

# **NEBO-BABEL SCOPING STUDY**

# Outstanding Project with Very Low Operating Costs, Long Mine Life and Substantial Annual Nickel and Copper Production

# HIGHLIGHTS

- Study considers two development scenarios: 4Mtpa Case and Staged Case (1.5Mtpa increasing to 4Mtpa). The study was led by Worley Parsons
- Both cases demonstrate very low operating costs 4Mtpa Case C1 cash cost of US\$1.82/lb Ni in concentrate after by-product credits (Staged Case US\$2.61/lb)
- Strong financial outcomes, including LOM revenue of A\$6.7 billion (4Mtpa Case)
- Significant annual production: 12,300t Ni & 14,300t Cu over 15 years (4Mtpa Case LOM avg. in concentrate)
- Production of separate Ni and Cu concentrates which will be readily saleable and in high demand as they are clean, have a favourable Fe:MgO ratio in the Ni concentrate and credits will apply for Co, PGE, Au and Ag
- 4Mtpa Case pre-production capex of A\$435m plus A\$86m contingency
- Staged Case pre-production capex of A\$264m plus A\$55m contingency
- Shallow, flat Mineral Resource shows very favourable geometry for open pit mining
- Open Pit Mineral Inventory of 56.3Mt @ 0.43% Ni, 0.45% Cu (4Mtpa Case)
- 90% of Mineral Inventory in Indicated Category
- Numerous opportunities to further enhance project value

# **Cautionary Statement**

The Company advises the Scoping Study referred to in this announcement is based on lower-level technical and preliminary economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the Scoping Study will be realised. The Production Target referred to in this announcement is partly based on Inferred Mineral Resources (being 10%). There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target or preliminary economic assessment will be realised. Cassini Resources Limited (ASX:CZI) ("Cassini" or the "Company") is pleased to announce that it has completed the Scoping Study ("Study") for its 100% owned Nebo-Babel nickel-copper deposits ("Nebo-Babel"), located within the West Musgrave Project ("Project") in Western Australia. The Study was led and complied by Worley Parsons.

#### Summary

The results highlight the high quality of the Nebo-Babel nickel-copper deposit, confirming the economic viability of a future mining operation. The strong economics of the Project allow for significant flexibility in determining the most appropriate development strategy, dependent on the nickel and copper price environment.

The Project is economically viable at a range of different mine production and processing rates, however the Company has assessed two preferred scenarios as detailed below (Refer to notes on forward looking statements on page 13 relating to production targets.):

- a) 4Mtpa Case 4.0Mtpa mining and processing rate over the life of mine; and
- b) Staged Case Commence processing ore at 1.5Mtpa and expanding to 4Mtpa after 8 years.

#### Very Low Operating Costs

Importantly, Nebo-Babel's cash costs are forecast to be very low under both cases, at the lowest end of the range of Australian nickel producers. This represents a significant strategic advantage. The estimated life of mine ("LOM") C1 cash operating cost (after by-product credits) for the 4Mtpa Case is forecast to average US\$1.82/lb nickel in concentrate (Staged Case estimate US\$2.61/lb nickel in concentrate).

#### Significant Metal Production, Long Mine Life

The 4Mtpa Case average annual production is estimated to be 12,300tpa of nickel in concentrate and 14,300tpa of copper in concentrate over an initial LOM of 15 years (Staged Case estimated to be 8,900tpa of nickel in concentrate and 8,500tpa of copper in concentrate over initial LOM of 15 years). Refer to notes on forward looking statements on page 13 relating to production targets.

The level of annual production that results from the 4Mtpa Case would position Cassini as a leading Australian nickel production company.

#### Good Recoveries, Highly Sought After Concentrates

In both cases, conventional processing results in good metallurgical recoveries. The separate nickel and copper concentrates produced are both clean (very low in arsenic, with no other deleterious elements detected) and readily saleable. The nickel concentrate has a smelter-friendly Fe:MgO ratio and is expected to be highly sought after. Cassini will be paid for all by-product credits (PGEs, Co, Au and Ag) as the threshold levels are satisfied.

#### Strong Cashflow, Short Payback Period

The 4Mtpa Case is forecast to generate LOM revenue of A\$6.7 billion (Staged Case A\$4.5 billion), for net operating cash flow of A\$2.7 billion (Staged Case A\$1.5 billion).

LOM average annual net cashflow is A\$177 million under the 4Mtpa Case (Staged Case A\$100 million).

The Study reveals a short payback period, of 2.8 years under the 4Mtpa Case and 3.2 years under the Staged Case.

Operating Metrics	4Mtpa Case (LOM)	Staged Case (first 8 years only)	Staged Case (LOM)
Processing Capacity	4.0Mtpa	1.5Mtpa	1.5-4.0Mtpa
Average Strip Ratio	2.8:1	4.5:1	2.7:1
Total Mineral Inventory	56.3Mt	9.7Mt	35.9Mt
Initial Mine Life	15 years	8 years	15 years
Total Ni in concentrate	174,500t	61,500t	125,800t
Total Cu in concentrate	206,700t	64,700t	121,400t
Average Ni Recovery	71.7%	80.6%	71.3%
Average Ni Concentrate grade	12.9%	12.7%	12.8%
Average Cu Recovery	82.2%	83.5%	67.2%
Average Cu Concentrate grade	26.4%	26.5%	24.3%
Average C1 Cash costs (per lb Ni in concentrate after by-product credits)	US\$1.82	US\$1.77	US\$2.61

Financial Metrics*	4Mtpa Case (LOM)	Staged Case (LOM)	
Project Life of Mine Revenue	A\$6.7bn	A\$4.5bn	
Project net cash flow	A\$2.7bn	A\$1.5bn	
Estimated C1 cash operating cost	US\$1.82/lb	US\$2.61/lb	
Pre-Production Capex	A\$432m	A\$264m	
Pre-Production Capex Contingency	A\$89m	A\$55m	
Ramp-up Capex (assumed in year 8)	-	A\$202m	
NPV <sub>10</sub>	A\$1.14bn	A\$619m	
IRR*	70%	55%	
Pay Back (years)	2.8	3.2	
Annual Ni in concentrate production	12,300t	8,900t	
Annual Cu in concentrate production	14,300t	8,500t	

\* The financial metrics use independent nickel and copper pricing forecasts provided by commodity price experts Wood Mackenzie Ltd for the anticipated life of the mine, and independent consensus exchange rate A\$/US\$ of 0.75.

Cassini prepared the Staged Case to contemplate a lower capital cost development alternative. The Staged Case commences with a start-up 1.5Mtpa plant, treating only the highest-grade ore from Nebo-Babel during the first 8 years of mining. The Staged Case then contemplates an increase in processing throughput to 4Mtpa, which is maintained for a further 7 years (for an initial 15 years of mine life). Refer to notes on forward looking statements on page 13 relating to production targets.

Whilst the Staged Case has been primarily established to provide for a low upfront capital cost, it also results in reduced technical risk and more rapid payback. Importantly it retains the optionality to go on and exploit the significant lower grade component of the resource at both Nebo and Babel.

Although the Study contemplates the processing scale of the Staged Case increasing from 1.5Mtpa to 4Mtpa at the end of year 8, in practice the Staged Case will allow Cassini the optionality to time an expansion at any logical point following commissioning of the mine, and therefore the ability to schedule a larger-scale development to suit the prevailing commodity price and market sentiment.

