



**CASSINI**  
RESOURCES LIMITED

ABN: 50 149 789 337

ASX Announcement

5 November 2014

## Further strong results from Sugar Lode

### Summary:

- **Second hole confirms the exciting Sugar Lode discovery**
- **46m @ 0.98% Ni, 0.53% Cu from 155m in CZC0053; including**
  - **3m @ 2.82% Ni and 0.35% Cu, and**
  - **5m @ 2.59% Ni and 0.53% Cu.**
- **Significant intersection of massive sulphides not in the current resource**
- **Lode remains open along strike and down dip**
- **Expected to make positive impact on resource and mining economics**

Cassini Resources Limited (ASX:CZI) ("**Cassini**" or the "**Company**") is pleased to announce the confirmation of the Sugar Lode discovery at the Nebo Deposit within the 100% owned West Musgrave Project, located in Western Australia (the "**Project**").

### Sugar Lode Results

Drill hole CZC0053 is the second hole into the "roll-over" of the Nebo intrusion, known as the Sugar Lode (Figure 1). The hole targeted an off-hole EM conductor returned from surveying nearby historical hole WMN28.

The hole returned high-grade intercepts of **3m @ 2.82% Ni, 0.35% Cu** from 163m and **5m @ 2.59% Ni, 0.20% Cu** from 180m within a broad interval of **46m @ 0.98% Ni, 0.53% Cu** from 155m (Figure 2). This intercept supports and surpasses the original discovery intercept of 7m @ 0.98% Ni, 0.53% Cu in CZC0024, announced to the ASX on 15<sup>th</sup> October 2014.

Additional results have also been received from holes CZC0051A (6m @ 0.28% Ni, 0.60% Cu from 55m) and CZC0052A (26m @ 0.37% Ni, 0.66% Cu from 64m) which both demonstrate the continuity of mineralisation from the main lode position to the Sugar Lode.

The Sugar Lode remains open along strike to the east and west as well as down-dip. Further drilling is currently being planned to define the extent of the Sugar Lode.

*(See Table 1 for a complete list of results and JORC Table 1 in Annexure 1 for drilling and assaying parameters.)*

