# POSEIDONNICKEL



25<sup>th</sup> January 2016

### Significant High Grade Nickel Intersection at Emily Ann North

### Highlights

- Significant nickel sulphide mineralisation has been intersected in the second drill hole of the Emily Ann Extension drill programme at Lake Johnston
- Drill hole PLJD0002 intersected a 10.48m wide zone of nickel mineralisation grading 3.20% Ni, containing 5.72m at 4.66% Ni and 1.29m @ 10.22% Ni
- This intersection is located 360m from the existing flooded decline in the Emily Ann underground mine
- Lake Johnston was host to the Emily Ann deposit which averaged a resource grade of 4.1% nickel and produced 46,000 tonnes nickel
- The 1,500m diamond drilling programme was 50% co-funded by the West Australian Government's Department of Mines and Petroleum (DMP) via its Exploration Incentive Scheme (EIS) grants

Poseidon Nickel Limited (ASX:POS or the Company) is delighted to announce that **significant nickel sulphide mineralisation** has been intersected during the recent diamond drilling program, targeting an area 360m north of the Emily Ann mine within the recently purchased Lake Johnston Project.

The discovery of this new lens has the potential to develop into an economically viable project as it is located close to the existing Emily Ann Mine infrastructure and the Lake Johnston nickel concentrator. This opens up further opportunities for mineralisation to be discovered in other structurally favourable positions along the belt.

Poseidon acknowledges the West Australian Department of Mines and Petroleum for sponsoring the drilling via the Exploration Incentive Scheme co-funding grant. The EIS grant will contribute up to \$150,000 towards drilling costs representing about 50% of the total investment.

The first drill hole of the programme, PLJD0001, intersected a 19cm high grade zone of remobilised nickel sulphide grading **10.20% Ni**. A downhole electro-magnetic survey (DHEM) was completed and generated a strong off-hole anomaly close to the hole. Poseidon's geologists in conjunction with Newexco Services Pty Ltd (consulting geoscientists) completed detailed structural, geological and geophysical modelling of the data to target the source of the remobilised sulphides.

The second drill hole, PLJD0002, targeted a geologically & structurally favourable area 45m below PLJD0001 and intersected a new lens comprising **10.48m of massive, stringer and disseminated nickel sulphides grading 3.20% Ni** in an intrusive pyroxenite ultramafic between 432.00m to 442.48m downhole depths. This intersection includes a lower **massive sulphide unit comprising 2.32m at 7.62% Ni** from 439.09m and includes **1.29m @ 10.22% Ni** from 440.12m.

A complete nickel sulphide intersection summary is tabulated below.

Table 1. Nickel Sulphide Intersection Summary								
Hole ID	From_m	To_m	Width	Ni Grade	Details			
PLJD0001	435.39	435.58	0.19	10.2%	Remobilised massive sulphide in felsics			
PLJD0002	432.00	442.48	10.48	3.20%	Felsic, ultramafic and remobilised sulphide in hw & fw			
incl	435.69	441.41	5.72	4.66%	Mineralised Ultramafic Interval			
incl	439.09	441.41	2.32	7.62%	Lower Massive Zone			
incl	440.12	441.41	1.29	10.22%	High Grade base			

### **Table 1: Nickel Sulphide Intersection Summary**

### Table 2: Drill Hole Details

Hole ID	East_MGA	North_MGA	RL	Dip	Azimuth	EOH Depth
PLJD0001	262766.6	6434776.7	1357	-65.0	247.6	513.80m
PLJD0002	262767.5	6434777.0	1357	-70.6	250.3	478.54m
PLJD0003	262766.5	6434778.0	1357	-70.5	260.0	495.10m

The figures below (Figures 1-3) show the nickel sulphide intersections from PLJD0001 & PLJD0002 within the core trays prior to sampling. The third and final hole in the drilling programme PLJD0003, has just been completed and geological as well as geophysical logging of the hole is in progress.

Mr Neil Hutchison, General Manager of Geology said, "I have not seen nickel sulphide intersections of this quality, grade and thickness since my time at Cosmos drilling the Alec Mairs, Propsero & Tapinos Deposits. This is an impressive intersection and is the culmination of considerable high quality scientific work between our Geology team and Newexco. It opens up many opportunities around the historical Emily Ann Mine and will hopefully lead to the discovery of an economic deposit."