## **Company Comment**

Cassini's Managing Director, Richard Bevan said "The Scoping Study clearly demonstrates that this Project will deliver enormous value to Cassini and its shareholders. It shows the significant economic value of Nebo-Babel, which is driven by its very low operating cost profile, huge mineral inventory, and exciting exploration potential of both it and the broader Project area, as demonstrated by targets such as Succoth.

An enormous amount of work has been done to release this study less than 12 months from acquisition, with the positive outcomes on all fronts reaffirming our strategy of focussing on the higher grade subset of the resource and applying a "mid-cap" approach to development. We have rapidly progressed the Project forwards in its development cycle and have highlighted a number of areas where we are confident we can further enhance its value"

It is a very significant asset, one which we are highly confident of developing into a mining operation in the near future."

Cassini's Chairman, Mike Young said: "The Cassini Board and management team is very proud to continue to deliver on its stated intention of developing the Nebo-Babel deposit into a world-class mine. The Nebo-Babel mine will become the cornerstone for future development of many other regional Ni-Cu deposits, which have the potential to transform the West Musgrave into Western Australia's next mining camp."

## **Project Partners**

The Study was compiled with the assistance of a number of independent consultants as well as in-house Cassini personnel. The Company would like to thank our Project partners for their considerable effort in delivering an outstanding result, in particular Worley Parsons for playing the important role of Study Manager and leading and compiling the Study.

The Project Partners are:

Worley Parsons: Study Manager, Transport, Infrastructure, Power, Hydrology

CSA Global: Resource Estimation, Mine engineering

Strategic Metallurgy: Flotation testwork, Process engineering

Independent Metallurgical Operations: Beneficiation testwork

WH Cunningham & Associates: Concentrate marketing

**KPMG:** Financial modelling

#### **Mineral Resource & Mining Inventory**

The Study is based on the Nebo-Babel JORC Resource, announced on 25 February 2015, which was completed in accordance with the guidelines of the JORC Code (2012 edition). The updated Mineral Resource estimate was completed by independent resource consultants CSA Global Pty Ltd ("CSA Global") incorporating results from the Company's 2014 drilling campaign.

The Resource is highly leveraged to increases in the cut-off grade, meaning that there is a large tonnage of ore at Nebo-Babel that is capable of economic extraction at higher commodity prices. For example, reducing the cut-off grade from 0.3% to 0.2% Ni approximately doubles the size of the Resource from 203Mt to 410Mt (refer to grade-tonnage data in Appendix 1 & 2).

Economic analysis in the Study has shown that an appropriate Ni cut-off grade for the project is in the range of 0.25% - 0.35% Ni. As such, the Company has clarified the Mineral Resource Estimate at a 0.3% Ni cut-off, which is summarised below. Cassini considers that there remains upside associated with the Resource, given the likelihood of high grade extensions to areas of known mineralisation at Nebo-Babel.

Prospect	Classification	Tonnes Mt	Ni %	Cu %	Co ppm	Fe₂O₃ %	MgO %	As ppm	S %
	Indicated	25.8	0.52	0.46	215	15.9	4.7	2.0	2.8
Nebo	Inferred	3.0	0.60	0.48	229	16.4	4.9	2.5	4.0
	Total	28.9	0.53	0.46	217	16.0	4.7	2.0	3.0
	Indicated	69.7	0.39	0.42	139	14.8	7.7	1.9	2.4
Babel	Inferred	104.5	0.38	0.40	135	14.8	7.8	2.3	2.3
	Total:	174.2	0.39	0.41	137	14.8	7.7	2.2	2.4
Combined	Total:	203.1	0.41	0.42	148	15.0	7.3	2.1	2.4

Nebo-Babel Indicated and Inferred Mineral Resource (0.3% Ni cut off) - February 2015

CSA have also undertaken open pit mining studies utilising Whittle software to produce a Mining Inventory and Mining Schedule.

The Mining Inventory for the 4Mtpa Case of the Study comprises 56.3Mt grading 0.41% nickel and 0.43% copper for a contained 240,000t of nickel and 249,000t of copper. Approximately 90% of the tonnes and nickel metal included in this Mining Inventory are in the Indicated category. As such, the dependence of the outcomes of the Study and guidance provided in this announcement on the proportion of lower confidence Inferred category mining inventory material is minimal.

It is important to note the Mining Inventory for the first phase of the Staged Case (8 years at 1.5Mtpa) is 9.7Mt grading 0.79% Ni and 0.80% Cu for a contained 76,700t of nickel and 77,700t of copper, and that this is consistent with the Company's objective of a high grade development approach.

# Mining & Scheduling

The Nebo and Babel deposits were optimised separately in Whittle before the models were "merged" together for scheduling purposes. The two deposits were optimised using different mining and processing costs for the 4Mtpa Case and each phase of the Staged Case.

Mining will be by open pit methods with both deposits mined simultaneously. Both production scenarios envisage mining commencing at Babel's Startmeup shoot where the mineralisation occurs just below the surface, while prestrip is undertaken over the high-grade core of Nebo. Mining would be via conventional drill & blast, dig and haul, utilising an appropriate sized earthmoving fleet operated by contractors on behalf of the Company. Maximum pit depth at Nebo is 210m while Babel is only 165m due to the much shallower dip of the orebody.

The mining schedule has been smoothed across both deposits, although there are further opportunities to refine mine scheduling and minimise pre-strip during the early years.



Figure 1: Babel (left) and Nebo (right) optimised pits showing ore blocks.

# **Operating Cost Estimates**

The Study demonstrates that Nebo-Babel will have very low operating costs, which is a significant advantage. The operating costs have been compiled by Worley Parsons with input from the Project Partners and are estimated as follows:

LOM Average Operating Cost Estimates	4Mtpa Case (US\$/Ib Ni)	Staged Case (US\$/Ib Ni)
Mining	1.18	1.06
Processing	2.56	2.52
Administration	0.66	0.91
Transport	1.59	1.51
By-product Credits	(4.17)	(3.39)
Total C1 Cash Cost (Ni in concentrate)	1.82	2.61



Figure 2: Global Nickel Industry Cost League (2015) showing the range of WA nickel producers (Source: Wood Mackenzie Ltd – Metals Costs Benchmarking Tool – Nickel – Q1 2015).

C1 cash cost estimates provided by Wood Mackenzie for 2019 (Cassini's proposed first year of production) demonstrates that Cassini would sit at the very lower end of the range of C1 cost estimates for its peer group.

#### **Ore Processing**

The 4Mtpa Case assumes the construction of a 4Mtpa processing plant on a conventional project development pathway and timetable. In comparison, the Staged Case contemplates the initial construction of a 1.5Mtpa processing plant, which would later be upgraded to accommodate a further 2.5Mtpa of processing capacity for a total of 4.0Mtpa. The upgrade from 1.5Mtpa to 4.0Mtpa involves the construction of a second process line. The 1.5Mtpa processing plant will be capable of accommodating higher throughput and will be relatively modular.

Processing will comprise conventional crushing, milling and classification circuits followed by two stages of conventional flotation plus dewatering and filtration to produce separate nickel and copper concentrates.

A number of processing alternatives have been identified for review in later studies, including plant throughput optimisation and timing of plant expansion.



