POSEIDON NICKEL

ASX Announcement

More Nickel in Updated Black Swan Disseminated Mineral Resource

4 July 2022

Key Points

- Updated Black Swan Disseminated Mineral Resource Estimate reported as follows:
  - 28.9Mt at 0.63% nickel containing **181kt nickel** at a 0.4% cut off; including
  - Measured and Indicated Resources of 10.7 Mt at 0.75% nickel containing **80kt nickel**
- Measured and Indicated Resources now have 35% more contained nickel compared to the 2014 Resource
- Global Resource nickel inventory has increased by ~10kt contained nickel and is at a higher average grade
- The updated Black Swan Mineral Resource has significantly improved the confidence in the nickel grade and distribution of the metallurgically important serpentinite and talc-carbonated hosted disseminated mineralisation immediately below the Black Swan open pit
- The update Resource underpins the previously outlined “Fill the Mill” Strategy

Poseidon Nickel (ASX: POS) (“Poseidon” or “the Company”) is pleased to report an updated Mineral Resource Estimate (MRE) for the Black Swan disseminated sulphide deposit at Black Swan.

Managing Director and CEO, Peter Harold, commented, “*The update of the Black Swan Disseminated Resource is an important milestone for our Fill the Mill Strategy. Black Swan has a 2.2Mtpa process plant (mill) and our strategy is to “Fill the Mill” to leverage off the existing infrastructure and large resource base at Black Swan.*

The latest MRE incorporates the results from the recent underground drill programs undertaken from the Gosling drill drive. We are pleased the update has resulted in both an increase in the overall tonnes of contained nickel together with an increase in the inventory of the Measured and Indicated Resources. Most importantly, the recent drilling has provided an improved understanding of the disseminated grade distribution within the metallurgically important serpentinite and talc-carbonate hosted ores below the existing Black Swan open pit. The improved metallurgical understanding is key to further de-risking the restart of Black Swan.

Work is well advanced on optimising the pit shell designs from the new MRE and from the underground mining studies at Silver Swan and Golden Swan. Once completed, this work will allow the updating of Ore Reserves for the Black Swan Project to underpin the Bankable Feasibility Study.”

Overview

The MRE was prepared for Poseidon by independent resource consultants Golder Associates Pty Ltd (Golder) using all available assay data as at June 2022. **The updated MRE now totals 28.9 Mt @ 0.63% Ni for 181kt of nickel metal contained**. The MRE replaces the previous Black Swan MRE completed by Golder in 2014 (*refer to Company announcement "Black Swan Mineral Resource" dated 4 August 2014*) which reported **29.1 Mt @ 0.59% Ni for 170.9kt of nickel metal contained excluding stockpiles which have not been updated at this time.**

TABLE 1 - COMPARISON BETWEEN 2014 MRE AND 2022 MRE AT 0.4% NI CUT-OFF

	2022			2014		
	Tonnage (mt)	Ni (%)	Ni (kt)	Tonnage (mt)	Ni (%)	Ni (kt)
Measured	**0.8**	**0.76**	**6**			
Indicated	**9.9**	**0.75**	**74**	8.4	0.70	59
Inferred	**18.2**	**0.55**	**101**	20.7	0.54	112
TOTAL	**28.9**	**0.63**	**181**	29.1	0.59	171

Totals may not add due to rounding to appropriate reporting precision

The updated 2022 Black Swan MRE is classified in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC 2012) and are reported herein above a 0.4% Ni cut-off grade in Tables 1 and 2. The JORC 2012 Compliance tables (Sections 1, 2 and 3) that accompany this announcement are contained in Appendix 1.

Competent Persons for this updated 2022 MRE are Poseidon's in-house geology team for providing the validated drill hole database and the lithological and mineralisation domains for the Black Swan deposit. Golder's personnel were responsible for the estimation, reporting and classification of the MRE.

New Data

The updated MRE incorporates 5,144 metres of new drilling from 24 diamond drill holes (DDH) completed by Poseidon between October 2021 and March 2022 (*refer to Table 2 and Appendix 2)* and 14 RC holes (2,481 metres) completed in 2019 (*refer to Company announcement "Black Swan underground RC Drilling – Final Assay Results" dated 27 November 2019*). Both drill programs were completed from underground using the Gosling access drive. The recent 24-hole drill program was specifically undertaken to increase the confidence in the Black Swan MRE, by infilling the area extending approximately 125 metres immediately below the existing Black Swan open pit with the objective of better delineating the metallurgically important serpentinite and talc-carbonate hosted resources in this area. Below this area, the MRE is based on the same historical drill hole data that was used in the August 2014 MRE.

Black Swan Resource Tables

TABLE 2: BLACK SWAN PROJECT MINERAL RESOURCE STATEMENT (JUNE 2022) AT A 0.4% NI CUT OFF

Class	Tonnes (mt)	Ni (%)	S (%)	As (ppm)	Fe (%)	MgO (%)	Ratio (S/Ni)	Co (ppm)	Cu (%)	SG (t/m^3)	Ni (kt)
Measured	0.8	0.76	1.05	173	5.01	33.9	1.39	179	0.03	2.78	6
Indicated	9.9	0.75	1.14	160	5.24	32.0	1.52	154	0.03	2.78	74
Inferred	18.2	0.55	0.62	113	5.54	29.2	1.11	155	0.02	2.77	101
Total	**28.9**	**0.63**	**0.81**	**131**	**5.43**	**30.3**	**1.26**	**155**	**0.02**	**2.77**	**181**

Totals may not add due to rounding to appropriate reporting precision

Mineral Resource Summary

Poseidon engaged Golder in March 2022 to update the Black Swan MRE with the aim to quantify the current resource following recent drilling and create a block model for ongoing mine planning studies as part of a Black Swan Project Bankable Feasibility Study (BFS).