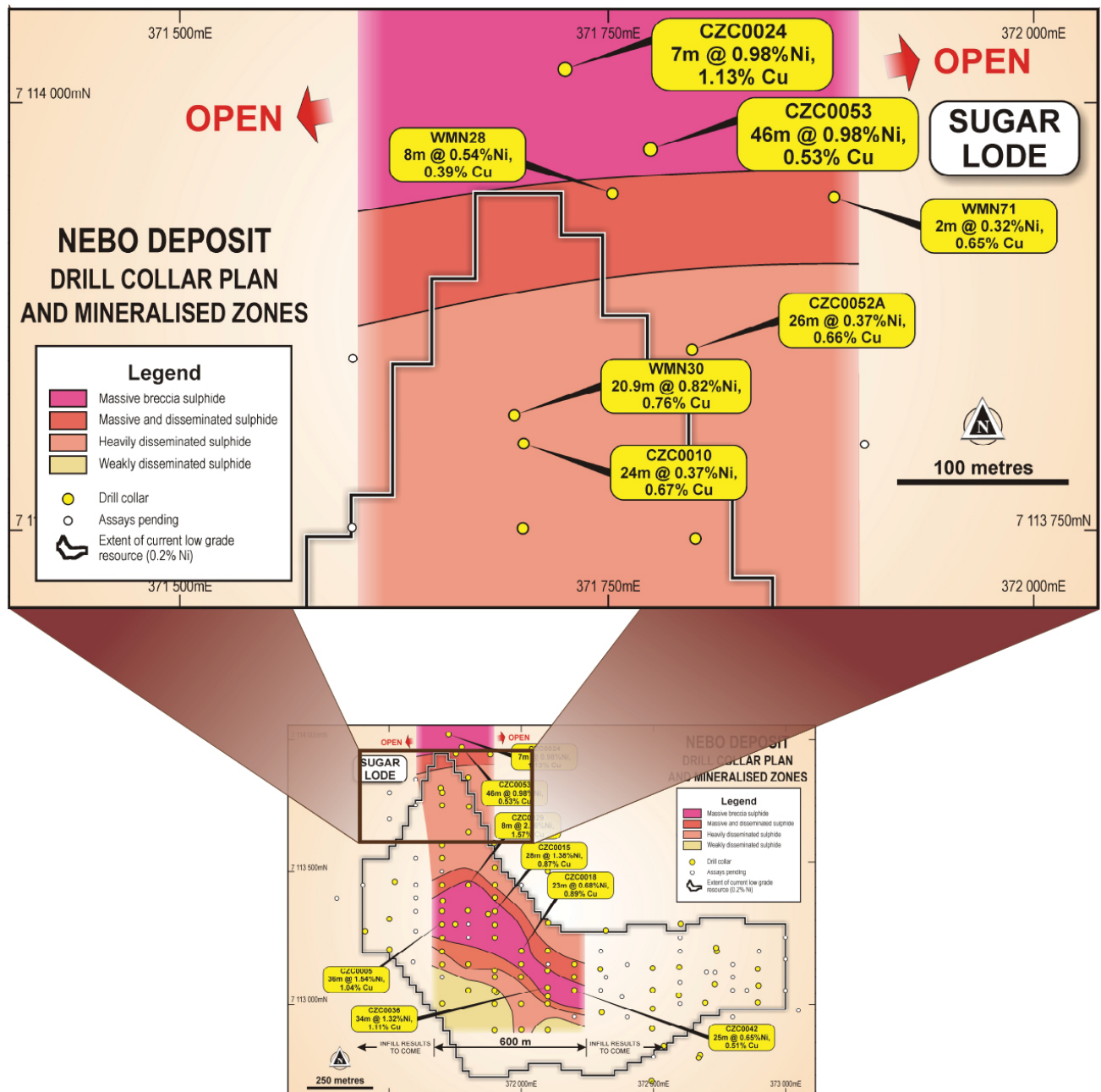


Figure 1. Plan of Nebo resource (lower image) with zoom-in showing Sugar Lode drill holes and intercepts.

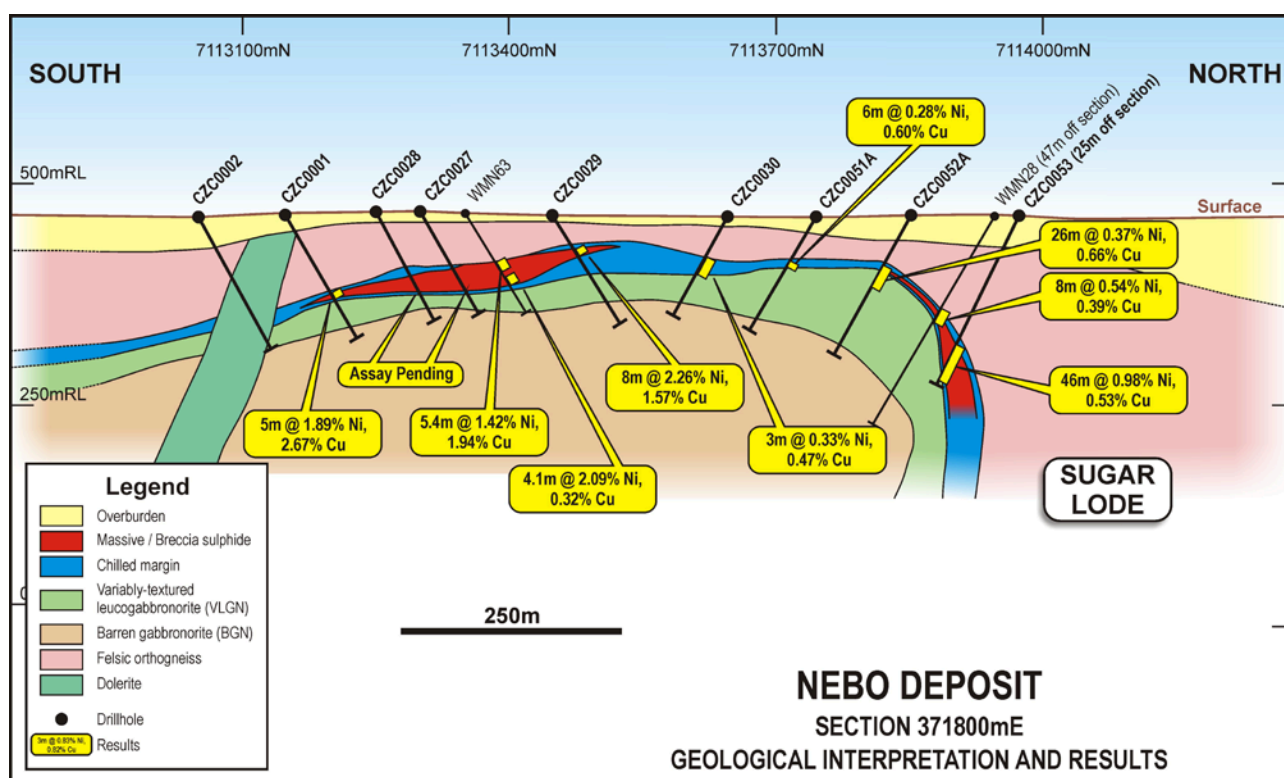


Figure 2. Section 371800E showing position of CZC0053 and Sugar Lode.