Figure 3: Nebo-Babel Processing Flowsheet.

# Metallurgy & Concentrate Product Quality

The metallurgical testwork program was undertaken by independent consultants Strategic Metallurgy ("SM") who are recognised nickel sulphide metallurgy experts, consulting to a number of companies and having recently completed Feasibility testwork for the Nova - Bollinger Project of Sirius Resources NL.

Five composite samples taken from five large diameter (PQ) diamond holes (representing mineralisation from both Nebo and Babel Deposits) were subjected to a total of 45 flotation tests. The test procedure produces final concentrates, final tails and various intermediate streams, with the intermediate streams being added to the tails. The current testwork was designed to achieve the minimum requirements for marketable concentrates and has not been optimised. Consequently SM is highly confident that future testwork will deliver further improvements through a refinement of reagents and process flow sheet. Through the next phase of work, the Company will initially target Ni recovery improvements in a range of 1-5%, which has the potential to provide a significant increase in project economics.

The testwork undertaken clearly shows the ability of the Nebo-Babel mineralisation to produce separate nickel and copper concentrates of a saleable grade at acceptable recoveries. Economic evaluations confirm that separate Ni and Cu concentrates will achieve higher revenue than a combined concentrate, and will also provide greater flexibility and marketing options. The concentrates have the benefits of by-product credits with cobalt and PGE's (platinum/palladium) reporting to the nickel concentrate and gold, silver and palladium to the copper concentrate.

Furthermore, the concentrates demonstrate strategic advantages of being very low in arsenic (only one sample tested above detection limits), with no other deleterious elements detected and with a smelter-friendly Fe:MgO ratio (in all instances greater than the industry benchmark of 6x) which will be highly sought after. A summary of the testwork results achieved to date are presented below:

	Nickel Co	ncentrate	Copper Co	oncentrate
Mineralisation Type	Recovery (%)	Grade (%)	Recovery (%)	Grade (%)
Nebo Matrix & Massive	83.2	12.6	80.8	27.7
Nebo Disseminated	79.4	13.1	90.8	30.7
Babel Startmeup Shoot	76.5	12.5	80.5	23.5
Babel Disseminated	63.9	13.0	41.0	20.0
Babel Transition	59.3	13.1	80.1	24.0

All mineralisation types were able to produce saleable concentrates. Babel disseminated mineralisation demonstrated finer grained copper minerals than the other composites, causing difficulties to liberate the sulphides. This is probably due to local alteration in the area of the source diamond hole and is probably not representative of the entire deposit. The next phase of test work will include a larger number of spatially representative samples as well as broadening grinding and flotation parameters to improve recovery with the aim of achieving similar recoveries to other ore-types.

Concentrate marketing specialist, Bill Cunningham said "Having examined the preliminary concentrate data, I am of the opinion that both the nickel concentrate and the copper concentrate products will be readily saleable. The levels of cobalt, gold, silver and some PGEs in the nickel and copper concentrates are sufficient to be paid for their content. All products appear to have low levels of deleterious elements, resulting in clean concentrates, which is overall a very favourable situation."

# **Capital Cost Estimates**

The pre-production capital expenditure required for the first phase of the Stage Case (1.5Mtpa) is estimated to be A\$264.1 million, plus a 20% (A\$55 million) contingency. This is significantly lower than the A\$432.1 million cost (plus A\$89 million contingency) of the 4Mtpa Case. The pre-production capital costs are shown below:

Conital Cost Estimatos (Atm)	Staged Case	Staged Case	4Mtpa Case
Capital Cost Estimates (A\$m)	1.5Mtpa	Upgrade to 4Mtpa	4.0Mtpa
Process Plant	110.2	97.6	207.8
Tailings	13.9	28.2	42.1
Non Process Infrastructure	88.4	11.9	100.3
Port	1.6	-	1.6
Total Direct Cost	214.1	137.7	351.8
Temp Facilities	11.4 6.9		18.3
EPCM	38.6	23.4	62.0
Total Indirect Cost	50.0	30.3	80.3
TOTAL COST EX CONTINGENCY	264.1	168.0	432.1
Contingency (20%)	55.4	33.6	89.0
Total Installed Cost	319.4	201.6	521.0

#### Infrastructure

#### Camp

The Study contemplates a 250 person permanent accommodation village to cater for all personnel on-site. Personnel would be flown to site from Perth on a 2 on, 1 off roster.

#### Power

Power for the project will be provided by diesel generator initially at 15MW for the 1.5Mtpa phase of the Staged Case, which will be increased to 30MW for the 4Mtpa phase. There are opportunities to consider dual fuel options and alternative fuel sources in later studies.

#### Water

Desktop studies have identified a number of potential sources of water for processing operations which need to be evaluated in more detail in the next stage of study. There is a provision in the capital costs of this Study for what is considered the worst case outcome – pumping water from known water sources in the Officer Basin approximately 40km away from the mine.

#### Airport

The Study proposes access to the existing Jameson community airstrip. This strip is licensed to accept Class 3C (CASA) aircraft. An allowance has been made for minor upgrade and ongoing maintenance. This will be an enduring legacy the project will provide to the local community. A Class 4C all-weather airstrip is located 100km away at Warburton.

#### Site Access

Allowance has been made for the upgrade of roads from the mine site to Warburton and to Jameson. This includes approximately 30km of road upgrade from the mine site heading west to join the Warburton/Jameson road.



Figure 4: Nebo-Babel Site Layout.

# **Projected Revenue and Commodity Price Assumptions**

Commodity price forecasts for nickel and copper have been sourced from leading independent commodity research group; Wood Mackenzie Ltd. The Wood Mackenzie Ltd long term average price for nickel is US\$11.90/lb and for copper is US\$3.50/lb.

Cassini has applied current broker consensus price forecasts for other payable metals.

An AUD:USD exchange rate of 0.75 has been assumed, based on current consensus forecasts.

The project is strongly leveraged to fluctuations in the AUD:USD exchange rate as well as to the nickel price and to nickel recovery.

4Mtpa Case Sensitivity	Wood Mackenzie -25%	Wood Mackenzie -15%	Wood Mackenzie Forecast	Wood Mackenzie +15%	Wood Mackenzie +25%
LOM revenue	A\$5.03bn	A\$5.68bn	A\$6.66bn	A\$7.63bn	A\$8.29bn
Annual net cashflow	A\$75m	A\$116m	A\$177m	A\$239m	A\$280m
NPV <sub>10</sub>	A\$395m	A\$694m	A\$1.14bn	A\$1.59bn	A\$1.89bn
IRR	33%	48%	70%	89%	102%
C1 Cost (Ni in Con)	US\$2.79/lb	US\$2.40/lb Ni	US\$1.82/lb Ni	US\$1.25/lb Ni	A\$0.86/lb

Under all sensitivity cases illustrated above, the C1 cash cost is very low, demonstrating a project that produces strong cash flows.

# **Transport & Logistics**

The Study assumes a baseline for the transport of separate nickel and copper concentrates from the mine site at Nebo-Babel to the Port of Esperance.

Transport Method	Route	Distance
Road journey	Nebo-Babel to Leonora	800km
Rail journey	Leonora to Esperance	500km
Total journey	Nebo-Babel to Esperance	1,300km

Nickel and copper concentrates would be loaded into half height containers at the mine site, and freighted by triplecar road train via the Great Central Road to Leonora. Containers would then be loaded onto train and railed to the Port of Esperance.

