Cu-Au anomaly onto the Mantis tenement, E63/2244. The program is part of a larger systematic soil program to provide baseline coverage over the entire Lake Johnston tenement package. Large areas of prospective stratigraphy for Cu-Au-Li remain untested due to the historic nickel focus and will be the first of its kind where a large suite of pathfinder elements will be assayed to aid exploration targeting. The proposed program is considered the most cost effective approach to rapidly progress the greenfields potential for these targeted commodities.

The Company is aiming to report some preliminary results from this soil program during the September 2024 quarter. Any anomalies identified will be followed up with drilling.

ASX Announcement



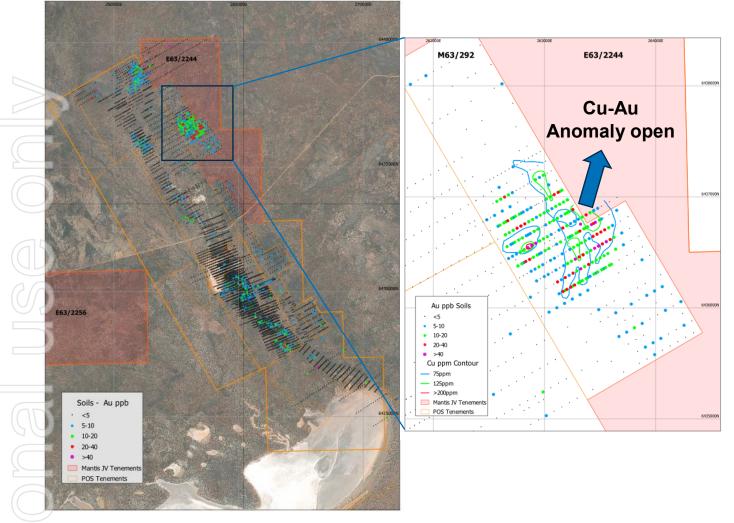


FIGURE 4: LARGE, OPEN COINCIDENT COPPER-GOLD ANOMALY AT BILLY RAY. NOTE THE LARGE AREAS WITHIN THE LAKE JOHNSTON TENEMENT PORTFOLIO NOT COVERED BY SOIL SAMPLING AND VERY PROSPECTIVE FOR AU-CU-LI. HISTORIC SOILS WERE ONLY FOCUSSED OVER NICKEL PROSPECTIVE AREAS.



Windarra Along Strike of Major Mineralised Gold Trend

With the termination of the Windarra State Agreement and transition of the Windarra tenure to a mining lease in early 2022 (refer ASX announcement "*Quarterly Activities Report – March 2022*" dated 29 April 2022), the Company now has the right to mine for all metals and minerals and processing of tailing, not just nickel, subject to normal permitting conditions. The Windarra State Agreement is considered to be a major reason why little exploration for other commodities was undertaken historically in the area.

A recent program targeting gold at Windarra identified several gold in soil anomalies. These soil anomalies are interpreted to be along strike of the major regional mineralised gold trend which appears to include the nearby Lancefield and Beasley Creek gold camps (refer ASX Announcement "Gold and Nickel Targets at Windarra" dated 6 June 2024).

The next step is a staged soil program, focusing on infilling and extending the newly identified gold anomalies.