Geology and Geological Interpretation

The Black Swan Komatiite Complex (BSKC) is a 3.5km long by 0.6km thick arcuate lens of olivine cumulate and spinifex textured flows. The complex is enclosed by a broad sequence of proximal facies intermediate felsic lavas and associated volcanoclastic rocks situated on the NE dipping, NE facing limb of the Kanowna-Scotia anticline. The anticline is located in the upper greenschist – lower amphibolite facies of the Boorara Domain, one of six tectono-stratigraphic domains making up the Kalgoorlie Terrane.

The complex evolved as a series of episodically emplaced komatiite flows. The flows were channelised within a dynamic, coevally erupting calc-alkaline submarine environment, which resulted in the formation of several large felsic bodies (extrusive and intrusive) at various levels within the complex. Early during its evolution, massive and disseminated nickel sulphides accumulated in favourable locations on and adjacent to the basal contact of the complex. Post emplacement serpentinization and talc-carbonate alteration, metamorphism and deformation, was moderate to extreme and was responsible for the destruction of primary igneous textures throughout much of the complex, but without significant modification of the nickel sulphides.

The host lithologies to the Black Swan disseminated sulphide deposit comprise a core area of serpentinite (dominantly as antigorite) enclosed by broad areas of talc magnesite and dolomite altered komatiites. The disseminated sulphides form between 2-10% of the host rock. They generally consist of composite grains of pyrite-millerite-magnetite±violarite in serpentinite areas with vaesite-polydymite becoming significant in the surrounding talc-carbonate altered rocks.

Two textural sulphide types are recognised:

- fine grained interstitial composite grains between olivine pseudomorphs; and
- coarse grained blebby or droplet composites similar in size to the olivine pseudomorphs.

The fine-grained composites are more widely distributed, defining a broad, low grade mineralised horizon consisting of several discrete lenses (Figure 1). The coarser grained composites are much less widely distributed, forming small discrete, higher-grade zones within the sulphide rich lenses. They are also unique to the Black Swan deposit and are generally restricted to the disseminated sulphide lenses developed between 11 200 N -11 450 N (Black Swan local grid).

The majority of the Black Swan disseminated sulphide mineralisation is contained within a central 'main" lens which is up to 50 metres thick and contains most of the coarser grained blebby sulphides. Consequently, the main lens is typically higher grade with a S/Ni ratio > 1. Up to five much thinner discrete “hanging wall” sulphide lenses are recognised to the east on the main lens. The hanging wall lenses are typically millerite dominant with a characteristic S/Ni ratio of <1 when hosted by serpentinite. To the west of the main lens two footwall sulphide lenses are recognised. Consisting dominantly of the finer grained interstitial sulphide composites, the footwall lenses are mostly hosted within talc-carbonate altered komatiites and are typically lower grade that the main and hanging wall lenses.

Site History

The Black Swan nickel project originally operated as a joint venture between MPI Mines and Outokumpu. Exploration first began at Black Swan during the nickel boom of the 1960s. During the 1970s and early 1990s exploration focussed on the massive/semi-massive sulphide deposits of the adjacent Silver Swan, Gosling, Cygnet and White Swan orebodies.

Underground mining and plant construction began in 1996, with first ore extracted from underground in May 1997. Open pit mining of the Black Swan disseminated sulphide deposit commenced in 2004 and continued until February 2009 when the mine was placed on care and maintenance. Poseidon Nickel acquired the project from Norilsk Nickel in July 2014.

Drilling Techniques

Exploration and Resource Definition reverse circulation (RC) and diamond (DDH) drilling have primarily been used to evaluate the Black Swan disseminated sulphide deposit. Drilling has been carried out on the Project since 1968, incorporating several lease owners as detailed in Table 3. Not included in Table 3 are the numerous underground and Black Swan open pit RC grade control holes recorded in the Project drill hole database.