The Port of Esperance is a recognised nickel hub which currently exports concentrate from operations of BHP Billiton Limited, Western Areas NL and First Quantum Minerals Limited. Whilst the export of the concentrate through the Port of Esperance has been costed for the Study, a number of other options exist once the containers are loaded onto the rail in Leonora. These alternatives will be closely examined in the next study phase.

# **Approvals & Permitting**

The Company will continue to make progress with baseline environmental surveys and studies. Flora, fauna, waste characterisation, tailings characterisation, soils and landforms studies have all commenced and are proceeding well.

The deposits are located on granted mining leases. A Mining Proposal is expected to be lodged with the Department of Mines and Petroleum by June 30 2015 to allow environmental approval of a mine development.

A mining heritage agreement will be required to be negotiated with the Traditional Owners through the Ngaanyatjarra Land Council, a recent precedent for such being Metals X Limited's agreement in 2010 in respect of the Wingellina nickel laterite project. Preliminary discussions around the mining agreement have been held with an intended commencement of formal negotiations post the delivery of this Scoping Study.

#### **Value Enhancement Opportunities**

Cassini has identified a number of immediate opportunities that may provide significant improvement in project economics, in addition to those already described above. The most significant of these opportunities include:

- Improved process recovery of Babel disseminated mineralisation;
- Optimisation of mine planning and scheduling;
- Optimisation of Plant throughput rates and staging;
- · Further reduction in operating expenses through initiatives around power, transport; and
- Modularisation to improve installation costs and schedule.

#### **Next Steps**

Cassini is delighted with the outcomes of the Study, which confirm the Company's belief that Nebo-Babel will support a mine development scenario, focussed on the higher grade portions of the deposits. The Study has also highlighted a number of opportunities to significantly enhance project economics, such that the Study itself can be considered a relatively conservative view of the Project's potential.

The Company will now commence a pre-feasibility study, which will focus on the economic impact of a number of the key enhancement opportunities outlined above. This phase is expected to be completed by the end of 2015, and will involve relatively inexpensive desk-top studies in mining, metallurgy, process engineering and logistics. The Company also intends to continue to progress long-lead time items such as baseline environmental surveys, hydrogeology and geotechnical investigations.

With one of the key economic drivers of the project being metallurgical recovery of nickel, the Company will continue the refinement of the metallurgy program where a number of potential improvements have already been identified. This work will initially be carried out on the existing composites (requiring no further drilling) prior to additional samples being obtained so that greater spatial representation of the deposits can be achieved.

Concurrently, the Company will undertake a rational exploration program, primarily targeting massive sulphide extensions to Nebo and Babel, also evaluating the resource potential at Succoth as well as conducting first-pass testing of other regional prospects such as Yappsu and Esagila. More information of the Company's exploration programs will be forthcoming once they are finalised. The West Musgrave Project boasts an impressive pipeline of promising exploration targets and the company is confident that further discoveries are likely, which may provide a positive impact on mining economics.

## **Indicative Development Timetable**

The Study indicatively contemplates commencement of construction in 2017 with the first concentrate production from Nebo-Babel anticipated to occur in late in 2018.

Indicative Development Timetable	Anticipated Commencement	Anticipated Completion
Pre-feasibility study	April 2015	Q4 2015
Definitive feasibility study	Q1 2016	Q2 2017
Final Investment Decision	Q3 2017	
Project Execution (design/procure/construct)	Q3 2017	Q3 2018
Handover	Q3 2018	
First concentrate production	Q4 2018	

For further information, please contact:

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#### **Cautionary Statement**

The scoping study referred to in this report is based on low-level technical and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusions of the scoping study will be realised. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The Company advises the scoping study results and production targets reflected in this announcement are preliminary in nature as conclusions are partly drawn from Inferred Resources (which comprise approximately 10% of the total resource tonnes and the nickel metal in the mining inventory). The scoping study outputs contained in this report relate to 100% of the mine. The Company has concluded it has a reasonable basis for providing the forward looking statements included in this announcement. The detailed reasons for that conclusion are outlined throughout this announcement and in particular the appendix headed "Forward Looking and Cautionary Statements".

#### **Competent Persons Statement**

The information in this report that relates to Exploration Results is based on information compiled or reviewed by Mr Greg Miles, who is an employee of the company. Mr Miles is a Member of the Australian Institute of Geoscientists and has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Miles consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

The information in this report that relates to the Mineral Resources has been compiled by Mr Aaron Green, who is a full-time employee of CSA Global Pty Ltd. Mr Green is a Member of the Australian Institute of Geoscientists and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Green consents to the disclosure of this information in this report in the form and context in which it appears.

#### **Forward Looking Statements**

Some statements in this report regarding estimates or future events are forward---looking statements. They include indications of, and guidance on, future earnings, cash flow, costs and financial performance. Forward---looking statements include, but are not limited to, statements preceded by words such as "planned", "expected", "projected", "estimated", "may", "scheduled", "intends", "anticipates", "believes", "potential", "could", "nominal", "conceptual" and similar expressions. 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 interpretations 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 to differ from estimated results, and may cause the Company's actual performance and financial results in future periods to materially differ from any projections of future performance or results expressed or implied by such forward---looking statements. These risks and uncertainties include but are not limited to liabilities inherent in mine development and production, geological, mining and processing technical problems, the inability to obtain mine licenses, permits and other regulatory approvals required in connection with mining and processing operations, competition for among other things, capital, acquisitions of reserves, undeveloped lands and skilled personnel; incorrect assessments of the value of acquisitions; changes in commodity prices and exchange rates; currency and interest rate fluctuations; various events which could disrupt operations and/or the transportation of mineral products, including labour stoppages and severe weather conditions; the demand for and availability of transportation services; the ability to secure adequate financing and management's ability to anticipate and manage the foregoing factors and risks. There can be no assurance that forward---looking statements will prove to be correct.

Statements regarding plans with respect to the Company's mineral properties may contain forward looking statements. Statements in relation to future matters can only be made where the Company has a reasonable basis for making those statements.

The Company notes that an Inferred Resource has a lower level of confidence than an Indicated Resource and that the JORC Code (2012 Edition) advises that to be an Inferred Resource it is reasonable to expect that the majority of the Inferred Resources would be upgraded to an Indicated Resources with continued exploration. Based on advice from relevant Competent Persons the Company has a high degree of confidence that the Inferred Resources for the Nebo-Babel mine will upgrade to Indicated Resources with further exploration work.

This announcement has been prepared in compliance with the JORC Code 2012 Edition and the current ASX listing rules.