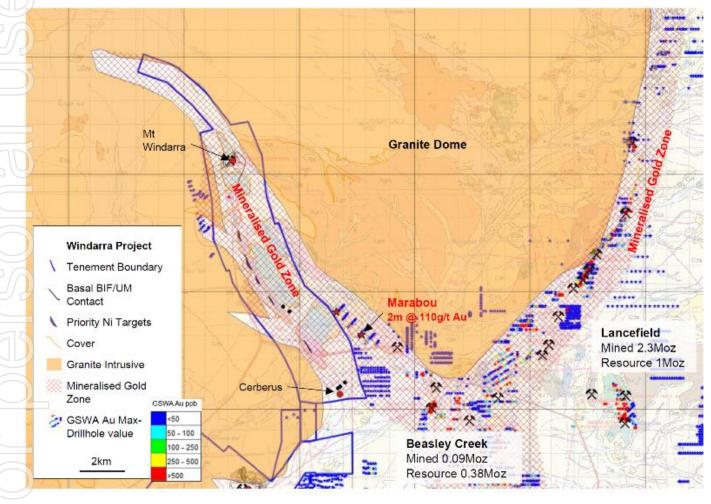


FIGURE 5: PLAN VIEW OF THE GSWA 250K GEOLOGY MAPPING SHOWING THE STRUCTURAL RELATIONSHIP OF THE HIGH PRIORITY MARABOU GOLD TREND AND STRUCTURAL CORRIDOR HOSTING THE LANCEFIELD AND BEASLEY CREEK GROUP OF MINES AROUND THE GRANITOID INTRUSIVE



This announcement was authorised for lodgement by the Board of Poseidon Nickel Limited.

Brendan Shalders CEO 15 August 2024

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About Poseidon Nickel Limited

Poseidon Nickel Limited (ASX Code: POS) is a nickel sulphide exploration and development company with three projects located within a radius of 300km from Kalgoorlie in the Goldfields region of Western Australia and a resource base of over 420,000 tonnes of nickel and 180,000 ounces of gold¹.

Poseidon's strategy is focused on targeted exploration and business development to grow reserves and resources for the eventual restart of its established processing operations in Western Australia with the aim of being a profitable and sustainable producer.

Poseidon owns the Black Swan, Windarra Nickel and Lake Johnston Projects. The mines and infrastructure across all projects, including concentrators at Black Swan and Lake Johnston, present near term development options for Poseidon and peer companies that have mineral resources without established processing infrastructure.

In addition to processing capabilities, the Company has significant nickel exploration opportunities demonstrated by the discovery of the Golden Swan Resource at Black Swan, Maggie Hays West prospect at Lake Johnston and more recently the NW05 and NW04 targets at Windarra. Assessment of other commodities across Poseidon's project portfolio has noted strong lithium prospectivity at Lake Johnston and gold anomalies at all three projects.

The Company completed a Bankable Feasibility Study on Black Swan in November 2022 which is planned to be the first project to restart, subject to appropriate project financing structures being achieved, the outlook for the nickel price improving and all necessary approvals being obtained.

A Definitive Feasibility Study on retreating the gold tailings at Windarra and Lancefield was completed in mid-2022. In December 2023 Mt Morgans entered into a trial processing agreement with Poseidon on the Lancefield gold tailings and accessing the water in the South Windarra pit.

¹ Refer to the Company website, <u>www.poseidon-nickel.com.au</u>, for Resource and Reserves tables



COMPETENT PERSON STATEMENTS:

The information in this report that relates to Exploration Targeting and Results is based on, and fairly represents, information compiled and reviewed by Ms Karyn Parker and Mr Mark Muller. Ms Parker is an employee of Poseidon Nickel and is a Member of The Australian Institute of Geoscientists. Mr Muller is a Member of The Australasian Institute of Mining and Metallurgy and is a full time employee of Muller Geological Services Consultancy Pty Ltd, an independent industry consultancy providing geological services to Poseidon Nickel. Both Ms Parker and Mr Muller have sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which they are 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 2012). Ms Parker and Mr Muller consents to the inclusion in the report of the matters based on their information in the form and context in which it appears.

The information in this report that references previously reported results is extracted from the Company's previous ASX market announcements released on the date noted in the body of the text where that reference appears. The previous market announcements are available to view on the Company's website (www.poseidon-nickel.com.au) or on the ASX website (www.asx.com.au). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Additional information contained within this announcement is extracted from the reports titled:

- "Update on Gold Exploration Programs" dates 30 July 2024
- "Gold and Nickel Targets at Windarra" dated 6 June 2024
- "Quarterly Activities Report March 2022" dated 29 April 2022

FORWARD LOOKING STATEMENTS

Some of the statements contained in this report are forward looking statements. Forward looking statements include, but are not limited to, statements concerning estimates of tonnages, expected costs, statements relating to the continued advancement of Poseidon's project and other statements that are not historical facts. When used in this report, and on other published information of Poseidon, the words such as 'aim', 'could', 'estimate', 'expect', 'intend', 'may', 'potential', 'should' and similar expressions are forward looking statements.