## Impact of Assay Results

The Sugar Lode is an exciting discovery which continues to demonstrate the enormous exploration upside that exists at the Nebo-Babel deposits as well as within the broader project area. The extent of the Sugar Lode is yet to be determined and further drilling is being planned for early 2015. Both CZC0053 and CZC0024 are outside the existing higher-grade (0.5% Ni cut-off) resource as well as the lower-grade (0.2% Ni cut-off) resource envelopes, which bodes well for a positive impact on the updated resource estimate (scheduled to commence at the end of the program) and with it the mining economics of the project.

## Managing Director Comment

Cassini's Managing Director, Richard Bevan said "This fantastic result confirms the exploration potential of these deposits. We consider that the nickel and copper grades are well above our required resource grade. Further, the depth of mineralisation is well within our 250m open pit boundary. Needless to say, the further definition of the Sugar Lode will be a high priority in future drilling."

## Program Status

RC Drilling is now complete at Nebo and both RC rigs have moved to Babel. Results from approximately half of the Nebo program remain outstanding, but are expected to be received in the coming weeks. 24 holes have now been completed at Babel for 3,600m with first results expected by mid-November. The drill program is progressing as planned and on schedule.

As detailed in Cassini's ASX release from 22 October 2014, the metallurgical test work program is now well underway.

**Table 1 – Drill Hole Details**

HOLE ID	East	North	RL	Dip	Azi	EOH (m)	Intersection					
							From (m)	Width (m)	Ni %	Cu %	Co%	
CZC0051A	371800	7113750	470	-60	180	151	55	6	0.28	0.60	0.04	
							75	2	0.48	0.42	0.01	
CZC0052A	371800	7113850	473	-60	180	186	64	26	0.37	0.66	0.10	
							Including	70	4	0.54	1.38	0.34
CZC0053	371775	7113975	468	-60	180	210	155	46	0.98	0.53	0.03	
							Including	163	3	2.82	0.35	0.08
							And	180	5	2.59	0.20	0.08
							And	191	2	0.59	1.70	0.02
							And	197	3	1.31	0.37	0.04
NSI = No Significant Intercept, ANR = Assays not received												

For further information, please contact:

**Richard Bevan**

Managing Director

Cassini Resources Limited

Telephone: +61 8 9322 6569

Email: [richard@cassiniresources.com.au](mailto:richard@cassiniresources.com.au)

## About Cassini

Cassini Resources Limited (ASX: CZI) is an Australian resource company that successfully listed on the ASX in January 2012. In April 2014, Cassini acquired the significant Nebo and Babel nickel and copper sulphide deposits in the Musgrave region of WA. The Company's primary focus is now on the development of these deposits and progressing them through to successful mineral production as a matter of priority.

Cassini aims to progress its development projects, to explore and add value to its exploration stage projects with the aim to increase shareholder value.

## Competent Persons Statement

The information in this report that relates to Exploration Results and Mineral Resource Estimates 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 Company is not aware of any new information or data, other than that disclosed in this report, that materially affects the information included in this report and that all material assumptions and parameters underpinning Mineral Resource Estimates as reported in the market announcement dated 14th of April 2014 continue to apply and have not materially changed.

Table 2. Nebo – Babel Inferred Mineral Resource Estimate									
Prospect	Cut-off Ni%	Mt	Ni%	Cu%	As ppm	Co ppm	Fe %	MgO %	S %
Nebo	0.2	84	0.39	0.31	3	153	9.5	5.9	2.5
Babel	0.2	362	0.32	0.36	3	118	9.9	7.8	2.1
<b>Total</b>	<b>0.2</b>	<b>446</b>	<b>0.33</b>	<b>0.35</b>	<b>3</b>	<b>125</b>	<b>9.9</b>	<b>7.4</b>	<b>2.2</b>
Nebo	0.5	15.9	0.82	0.48	3	323	14.2	3.7	5.6
Babel	0.5	17.3	0.64	0.70	3	196	12.9	6.0	4.4
<b>Total</b>	<b>0.5</b>	<b>33.2</b>	<b>0.73</b>	<b>0.59</b>	<b>3</b>	<b>257</b>	<b>13.5</b>	<b>4.9</b>	<b>5.0</b>

## ANNEXURE 1:

The following Tables are provided to ensure compliance with the JORC Code (2012) edition requirements for the reporting of the Exploration Results at the Nebo deposit.