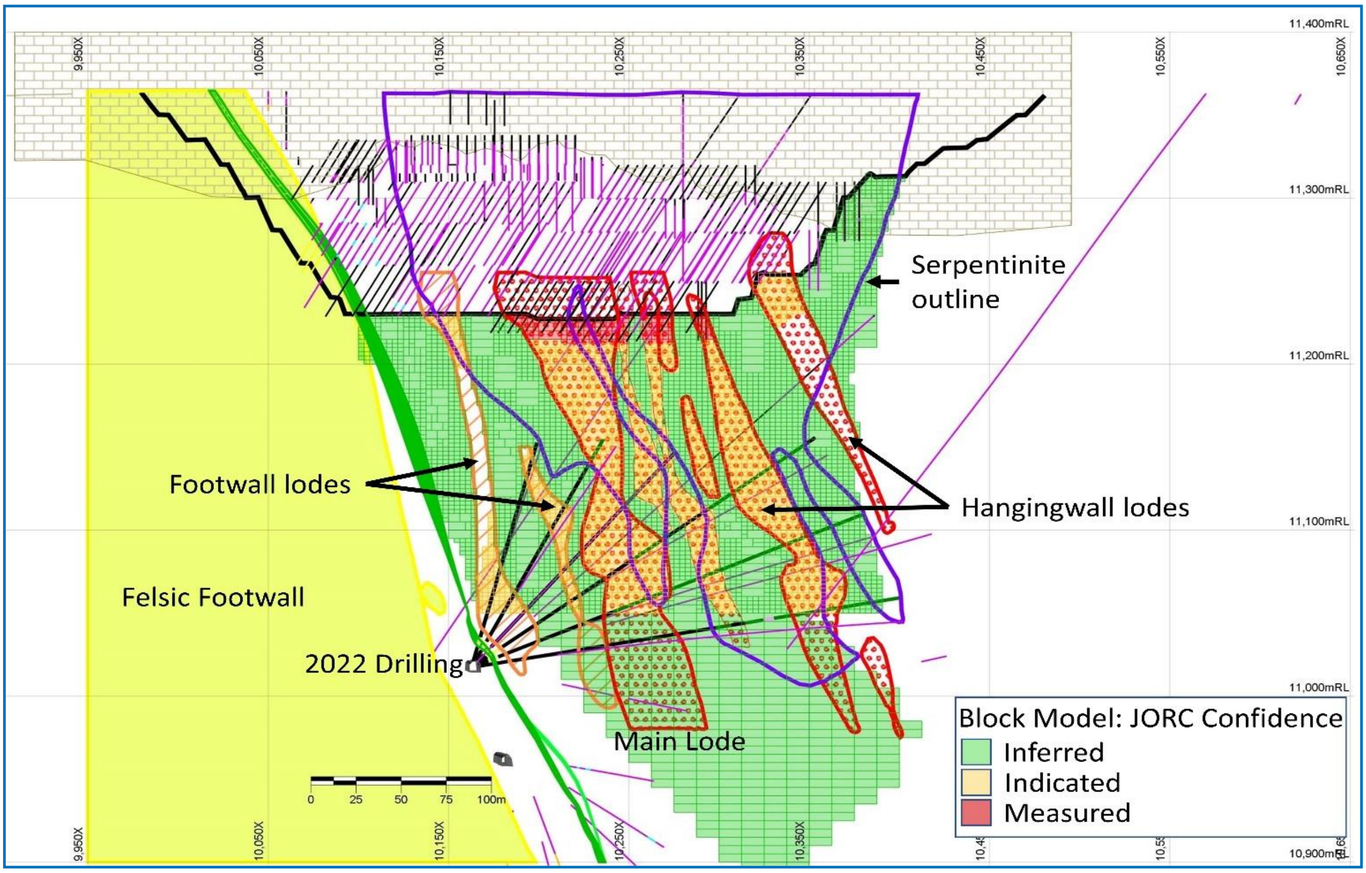

FIGURE 1 – SCHEMATIC BLACK SWAN GEOLOGICAL CROSS SECTION 11,340 N SHOWING MINERALISED LENSES AND RESOURCE CATEGORIES

The majority of DDH drilling is NQ and NQ2, the rest being HQ size. All drill holes were routinely surveyed using a variety of techniques with core orientations carried out using either spearmarks or the Ezimark orientation systems.

Surface drilling was typically conducted on a spacing of 20 to 50 metres across strike and approximately 50 metres along strike, with drill hole orientation dominantly perpendicular to the strike of the mineralisation. Recent underground Poseidon RC and DDH infill drilling was on 20 metre along strike sections. Historical in-pit grade control drilling was on a 10 metre by 10 metre staggered pattern.

TABLE 3: DRILLING CAMPAIGNS (RC AND DIAMOND HOLES EXCLUDING GRADE CONTROL HOLES)

Company	Year	Holes Drilled	Metres Drilled
Australian Anglo American Ltd	1968-74	8	1,899
Consolidated Exploration Ltd	1990-91	30	3,362
MPI/OEVJV	1995-98	9	3,163
Outokumpu Exploration Ventures	1999-01	25	4,402
Outokumpu Exploration Ventures	2001	7	2,581
MPI Nickel Pty Ltd	2003	6	609
MPI Nickel Pty Ltd	2004	29	3,071
Norilsk	2005/08	99	29,684
Poseidon	2019	14	2,481
Poseidon	2021/22	24	5,144
Total		**251**	**56,396**

For the most recent 24-hole diamond drill program completed by Poseidon the drilling was conducted by Webdrill Australia Pty Ltd (Webdrill) using a Diamec Smart 6 Mobile Carrier rig. The holes were drilled NQ2 size and surveyed using the DHS DeviGyro OX tool. The core was orientated using the Trucore Orientation Tool. A full list of the recent 24-hole Poseidon underground drill program is provided in Appendix 2.

Collar and Downhole Survey

The Black Swan drill hole database contains drill hole collar coordinates in both AMG51 and Black Swan local grid coordinates typically surveyed to an accuracy of ±10 mm. All Black Swan drill holes have been routinely surveyed generally every 30m or less. In the case of some early drill holes (Australian Anglo American Ltd) however, only the hole dip component was measured using the acid vial method. All subsequent drill holes have been surveyed using a variety of instruments including Eastman single shot, multi-shot and modern downhole gyro survey instruments.

Sampling and Sub-Sampling Techniques

The Black Swan mineralisation is identified visually by recording the host rock and the texture and proportion of nickeliferous sulphide composites present which, underpins the development of the geological and mineralisation domains used in the modelling and estimation process. DDH core is the most dominant sample type. DDH samples are divided into the logged domains, with no individual sample generally being greater than 1.2 metres or less than 0.2 metres. Core samples are sawn and mostly sampled as half core, unless duplicates were taken, which required samples to be quarter core. RC samples were typically collected using cone splitters over intervals between 1.5 metres (Poseidon 2019) and 2.0 metres for in-pit grade control drilling.

Sample Analysis Method

Sample preparation and analysis of Black Swan drill hole samples has been conducted by several independent certified laboratories over the life of the Project using a range of techniques, predominantly x-ray fluorescence (XRF) or ICP-MS and ICP-OES. Analyses varied from a few critical elements to broad multi-element suites.

For the most recent 24-hole Poseidon diamond drill program, a total of 4,090 samples were dispatched to SGS in Perth. Post sample receipt and drying, sample preparation consisted of crushing and pulverisation, followed by four acid digest. The SGS ICP-OES technique code was ICP41Q. Each sample was analysed for a total of eleven elements, including nickel, copper, cobalt, arsenic and sulphur.

