METALS X LIMITED

PRESS RELEASE

20 MARCH 2017

SUBSTANTIAL COBALT INVENTORY

Metals X Limited ("the Company" or "Metals X") has received a number of enquiries, and noted several media comments, in regards to the cobalt inventory of the Company. In response to this interest, Metals X provides the following summary.

The current surge in cobalt price and apparent fundamental shift in cobalt demand from the battery industry is bringing the potential of the world-class Wingellina deposit back into focus as either a stand-alone cobalt project or a more typical nickel project with strong co-product revenue.

Metals X's wholly owned Wingellina project, also known as the Central Musgrave Project, remains as one of the largest undeveloped nickel-cobalt-scandium deposits in the world. Wingellina has a Mineral Resource containing over 1.9 million tonnes of nickel and 154,000 tonnes of cobalt and an Ore Reserve containing approximately 1.56 million tonnes of nickel and 122,000 tonnes of cobalt.*

A recent review of the Wingellina deposit has identified within the current resource a high grade cobalt domain of 29.7 million tonnes at a grade of 0.14% Co (cut-off grade of 0.1% Co) or 85.9 million tonnes at a grade of 0.11% Co (cut-off grade of 0.05% Co). There are numerous high grade cobalt intercepts within the Wingellina deposit including:

- WPRC0576 - 38.0m at 0.582% Co.
- RR332 - 25.91m at 0.539% Co.
- RR130 - 18.29m at 0.699% Co.

Refer to Table 2 for additional intercepts

In addition to the Wingellina project the Company's wholly owned Maroochydore Copper Prospect, located approximately 90km from the Nifty Copper Operations, hosts a Mineral Resource of 486,000 tonnes of contained copper and 18,500 tonnes of contained cobalt.*

High grade intercepts at Maroochydore include:

- MRC0034 - 11.00m @ 0.324% Co.
- MAP0008 - 10.00m @ 0.249% Co.
- MAM0002 - 5.20m @ 0.357% Co.

Refer to Table 3 for additional intercepts

The Maroochydore project was subject to a Scoping Study in 1998 and, given the additional exploration potential, is currently being reviewed as an opportunity for a substantial development project.

World annual cobalt supply in 2015 was approximately 100,000 tonnes of which approximately 94% was produced as a co-product from nickel and copper production. The LME official cash price of cobalt, currently trading at approximately A$69,000/t, has more than doubled over the past 12 months and has increased by over 60% during the past 3 months. At prevailing cobalt prices significant co-product credits are added to cobalt-hosting nickel and copper projects such as Wingellina and Maroochydore.

*Refer to ASX announcement of 18 August 2016 for the Annual Update of Mineral Resources and Ore Reserves as at 30 June 2016

Metals X is continuing to work on options for the development of Wingellina as a polymetallic producer of nickel, cobalt, iron and scandium. Although additional work on the specific cobalt distribution with the nickeliferous limonite needs to be completed, the size and continuity of the higher grade cobalt zones within the larger ore system are highly encouraging and may present a commercial opportunity for cobalt development (with coincident nickel) in its own right.

Ends

ENQUIRIES

Warren Hallam
Managing Director
e: warren.hallam@metalsx.com.au

Rod Corps
Manager – Investor Relations
e: rod.corps@metalsx.com.au

COMPETENT PERSONS STATEMENTS

Please refer to Metals X (ASX:MLX) announcement of 18 August 2016 for full details of Mineral Resource and Ore Reserve Estimates.

The information in this report that relates to Exploration Results and Mineral Resources is compiled by Metals X technical employees and contractors under the supervision of Mr. Jake Russell B.Sc. (Hons), who is a member of the Australian Institute of Geoscientists. Mr Russell is a contractor to the company, and has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activities which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Russell consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relate to Ore Reserves has been compiled by Metals X technical employees under the supervision of Mr Michael Poepjes BEng (Mining Engineering), MSc (Min. Econ) M.AusIMM. Mr Poepjes is a full-time employee of the company. Mr Poepjes has sufficient experience which is relevant to the styles of mineralisation and types of deposit under consideration and to the activities which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Poepjes consents to the inclusion in this report of the matters based on his information in the form and context in which it appears. Mr Poepjes is eligible to participate in short and long term incentive plans and holds performance rights in the Company as has been previously disclosed.