Although Poseidon believes that the expectations reflected in the forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that the actual results will be consistent with these forward-looking statements. Various factors could cause actual results to differ from these forward-looking statements including the potential that the Project may experience technical, geological, metallurgical and mechanical problems, changes in gold and nickel price and other risks not anticipated by Poseidon. Poseidon considers that this summary of the study is presented in a fair and balanced way and believes that it has a reasonable basis for making the forward-looking statements in this announcement, including with respect to any mining of mineralised material, modifying factors, production targets and operating cost estimates. This announcement has been compiled by Poseidon from the information provided by the various contributors to the announcement.



Appendix 1 - Checklist of Assessment and Reporting Criteria

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. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. 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 (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. 	 Soil Sampling Numerous historical soils sampling programs have been carried out at Lake Johnston using various techniques including Lag, BLEG and Soils via aqua regia and Ultrafine techniques. Historical soil sampling was collected on various grids and most commonly on a 400x40m grid stepping down to 200x 40m grid and 100 x 20m in selected areas. Samples were collected from 30cm below surface and were sieved to -6mm fraction to remove organic material. Poseidon soil sampling utilized the Ultrafine technique was conducted on a 200 x 40m grid.
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). 	 No previously unreported drill results have been reported in this release.
Drill sample recovery	 Method of recording and assessing core and chip sample recoveries and results assessed. Measures taken to maximise sample recovery and ensure representative nature of the 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. 	 No previously unreported drill results have been reported in this release.
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. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	 No previously unreported drill results have been reported in this release. Soils samples were logged according to regolith type.
Sub- sampling	If core, whether cut or sawn and whether quarter, half or all core taken.	 No previously unreported drill results have been reported in this announcement.



Criteria	ţ	JORC Code explanation	Commentary
techniq and san prepara	nple	rotary split, etc and whether sampled wet or dry. For all sample types, the nature, quality and appropriateness of the sample preparation technique.	 Historic soil samples were sieved to -6mm fraction. Poseidon soil samples were sieved to - 2mm
Quality assay d and laborato tests	lata	The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. 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. Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	 Historical Soils Samples Numerous generations of soil samples have been collected at Lake Johnston. Generally, soil samples were sent to Ultratrace using a perchloric aqua regia digest followed by ICP/OES for Ni, Cu, Cr, Zn, Mn, Fe and ICP/MS finish was used for Co, As, Au (1ppb DL), Pt (5ppb DL), Pd (10ppb DL).
Verifica of samplin and assayin	ng •	The verification of significant intersections by either independent or alternative company personnel. The use of twinned holes. Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. Discuss any adjustment to assay data.	 Historical drill and soil samples Data was validated and cross referenced to GSWA data. Inconsistencies are present in the data with respect to detection limits and sensitivity.
Locatio data po	-		 Soil Samples Historical soils were collected using a hand held GPS, using AMG 84, zone 51. Poseidon soil samples were located using a Garmin handheld GPS, using GDA 94 / MGA zone 51.
Data spacing and distribu	•	Data spacing for reporting of Exploration Results. 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. Whether sample compositing has been applied.	 All historical results reported are purely exploration in nature. No results reported will be used for the estimation of Mineral Resources or Ore Reserves.
Orienta of data relation geologi structu	in to ical		• Soil sampling is explorative in nature and collected perpendicular to the general stratigraphic trend. Structural trends not taken into account.