Density Data

The Black Swan drill hole database used in the 2022 MRE contains in excess of 49,000 SG determinations, of which 13,128 were used in the 2022 MRE, with 3,881 SG determinations added from the recent 24-hole DDH program. Virtually all density measurements were performed using the immersion technique (Archimedes water displacement method). The density was calculated as a wet density even though core was often left to dry for some time. In some sampling programmes a representative section of core was used for measurements, instead of entire core sample.

Quality Assurance and Quality Control

Throughout the life of the Black Swan project, beginning with the MPI Mines/Outokumpu JV in 1995, industry standard quality control measures have been used to monitor the quality and performance of the various laboratories providing analytical services to the Project. Despite minor issues from time to time the quality control checks, including field duplicates, standard and reference assays, laboratory repeat assays and blind pulp repeats show reasonable accuracy and precision.

Certified Reference Material (CRM) insertion rates varied slightly over the life of the Project but typically followed accepted industry practice at the time. For the recent 24-hole Poseidon DDH program CRMs standards and blank samples were submitted at nominal rate of 1 in 20 throughout the course of the program. Core duplicate samples were similarly inserted at a nominal rate of 1 in 20. The overall achieved rate for CRMs and duplicate samples was approximately 1 for every 10 samples assayed.

Estimation Methodology

For this MRE Poseidon updated the Black Swan interpreted lithology and mineralisation domains using the recent drilling. This interpretation was provided to Golder as scanned 20 metre spaced cross sections, along with an updated drill hole database for the project. Golder produced a 3D geological model using Leapfrog software, which was limited to the area of recent drilling (10100 to 10500 east, 10900 to 11550 north and 11050 to 11370 RL). Vulcan was used to build a block model of this area to support grade estimation and Mineral Resource classification.

Drill hole samples were composited to two metre downhole intervals and coded with the interpreted mineralisation zone and lithology codes for use in grade estimation. Grade estimation was carried out using the linear estimation method of Ordinary Kriging for nickel, sulphur, arsenic, iron, magnesium oxide along with density. Estimation was controlled by mineralisation domains and in some cases by lithology, based on statistical analysis of the drill hole composite statistics. Search restriction for some high-grade outliers was applied during the estimation to limit the spatial influence of these values.

Mineral Resource classification was applied to the block model, based primarily on the drill hole spacing which has a strong influence on the local confidence in the geological interpretation and grade estimation. Predominately, only mineralisation contained within the interpreted mineralisation domains was interpreted to have sufficient geological confidence to meet Measured or Indicated classification.

Following classification, the updated model area was added back into the August 2014 model to produce the updated model for the entire project area. The area of the model outside of the updated area of recent drilling, retain the values from the August 2014 model unchanged**.**

Poseidon supplied expected mine planning parameters to allow an assessment of the model for reasonable prospects for eventual economic extraction (RPEEE). Golder used Whittle pit optimisation software to generate a pit shell based on these parameters using all mineralised blocks in the model (including unclassified mineralisation). The resulting pit shell generated with a nickel price of US$8.50 per pound, included all of the classified blocks and confirmed that the entire resource meets RPEEE criteria.

The additional drilling has improved the confidence of the 2022 MRE, with the addition of Measured Mineral Resource and an increase in the tonnage and grade of the Indicated Mineral Resource. These increases resulted from conversion of Inferred Mineral Resource. Overall, the changes in 2022 with additional drilling, improved geological interpretation and estimation of density has reduced the MRE tonnage but has increased the grade and contained metal. The MRE for the Black Swan Open Pit is reported in accordance with the JORC Code (2012 Edition).

Resource Classification

Mineral Resources were classified in accordance with the JORC Code (2012 Edition). The classification of the Mineral Resources was based on the geological complexity, data quality, drill hole spacing, sample numbers and primarily the Ni estimation quality.

Poseidon has concluded that the geological understanding, interpretation, data quality and sample QAQC are of sufficient quality to support the MRE. Golder has applied the classification to the block model based on wireframes interpreted from observed drill hole spacing and estimation quality.

Classification Strategy

The classification applied to the block model is based primarily on the drill hole spacing which has a strong influence on the local confidence in the geological interpretation and grade estimation. Only mineralisation contained within the interpreted mineralisation domains was interpreted to have sufficient geological confidence to meet Measured or Indicated classification.

The broad distribution of the classification categories is shown in Figure 2.

Wireframes were interpreted for the various classes for assigning classification to blocks based on the following criteria:

- **Measured**

  Areas of the modelled mineralisation (ZONE > 0) which is covered by grade control drilling with typical drill hole spacing of 10 metres by 10 metres. Estimations have used multiple samples from a number of holes and high sample counts. Average distance to samples is typically less than 20 metres.

- **Indicated**

  Areas of the modelled mineralisation (ZONE > 0) which is covered by drilling with typical drill hole spacing of 20 metres by 20 metres. Estimation have used multiple holes and a reasonable number of samples. Average distance to sample is typically less than 30 metres.

- **Inferred**

  Areas of the modelled mineralisation (ZONE > 0) with lower estimation confidence or mineralisation outside of the interpreted domains (MINDOM = 91). Limited number of holes and samples to support the estimation, or default grades used. Expected average distance to samples and extrapolation is below 50 metres.