APPENDIX 1

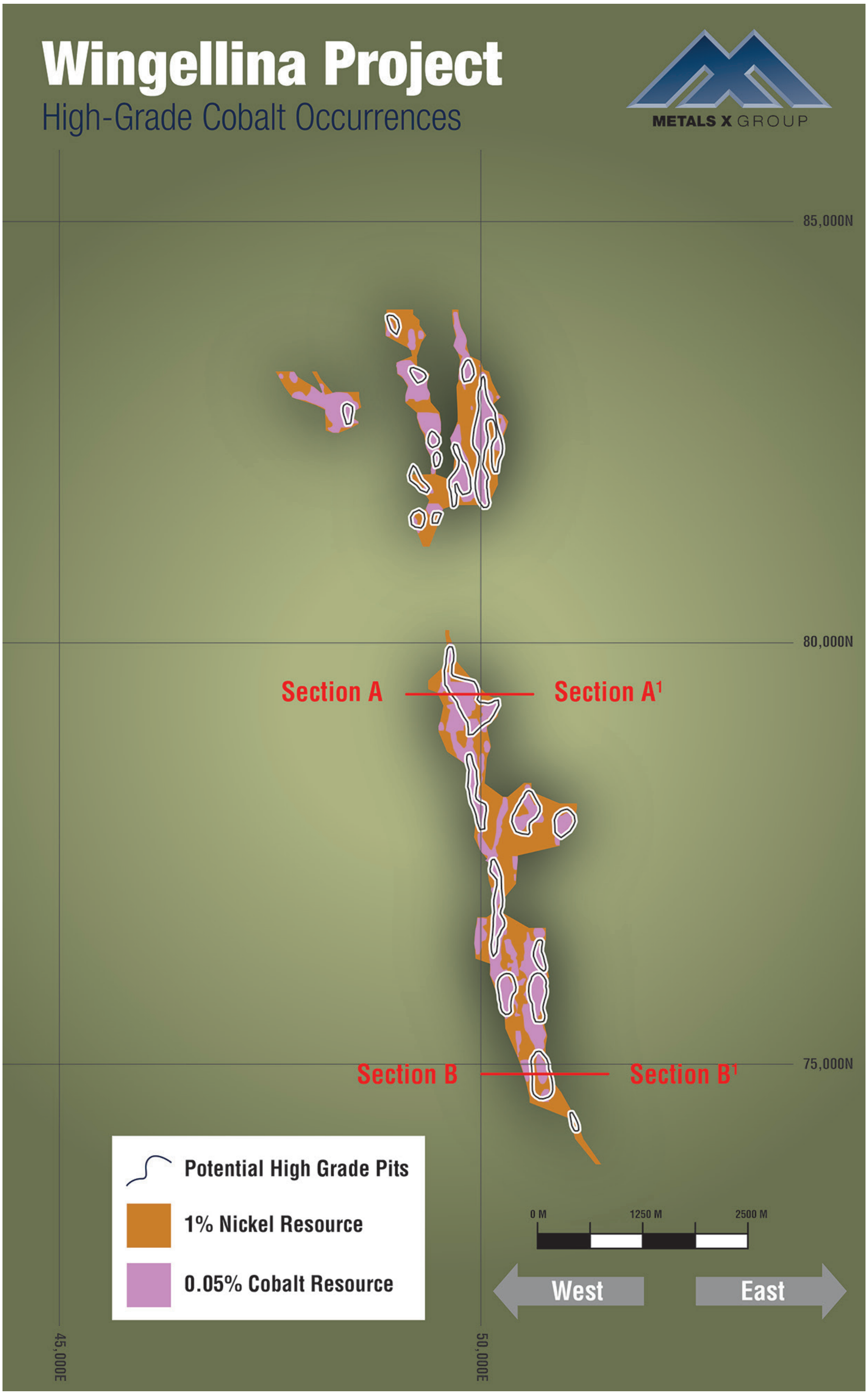

Figure 1: Overview of Wingellina deposit showing 9 km footprint of +1% Ni resource wireframes, +0.05% Co resource wireframes and potential high-grade open pit outlines. All coordinates are Wingellina 2015 local grid.

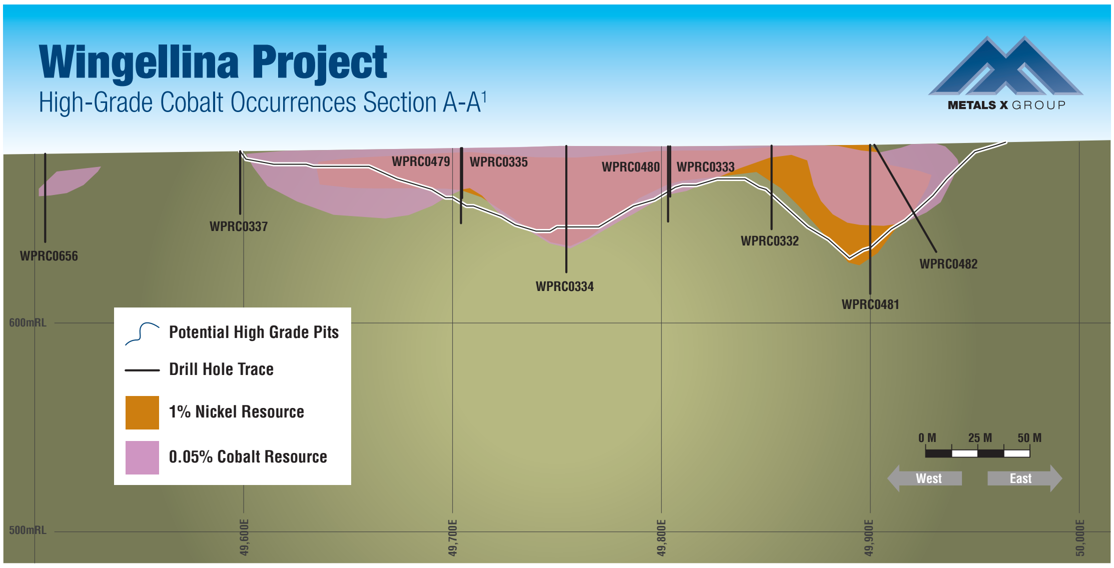

Figure 2: Section A-A1 showing outline of +1% Ni resource wireframes, outline of +0.05% Co resource wireframes, potential high-grade open pit outlines and the traces of supporting drillhole information. All coordinates are Wingellina 2015 local grid.

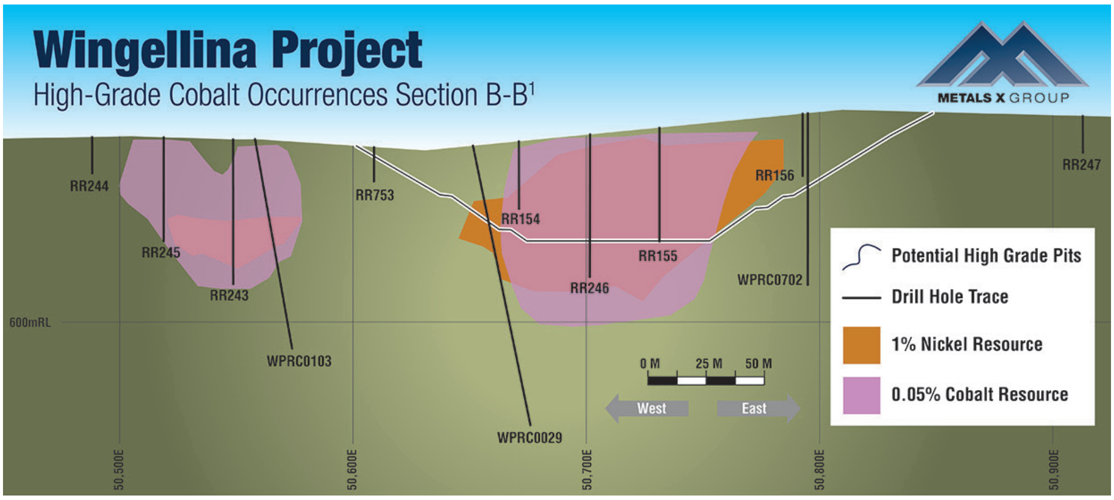

Figure 3: Section B-B1 showing outline of +1% Ni resource wireframes, outline of +0.05% Co resource wireframes, potential high-grade open pit outlines and the traces of supporting drillhole information. All coordinates are Wingellina 2015 local grid.

Table 1: Available cobalt intervals from holes depicted in Figure 2 and 3. Coordinates are MGA 1994 Zone 52. Intervals are reported above a 0.2% Co cut-off and contain a maximum of 2 metres internal dilution. Widths are downhole.