Figure 1: Narrow stringer of remobilised nickel sulphide grading 10.2% Ni in PLJD0001



Figure 2: High grade massive nickel sulphide (pentlandite) intersected in PLJD0002 (439.6-440.8m depth) 350m north of Emily Ann mine

The sulphide comprises nickel bearing pentlandite within a pyrrhotite sulphide matrix. The sulphides are hosted within an intrusive pyroxenite ultramafic sill which demonstrates pyroxene cumulates within its core and sulphide settling at its base. The upper and lower margins exhibit chill zones and alteration halos where it has come into contact with the earlier in-situ felsic rhyolitic and rhyodacitic volcanic tuffs which host the ultramafic intrusion (Figure 3). The felsic volcanic rocks have been overturned during earlier regional deformation, however the ultramafic sill is right-way up and cross-cuts stratigraphy, contradicting the historical recumbent folding model previously used to explain the Emily Ann ore body.

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Figure 3: Complete intersection of massive, stringer and disseminated nickel sulphides within pyroxenite ultramafic in PLJD0002 (432.0m-443.0m)

The timing of Emily Ann is different to that of Maggie Hays (4km southwards). The mineralisation and host rocks at Maggie Hays are now overturned, as are the felsic country rocks at Emily Ann. However, the ultramafic and sulphides intersected in PLJD0002 are not overturned.

Maggie Hays was formed shortly after the deposition of an overlying sulphidic chert horizon from which the ultramatic intrusion sourced its sulphur to form nickel mineralisation during komatilitic volcanism. Emily Ann was formed after the volcanic sequences were overturned and after the emplacement of the large scale mineralised Maggie Hays intrusion.

The pyroxenite in PLJD0002 does not have the chemistry to support sulphur saturation, therefore it must have been derived from a late stage, lower-fractionated magma chamber (Voisey's Bay Model). Previous studies have indicated the source of the sulphides is "komatilitic" (sourced from sulphides on the sea floor).

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Poseidon's geologists believe that the Emily Ann sulphides are not part of an in situ recumbently folded komatiite flow as historically modelled, but instead a late stage magma intrusion which has sourced its sulphur as its intruded its way through the overturned Upper Sulphidic Chert giving the sulphides their "komatiitic" signatures. Poseidon's geological model is that the rising melt which is now saturated in sulphide (as observed in the pyroxene fractionate in PLJD0002) was intruded into structurally controlled "low pressure" confluences between two observed conjugate shear structures at Emily Ann and Emily Ann North (Figure 4). It is also important to locate the primary source of the ultramafic intrusions and explore positions were it intrudes the Sulphidic Chert horizon to the west.

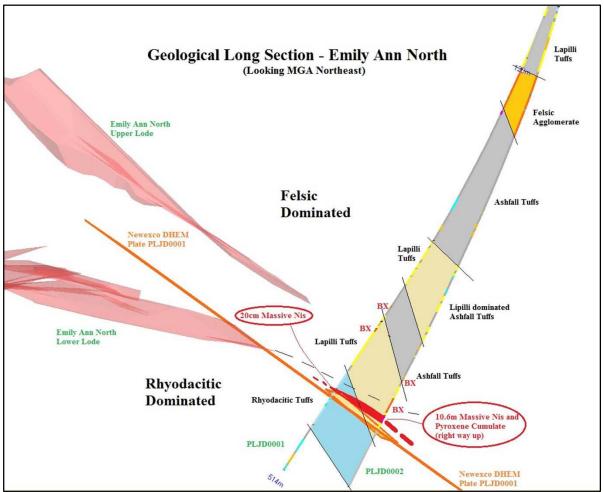


Figure 4: Geological section showing location of PLJD0001 & PLJD0002 nickel intersections relative to existing mineralisation. Mineralisation is open at depth and coincides with the structurally controlled plunge direction of Emily Ann mineralisation to the south

The detailed analysis targeting the potential Emily Ann extension was developed over several months by both the internal Poseidon geological team in parallel with Newexco who were contracted to review the historical geophysical data. Newexco have been credited with targeting numerous nickel discoveries through geophysical techniques, including most recently those of Sirius Resources, one of the largest new finds of its type in recent years. The studies were carried out using existing drilling core data, compilation of historic individual electromagnetic conductor surveys and structural analysis. For the first time this data was looked at in an integrated way to identify the potential positions of mineralisation.

The mineralisation discovered by this current drilling program is offset from Emily Ann vertically and horizontally to the east by a series of late stage faults (Figures 5 & 6). The bases of both the Emily Ann and Emily Ann North deposits are sharply terminated by an early flat lying structure (Figure 5) which in turn is offset vertically from the Emily Ann North mineralisation by the later Toolangi Fault (Figure 6).