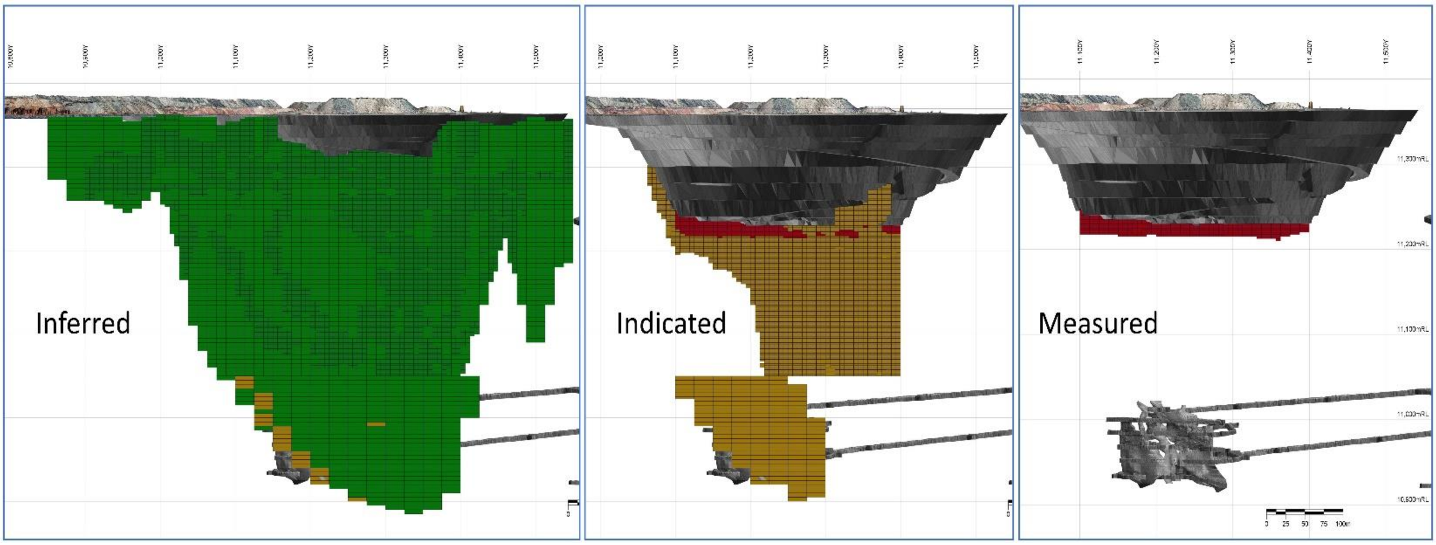

FIGURE 2 – BLACK SWAN LONG SECTION SHOWING BROAD DISTRIBUTION OF RESOURCE CATEGORIES

Reasonable Prospects of Eventual Economic Extraction

Reasonably optimistic economic, mining and processing parameters detailed in Table 4 were supplied by Poseidon for Golder to complete an evaluation of the reasonable prospects for eventual economic extraction.

Golder used Whittle pit optimisation software to generate a pit shell based on these parameters using all mineralised blocks in the model (including unclassified mineralisation). The resulting pit shell generated with a used the assumptions in Table 4 and included all of the classified blocks and confirmed that the entire resource meets RPEEE criteria.

TABLE 4 - MINING AND PROCESSING PARAMETERS FOR RPEEE

Description	Value
Mining Dilution (%)	10%
Mining Recovery (%)	95%
Closure cost ($/t waste)	0.2
Processing rate (Mtpa)	2.2
Processing cost ($/t ore)	18.64
Annual discount (%)	8
Process recovery serpentinite (%)	70
Process recovery talc (%)	56
Slope angles (deg)	45
Mining cost ore ($/bcm)	6 to 15.72
Mining cost waste ($/bcm)	5.4 to 14.3
Drill and Blast transition waste ($/bcm)	0.96
Drill and Blast transition ore ($/bcm)	1.08
Drill and Blast fresh waste ($/bcm)	2.64
Drill and Blast fresh ore ($/bcm)	2.76
Nickel price (US$/lb)	8.50
Exchange rate (US$/AUD$)	0.70

Comparison to Previous MRE

The additional drilling has improved the confidence of the 2022 MRE with the addition of Measured Mineral Resource and an increase in the tonnage and grade of the Indicated Mineral Resource. These increases resulted from conversion of Inferred Mineral Resource. Overall, the changes in 2022 with additional drilling, improved geological interpretation and estimation of density has reduced the MRE tonnage but has increased the grade and contained metal. The comparison between the 2014 and 2022 is shown in Table 5.

TABLE 5 - COMPARISON BETWEEN 2014 MRE AND 2022 MRE AT 0.4% NI CUT-OFF

	2022			2014		
	Tonnage (mt)	Ni (%)	Ni (kt)	Tonnage (mt)	Ni (%)	Ni (kt)
Measured	**0.8**	**0.76**	**6**			
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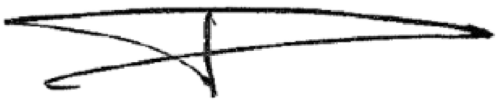
TOTAL	**28.9**	**0.63**	**181**	29.1	0.59	171

Totals may not add due to rounding to appropriate reporting precision

This announcement has been authorised for release by the Poseidon Board of Directors.



Peter Harold
Managing Director and CEO

4 July 2022

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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 around 400,000 tonnes of nickel and 180,000 ounces of gold.

Poseidon's strategy is focused on the exploration and eventual restart of its established nickel operations in Western Australia. A critical element of this strategy has been to acquire projects and operations with significant existing infrastructure, large nickel resources and geological prospectivity likely to lead to resource growth through the application of modern exploration techniques.

Poseidon owns the Windarra, Black Swan and the Lake Johnston Nickel Projects. In addition to the mines and infrastructure including concentrators at Black Swan and Lake Johnston, these projects have significant exploration opportunities demonstrated by the discovery of the Golden Swan Resource at Black Swan and the Abi Rose mineralisation at Lake Johnston.

Black Swan will be the first project to restart followed by Lake Johnston and then Windarra, subject to favourable Feasibility Studies, appropriate project financing structures being achieved, the outlook for the nickel price remaining positive and all necessary approvals being obtained.