Hole	Collar N	Collar E	Collar RL	Intercept (Est. True Width)	From (m)	Dip	Azi
RR154	7,114,930.5	498,635.1	679.0	1.53m at 0.280% Co	12.19	- 90	-
RR155	7,114,967.4	498,682.6	683.3	3.05m at 0.204% Co	4.57	- 90	-
RR156	7,115,004.2	498,731.7	685.5	21.34m at 0.03% Co	1.52	- 90	-
RR243	7,114,857.9	498,536.4	675.7	16.76m at 0.298% Co	18.29	- 90	-
				3.05m at 0.240% Co	39.62		
RR244	7,121,026.6	492,308.3	668.3	3.05m at 0.030% Co	3.05	- 90	-
RR245	7,114,839.6	498,512.9	677.2			- 90	-
RR246	7,114,949.7	498,658.6	681.8	1.52m at 0.240% Co	3.05	- 90	-
				1.52m at 0.360% Co	15.24		
				3.05m at 0.290% Co	22.86		
				6.1m at 0.325% Co	35.05		
RR247	7,115,076.0	498,828.0	700.0	15.24m at 0.03% Co	12.19	- 90	-
				9.14m at 0.04% Co	30.48		
WPRC0029	7,114,917.5	498,620.1	676.3	18m at 0.06% Co	-	- 80	53
				6m at 0.05% Co	30.00		
				45m at 0.03% Co	45.00		
				6m at 0.02% Co			
WPRC0103	7,114,860.8	498,546.7	675.3	2m at 0.315% Co	16.00	- 80	53
WPRC0332	7,118,101.3	495,278.0	684.9	18m at 0.05% Co	-	- 90	-
WPRC0333	7,118,074.8	495,237.2	684.5	4m at 0.293% Co	8.00	- 90	-
WPRC0334	7,118,043.8	495,198.4	684.3	12m at 0.495% Co	12.00	- 90	-
WPRC0335	7,118,013.5	495,158.7	683.8	24m at 0.07% Co	-	- 90	-
WPRC0337	7,117,953.0	495,071.5	682.2	NSI		- 90	-
WPRC0479	7,118,010.3	495,160.5	683.8	22m at 0.08% Co	-	- 90	-
WPRC0480	7,118,077.5	495,234.0	684.6	2m at 0.217% Co	2.00	- 90	-
WPRC0481	7,118,136.3	495,310.9	686.0	4m at 0.236% Co	18.00	- 90	-
WPRC0482	7,118,137.0	495,312.3	686.0	8m at 0.349% Co	20.00	- 60	53
WPRC0656	7,117,895.6	494,997.9	680.8	2m at 0.290% Co	12.00	- 90	-

Table 2: Top 30 Wingellina cobalt intervals on a cobalt / metre basis. Coordinates are MGA 1994 Zone 52. Intervals are reported above a 0.2% Co cut-off and contain a maximum of 2 metres internal dilution. Widths are downhole.

Lode	Hole	Collar N	Collar E	Collar RL	Intercept (Est. True Width)	From (m)	Dip	Azi
Wingellina	RR130	7,116,035.7	497,668.9	685.5	18.29m at 0.699% Co	27.4	- 90	-
	RR332	7,120,640.3	493,624.4	671.3	25.91m at 0.539% Co	4.6	- 90	-
	WPRC0101	7,115,576.5	497,460.2	683.5	28m at 0.307% Co	60.0	- 60	53
	WPRC0108	7,115,371.7	497,797.9	680.0	24m at 0.337% Co	16.0	- 65	53
	WPRC0141	7,120,839.8	492,584.8	674.7	24m at 0.319% Co	16.0	- 90	-
	WPRC0173	7,121,239.5	492,921.2	666.3	18m at 0.494% Co	34.0	- 90	-
	WPRC0189	7,120,816.9	493,461.3	667.1	12m at 0.647% Co	40.0	- 60	53
	WPRC0209	7,120,201.3	493,871.2	678.0	16m at 0.538% Co	16.0	- 90	-
	WPRC0210	7,120,091.9	493,688.5	678.6	26m at 0.338% Co	-	- 90	-
	WPRC0249	7,120,696.7	492,680.0	673.8	22m at 0.349% Co	22.0	- 90	-
	WPRC0287	7,119,871.9	491,977.7	675.7	8m at 0.906% Co	20.0	- 90	-
	WPRC0334	7,118,043.8	495,198.4	684.3	12m at 0.495% Co	12.0	- 90	-
	WPRC0336	7,117,982.2	495,116.0	683.0	10m at 0.706% Co	-	- 90	-
	WPRC0462	7,115,904.6	497,085.7	685.3	14m at 0.567% Co	20.0	- 60	53
	WPRC0493	7,115,734.9	497,660.7	684.7	14m at 0.441% Co	122.0	- 60	53
	WPRC0576	7,121,355.5	492,749.4	667.2	38m at 0.582% Co	68.0	- 60	233
	WPRC0603	7,121,248.6	493,014.0	666.1	16m at 0.363% Co	82.0	- 60	233
	WPRC0638	7,121,118.2	493,049.0	668.6	24m at 0.376% Co	32.0	- 90	-
	Z7532	7,115,682.1	498,009.8	690.2	12.2m at 0.534% Co	24.4	- 60	53
	Z7594	7,120,740.0	492,531.7	671.5	19.81m at 0.473% Co	15.2	- 60	53
	Z7703	7,115,753.9	497,954.8	686.1	7.62m at 0.754% Co	21.3	- 60	53
	Z7805	7,120,826.5	493,516.2	667.1	19.81m at 0.596% Co	15.2	- 60	233
	Z7961	7,116,022.1	497,754.9	687.7	18.29m at 0.317% Co	32.0	- 60	53
	Z7973	7,116,058.6	497,754.1	687.6	10.67m at 0.718% Co	32.0	- 60	233
	Z7990	7,116,061.2	497,649.9	685.5	13.72m at 0.441% Co	47.2	- 60	233
	Z8652	7,120,861.3	492,589.6	675.3	16.76m at 0.368% Co	36.6	- 60	233
	Z8657	7,120,793.3	492,498.9	671.3	13.72m at 0.717% Co	30.5	- 60	233
	Z8755	7,115,395.1	498,235.3	687.4	18.28m at 0.506% Co	29.0	- 90	-
	Z9111	7,119,864.3	492,267.2	675.9	13.72m at 0.497% Co	24.4	- 60	53
	Z9386	7,120,929.8	493,402.6	666.1	21.34m at 0.295% Co	-	- 60	233

Table 3: Top 30 Maroochydore cobalt intervals on a cobalt / metre basis. Coordinates are MGA 1994 Zone 51. Intervals are reported above a 0.2% Co cut-off and contain a maximum of 2 metres internal dilution. Widths are downhole.