The Company believes it has a reasonable basis for making the forward-looking statements in this announcement, including with respect to any production targets, based on the information contained in this announcement and in particular:

- The Scoping Study was completed by WorleyParsons which envisages the development of a 4Mtpa operation (4Mtpa or Staged) based on the Mineral Resource estimate provided by CSA Global. WorleyParsons has compiled the capital and operating costs estimates and provided sign-off for the Scoping Study level cost estimates (excluding owner's costs) based on the mining schedule and estimated mine operating costs provided by CSA Global and capital and operating costs for the process plant provided by Strategic Metallurgy.
- Additional capital and other operating costs including non-process infrastructure, product transportation and general & administration (G&A) were developed by WorleyParsons from internal databases.
- The Production Target referred to in this announcement is partly based on Inferred Mineral Resources (being 10%). There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target or preliminary economic assessment will be realised. Based on advice from relevant Competent Persons the Company has a high degree of confidence that the Inferred Resources for the Nebo-Babel mine will upgrade to Indicated Resources with further exploration work
- The Study is sufficient to be considered Scoping level with approximate accuracy of ±30%.
- The information upon which the cost curve is based comes from Wood Mackenzie's experience, knowledge and databases. They have been arrived at following careful consideration and enquiry but Wood Mackenzie does not guarantee their fairness, completeness or accuracy

#### **Previously Reported Information**

Readers are referred to previous Mineral Resource estimate announced in ASX release dated 25 February 2015.

# APPENDIX 1: MINERAL RESOURCE

The scale of the resource is highly sensitive to the grade cut-off, as shown below.

<b>Nebo-Babel Indicated and Inferred Mineral Resource</b>	(various cut-offs	) – Februar	y 2015
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Prospect	Ni% Class	Tonnes	Ni	Cu	Со	Au	Pt	Pd	Fe <sub>2</sub> O <sub>3</sub>	MgO	As	S	
FIUSPECI	Cut-off	Glass	Mt	%	%	ppm	ppm	ppm	ppm	%	%	ppm	%
		Indicated	50.4	0.39	0.39	161	0.05	0.07	0.08	13.9	5.29	1.94	2.15
Nebo		Inferred	8.4	0.37	0.35	143	0.04	0.07	0.09	13.2	6.11	2.58	2.31
		Total	58.8	0.39	0.38	159	0.04	0.07	0.08	13.8	5.41	2.03	2.18
	0.2	Indicated	133.2	0.33	0.36	121	0.06	0.09	0.10	13.8	7.55	1.98	2.03
Babel		Inferred	218.7	0.32	0.35	119	0.07	0.09	0.10	14.0	7.72	2.25	1.99
		Total:	351.9	0.32	0.35	120	0.06	0.09	0.10	13.9	7.65	2.15	2.00
Combined		Total:	410.7	0.33	0.36	126	0.06	0.09	0.10	13.9	7.33	2.13	2.03
		Indicated	25.8	0.5	0.5	215	0.05	0.07	0.09	15.9	4.72	1.99	2.83
Nebo		Inferred	3.0	0.6	0.5	229	0.04	0.08	0.10	16.4	4.89	2.47	3.99
		Total	28.9	0.5	0.5	217	0.05	0.07	0.09	16.0	4.74	2.04	2.95
	0.3	Indicated	69.7	0.39	0.42	139	0.07	0.10	0.12	14.8	7.65	1.94	2.40
Babel		Inferred	104.5	0.38	0.40	135	0.08	0.11	0.12	14.8	7.78	2.29	2.33
		Total:	174.2	0.39	0.41	137	0.08	0.11	0.12	14.8	7.73	2.15	2.36
Combined		Total:	203.1	0.41	0.42	148	0.08	0.10	0.12	15.0	7.30	2.13	2.44
		Indicated	10.9	0.76	0.58	305	0.05	0.07	0.10	19.5	3.93	2.22	4.27
Nebo		Inferred	1.2	1.02	0.69	376	0.04	0.09	0.12	22.2	4.02	2.88	7.38
		Total	12.0	0.78	0.59	312	0.04	0.07	0.10	19.8	3.94	2.28	4.57
	0.4	Indicated	18.6	0.53	0.56	171	0.09	0.11	0.14	16.9	6.87	2.05	3.37
Babel		Inferred	27.7	0.49	0.47	160	0.10	0.13	0.15	15.9	7.56	2.60	2.98
		Total:	46.3	0.51	0.51	164	0.10	0.12	0.14	16.3	7.29	2.38	3.14
Combined		Total:	58.4	0.56	0.52	195	0.09	0.11	0.13	17.0	6.60	2.36	3.43
		Indicated	7.6	0.90	0.64	353	0.05	0.07	0.11	21.4	3.58	2.34	5.22
Nebo		Inferred	0.9	1.16	0.75	424	0.04	0.09	0.13	24.4	3.90	3.04	8.61
		Total	8.6	0.93	0.65	361	0.04	0.08	0.11	21.7	3.62	2.42	5.59
	0.45	Indicated	10.0	0.62	0.68	191	0.10	0.11	0.14	18.6	6.06	2.13	4.10
Babel		Inferred	12.7	0.58	0.51	179	0.11	0.12	0.16	16.5	6.73	2.39	3.49
		Total:	22.6	0.59	0.58	185	0.10	0.12	0.15	17.4	6.43	2.28	3.76
Combined		Total:	31.2	0.69	0.60	233	0.08	0.11	0.14	18.6	5.66	2.32	4.26
		Indicated	5.5	1.06	0.71	406	0.05	0.08	0.12	23.8	3.21	2.55	6.45
Nebo		Inferred	0.8	1.27	0.80	459	0.03	0.10	0.13	26.0	3.78	3.16	9.55
		Total	6.3	1.09	0.72	412	0.04	0.08	0.12	24.1	3.29	2.63	6.85
	0.5	Indicated	6.9	0.68	0.78	206	0.11	0.11	0.15	19.8	5.60	2.24	4.63
Babel		Inferred	7.3	0.66	0.54	199	0.12	0.12	0.17	17.4	6.01	2.23	4.03
		Total:	14.2	0.67	0.66	202	0.11	0.11	0.16	18.6	5.81	2.24	4.32
Combined		Total:	20.5	0.80	0.68	267	0.09	0.10	0.15	20.3	5.03	2.36	5.10

# APPENDIX 2: GRADE-TONNAGE CURVE FOR NEBO-BABEL (COMBINED)



The Mineral Resource is sensitive to further reductions in the nickel cut-off grade.