Evidence for this style of ore body displacement has already been demonstrated at Maggie Hays and is apparent in many mines in Australia. Notably, at Western Areas Flying Fox mine, 80km to the west of Emily Ann which has been similarly sheared off and displaced by multiple low-angle fault zones. Poseidon has successfully "discovered" nickel mineralisation within the modelled target zone and aims to delineate an economically viable deposit utilising modern and already successful industry leading exploration techniques.

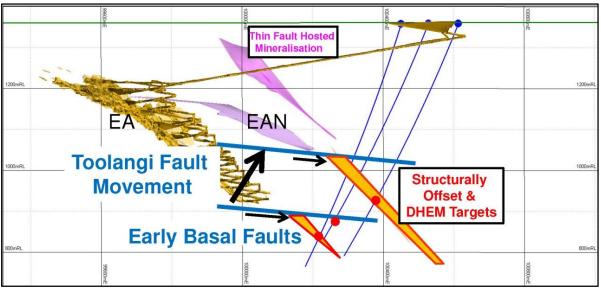


Figure 5: A cross section (looking north) shows the interpreted eastward horizontal offsets to the target zones which corresponds with modelled DHEM geophysical targets. Drilling (dark blue) is located ~800m north of the Emily Ann underground portal

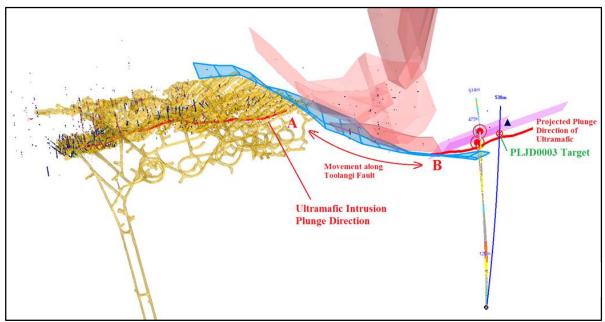


Figure 6: Plan view showing Emily Ann Mine (Yellow), Emily Ann North mineralisation (red), Toolangi Fault (blue), and DHEM plates (magenta). Drilling is targeting the projected plunge of the ultramafic intrusion (red) and coincident DHEM anomalies

# **POSEIDONNICKEL**

### CORPORATE DIRECTORY

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### Home Exchange

The Company's shares are listed on the Australian Securities Exchange and the home exchange is Perth ASX code: POS

## MINERAL RESOURCE STATEMENT

### Table 1: Nickel Projects Mineral Resource Statement

			Mineral Resource Category								
Nickel Sulphide	JORC	Cut Off Grade	In	dicated		Inferred			TOTAL		
Resources			Tonnes (Kt)	Ni% Grade	Ni Metal t	Tonnes (Kt)	Ni% Grade	Ni Metal t	Tonnes (Kt)	Ni% Grade	Ni Metal t
WI	NDARRA P	ROJECT		-						-	
Mt Windarra	2012	0.90%	922	1.56	14,000	3,436	1.66	57,500	4,358	1.64	71,500
South Windarra	2004	0.80%	772	0.98	8,000	-	-	-	772	0.98	8,000
Cerberus	2004	0.75%	2,773	1.25	35,000	1,778	1.91	34,000	4,551	1.51	69,000
BLA	CK SWAN	PROJEC	T								
Black Swan	2012	0.40%	9,600	0.68	65,000	21,100	0.54	114,000	30,700	0.58	179,000
Silver Swan	2012	1.40%	21.1	12.48	2,650	85.5	12.15	10,350	106.6	12.20	13,000
LAK	LAKE JOHNSTON PROJECT										
Maggie Hays	2012	0.80%	2,600	1.60	41,900	900	1.17	10,100	3,500	1.49	52,000
TOTAL											
Total Ni Resources	2004 & 2012		16,688	1.00	166,550	27,300	0.83	225,950	43,988	0.89	392,500

Note: totals may not sum exactly due to rounding

### Table 2: Gold Tailings Project Mineral Resource Statement

				Mineral Resource Category							
Gold Tailings	JORC	Cut Off	In	dicated		li li	nferred			TOTAL	
Resources	Compliance	Grade	Tonnes	Grade	Au	Tonnes	Grade	Au	Tonnes	Grade	Au
			(Kt)	(g/t)	(oz)	(Kt)	(g/t)	(oz)	(Kt)	(g/t)	(oz)
WIN	WINDARRA GOLD TAILINGS PROJECT										
Gold Tailings	2004	NA	11,000	0.52	183,000	-	-	-	11,000	0.52	183,000
TOTAL											
Total Au Resources	2004		11,000	0.52	183,000	-	-	-	11,000	0.52	183,000

Note: totals may not sum exactly due to rounding.