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

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<i>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.</i>	The Nebo deposit was sampled using Reverse Circulation (RC) drill holes on a nominal spacing of 50m x 100m. A total of 115 RC drill holes for 18,500m have been drilled to date, with complete results received for 37 drill holes. Holes were generally angled towards grid north at 60 degrees to optimally intersect the mineralised zones.
	<i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i>	The drill hole locations will be picked up by survey contractors at the completion of the drilling, they are currently surveyed by handheld GPS units. The RC samples have been obtained by a cone splitter. Sampling has been carried out under Cassini protocols and QAQC procedures as per industry best practice.
	<i>Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.</i>	Reverse Circulation drilling was used to obtain 1m samples from which 3 kg was pulverised (total prep) to produce a sub sample for analysis by four acid digest with an ICP/AES or ICP/MS finish (0.25 gram) for base metals or a FA/AAS finish (40 gram) for Au, Pt and Pd.
<b>Drilling techniques</b>	<i>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).</i>	Reverse Circulation accounts for 100% of the drilling completed by Cassini and comprises 140 mm diameter face sampling hammer drilling. Hole depths range from 42 to 300m.
<b>Drill sample recovery</b>	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i>	RC recoveries are visually logged for every hole and recorded in the database. Actual recoveries were calculated for the first two holes for each rig. Overall recoveries are >95% and there has been no significant sample recovery problems.
	<i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	RC samples are routinely checked for recovery, moisture and contamination.
	<i>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.</i>	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.
<b>Logging</b>	<i>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.</i>	Drill chip samples have been geologically logged and the level of understanding of these variables increases with the maturity of the prospect.
	<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>	Logging of RC samples at Nebo recorded lithology, mineralogy, mineralisation, weathering, colour and other relevant features of the samples. Logging of chips is both qualitative (eg. colour) and quantitative (eg. mineral percentages).
	<i>The total length and percentage of the relevant intersections logged.</i>	All drillholes were logged in full.

Criteria	JORC Code explanation	Commentary
<b>Sub-sampling techniques and sample preparation</b>	<i>If core, whether cut or sawn and whether quarter, half or all core taken.</i>	Not applicable as samples are non-core.
	<i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i>	RC samples were collected on the rig using cone splitters. All samples in mineralised zones were dry.
	<i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i>	The sample preparation of RC samples at Nebo 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.
	<i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i>	Field QC procedures involves 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.
	<i>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.</i>	Field duplicates were taken on 1m composites directly from the cone splitter.
	<i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i>	Sample sizes are considered appropriate for the rock type, style of mineralisation (massive sulphides), the thickness and consistency of the intersections, the sampling methodology and percent value assay ranges for the primary elements at Nebo.
<b>Quality of assay data and laboratory tests</b>	<i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i>	The 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 previous metals. The acids used are hydrofluoric, nitric, perchloric and hydrochloric acids, suitable for silica based samples. Total sulphur is assayed by combustion furnace. These methods approach total dissolution of most minerals.
	<i>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.</i>	Hand held assay devices have not been reported.
	<i>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.</i>	<p>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.</p> <p>Certified reference materials, having a good range of values, were inserted blindly and randomly. Results highlight that sample assay values are accurate and that contamination has been contained.</p> <p>Repeat or duplicate analysis for samples reveals that precision of samples is within acceptable limits.</p>
<b>Verification of sampling and assaying</b>	<i>The verification of significant intersections by either independent or alternative company personnel.</i>	Both the Exploration Manager and the Technical Director of Cassini have viewed the RC chip samples.
	<i>The use of twinned holes.</i>	To date Cassini has not twinned any drill holes.
	<i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i>	Primary data was collected for Nebo using a set of standard Field Marshal templates on laptop computers using lookup codes. The information