# APPENDIX 3: JORC CODE (TABLE 1)

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

Criteria	JORC Code explanation	Commentary
Sampling techniques	g 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.	The Nebo and Babel deposits were sampled using diamond drill holes (DD) and Reverse Circulation (RC) drill holes on a nominal spacing of 50 m x 100 m at Nebo and on a nominal spacing of 100 m x 100 m at Babel.
		Cassini completed a total of 86 RC drill holes for 12,818 m and 2 DD drill holes for 187.1 m at Nebo; and a total of 61 RC drill holes for 10,319 m and 3 DD drill holes for 382 m at Babel.
		Previous drilling completed by WMC and BHP Billiton included diamond drilling and reverse circulation. A total of 33 DD and 2 RC drill holes were included in the Resource for Nebo and a total of 54 DD and 3 RC at Babel.
		Holes were generally angled towards grid north at 60 degrees (Nebo) and at 70 degrees (Babel) dip angles to optimally intersect the mineralised zones.
	Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.	Drill hole locations were picked up and downhole surveyed by survey contractors. Diamond core and RC drilling was used to delineate the resource. The RC samples have been obtained by a cone splitter. Diamond core was used to obtain high quality samples that were logged for lithological, structural, density and other attributes.
		Sampling for drilling post 2014 was carried out under Cassini protocols and QA procedures as per industry best practice.
		Historical QA procedures and QC results for the WMC and BHP Billiton drilling have been documented in various internal reports. In general, the reports document 'industry standard' QA procedures and acceptable QC results during the reported periods.
		Based on an assessment of the past resource reports, historical drilling results and the recent drilling by Cassini, CSA Global considers the entire dataset to be acceptable for use in Mineral Resource estimation.
	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	Diamond core is HQ and NQ2 size, sampled on visible variation in rock type and range from 0.05m to 2.0m. Half core appears to have been routinely analysed, and in some cases a further 25% of the core analysed (quarter core). Samples were crushed, dried and pulverised (total prep) to produce a sub sample for a combination of Fusion XRF, Four Acid Digest ICP and Fire Assay methods.
	types (eg submarine nodules) may warrant disclosure of detailed information.	RC drilling was used to obtain 1 m samples for Nebo and 2 m samples for Babel. From which 3 kg was pulverised (total prep) to produce a sub sample for analysis. The analytical suite consisted of a combination of fused bead X-ray fluorescence (for whole rock elements Si, Al, Fe, Ti, Ca, Na, K, Mg, P, S, Zr, Mn, Cr, and V), four acid digest (hydrochloric, nitric, hydrofluoric and perchloric acid) followed by an ICP- AES and ICP-MS finish (for Co, Cu, Zn, Ni, As, Nb and Y), and fire assay with a silver secondary collector and ICP-MS finish for Pt, Pd and Au. Loss on ignition (LOI) was measured gravimetrically at 1000°C.
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 of standard tube, depth of diamond tails, face-sampling bit or other type, whether core is orientated and if so, by what method, etc).	At Nebo, diamond drilling accounts for 33% of the drilling and comprises HQ and NQ2 sized core. At Babel, diamond drilling accounts for 51% of the drilling and comprises HQ and NQ2 sized core. RC drilling comprises 140 mm diameter face sampling
		hammer drilling. Hole depths range from 42 to 300 m.

Criteria	JORC Code explanation	Commentary
		For Cassini drilling, diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Historical drill core was orientated in a similar method.
Drill sample recovery	Method of recording and assessing core and chip sample recoveries and results assessed.	For Cassini drilling, Diamond core and RC recoveries are visually logged for every hole and recorded in the database. Actual recoveries for RC drilling were calculated for the first two drill holes for each rig and for every tenth hole thereafter. Overall recoveries are >95% and there have been no significant sample recovery problems.
		Of the 87 historical diamond drill holes that are used in resource, Cassini has confirmed that 37 DD holes had recovery details recorded. Cassini is not aware of recovery records for the remaining holes.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	For Cassini drilling, diamond core is reconstructed into continuous runs on an angle iron cradle for orientation marking. Depths are checked against the depth given on the core blocks and rod counts are routinely carried out by the drillers. RC samples are routinely checked for recovery, moisture and contamination.
		Cassini is not aware of the historical drilling practices employed to maximise recoveries.
	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.	The massive sulphide style of the mineralisation and the consistency of the mineralised intervals are considered to preclude any issue of sample bias due to material loss or gain.
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.	Drill core and chip samples have been geologically logged and the level of understanding of these variables increases with the maturity of the prospect.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.	Logging of diamond core and RC samples at Nebo and Babel recorded lithology, mineralogy, mineralisation, structural (DDH only), weathering, colour and other relevant features of the samples. Logging is both qualitative (eg. colour) and quantitative (eg. mineral percentages). Core was photographed in both dry and wet form.
	The total length and percentage of the relevant intersections logged.	All drill holes were logged in full.
Sub-sampling techniques and sample preparation	If core, whether cut or sawn and whether quarter, half or all core taken.	Core for Nebo and Babel was cut in half and half core submitted as a first pass analysis. In some cases, further quarter core was analysed.
	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	RC samples were collected on the rig using cone splitters. All samples in mineralised zones were dry.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	The sample preparation of RC samples for Nebo and Babel follows industry best practice in sample preparation involving oven drying, followed by pulverisation of the entire sample (total prep) using Essa LM5 grinding mills to a grind size of 90% passing 75 micron.
		The sample methodologies for diamond core are identical, with the addition of coarse crushing of the half core sample prior to pulverisation.
	Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples.	Cassini field QAQC procedures involve the use of certified reference material (CRM) as assay standards, along with blanks and duplicates. The insertion rate of these averaged 1:15 with an increased rate in mineralised zones.
		Historical QAQC was routinely conducted throughout historical drilling, however methodologies changed over time.

Criteria	JORC Code explanation	Commentary
	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.	Cassini field duplicates were taken on 1 m (at Nebo) and 2 m (at Babel) composites directly from the cone splitter. Historical methodology varied, however a combination
		of sample standards (CRM), blanks and field duplicates were submitted.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate for the rock type, style of mineralisation (massive and disseminated sulphides), the thickness and consistency of the intersections, the sampling methodology and percent value assay ranges for the primary elements at Nebo and Babel.
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.	Cassini drilling analytical techniques used a four acid digest multi element suite with ICP/AES or ICP/MS finish (25 gram) for base metals and a FA/AAS for precious metals. The acids used are hydrofluoric, nitric, perchloric and hydrochloric acids, suitable for silica based samples. Total sulphur and whole rock elements were assayed by XRF.
		WMC half core samples were dispatched to the Ultra Trace Laboratory in Perth for processing and assaying. Typically samples were analysed using a 0.3 g aliquot for mixed acid digest (base metal analysis) with ICP- OES finish and 40 g aliquot for fire assay (Au, Pt and Pd analysis).
		For samples analysed 2003-2012, a combination of Fire Assay, Mixed Acid Digest ICP and Fusion XRF methods was employed.
		Fire Assay and Fusion XRF methods are considered a complete digest. Four Acid Digest analyses approach a total digest for most minerals, however some refractory minerals are not completely attacked.
	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.	Hand held assay devices have not been reported.
	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.	<ul> <li>Cassini drilling</li> <li>Sample preparation for fineness were carried by the laboratory as part of their internal procedures to ensure the grind size of 90% passing 75 micron was being attained. Laboratory QAQC involves the use of internal lab standards using certified reference material, blanks, splits and replicates as part of the in-house procedures.</li> <li>Certified reference materials, having a good range of values, were inserted blindly and at a rate of every 20<sup>th</sup> sample. Results highlight that sample assay values are accurate and that contamination has been contained.</li> <li>Repeat or duplicate analysis for samples reveals that precision of samples is within acceptable limits.</li> <li>Historical drilling</li> <li>Previous operators employed QAQC procedures</li> </ul>
		These procedures have varied over the life of the project. Minor evidence for assay bias and contamination has been observed.
Verification of sampling and assaying	The verification of significant intersections by either independent or alternative company personnel.	Both the Exploration Manager and the Technical Director of Cassini have viewed the RC chip samples and the historical drill core.
	The use of twinned holes.	Twin holes have not been completed.