Criteria	JORC Code explanation	Commentary
	mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	
Sample security	The measures taken to ensure sample security.	 Soil Samples Poseidon samples were delivered directly to the laboratory by Poseidon staff. No information regarding historical soils samples is available regarding sample security.
Audits or reviews	 The results of any audits or reviews of sampling techniques and data. 	No audits or reviews were completed

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. 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. 	 Mt Windarra Mt Windarra is situated on M261SA (AM70 261). There is a 1% revenue royalty due to BHPB if the nickel product is not sold to/treated by BHPB. There are no material issues at Mt Windarra. Poseidon owns 100% of M261SA which is in good standing and has no overriding encumbrances. Black Swan The Black Swan open pit is centred on M27/39 and extends into M27/200. Silver Swan is wholly located on M27/200 with two other mining leases M27/214 + M27/216 abutting the mining operations. They are located 42.5km NE of Kalgoorlie and registered to Poseidon Nickel Atlantis Operations Pty Ltd, a wholly owned subsidiary of Poseidon Nickel Ltd, following the purchase of the assets. Lake Johnston Mining tenements M63/282, M63/283, M63/284 and M63/163 are all 100% owned by Poseidon Nickel Limited. E63/1784 is a joint venture between Poseidon Nickel (80%) and Essential Metals Limited (20%), Essential Metals has been acquired by Develop Global Limited E63/2244 + E63/2256 is a joint Venture between Poseidon Nickel and Mantis Minerals
Exploration done by other parties	 Acknowledgment and appraisal of exploration by other parties. 	 Mt Windarra Mt Windarra Nickel Project (WNP) was initially discovered by Poseidon NL in 1969 and was then acquired by Western Mining Corporation (WMC) in 1972. Poseidon Nickel Limited (Poseidon) acquired the project in 2005 and recommenced drilling in 2006. No activity took place between the period 1992 to 2006. Black Swan The Silver Swan Mine was discovered by MPI Mines Ltd, then was acquired by Lion Ore in 2004. Much of the exploration drilling



Criteria	JORC Code explanation	Commentary
		 and development was completed by these two companies. In turn Lion Ore was taken over by Norilsk in 2007 who continued mining and developing the underground mine at Silver Swan until 2010. Poseidon Nickel purchased the operation from Norilsk in late 2014. Lake Johnston The Maggie Hays and Emily Ann nickel mines were discovered by LionOre. Much of the exploration drilling and development was completed by LionOre which was taken over by Norilsk in 2007. Norilsk Nickel continued mining and developing the underground mines on and off until 2013. Poseidon Nickel purchased the operation from Norilsk in December 2014.
Geology	 Deposit type, geological setting and style of mineralisation. 	 Mt Windarra The Windarra region is part of the Mt Margret Goldfield and comprises the Windarra Greenstone that wraps around the Mt Margret anticline. Black Swan The Silver Swan and Black Swan deposits are Kambalda style komatiite hosted nickel deposits. Lake Johnston The Emily Ann, Maggie Hays and Abi Rose nickel deposits are hosted within the Central Ultramafic Unit are intrusive-style massive and disseminated nickel deposits. The Western Ultramafic Unit, however, is considered to be a Kambalda-Style Komatiite.
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 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 down hole length and interception depth hole length. 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. 	The soil samples pertaining to this release are depicted in the main body of the release.
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. Where aggregate intercepts incorporate short lengths of high-grade results and 	 Single point soil results have been plotted in this release. No metal equivalents were reported.

ASX Announcement



Criteria	JORC Code explanation	Commentary
	 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. The assumptions used for any reporting of metal equivalent values should be clearly stated. 	
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 (eg 'down hole length, true width not known'). 	 No previously unreported drill results have been reported in this release.
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. 	 Appropriate maps related to this release are included in the main body of the release.
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 soil sample results are depicted on maps within the main body of the release.
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 further substantive exploration data is necessary to support this announcement.
Further work	 The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale stepout 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. 	 Further work is currently being planned an will be reported if and when it occurs in the future.