Criteria	JORC Code explanation	Commentary
		was sent to Geobase Australia for validation and compilation into a SQL database server.
	<i>Discuss any adjustment to assay data.</i>	No adjustments or calibrations were made to any assay data
<b>Location of data points</b>	<i>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.</i>	Holes drilled to date by Cassini have been located with a Garmin hand-held GPS and are assumed to be accurate to $\pm 5\text{m}$ . This is considered appropriate for the drill hole spacing. At the completion of the drill program, survey contractors will be employed to complete differential GPS surveying.  Downhole surveys were completed every 5m using north-seeking gyroscopes after hole completion. Stated accuracy is $\pm 0.25^\circ$ in azimuth and $\pm 0.05^\circ$ in inclination.
	<i>Specification of the grid system used.</i>	The grid system for Nebo is MGA_GDA95, Zone 52.
	<i>Quality and adequacy of topographic control.</i>	The tenement package exhibits subdued relief with undulating hills and topographic representation is sufficiently controlled.
<b>Data spacing and distribution</b>	<i>Data spacing for reporting of Exploration Results.</i>	The nominal drill hole spacing is 50m (northing) by 100m (easting) in the core of the deposit.
	<i>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.</i>	The mineralised domains for Nebo 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.
	<i>Whether sample compositing has been applied.</i>	Samples have been composited to one metre lengths.
<b>Orientation of data in relation to geological structure</b>	<i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i>	The Nebo deposit is drilled towards grid north at $60^\circ$ to intersect the mineralised zones at a close to perpendicular relationship for the bulk of the deposit.
	<i>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.</i>	To date, mineralisation orientation has been favourable for perpendicular drilling and sample widths are not considered to have added a sampling bias.
<b>Sample security</b>	<i>The measures taken to ensure sample security.</i>	Sample chain of custody is managed by Cassini. Samples for Nebo 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.
<b>Audits or reviews</b>	<i>The results of any audits or reviews of sampling techniques and data.</i>	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
<b>Mineral tenement and land tenure status</b>	<i>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</i>	Nebo is located wholly within Mining Lease M69/0074. 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,

Criteria	JORC Code explanation	Commentary
	<i>and environmental settings.</i>	E69/2338), over which the previous operator retains a 2% NSR. The tenement sits within Crown Reserve 17614.
	<i>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.</i>	All tenements are in good standing and have existing Aboriginal Heritage Access Agreements in place. No mining Agreement has been negotiated.
<b>Exploration done by other parties</b>	<i>Acknowledgment and appraisal of exploration by other parties.</i>	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.
<b>Geology</b>	<i>Deposit type, geological setting and style of mineralisation.</i>	The project lies within the West Musgrave Province of Western Australia, which is part of an extensive Mesoproterozoic orogenic belt. The Nebo-Babel and Succoth deposits lie within mafic intrusions of the Giles Complex (1068Ma) that has intruded into amphibolite facies orthogneiss country rock. Mineralisation is hosted within tubular chonolithic gabbro-norite bodies and are expressed primarily as a Type 2 deposit with broad zones of disseminated sulphide and comagmatic or potentially remobilised accumulations of more rich, matrix to massive sulphides.
<b>Drill hole Information</b>	<i>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:</i> <ul style="list-style-type: none"> <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</li> <li>• hole length.</li> </ul>	Refer to the body of this report for significant intercepts pertaining to this announcement.
	<i>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.</i>	Not applicable, all information is included.
<b>Data aggregation methods</b>	<i>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.</i>	Weighted averages for the Nebo deposit 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 2m and the minimum grade of the final composite of 0.4% Ni and/or Cu.
	<i>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.</i>	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.
	<i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i>	Metal equivalent values are not currently being reported.
<b>Relationship between mineralisation widths and intercept lengths</b>	<i>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').</i>	Mineralisation at Nebo-Babel is a flat-lying, south-westerly plunging body of variably mineralised mafic rock. Mineralisation is generally intersected with true-width down-hole lengths. The orientation of mineralisation in the Sugar Lode at Nebo is not well defined and these intercepts should not be considered true width.

Criteria	JORC Code explanation	Commentary
		Refer to Annexure 1 and Figures in body of text.
<b>Diagrams</b>	<i>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.</i>	Refer to Figures in body of text.
<b>Balanced reporting</b>	<i>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.</i>	All Ni, Cu and Co results are reported.
<b>Other substantive exploration data</b>	<i>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.</i>	All relevant exploration data is shown on figures, in text and Annexure 1.
<b>Further work</b>	<p><i>The nature and scale of planned further work (eg. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></p> <p><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></p>	<p>Cassini aims to test the continuity of known higher grade zones of mineralisation at Nebo-Babel and near-surface mineralised positions of other prospects including Succoth with aim to define a JORC compliant Indicated Resource.</p> <p>All relevant diagrams and inferences have been illustrated in this report.</p>