The Company completed a Definitive Feasibility Study on retreating the gold tailings at Windarra and Lancefield in July 2021 and is currently investigating potential partners to develop the project and monetise the asset.

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 Mr Andrew Pearce, who is an employee of Poseidon Nickel, and is a Member of The Australian Institute of Geoscientists.

The information in this report which relates to the Black Swan Mineral Resource is based on, and fairly represents, information compiled by Mr Andrew Pearce and Mr David Reid who is Principal Geologist a full time employee of Golder Associates Pty Ltd based in Perth WA and is a Fellow of the Australasian Institute of Mining and Metallurgy.

Mr Pearce and Mr Reid 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). Mr Pearce and Mr Reid consent to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The Australian Securities Exchange has not reviewed and does not accept responsibility for the accuracy or adequacy of this release.

Additional information on Poseidon's mineral resource contained within this announcement is extracted from the reports titled:

- *"Poseidon Announces Black Swan Mineral Resource" released 4 August 2014*
- *"Silver Swan Resource Update" released 27 April 2022*
- *"50% Increase in Indicated Resources at Lake Johnston" released 17 March 2015*
- *"Silver Swan Tailings – Maiden Resource Estimate" released 15 September 2021*
- *"Golden Swan Maiden Resource" released 27 October 2021*
- *"Gold Tailings Resource at Windarra updated to JORC 2012 Indicated" 22 Jun 2020.*

which are available to view on www.poseidon-nickel.com.au.

FORWARD LOOKING STATEMENTS:

This release contains certain forward looking statements including nickel production targets. Often, but not always, forward looking statements can generally be identified by the use of forward looking words such as "may", "will", "except", "intend", "plan", "estimate", "anticipate"," continue", and "guidance", or other similar words and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production and expected costs. Indications of, and guidance on future earnings, cash flows, costs, financial position and performance are also forward looking statements.

Forward looking statements, opinions and estimates included in this announcement are based on assumptions and contingencies which are subject to change, without notice, as are statements about market and industry trends, which are based on interpretation of current market conditions. Forward looking statements are provided as a general guide only and should not be relied on as a guarantee of future performance.

Forward looking statements may be affected by a range of variables that could cause actual results or trends to differ materially. These variations, if materially adverse, may affect the timing or the feasibility and potential development of the Golden Swan underground mine.

Appendix 1

JORC 2012 Compliance Tables

JORC Code, 2012 Edition – Table 1 report template

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.*	• In the recent program, which these results are based on, NQ2 core was sampled at least 10m either side of logged mineralisation by cutting the core in half using a Corewise core saw. Samples were divided into logged domains,with no individual sample being greater than 1.2m or less than 0.3m. Appropriate QAQC standards and blanks from Geostats were inserted, and duplicates taken in quarter core at selected intervals where mineralisation variability warranted it. • Historically reverse circulation and diamond drilling have been used to obtain samples. Sampling is a mixture of full core, half core, quarter core and chip sampling. Generally, 1 m samples or smaller have been used for exploration drilling, whilst grade control drilling in the Black Swan pit is on 2 m sample lengths. • Sampling protocols from drilling between 1968 and 1991 have not been well documented. • Diamond drilling sampling protocol since 1995 has followed accepted industry practice for the time, with all mineralised core sampled and intervals selected by geologists to ensure samples did not cross geological or lithological contacts. Core was halved, with a half quartered, with one quarter core sent for assay, half core kept for metallurgical testing, and the remaining quarter core retained for geological reference. • Samples from reverse circulation drilling were collected using cone splitters, with field splits taken every 20 samples. • The 2019 underground RC technique utilises air with water injection to flush sample material from the rods and send it through a rotary cone splitter. Three duplicate samples are collected and 1 in 10 duplicates are submitted for analysis as a check and balance to sample represent
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).*	• The recent underground drilling was conducted by Webdrill using the Diamec Smart 6 Mobile Carrier rig. The holes are drilled in NQ2 and the core was orientated using the Trucore Orientation Tool. The hole was surveyed using the DHS DeviGyro OX tool. • The majority of diamond core is NQ, the rest being HQ size. Core orientation was carried out using either spear marks or the Ezimark system. • Surface RC drilling is limited to the extent of the Black Swan open pit.

Criteria	JORC Code explanation	Commentary
		• The underground RC used a combination of technologies to perform a wet RC function utilising an underground long-hole drill rig
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.*	• Core was recovered via 3m core tube used behind drill bit, and then transferred from tube to core trays. Recovery was calculatedon the amount recovered versus the amount drilled. Depths and recovery were recorded on wooden blocks placed in the core trays by the driller at the end of every run. Lost core was also recorded in this way. Core recovery was good, even through frequent broken ground. • Historically, core recovery and presentation has been documented as being good to excellent, with the exception of one hole used in the estimation, BSD189, which suffered significant core rotation, but little loss, within the oxide zone • Recovery from the underground RC methods is 100%. The rods are flushed clean on every sample before sample bags are removed.
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.*	• Recent core was logged into Geobank Mobile. Logging was done for Geology, structure, RQD and a check against drilling records for recovery. Holes were validated before being exported to the Geobank database. • After logging, all recent core was photographed inboth dry and wet images. The photographs are stored on a Perth based network drive. • Verification of the accuracy of the logging on the historical is limited. However it is assumed to be of a high standard given the companies involved and that it includes data that was used in mining models.
Sub-sampling techniques and sample preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *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.* • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	• Core was sampled as half core, unlessduplicates were taken which required samples to be quarter core. • Early diamond core is assumed to have been chisel cut, whilst most core was cut using a core saw, with either half or quarter core used for sampling. • Surface RC samples were collected by use of a cone splitter, with duplicates collected every 20 samples. • Later resource and grade control drilling was crushed to<3mm and then split into 3kg lots, then pulverised. This is appropriate given the sample intervals and mass • Underground RC samples were taken in triplicate
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.* • *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.*	• Samples were dispatched to SGS lab in Perth • After crushing and pulverizing they were analysed by 4-acid ore grade digest with ICP-OES finish