Lode	Hole	Collar N	Collar E	Collar RL	Intercept (Est. True Width)	From (m)	Dip	Azi
Maroochydore	EVR106	7,547,171.0	425,878.2	319.4	2.00m @ 0.548% Co	34.0	90	-
	EWR0166	7,544,992.5	429,203.9	318.3	2.00m @ 0.265% Co	54.0	90	-
	EWR0311	7,545,314.1	428,821.9	319.9	2.00m @ 0.2% Co	38.0	90	-
	EWR0413	7,545,321.4	429,241.0	316.9	2.00m @ 0.21% Co	50.0	90	-
	EWR0448	7,545,135.6	428,504.8	323.1	2.00m @ 0.202% Co	52.0	90	-
	EWR0456	7,545,175.8	429,388.1	318.0	4.00m @ 0.202% Co	44.0	90	-
	EWR0594	7,544,793.5	430,556.5	309.7	3.00m @ 0.232% Co	52.0	90	-
	MAD0001	7,544,947.6	429,162.7	325.4	3.20m @ 0.244% Co	67.8	60	224
					1.80m @ 0.21% Co	124.4		
	MAD0002	7,545,035.0	429,252.0	312.4	1.50m @ 0.7% Co	70.9	60	218
	MAD0005	7,545,292.0	429,081.0	311.9	1.10m @ 0.222% Co	51.9	60	224
	MADS0010	7,544,949.0	429,024.0	319.4	2.00m @ 0.375% Co	44.0	90	-
	MADS0012	7,545,146.0	429,223.6	318.2	1.00m @ 0.739% Co	30.0	90	-
	MADS0014	7,545,007.5	428,943.0	319.6	1.00m @ 0.432% Co	30.0	90	-
	MADS0022	7,545,254.5	429,049.2	318.1	2.80m @ 0.401% Co	49.0	73	223
	MADS0028	7,545,087.5	428,602.6	322.5	3.00m @ 0.201 % Co	70.0	90	-
	MADS0032	7,545,307.0	428,667.0	314.7	4.00m @ 0.281% Co	59.0	90	-
	MADS0033	7,545,378.0	428,737.0	313.6	1.00m @ 0.28% Co	36.0	90	-
	MAM0002	7,545,314.1	428,821.9	319.9	5.20m @ 0.357% Co	38.8	80	226
	MAP0003	7,545,417.6	428,361.8	322.4	2.00m @ 0.245% Co	50.0	90	-
	MAP0008	7,545,136.4	428,646.1	321.8	10.00m @ 0.249% Co	60.0	90	-
	MAP0023	7,544,927.9	429,283.4	318.0	2.00m @ 0.375% Co	46.0	90	-
					4.00m @ 0.275% Co	54.0		
	MRC0020	7,545,688.0	427,927.0	314.8	1.00m @ 0.427% Co	61.0	90	-
	MRC0030	7,545,459.5	428,269.7	322.6	1.00m @ 0.212% Co	65.0	90	-
	MRC0033	7,545,184.5	428,269.5	323.9	1.00m @ 0.42% Co	114.0	90	-
	MRC0034	7,545,264.0	428,350.0	316.6	11.00m @ 0.324% Co	57.0	90	-
					1.00m @ 0.202% co	92.0		
					1.00m @ 0.254% Co	99.0		
	MRC0043	7,545,412.0	428,776.0	313.6	2.00m @ 0.224% Co	33.0	90	-

APPENDIX 2 – JORC 2012 TABLE 1 – NICKEL DIVISION
SECTION 1 SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	Diamond Drilling • A small portion of the data used in resource calculations at the Central Musgrave Project (CMP) has been gathered from diamond core. This core is geologically logged prior to sampling. • RC Drilling • RC drilling has been utilised extensively at the CMP. • Drill cuttings are extracted from the RC return via cyclone. The underflow from each interval is transferred via bucket to a four tiered riffle splitter, delivering approximately three kilograms of the recovered material into calico bags for analysis. The residual material is retained on the ground near the hole. Composite samples are obtained from the residue material for initial analysis, with the split samples remaining with the individual residual piles until required for re-split analysis or eventual disposal.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). • Method of recording and assessing core and chip sample recoveries and results assessed.	• Historical • A variety of drilling methods were employed by INCO, including churn drilling (102 holes) DDH (19 holes) RAB Drilling (2,643 holes) Vacuum (77 holes) Becker Drilling (102 holes).
Drill sample recovery	• Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	• Sample recovery from early drilling by INCO is not known. Sample recovery from RC drilling carried out from RC drilling after 2001 was generally very good, except where the drill encountered strong water flow from the hole. • All geology input is logged and validated by the relevant area geologists, incorporated into this is assessment of sample recovery. No defined relationship exists between sample recovery and grade. Nor has sample bias due to preferential loss or gain of fine or coarse material been noted.
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged	• Diamond core is logged geologically and geotechnically. • RC hole chips are logged geologically. • Logging is qualitative in nature. • All holes are logged completely.

Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• A sample of each 5ft of drilling from INCO drilling were quartered and forwarded for assay, either to AMDEL in Adelaide, or to INCO's in-house laboratory at Blackstone. • Samples of RC drilling taken prior to 2006 were composited on 3 or 4m basis, and the composite assayed. A 1m riffle-split sample was also taken for each metre drilled, and was submitted for analysis if the composite assayed >0.4%Ni. • Sub-sampling for the 2006 and later RC drilling were riffle split each 2m sample drilled. • Chips / core chips undergo total preparation. • QA/QC is currently ensured during the sub-sampling stages process via the use of the systems of an independent NATA / ISO accredited laboratory contractor. A portion of the historical informing data has been processed by in-house laboratories. • The sample size is considered appropriate for the grain size of the material being sampled. • The un-sampled half of diamond core is retained for check sampling if required. • For RC chips regular field duplicates are collected and analysed for significant variance to primary results.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• Samples of INCO's drilling were dried and assayed by AAS either at AMDEL in Adelaide, or at INCO's in-house laboratory at Blackstone. The digest method was not specified. Samples were assayed for Ni, Co and Fe. Analytical quality control was maintained by the by the insertion of standard samples and re-analysis of duplicates at separate laboratories at a frequency of two check analyses for every twenty samples. • Composite samples of RC drilling completed in 2001 were submitted to AMDEL, dried and pulverised, and assayed for Ni, Co, Ag, As, Bi, Cu, Cr, Fe, Mg, Mn, Pb, S, Sb, Ti, V, Zr, Ca and Al by HF-multi-acid digest / ICP-OES. The 1m riffle-splits for any composite sample assaying • >0.4%Ni were retrieved, and re-assayed using the same method. • Composite samples from 2002-2004 were assayed for Al, Ca, Cr, Fe, Mg, Mn, Ni, Si, Ti by borate fusion ICP-OES, and for Ag, As, Bi, Co, Cu, Ni, Pb, S, Sb, V, Zr by HF-multi-acid digest / ICP-OES. • During 2005 two metre composite riffle-split (or spear-sampled for wet samples) samples were sent to SGS Laboratories in Perth. Each 2m composite sample was dried and pulverised to a nominal 90 per cent passing 75 microns and analysed for: As, Bi, Co, Cu, Ni, Pb, S and Zn by ICP-OES. Samples returning >0.4%Ni were re-assayed for Ni, Co, Al2O3, CaO, K2O, Fe2O3, MgO, MnO, Na2O, SiO2, V2O5, TiO2, Cr, SO3, Cu, Zn by fused disc XRF. • After 2005 two metre composite riffle-split (or spear-sampled) samples were sent to SGS Laboratories in Perth. Each sample was pulverised to nominal 90 per cent passing 75 micron for analysis for assay for Ni, Co, Al2O3, SiO2, TiO2, Fe2O3, MnO, CaO, K2O, MgO, SO3, Na2O, V2O5, Cr, Cu and Zn by fused disc XRF. • Duplicate samples were taken by spearing the sample pile on the ground approximately every 20 samples, and an in-house standard was inserted into the sample run every alternate 20 samples. • No significant QA/QC issues have arisen in recent drilling results. • These assay methodologies are appropriate for the resource in question.