Criteria	JORC Code explanation	Commentary
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Cassini collected data for the West Musgraves Project using a set of standard Field Marshal templates on laptop computers using lookup codes. The information was sent to Geobase Australia for validation and compilation into a SQL database server.
		Previous operators collected data electronically and stored it on an acQuire database.
	Discuss any adjustment to assay data.	No adjustments or calibrations were made to any assay data used in either estimate.
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.	<ul> <li>Cassini drilling</li> <li>Hole collar locations were surveyed by MHR Surveyors of Cottesloe using RTK GPS with the expected relative accuracy compared to the Control Point established by MHR. Expected accuracy is ± 5cm for easting, northing and elevation coordinates.</li> <li>Downhole surveys were completed every 5m using Reflex gyroscopes after hole completion by McKay Drilling. Stated accuracy is ± 0.25° in azimuth and ± 0.05° in inclination.</li> <li>A north-seeking gyroscope was used to pick up the starting azimuth and dip and this data was used to process the Reflex gyroscope data.</li> <li>Historical drilling</li> <li>Previous operators survey drill holes by handheld and/or differential GPS. Differential GPS positions</li> </ul>
		<ul> <li>have reported accuracy of ± 5cm for easting, northing and elevation coordinates. Accuracy of handheld GPS is unknown.</li> <li>All drill holes were surveyed downhole by single shot downhole camera. Many of the drill holes have substantial deviation from the initial azimuth which is believed to be the effects of magnetic minerals within certain geological units. The reliability of the historical downhole surveying is considered poor.</li> </ul>
	Specification of the grid system used.	The grid system for the West Musgrave Project is MGA_GDA94, Zone 52.
	Quality and adequacy of topographic control.	Topographic control was provided by drill collar pickups. The area exhibits subdued relief with undulating sand dunes and topographic representation is considered sufficiently controlled.
Data spacing and distribution	Data spacing for reporting of Exploration Results.	The nominal drill hole spacing in the core of the deposit at Nebo is 50 m (northing) by 100 m (easting) and at Babel is 100 m (northing) by 100 m (easting).
	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.	The mineralised domains for Nebo and Babel have demonstrated sufficient continuity in both geological and grade continuity to support the definition of Mineral Resources and Reserves, and the classifications applied under the 2012 JORC Code.
	Whether sample compositing has been applied.	Samples were been composited direct from the splitter to one (1) metre lengths for Nebo and two (2) metre lengths for Babel. Samples were adjusted where necessary to ensure that no residual sample lengths have been excluded (best fit).
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.	The Nebo and Babel deposits are drilled towards grid north at 60° (Nebo) and at 70° (Babel) to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	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.	To date, mineralisation orientation has been favourable for perpendicular drilling and sample widths are not considered to have added a sampling bias.

Criteria	JORC Code explanation	Commentary
Sample security	The measures taken to ensure sample security.	For drilling completed by Cassini, the sample chain of custody is managed by Cassini. Samples for the West Musgrave Project are stored on site and delivered to Perth by recognised freight service and then to the assay laboratory by a Perth-based courier service. Whilst in storage the samples are kept in a locked yard. Tracking sheets tracks the progress of batches of samples. No information is available for historical drilling sample security.
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	A review of the sampling techniques and data was carried out by CSA Global during September 2014. The sampling techniques and data were considered to be of sufficient quality to carry our resource estimation.

# 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.	Nebo is located wholly within Mining Lease M69/0074. Babel is located Mining Leases M69/0072 and M69/0073. Cassini entered into an agreement to acquire 100% of the leases comprising the West Musgrave Project (M69/0072, M69/0073, M69/0074, M69/0075, E69/1505, E69/1530, E69/2201, E69/2069, E69/2070, E69/2313, E69/2338), over which the previous operator retains a 2% NSR. The tenement sits within Crown Reserve 17614.
	The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	All tenements are in good standing and have existing Aboriginal Heritage Access Agreements in place. No Mining Agreement has been negotiated.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	Previous exploration has been conducted by BHP Billiton and WMC. The work completed by BHP Billiton and WMC is considered by Cassini to be of a high standard.
Geology	Deposit type, geological setting and style of mineralisation.	The deposits are located within the West Musgrave Province of Western Australia, which is part of an extensive Mesoproterozoic orogenic belt. The Nebo and Babel deposits are hosted in a mafic intrusions of the Giles Complex (1068Ma) that has intruded into amphibolite facies orthogneiss country rock. Mineralisation is hosted within tubular chonolithic gabbronorite bodies and are expressed primarily as a broad zones of disseminated sulphides and comagmatic accumulations of, matrix to massive and breccia sulphides.
Drill hole Information	<ul> <li>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:</li> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth hole length.</li> </ul>	Refer to the body of this report for significant intercepts pertaining to this announcement.
	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.	Not applicable, all information is included.
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.	Weighted averages for the Nebo and Babel deposits were calculated using parameters of a 0.4% Ni and/or Cu lower cut-off, minimum reporting length of 2m, maximum length of consecutive internal waste of 4m and the minimum grade of the final composite of 0.4%

Criteria	JORC Code explanation	Commentary
		Ni and/or Cu.
	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.	Short lengths of high grade results use a nominal 1% Ni and/or Cu lower cut-off, no minimum reporting length and 2m maximum internal dilution.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are currently being used for reporting exploration results.
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').	Mineralisation at Nebo-Babel is a shallow dipping, south-westerly plunging body of variably mineralised mafic rock. Mineralisation is generally intersected with true-width down-hole lengths. Refer to Annexure 1 and Figures in body of text.
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	Refer to Figures in body of text.
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All results are reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	All relevant exploration data is shown on figures, in text and Annexure 1.
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.	Further infill drilling is warranted to improve the confidence of the remaining inferred resources. Additional exploration drilling is also warranted to extend the known resource. All relevant diagrams and inferences have been illustrated in this report.

# Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in the preceding section 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.	The drillhole database is maintained externally by GeoBase Australia Pty Ltd. All data is sent directly to Geobase for compilation into a SQL database server. The database is regularly validated and checked Previous operators collected data electronically and stored it on an acQuire database.
	Data validation procedures used.	All data is regularly validated by Geobase and Cassini. CSA Global has reviewed and audited selected portions of the database and approved the data for use in the resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	Aaron Green, CSA Director – Australian Operations and Competent Person for the Mineral Resources visited the West Musgrave Project from 22 <sup>nd</sup> to 24 <sup>th</sup> September 2014.

Criteria	JORC Code explanation	Commentary
	If no site visits have been undertaken indicate why this is the case.	Not applicable
Geological interpretation	Confidence in (or conversely, the uncertainty of ) the geological interpretation of the mineral deposit.	Geological interpretation was completed by Cassini staff geologists. The geological interpretations were found to be of a high standard. Continuity of mineralisation is very good and is intimately associated with the brecciated contact of a mafic (gabbronorite) intrusive into the surrounding orthogneiss host rock.
		The geological interpretation provided a sound foundation for interpretation of boundaries to the Ni-Cu mineralisation.
	Nature of the data used and of any assumptions made.	Detailed geological logging in conjunction with the chemical assays has been used to identify individual lithological units during the interpretation process. Ni, Cu, S and lithology were plotted on drill hole traces to assist the interpretation.
	The effect, if any, of alternative interpretations on Mineral Resource estimation.	The disseminated mineralisation is closely associated with the brecciated gabbronorite intrusive contact. Infill drilling has closely supported previous interpretations.
		Alternative interpretations are likely to materially impact on the Mineral Resource estimate on a local but not global basis.
	The use of geology in guiding and controlling Mineral Resource estimation.	Geology has been the primary influence in controlling the Mineral Resource estimation. Wireframes have been constructed for the various lithological zones, host rock and oxidation state as determined by the geological logging and chemical assays.
	The factors affecting continuity both of grade and geology.	Continuity of geology and structures can be identified and traced between drillholes by visual, geophysical and geochemical characteristics. Breccia zones related to the mafic intrusion, and hosing a significant portion of the mineralisation, have been logged in the drill core and chips and have been modelled.
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 Nebo Mineral Resource is contained within an area defined by a strike length of 1,585 m and across-strike width of 1,170 m. All reported mineral resources lies within 280 m of surface.
		The Babel Mineral Resource is contained within an area defined by a strike length of 2,150 m and across-strike width of 1,415 m. All reported mineral resources lies within 790 m of 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	The Mineral Resource area was separated into two separate deposits as follows: • Nebo • Babel
	extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.	Hard boundaries were placed between disseminated and massive sulphide domains which is consistent with the geological interpretation.
		No high grade cuts were applied following statistical analysis.
		Variography was completed for Ni, Cu and S only on both deposits. Ni parameters were used for the estimation of Co, Au, As, Pt, Pd, Fe <sub>2</sub> O <sub>3</sub> , MgO.
		A multiple-pass search ellipse strategy was adopted whereby search ellipses were progressively increased if search criteria could not be met. The search parameters were based on the semi-variogram ranges and the drilling density.
		Ordinary kriging has been adopted for grade estimation for both the Nebo and Babel deposits. The Micromine 'unfolding' process was used for grade interpolation due to the highly variable orientation of the mineralisation