Criteria	JORC Code explanation	Commentary
	• *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.*	
Verification of sampling and assaying	• *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.*	• Sampling was conducted by the logging geologists who are employees of Newexco • Data is collected using Geobank Mobile which utilises a validation function before data can be exported into the Geobank database
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.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• All collar surveys were completed to an accuracy of ±10mm. A local grid based on known MGA references was created.The Department of Land Information (formerly the Department of Land Administration) benchmark UO51 on the Yarri Road opposite 14 Mile Dam was usedto tie the survey control stations to the Australian Height Datum (AHD). A height datum of AHD + 1000m was adopted for the Black Swan project. • All holes are surveyed using the DHS Devishot tool. Shots were take every 2 or 3m on in and out runs across the entire length of the hole at every survey interval. The tool is True North seeking and has an accuracy of +/-1 degree of dip and azimuth.In tool analysis gave an indication of whether the survey passed or failed and successive surveys were overlayed in Devi Cloud to visually check deviation between surveys with an average survey used as the base for modelling.
Data spacing and distribution	• *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.*	• The holes drilled form part of a program that is intended to bring the mineral occurrence to Indicated status. The nominal spacing is 40x40m, with infill drilling to be conducted as required to comply with resource modelling requirements.
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Drill core is oriented using the Trucore Ori.
Sample security	• *The measures taken to ensure sample security.*	• N/A
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No audits or reviews were completed during drilling

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.*	• The Black Swan open pit is centred on M27/39 and extends into M27/200. Silver Swan is wholly located on M27/200. They are located 42.5km NE of Kalgoorlie. They are registered to Poseidon Nickel Atlantis Operations Pty Ltd, a wholly owned subsidiary of Poseidon Nickel Ltd, following the purchase of the assets.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• The Silver Swan Mine was discovered by MPI Mines Ltd, then was acquired by Lion Ore in 2004. Much of the exploration drilling 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.
Geology	• *Deposit type, geological setting and style of mineralisation.*	• The Silver Swan and Black Swan deposits are Kambalda style komatiite hosted nickel 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:* ○ *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 current drill hole information is listed as Table 4 in Appendix 1 of this document.
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 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.*	• When reporting Black Swan assay results, a cut-off grade of 0.4% Ni has been used.

Criteria	JORC Code explanation	Commentary
	• *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').*	• Mineralised widths are reported as down hole lengths. • Due to the uneven nature of the Felsic footwall, true width of the reported assays cannot be stated with certainty at this time.
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.*	• No significant new discovery reported. Drilling on which this report is based have been reported previously
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.*	• Not applicable
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 observations to be reported at this stage.
Further work	• *The nature and scale of planned further work (eg 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.*	• Resource drilling on the Black Swan deposit was commenced in FY 2021-22, and as part of that program further diamond drilling will be done in the area in order to extend the known mineralisation.

Section 3: Estimation and Reporting of Mineral Resources

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

Criteria	JORC Code explanation	Commentary
Database integrity	▪ *Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.* ▪ *Data validation procedures used.*	▪ Logging and assay data has been electronically captured and uploaded into the site Acquire® geology SQL database. ▪ The database used in the 2014 grade estimation was reviewed by Golder and was found to be in excellent condition. It is very clean and contains few errors, but does not contain sample and assay quality control information. ▪ The database used in the 2022 update was validated by Poseidon. ▪ Golder conducted visual validation checks on the drill hole data, with holes not relevant to the estimation removed from the dataset.
Site visits	▪ *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.* ▪ *If no site visits have been undertaken indicate why this is the case.*	▪ Golder has previously visited the Black Swan site prior to the 2014 MRE. Golder did not consider a site visit was required to support the 2022 Mineral Resource update.
Geological interpretation	▪ *Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.* ▪ *Nature of the data used and of any assumptions made.* ▪ *The effect, if any, of alternative interpretations on Mineral Resource estimation.* ▪ *The use of geology in guiding and controlling Mineral Resource estimation.* ▪ *The factors affecting continuity both of grade and geology.*	▪ The geological interpretation is validated by drill and mining activity, as well as in-pit and UG mapping. ▪ Where possible, estimation has been restricted to lithologies controlling and surrounding mineralisation domains ▪ The geological domaining for the 2014 model is based on data from previous resource estimates completed by Norilsk Nickel Pty Ltd and Gipronickel that have been reviewed by Golder previously, and for this resource estimate. ▪ For the 2022 model Poseidon prepared sectional interpretation of lithology, alteration and mineralised domains based on 0.4% Ni grade thresholds.
Dimensions	▪ *The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.*	▪ The mineralisation associated with the Black Swan deposit runs along a strike length of approximately 250 m north-south and approximately 100 m east-west. Drilling has intercepted Ni