Criteria	JORC Code Explanation	Commentary
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• Anomalous intervals as well as random intervals are routinely checked assayed as part of the internal QA/QC process. • Virtual twinned holes have been drilled in several instances across all sites with no significant issues highlighted. • Primary data is loaded into the drillhole database system and then archived for reference. • All data used in the calculation of resources and reserves are compiled in databases which are overseen and validated by senior geologists. • No primary assays data is modified in any way.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• All hole collar locations for RC holes drilled after 2000 were surveyed by using a Real Time Kinematic GPS. This measured X, Y and Z to sub-centimetre accuracy in terms of the MGA 94, Zone 52 metric grid. • Hole collars for almost all INCO drill holes were re-located, and survey in using the RTK GPS. Several INCO collars could not be located, and their MGA positions are estimated from their drilled location on the original INCO Imperial local grid. • Topographic control is generated from a combination of remote sensing methods and ground-based surveys. This methodology is adequate for the resource in question.
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• Drill hole spacing at CMP is generally on a 120m x 50m spacing. This has been filled-in to 60 x 50 and 30m x 25m spacing in some areas. The data spacing is sufficient for both the estimation procedure and resource classification applied. • Compositing of drill assay data to 1.5m was used in the estimate.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Drilling intersections are nominally designed to be sub-normal to the orebody. • It is not considered that drilling orientation has introduced an appreciable sampling bias.
Sample security	• The measures taken to ensure sample security.	• Samples are delivered to a third party transport service, who in turn relay them to the independent laboratory contractor. Samples are stored securely until they leave site.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data	• Site generated resources and reserves and the parent geological data is routinely reviewed by the Metals X Corporate technical team.

SECTION 2 REPORTING OF EXPLORATION RESULTS

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• The CMP comprises 5 granted exploration leases and 1 granted miscellaneous lease. • Native title interests are recorded against the CMP tenements. • The CMP tenements are held by the Austral Nickel Pty. Ltd. (South Australia) and Hinckley Range Pty. Ltd. (Western Australia). Metals X has 100% ownership of both companies. • One third party royalty agreement applies to the tenements at CMP, over and above the state government royalty. • Hinckley Range and Austral Nickel operate in accordance with all environmental conditions set down as conditions for grant of the leases. • There are no known issues regarding security of tenure. • There are no known impediments to continued operation.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other partie	• The CMP area has an exploration history which extends to the 1960's, with significant contributors being INCO, Acclaim and Metex Nickel. • On balance, MLX work has generally confirmed the veracity of historic exploration data.
Geology	• Deposit type, geological setting and style of mineralisation.	• The Musgrave Block is an east-west trending, structurally bounded mid-Proterozoic terrane some 130,000km^2 in area, straddling the common borders of Western Australia, South Australia and the Northern Territory. • Deep weathering of olivine-rich ultramafic units has resulted in the concentration of nickel mineralisation. The olivines in the ultramafic units have background values of about 0.15% Ni to 0.3% Ni. The almost complete removal of MgO and SiO_2 to ground waters during the weathering of olivines in the ultramafic units resulted in extreme volume reductions and consequent significant upgrading of other rock forming oxides (Fe_2O_3, Al_2O_3) and metal element concentrations in the weathered profile.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: » easting and northing of the drill hole collar » elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar » dip and azimuth of the hole » down hole length and interception depth » hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• Excluded results are non-significant and do not materially affect understanding of the Wingellina deposit.

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Results are reported on a length weighted average basis. • Results are reported above a 0.2%m Co cut-off.
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').	• Interval widths are downhole width unless otherwise stated.
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.	• Presented in the body of the text above.
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.	• Presented above. • Excluded results are non-significant and do not materially affect understanding of the Wingellina deposit.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No relevant information to be presented.
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.	• Exploration and mine planning assessment continues to take place at the CMP.

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

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

Criteria	JORC Code Explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• Drillhole data is stored in a Maxwell's DataShed system based on the Sequel Server platform which is currently considered "industry standard". • As new data is acquired it passes through a validation approval system designed to pick up any significant errors before the information is loaded into the master database. The information is uploaded by a series of Sequel routines and is performed as required. The database contains diamond drilling (including geotechnical and specific gravity data), and some associated metadata. By its nature this database is large in size, and therefore exports from the main database are undertaken (with or without the application of spatial and various other filters) to create a database of workable size, preserve a snapshot of the database at the time of orebody modelling and interpretation and preserve the integrity of the master database.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• The site is manned continually by Senior Geological personnel. • As no material update to the data supporting the resource has been undertaken since early 2008 no recent site visits by the Competent Person have been undertaken.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• Confidence in the geological model used to constrain the Wingellina estimate is high, with the genetic model for lateritic nickel development well understood. Logged geology has been used to drive the mineralisation interpretation, with the base of laterite defined with drill holes, or its level on a given section interpreted from surrounding drill sections. Continuity of the interpretation across and along the Wingellina deposit is for the most part good, with intersections of hard rock in drill holes, and well mapped outcropping basement the primary causes of breaks within the mineralised horizon. • No alternative interpretations are currently considered viable. • Geological interpretation of the deposit was carried out using a systematic approach to ensure that the resultant estimated Mineral Resource figure was both sufficiently constrained, and representative of the expected sub-surface conditions. In all aspects of resource estimation the factual and interpreted geology was used to guide the development of the interpretation. • The protolithology is the dominant control on grade continuity at the CMP. Structural controls which influence depth of weathering are secondary controls on grade distribution.
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.	• Individual deposit scales vary across the CMP. • The Wingellina deposits are mineralised over a strike length of >9km, a lateral extent of up to 2.5km and a depth of up to 200m.

Criteria	JORC Code Explanation	Commentary
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• All modelling and estimation work undertaken was carried out in three dimensions via Surpac Vision. • After validating the drillhole data to be used in the estimation, interpretation of the orebody is undertaken in sectional and / or plan view to create the outline strings which form the basis of the three dimensional orebody wireframe. Wireframing is then carried out using a combination of automated stitching algorithms and manual triangulation to create an accurate three dimensional representation of the sub-surface mineralised body. • Drillhole intersections within the mineralised body are defined, these intersections are then used to flag the appropriate sections of the drillhole database tables for compositing purposes. Drillholes are subsequently composited to allow for grade estimation. In all aspects of resource estimation the factual and interpreted geology was used to guide the development of the interpretation. • Once the sample data has been composited, a statistical analysis is undertaken to assist with determining estimation search parameters, top-cuts etc. Variographic analysis of individual domains is undertaken to assist with determining appropriate search parameters. Which are then incorporated with observed geological and geometrical features to determine the most appropriate search parameters. • An empty block model is then created for the area of interest. This model contains attributes set at background values for the various elements of interest as well as density, and various estimation parameters that are subsequently used to assist in resource categorisation. The block sizes used in the model will vary depending on orebody geometry, minimum mining units, estimation parameters and levels of informing data available. • Grade estimation is then undertaken, with ordinary kriging estimation method is considered as standard, although in some circumstances where sample populations are small, or domains are unable to be accurately defined, inverse distance weighting estimation techniques will be used. Both by-product and deleterious elements are estimated at the time of primary grade estimation if required. It is assumed that by-products correlate well with gold. There are no assumptions made about the recovery of by-products. • The resource is then depleted for mining voids and subsequently classified in line with JORC guidelines utilising a combination of various estimation derived parameters and geological / mining knowledge. • This approach has proven to be applicable to Metals X's nickel assets. • Estimation results are routinely validated against primary input data, previous estimates and mining output.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnage estimates are dry tonnes.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• The resource reporting cut-off grade is 0.5% Ni. • The reporting cut-off used was based on MLX's current interpretation of commodity markets, and to allow peer group comparison.