### **ORE RESERVE STATEMENT**

#### **Table 3: Nickel Project Ore Reserve Statement**

		Ore Reserve Category						
Nickel Sulphide		Probable						
Reserves	Compliance	Tonnes (Mt)	Ni% Grade	Ni Metal (Kt)				
LAKE	JOHNSTON	PROJECT						
Maggie Hays	2012	1.9	1.19	22.6				
BLAC	BLACK SWAN PROJECT							
Black Swan	2012	3.4	0.63	21.5				
WINE	DARRA PROJ	IECT						
Mt Windarra	2012	0.6	1.70	9.6				
Cerberus	2004	1.2 1.30		16.0				
Windarra Sub Total		1.8	1.42	25.6				
TOTAL	TOTAL							
Total Ni Reserves	2004 & 2012	7.1	0.98	69.7				

Note: totals may not sum exactly due to rounding.

Calculations have been rounded to the nearest 100,000 t of ore, 0.01 % Ni grade and 100 t Ni metal.

#### <u>Notes</u>

The information in this report which relates to the Lake Johnston Mineral Resource is based on information compiled by Neil Hutchison, General Manager of Geology at Poseidon Nickel, who is a Member of The Australian Institute of Geoscientists and Andrew Weeks who is a full-time employee of Golder Associates Pty Ltd and is a Member of the Australasian Institute of Mining and Metallurgy.

The information in this report which relates to the Lake Johnston Ore Reserves Project is based on information compiled by Matt Keenan who is a full time employee of Entech Pty Ltd and is a Member of the Australasian Institute of Mining and Metallurgy.

The information in this report which relates to the Silver Swan Mineral Resource is based on information compiled by Neil Hutchison, General Manager of Geology at Poseidon Nickel, who is a Member of The Australian Institute of Geoscientists.

The information in this report which relates to the Black Swan Mineral Resource and Ore Reserves is based on information compiled by Andrew Weeks who is a full-time employee of Golder Associates Pty Ltd.as well as Francois Bazin of IMC Mining Pty Ltd. Both are Members of the Australasian Institute of Mining and Metallurgy.

The information in this report that relates to Mineral Resources at the Windarra Nickel Project is based on information compiled by Neil Hutchison, General Manager of Geology at Poseidon Nickel, who is a Member of The Australian Institute of Geoscientists and Ian Glacken who is a full time employee of Optiro Pty Ltd and is a Fellow of the Australiasian Institute of Mining and Metallurgy.

The information in this report that relates to Ore Reserve at the Windarra Nickel Project is based on information compiled Leanne Cureton and Andrew Law who are both full time employees of Optiro Pty Ltd and are a Member and a Fellow of the Australasian Institute of Mining and Metallurgy respectively.

Mr Hutchison, Mr Glacken, Mr Keenan, Mr Weeks, Mr Bazin, Mr Law & Ms Cureton all 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 Hutchison, Mr Glacken, Mr Keenan, Mr Weeks, Mr Bazin, Mr Law & Ms Cureton have consented to the inclusion in the report of the matters based on his information in the form and context in which it appears.

This document contains Mineral Resources and Ore Reserves which are reported under JORC 2004 Guidelines as there has been no Material Change or Re-estimation of the Mineral Resource or Ore Reserves since the introduction of the JORC 2012 Codes. Future estimations will be completed to JORC 2012 Guidelines.

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

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ATTACHMENT A JORC (2012) Table 1 Emily Ann Extended

### **EMILY ANN EXTENDED**

SECTION 1 Sampling Techniques and Data (Criteria in this section apply to all succeeding sections)

JORC Code explanation	Commentary			
Sampling techniques				
Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling. 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 (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.	NQ2 Diamond drill core was used to obtain samples which were cut with an automatic core saw. Quarter core split for sampling and submitted to the lab. A mix of quarter core half will be retained core will be retained by the company and the remaining core will be submitted to the DMP core library under the terms of the EIS grant. Diamond core has been split on lithological contacts for sampling purposes. Sample intervals are checked and collected by the supervising geologist throughout the sampling process. Assaying was completed by SGS Laboratories using their ICM40Q method. Assays are determined by four acid digest with ICP- OES and ICP-MS finish method.			
Drilling techniques				
Drill type (e.g. core, reverse circulation, open- hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	Diamond core drilling was carried out by TopDrive Drillers Australia utilising a Hydco 1000H rig. Pre collars to competent ground were HQ sized and the remainder of the hole was NQ2 sized diamond core.			
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.	All recovered diamond core has been meter marked by on site field technicians and/or geologists. Any core loss is determined and recorded as part of the geological logging process. Core recovery is typically 100% with only minor losses in and around shear zones with rare loss in mineralised zones. No relationship exists between core recovery and grade.			
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	Core is logged onto Toughbook computers using FieldMarshal software with validated coding. The data is checked in Micromine then loaded into Poseidon's SQL Server database via DataShed which is managed and maintained by Maxwell Geoservices.			