Criteria	JORC Code explanation	Commentary
		mineralisation at up to 600 m below surface.
Estimation and modelling techniques	▪ *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* ▪ *The availability of check estimates, 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.*	▪ Mineralisation was estimated within domains defined by lithological and mineralisation information and statistical analysis of sample composite data was used for estimation purposes. ▪ For the 2014 model the block size is 12.5 m (X) by 25 m (Y) by 5 m (Z). The sub-block size is 3.125 m (X) by 12.5 m (Y) by 2.5 m (Z). ▪ The 2022 model used a block size of 12.5 m (X) by12.5 m (Y) by 5 m (Z) and the same sub-block size as 2014. ▪ In 2014 high-grade restraining was applied to Ni in one domain, based on data analysis of assayed samples. The high grade samples were used only in the estimation of blocks within a 25 m radius of the high grade sample. ▪ In 2022 estimation beyond a 15 m radius used top cut of the outlier high grade composites ▪ Using parameters derived from the modelled variograms, Ordinary Kriging (OK) was used to estimate average block grades for Ni. ▪ The estimation was conducted in three passes with the search size increasing for each pass. ▪ For some domains in 2014, where blocks had not been filled after three passes, a fourth pass was used, with samples from outside the domain of interest used to fill the remaining blocks. ▪ Blocks not estimated in 2022 after three passes were assigned the mean grade for the domain. ▪ The model was validated visually and statistically using swath plots and comparison to composite statistics.
Moisture	▪ *Whether the tonnages are estimated on a dry basis or with natural moisture,*	▪ Density measurements were performed using the immersion technique.

Criteria	JORC Code explanation	Commentary
	and the method of determination of the moisture content.	
Cut-off parameters	▪ *The basis of the adopted cut-off grade(s) or quality parameters applied.*	▪ The resource model is constrained by assumptions about economic cut-off grades. The Mineral Resources were reported using a cut-off grade of 0.4% Ni which was applied on a block by block basis.
Mining factors or assumptions	▪ *Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.*	▪ The 2022 model used an estimation cell size of 12.5 m (X) by 12.5 m (Y) by 5 m (Z) which is approximately half the drill spacing in the modelled area. ▪ The 2014 block model uses a parent cell size of 12.5 m (X) by 25 m (Y) by 5 m (Z), primarily determined by data availability and the dimensions of the mineralisation.
Metallurgical factors or assumptions	▪ *The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.*	▪ Metallurgical recovery of nickel was assigned based on data calculated by the Black Swan mill whilst mining operations were in progress and on metallurgical testwork ▪ Metallurgical recovery is variable with talc alteration material having poor Ni recovery.
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*	▪ As the project has previously been mined, there are existing waste storage facilities and environmental considerations are not expected to pose any issues to the resumption of mining activity.

Criteria	JORC Code explanation	Commentary
	reported with an explanation of the environmental assumptions made.	
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.* ▪ *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.* ▪ *Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.*	▪ For the 2014 model bulk density was applied based on mean values for each lithology domain. ▪ In 2022 the bulk density for each block was estimated using OK from individual bulk density measurements on drill core.
Classification	▪ *The basis for the classification of the Mineral Resources into varying confidence categories.* ▪ *Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).* ▪ *Whether the result appropriately reflects the Competent Person's view of the deposit.*	▪ Resources were classified in accordance with the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2012 Edition). ▪ The classification of Mineral Resources was completed by Golder based on geological confidence, drill hole spacing and grade continuity. The Competent Person is satisfied that the result appropriately reflects his view of the deposit. ▪ Continuous zones meeting the following criteria were used to define the resource class: <u>Measured Mineral Resource</u> ▪ Blocks in areas of grade control drilling that were estimated with samples with an average of less than 20 m distance from <u>Indicated Mineral Resource</u> ▪ Blocks that were estimated with samples with an average of less than 30 m distance from blocks. ▪ Number of drill holes confirming grade continuity. <u>Inferred Mineral Resource</u> ▪ Blocks that were estimated with samples with an average of less than 50 m distance from blocks.

Criteria	JORC Code explanation	Commentary
		▪ Limited number of drill holes. ▪ Mineral Resource classification was restricted to a Lerch-Grossman pit shell using a potential future nickel price of US$8:50 per pound. This was combined with the accuracy of the estimate ascertained by geological confidence, drill hole spacing and grade continuity from available drilling data.
Audits or reviews	▪ *The results of any audits or reviews of Mineral Resource estimates.*	▪ None
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.* ▪ *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.* ▪ *These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.*	▪ The relative accuracy is reflected in the resource classification discussed above that is in line with industry acceptable standards. ▪ This is a Mineral Resource estimate that includes knowledge gained from mining and milling recovery data during production.

Appendix 2

Drill Hole Summary

Table 1 – Drill hole Summary for 24-hole underground program completed by Poseidon between Oct 2021 and Mar 2022

CollarID	EAST	NORTH	RL	Dip	Azimuth (True)	TD (m)
PBSD038	10184	11308	11017	62	52	199.9
PBSD039	10184	11308	11016	49	52	269.7
PBSD040	10184	11308	11015	36	52	242.3
PBSD041	10161	11382	11023	62	55	200.2
PBSD042	10161	11382	11022	49	55	250.6
PBSD043	10161	11382	11021	36	55	314.7
PBSD044	10183	11234	11012	63	55	190.3
PBSD045	10183	11234	11011	49	55	240
PBSD046	10182	11234	11013	80	61	136.7
PBSD047	10183	11234	11012	55	83	200.2
PBSD048	10182	11234	11013	76.3	92.6	190
PBSD049	10183	11234	11012	63	72	209.3
PBSD050	10182	11234	11013	75.5	64	194
PBSD051	10174	11272	11016	75	93	179
PBSD052	10174	11280	11016	63	55	215.1
PBSD053	10174	11280	11015	49	55	251.7
PBSD054	10173	11280	11016	75.1	31	190.8
PBSD055	10174	11281	11015	53.2	43.8	215
PBSD056	10163	11361	11022	72	55	180.8
PBSD057	10164	11361	11021	59	55	215
PBSD058	10164	11361	11021	48.1	55	224.5
PBSD059	10159	11395	11024	67.4	55	186
PBSD060	10159	11395	11024	50.5	54.5	254.4
PBSD061	10169	11315	11018	67.6	50	194.3