Criteria	JORC Code Explanation	Commentary
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• Not considered for Mineral Resource. Applied during the Reserve generation process.
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.	• Not considered for Mineral Resource. Applied during the Reserve generation process.
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.	• MLX operates in accordance with all environmental conditions set down as conditions for grant of the respective leases.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Sampling of HQ diamond drill core was used to determine the dry density of laterite ore. Average measured dry density is 1.28t/m3. • A total of 281 triple-tube HQ core samples were collected immediately from the core barrel and measured for bulk density on site. The core length was measured for diameter and length (square-cut ends), dried for 24 hours in a gas oven at 120°C, and weighed. • Density was calculated by dividing the weight (kg) of dry sample by the volume of the core piece.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Resources are classified in line with JORC guidelines utilising a combination of various estimation derived parameters, the input data and geological / mining knowledge. • This approach considers all relevant factors and reflects the Competent Person's view of the deposit.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• Resource estimates are peer reviewed by the site technical team as well as Metals X's Corporate technical team.

Criteria	JORC Code Explanation	Commentary
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• All currently reported resources estimates are considered robust, and representative on both a global and local-scale.

SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• At all projects, all resources that have been converted to reserve are classified as either an Indicated or Measured Resource. Indicated Resources are only upgraded to Probable Reserves after adding appropriate modifying factors. Some Measured Resource may be classified as Proven Reserves and some is classified as Probable Reserve based on whether is capitally or fully developed.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Irregular site visits have been undertaken. The reserve has remained materially consistent since the 2008 Feasibility Study was completed.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered	• A Feasibility Study utilising a combination of internal and external expertise has been undertaken to allow the conversion of Mineral Resources to Ore Reserves.
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• The cut-off grade used for inclusion in the CMP Reserve were determined through the Feasibility Study process. • Cobalt co-product revenue is considered by the FS.

Criteria	JORC Code Explanation	Commentary
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling. • The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). • The mining dilution factors used. • The mining recovery factors used. • Any minimum mining widths used. • The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. • The infrastructure requirements of the selected mining methods.	• Whittle 4D was used to formulate optimal pit shell, with subsequent designs being undertaken in Surpac. • Mining studies indicate most material will be free digging, but an allowance has been made to blast some material. • The material outcrops on surface and has an overall strip ratio of 1.1:1. Due to the shallow nature and expected ground conditions, slope angles are low. Geotechnical data has been obtained through logging. • The Mineral Resource was used to formulate the Ore Reserves. • Due to the bulk nature of the deposit, limited dilution factors have been used, combined with high recovery factors.
Metallurgical factors or assumptions	• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. • Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	• Based on this preliminary assessment, the Wingellina Deposit should be processed by a pressure acid leach flowsheet. • Pressure acid leach is a proven nickel extraction method both in Australia and globally • Extensive test-work including at pilot plant scale has been conducted on CMP material over the period 1965 to 2013.
Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• Waste dumps were considered during the Feasibility Study. • A draft Public Environmental Notice has been completed and will be published.
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• Limited infrastructure is currently present. All required infrastructure was considered in the Feasibility Study. • Infrastructure is considered standard for a remote site set-up.

Criteria	JORC Code Explanation	Commentary
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. • The source of exchange rates used in the study. • Derivation of transportation charges. • The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	• The Feasibility Study was completed in 2008 using both independent and internal cost estimates. These costs were updated in 2012. • Both government and private royalties are payable. All royalties were considered as part of the Feasibility Study.
Revenue factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• The Pre-Feasibility Study progressed utilising assumptions regarding foreign exchange rates and commodity prices presented below. These prices have been set by corporate management and are considered a realistic forecast of expected commodity prices and exchange rates over the initial period of projected operation at Wingellina. • Ni = US $20,000/t Co = US $45,000/t • Exchange Rate ($AUD : $US) = US $0.85 • Head grades have been defined via Whittle optimisation and subsequent scheduling.
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• Detailed economic studies of the nickel market and future price estimates are considered by Metals X and applied in the estimation of revenue, cut-off grade analysis and future mine planning decisions. • There remains strong demand and no apparent risk to the long term demand for the nickel generated from the project.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• For the CMP, which is yet to be funded, an 8% real discount rate is applied to NPV analysis. • Sensitivity analysis of key financial and physical parameters is applied to future development project considerations and mine.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• The CMP is yet to start and will require environmental and other regulatory permitting.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• A Native Title agreement has been reached.

Criteria	JORC Code Explanation	Commentary
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• The basis for classification of the resource into different categories is made on a subjective basis. Measured Resources have a high level of confidence and are generally defined in three dimensions and have been accurately defined or capitally and normally developed. Indicated resources have a slightly lower level of confidence but contain substantial drilling and are in most instances capitally developed or well defined from a mining perspective. Inferred resources always contain significant geological evidence of existence and are drilled, but not to the same density. There is no classification of any resource that isn't drilled or defined by substantial physical sampling works. • Some Measured Resources have been classified as Proven and some are defined as Probable Reserves based on subjective internal judgements, but generally based upon the intensity of capital and normal development they have been subjected to. • The result appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• Site generated reserves and the parent data and economic evaluation data is routinely reviewed by the Metals X Corporate technical team. Resources and Reserves have in the past been subjected to external expert reviews, which have ratified them with no issues. There is no regular external consultant review process in place.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• All currently reported reserve calculations are considered representative on a global scale. • Only material considered as part of the Pre-Feasibility study has been included as part of the reserve statement. • Limited modifying factors have been applied due to the massive nature of the deposit and the closeness to the surface.