JORC Code explanation	Commentary
nature. Core (or costean, channel, etc.) photography. The total length and percentage of the relevant intersections logged.	All core trays are photographed dry and wet. Core is continuously logged along the entire length of the hole.
Sub-sampling techniques and sample prepar	ation
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.	NQ2 Diamond drill core was used to obtain samples which were cut with an automatic core saw. Mineralised zones were quartered prior to sampling and submitted to the lab.
For all sample types, the nature, quality and appropriateness of the sample preparation technique. Quality control procedures adopted for all sub-	Assay samples are typically 1 m in length but may vary in length from a minimum of 0.2 m and a maximum length of 1.2 m according to geological boundaries.
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.	Sampling overseen by the site Chief Geologist and transported directly to the lab in Perth. Samples were sent to SGS Laboratory in Perth for assaying.
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. Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	Assaying was completed by SGS Laboratories and are an accredited laboratory operating within the highest standards. QAQC reference materials where used and inserted into the sampling sequence.
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.	Significant intersections are calculated by the Chief Geologist on site and verified/reported by the Geology Manager (CP). Assay data is imported directly from laboratory supplied digital files which are QAQC validated via DataShed then loaded into the SQL drillhole database. No adjustments to assays are made.
Location of data points	1
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.	Drill collars are surveyed by modern hand held GPS units with accuracy of +/- 4m which is sufficient accuracy for the purpose of compiling and interpreting results.
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JORC Code explanation	Commentary
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.	Not applicable as no mineral resource is being estimated at this early stage.
Orientation of data in relation to geological s	tructure
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.	Drilling was designed to intersect the targeted horizon close to perpendicular so as to minimise sampling bias.
Sample security	
The measures taken to ensure sample security.	The site Chief geologist supervised the entire process through to delivery of samples to the lab.
Audits or reviews	
The results of any audits or reviews of sampling techniques and data.	There are no documented reviews of audit or review for sampling as it has been completed to high industry standard procedures. QAQC checks have been routinely completed by the laboratory and are within range.

## **EMILY ANN EXTENDED**

# SECTION 2 Reporting of Exploration Results (Criteria in this section apply to all succeeding sections)

Criteria in this section apply to all succeeding se Mineral Tenement and Land Tenure	Emily Ann Mine and the concentrator plant are situated on
Status	M63/283 which is located 190km SW of Kalgoorlie. M63/283 is
Type, reference name/number, location and ownership including agreements or material issues with third parties such as	registered to Poseidon Nickel Ltd, following the recent completion of the assets purchase from Norilsk Nickel Australia.
joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and	A long standing Native Title Agreement (since 1997) exists with the Ngadju People and will be continued by Poseidon Nickel.
environmental settings. The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to	The tenements are located within the buffer zone of the Bremer Range Priority Ecological Community and within the Proposed Nature Reserve 82.
operate in the area.	Lake Johnston Plant commenced operation in 2001 and there are no known impediments to continue operating in this area.
	There are no royalties or other interests held.
Exploration Done by Other Parties	LionOre Australia and Norilsk Nickel Australia previously
Acknowledgment and appraisal of exploration by other parties.	completed exploration, drilling and mining of the Lake Johnston project until Poseidon's acquisition in late 2014.
Geology	The Lake Johnston Project is located 80km ENE of Western
Deposit type, geological setting and style of mineralisation.	Areas' Forrestania Project which contains their flagship Flying Fox Mine. Flying Fox, Maggie Hays and Emily Ann are both intrusive style ultramafic bodies, not extrusive Kambalda style lava flows. They have undergone similar intrusive emplacement, nickel mineralisation, and structural overprinting histories.
Drill hole information	All holes reported are surface diamond drill holes. Collar co- ordinates and hole angles have been tabulated in the report.
Data aggregation methods	Length and SG weighted calculation have been applied to the intersections reported.
Relationship between mineralisation widths and intercept lengths	No true width corrections have been applied to intersections as they are close to true widths.
Diagrams	See body of report.
Balance reporting	The reporting is factual & balanced.
Other substantive exploration data	This drilling data supports the vast drilling database that was acquired with the purchase of the Lake Johnston Project.
Further work	Further geological, geophysical and structural modelling will be completed and addition drill targets will be generated for future