Criteria	JORC Code explanation	Commentary
		around the Nebo and Babel intrusive host rocks.
		Statistical and geostatistical analysis was completed using GeoAccess and Micromine software. All geological modelling was completed using Surpac software. Block model construction and grade interpolation was completed using Micromine software. All software packages are used commonly in the mining industry.
	The availability of check estimates, previous	The following Mineral Resource estimates have been
	estimates and/or mine production records and whether the Mineral Resource estimate takes	completed previously: 2008 – QG (Nebo, Babel)
		2012 – Golder (Nebo, Babel)
		2014 – Xstract (Babel only)
		CSA completed check estimates for each model using the inverse distance squared (ID2) interpolation method. The global results are comparable with the reported OK models with localised differences as expected.
		No mining has yet taken place at these deposits.
	The assumptions made regarding recovery of by- products.	Co, Au, Pt and Pd have been estimated and are assumed to be potentially recoverable as part of the Ni- Cu recovery processes.
	Estimation of deleterious elements or other non- grade variables of economic significance (eg sulphur for acid mine drainage characterisation).	Potentially deleterious As, Fe <sub>2</sub> O <sub>3</sub> , MgO and S have been estimated into the model to assist with future metallurgical work and mining studies, but are not reported at this stage.
	In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.	A 25 m E by 25 m N by 5 m RL parent cell size was used for both models with sub-celling to 5 m E by 5 m N by 1 m RL to honour wireframe boundaries. The block size is considered to be appropriate given the dominant drill hole spacing and style of mineralisation.
	Any assumptions behind modelling of selective mining units.	No assumptions were made regarding selective mining units.
	Any assumptions about correlation between variables.	Variography was not completed for Co, Au, Pt, Pd or the deleterious elements. Ni variogram parameters were used to interpolate these elements. It is therefore assumed that these elements (excluding Cu) have the same spatial characteristics as Ni.
	Description of how the geological interpretation was used to control the resource estimates.	The geometry of the brecciated gabbronorite formed the basis for mineralisation interpretations.
		Soft boundaries were used within the mineralised domain zones where significant changes in lode orientation occurred. Hard boundaries for estimation were used between mineralised lithological domains and also for continuous massive sulphide domains within the Nebo deposit.
	Discussion of basis for using or not using grade cutting or capping.	There were no significant outliers in the dataset and therefore grade cutting was not considered necessary.
	The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	Validation checks included statistical comparison between drill sample grades, the OK and ID2 estimate results for each domain. Visual validation of grade trends for each element along the drill sections was completed and trend plots comparing drill sample grades and model grades for northings, eastings and elevation were completed. These checks show

Criteria	JORC Code explanation	Commentary
		reasonable correlation between estimated block grades and drill sample grades.
		No reconciliation data is available as no mining has taken place.
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages have been estimated on a dry in situ basis. No moisture values were reviewed.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The disseminated mineralisation was wireframed using a nominal 1% S cut-off grade. This equated to approximately 0.2% Ni and 0.2% Cu in fresh rock. The massive sulphide zones were delineated using the logged geology and a nominal 10% S cut-off grade. The Mineral Resource has been reported above a cut- off grade of 0.3% Ni based on preliminary mining
Mining factors or	Assumptions made recording possible mining	studies.
assumptions	(or, if applicable, external) mining dilution. It is always necessary as part of the process of	amenable to open cut mining methods, and are economic to exploit with this methodology at the reported average model grades.
	economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating	A minimum mining width of 2 m was applied (downhole composite width). No other mining assumptions were made.
	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.	Several zones of internal dilution, below the defined cut- off grade for wireframing mineralisation, were wireframed and removed from the estimate.
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.	The oxide and fresh zones for both deposits were estimated separately. It is expected that recoveries within the oxide zones will be materially different from the fresh zones, however detailed metallurgical results were not available at the time of completion of the Mineral Resource estimate. Preliminary metallurgical testwork on broad composite zones of both Nebo and Babel mineralisation has shown that acceptable recoveries of both Ni and Cu can be achieved using conventional extraction methods. More detailed metallurgical testwork is ongoing.
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 reported with an explanation of the environmental assumptions made.	No assumptions regarding possible waste and process residue disposal options have been made. It is assumed that such disposal will not present a significant hurdle to exploitation of the deposit and that any disposal and potential environmental impacts would be correctly managed as required under the regulatory permitting conditions.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method	Within the resource area, the database contained a total of 14,011 density measurements (3,541 at Nebo,
	used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.	10,470 at Babel). In-situ dry bulk density values have been calculated for the modelled mineralisation based on linear regression formulas for fresh material only. This is based on reasonable correlations having been found between measured bulk density results and sulphur (S).

Criteria	JORC Code explanation	Commentary
	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.	Density measurements were calculated using the water immersion method from drill core across the deposits and from the various rock types and weathering zones.
	Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	Water immersion density data was used to develop a regression between density and % S for the fresh mineralised material. Average densities (derived from density measurements with less than 1% S) were applied to oxide material as well as the various lithological domains based on measured densities.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories.	Classification of the Mineral Resource estimates into both Indicated and Inferred categories was carried out taking into account the level of geological understanding of the deposit, quality of samples, density data and drill hole spacing.
	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).	The classification reflects areas of lower and higher geological confidence in mineralised lithological domain continuity based the intersecting drill sample data numbers, spacing and orientation. Overall mineralisation trends are reasonably consistent within the various lithotypes over numerous drill sections.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Mineral Resource estimate appropriately reflects the view of the Competent Person.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	Internal audits were completed by CSA Global which verified the technical inputs, methodology, parameters and results of the estimate. No external audits have been undertaken.
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 Mineral Resource accuracy is communicated through the classification assigned to various parts of the deposit. The Mineral Resource estimate has been classified in accordance with the JORC Code, 2012 Edition using a qualitative approach. All factors that have been considered have been adequately communicated in Section 1 and Section 3 of this Table.
	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.	estimates of in-situ tonnes and grade.
	These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The deposits have not, and are not currently being mined.

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