APPENDIX 3 – JORC 2012 TABLE 1 – COPPER DIVISION
SECTION 1 SAMPLING TECHNIQUES AND DATA

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary
Sampling techniques	• Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling. • Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used. • Aspects of the determination of mineralisation that are Material to the Public Report. • In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.	• The deposit has been drilled and sampled using various techniques with diamond and reverse circulation drilling utilised for mineral estimation. This information comes from surface and underground and is on variable spacing along and across strike. The total metres within the immediate vicinity of the Deposit are 143,497m. The holes are drilled on most occasions to intersect as near as possible perpendicularly the synclinal east plunge mineralisation. • The drilling programs have been ongoing since initial discovery to both expand the mineralisation and provided control for mining. The hole collars were surveyed by Company employees / contractors with the orientation recorded. Down holes survey is recorded using appropriate equipment. The diamond core was logged for lithology and other geological features. • The diamond core varied from HQ to NQ in diameter and mineralised intervals and adjacent locations were sampled by cutting the core in 1/2 based on observation from the core photographs. The RC samples were collected from the cyclone of the rig and spilt at site to approximate 2 to 3kg weight. The preparation and analysis was undertaken at an accredited commercial laboratory with the core dried, pulverised and split to produce a 30gm sample for assay by fire assay with either atomic absorption finish or gravimetric determination. • The drilling was completed using a combination of surface and underground drilling. In general the orientation of the drilling is appropriate given the given the strike and dip of the mineralisation. • The core recovery is recorded in the database and in most instances was in excess of 95%. This was assessed by measuring core length against core run. There is no record of the quantity (weight) of RC chips collected per sample length. • The ground condition in the mineralised zone is very competent. In areas of less competent material core return is maximised by controlling drill speed. RC samples from less competent material are identified in the log. • Whilst no assessment has been made, the competency of the material sampled would tend to preclude any potential issue of sampling bias.
Drilling techniques	• Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). • Method of recording and assessing core and chip sample recoveries and results assessed.	
Drill sample recovery	• Measures taken to maximise sample recovery and ensure representative nature of the samples. • Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	
Logging	• Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies. • Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. • The total length and percentage of the relevant intersections logged	• The routine logging of core and chips describes the general geology features including lithology, mineralisation, alteration etc. For the majority of holes this information is sufficient and appropriate to apply mineralisation constraints. Some core drilling is orientated and structural measurements of bedding, joints, veins etc. has been undertaken as well as facture densities. • Geological logging has recorded both summary and detailed lithology, mineralisation content, alteration, some angle to core axis information, vein type, incidence and frequency, magnetic content • The entire length of all holes, apart from surface casing, was logged.

Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample preparation	• If core, whether cut or sawn and whether quarter, half or all core taken. • If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry. • For all sample types, the nature, quality and appropriateness of the sample preparation technique. • Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples. • Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling. • Whether sample sizes are appropriate to the grain size of the material being sampled.	• All core to be sampled was halved using a mechanical saw. • RC chip samples are collected via a cyclone which is cleaned with air blast between samples. The samples is riffled to collect between 2 and 3kg. Most samples are dry with any moisture noted on the logs. • Field sub-sampling for chip samples appears appropriate as is the method of generating halved core. Procedures adopted in the laboratories are industry standard practises including that in the mine site facility. • In field riffles are cleaned between sampling using compressed air. The diamond cutting equipment is cleaned during the process using water. All laboratories adopt appropriate industry practises to reduce sample size homogeneously to the required size. • No field duplicate information was observed. • The style of mineralisation and high sulphide content does not rely on grain size as being influential on grade. Thus there is confidence in the overall grade of the deposit being fairly represented by the sampling.
Quality of assay data and laboratory tests	• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total. • For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc. • Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.	• The assay techniques are appropriate for the determination of the level of mineralisation in the sample. The technique was 4 acid digest with ICP finish. • No geophysical tools were utilised to ascertain grade • Standard and Blanks are included with all samples sent for analysis in the rate of between 1 in 20 and 1 in 30. The most recent reporting covering the majority of holes used in the estimate provide support for the quality of the Cu assays.
Verification of sampling and assaying	• The verification of significant intersections by either independent or alternative company personnel. • The use of twinned holes. • Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols. • Discuss any adjustment to assay data.	• The extensive data set has been review by various parties including Maxwell Geoscience and DataGeo and the intersections within the mineralisation have been confirmed. • None observed but there is a significant amount of closely spaced supportive drilling results. • Field data is captured electronically, validated by responsible geologist and stored on corporate computer facilities. Protocols for drilling, sampling and QA/QC are contained with the company operating manuals. The information generated by the site geologist is loaded into a database by the company database manager and undergoes further validation at this point against standard acceptable codes for all variables. • No adjustments to the raw assay data has been made.
Location of data points	• Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation. • Specification of the grid system used. • Quality and adequacy of topographic control.	• The collar positions were resurveyed by the Company surveyor or their contractors from a known datum. The survey is on a known local grid with demonstrated control. The orientation and dip at the collars is checked (aligned) by the geologist and down hole recording of azimuth and dip are taken at 30m intervals on most occasion using appropriate equipment. • The regional grid is GDA 94 Zone 50 and the drilling is laid out on a local grid. • Topographic control is from surface survey.

Criteria	JORC Code Explanation	Commentary
Data spacing and distribution	• Data spacing for reporting of Exploration Results. • Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied. • Whether sample compositing has been applied.	• The majority of drilling utilised is on 40m x 20m grid specifically targeting lithological and hence mineralisation sequence definition. • The geological sequence is well understood from the mining which supports the current drill spacing as adequate for both grade continuity assessment and lithological modelling. • The sampling reflects the geological conditions. For mineral resource estimation a 1m composite length was chosen given that this is the dominant sample length in dataset.
Orientation of data in relation to geological structure	• Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type. • If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	• Given the shape of the sequence the drilling as best as practically possible orientated to intersect the sequence perpendicularly. This is limited to drill sites from underground and surface. • No sampling bias is considered to have been introduced.
Sample security	• The measures taken to ensure sample security.	• The samples once collected and numbered are stored in the lockable site core yard chain. Batches of samples with each sample bag security tied and with sample number on the bag and inside on metal tags transported by commercial contractors to Perth. Upon receipt at the laboratory the samples are checked against the dispatch sheets to ensure all samples are present.
Audits or reviews	• The results of any audits or reviews of sampling techniques and data	• Database management companies have over the past 2 years audited the drill hole database and found is representative of the information contained.

SECTION 2 REPORTING OF EXPLORATION RESULTS

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral tenement and land tenure status	• Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings. • The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	• State Royalty of 5% applies to all tenements. • NCO consists of 92 tenements including 33 exploration licenses, 20 mining leases, 6 miscellaneous licenses and 33 prospecting licenses, all held directly by the Company. • There are no known issues regarding security of tenure. • There are no known impediments to continued operation.
Exploration done by other parties	• Acknowledgment and appraisal of exploration by other partie	• NCO has a long history of exploration. The deposit was discovered during regional exploration by WMC in 1982. Since that time a significant exploration effort has been undertaken by WMC, and subsequently Straits Resources Limited and Aditya Birla Minerals Limited.
Geology	• Deposit type, geological setting and style of mineralisation.	• The Nifty deposit is hosted within the folded late-Proterozoic Broadhurst Formation which is part of the Yeneena Group. The Broadhurst Formation is between 1,000m to 2,000m thick and consists of a stacked series of carbonaceous shales, turbiditic sandstones, dolomite and limestones. The Broadhurst Formation hosts all known significant base metal occurrences including the Nifty copper mine and the Maroochydore, Rainbow and Warrabarty prospects. • The Broadhurst Formation deposit is unconformably overlain by the Isdell Formation which consists of an approximately 1000 m thick sequence of carbonate rocks, siltstones and shales. The sequence below the Broadhurst Formation consists of the Coolbro Sandstone, a 4,000 m thick sequence of sandstones with minor siltstones, volcanics, conglomerates and shales. • The Nifty copper deposit is a structurally and lithologically controlled, stratabound body of massive, disseminated and vein-style chalcopyrite. Structurally, the dominant feature at the Nifty copper mine is the Nifty Syncline which strikes approximately southeast-northwest and plunges at about 6-12 degrees to the southeast. The copper mineralisation occurs as a structurally controlled, chalcopyrite-quartz-dolomite replacement of carbonaceous and dolomitic shale within the folded sequence. The copper mineralisation is largely confined to the keel of the syncline and the northern limb.
Drill hole Information	• A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes: » easting and northing of the drill hole collar » elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar » dip and azimuth of the hole » down hole length and interception depth » hole length. • If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.	• Excluded results are non-significant and do not materially affect understanding of the Nifty / Maroochydore deposits.

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. • Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail. • The assumptions used for any reporting of metal equivalent values should be clearly stated.	• Results are reported on a length weighted average basis. • Results are reported above a 0.2%m Co cut-off.
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').	• Interval widths are downhole width unless otherwise stated.
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.	• Not required in this instance.
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.	• Presented above. • Excluded results are non-significant and do not materially affect understanding of the deposit.
Other substantive exploration data	• Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	• No relevant information to be presented.
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.	• Ongoing surface and underground exploration activities will be undertaken to support continuing mining activities at NCO.

SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

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

Criteria	JORC Code Explanation	Commentary
Database integrity	• Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. • Data validation procedures used.	• Commercial auditing by database management companies has been used to validate the database.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr. Russell visits the operational Metals X sites on a regular basis.
Geological interpretation	• Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. • Nature of the data used and of any assumptions made. • The effect, if any, of alternative interpretations on Mineral Resource estimation. • The use of geology in guiding and controlling Mineral Resource estimation. • The factors affecting continuity both of grade and geology.	• The confidence in the geological interpretation comes from the history of underground mining and the closely spacing drill and other sample information. • Only physical data obtained from the drilling and underground workings was utilised. • The application of hard boundaries to reflect the position of the mineralised sequence was supported by the underground and drilling observations. No other assessment style is thought appropriate at this time. The hard boundaries are important to the physical constraining of the mineralisation given that each sequence member has different mineralisation characteristics. • The sequence units are subject to vertical and horizontal dimension changes along and across strike and in thickness. The mineralisation occurs as either disseminated or massive within the sequence and thus influences the grade continuity.
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 deposit occurs over a 1,200m down plunge distance and units vary individually between from 0m to 30m in true thickness. The limbs of the sequence are variously mineralised and to 400m in vertical extent.

Criteria	JORC Code Explanation	Commentary
Estimation and modelling techniques	• The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. • The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. • The assumptions made regarding recovery of by-products. • Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation). • In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. • Any assumptions behind modelling of selective mining units. • Any assumptions about correlation between variables. • Description of how the geological interpretation was used to control the resource estimates. • Discussion of basis for using or not using grade cutting or capping. • The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.	• The grade is estimated using ordinary kriging by individual sequence member. The geo-statistical assessment of the controlling variograms and the grade estimation was carried out by unfolding the sequence. Unfolding and estimation was carried out using Datamine software. • The orientation for variogram calculation was changed from the previous variography to be aligned with the general mineralisation control in the unfolded space. • Density was assigned by lithological and grade range. The composites were created within each unit and input to the grade estimation was restricted to those composites which were within the unit being estimated. No top-cuts were applied to the composites. • Estimated blocks were informed by a three step strategy. The initial (primary) search was relatively short and governed by the unit geo-statistics. This search range was expanded by double the length for blocks that were not informed in the primary search. This strategy informed over 80% of the blocks within the deposit except for the bottom unit. • Previous estimates have occurred which in both tonnage and grades are supportive of the mineral estimate. Production is ongoing and supportive of the modelled outcome. • There are no by-products • There are no deleterious elements • The block model was constructed using blocks which were 20mE (along strike) x 10mN (across strike) by 5m in the vertical plane. Sub-celling to ½ the block size in each direction was adopted to ensure accurate volume representation. Estimation was to the parent block size. • Hard boundaries were applied to the units. Grade was estimated within these boundaries. • Statistical analysis indicated that top-cutting of the lessor mineralised zones did not normalise the population statistics hence the strategy adopted was to restrict the influence of outlier grades using by imposing search restrictions. No top-cuts were applied. • Volume validation was carried out by comparison of the surfaces representing the mineralisation to the block model. Grade validation was carried by both global comparison of the average estimated grade to the average input grade and spatially by comparison of the estimated grades to the input grades by position. Visual comparison was also undertaken.
Moisture	• Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	• Tonnage estimates are dry tonnes.
Cut-off parameters	• The basis of the adopted cut-off grade(s) or quality parameters applied.	• Lithological boundaries are used to define sequence units with statistical grade assessment used for confirmation.
Mining factors or assumptions	• Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	• Not considered for Mineral Resource. Applied during the Reserve generation process.

Criteria	JORC Code Explanation	Commentary
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.	• Not considered for Mineral Resource. Applied during the Reserve generation process.
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.	• NCO operates in accordance with all environmental conditions set down as conditions for grant of the respective leases.
Bulk density	• Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. • The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. • Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	• Density is applied based on lithological unit and Cu grade based on test-work.
Classification	• The basis for the classification of the Mineral Resources into varying confidence categories. • Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). • Whether the result appropriately reflects the Competent Person's view of the deposit.	• Resources are classified in line with JORC guidelines utilising a combination of various estimation derived parameters, input data and geological / mining knowledge. • This approach considers all relevant factors and reflects the Competent Person's view of the deposit.
Audits or reviews	• The results of any audits or reviews of Mineral Resource estimates.	• Resource estimates are peer reviewed by the Corporate technical team. • Multiple external reviews have been undertaken under previous ownership.
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• All currently reported resources estimates are considered robust, and representative on both a global and local-scale. • A continuing history of mining with good reconciliation of mine claimed to mill recovered provides confidence in the accuracy of the estimates.

SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	• Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. • Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.	• The Nifty 31 March 2016 Mineral Resource estimate is the basis for the Ore Reserve estimate. • The Mineral Resource estimate reported is inclusive of the Ore Reserve estimate.
Site visits	• Comment on any site visits undertaken by the Competent Person and the outcome of those visits. • If no site visits have been undertaken indicate why this is the case.	• Mr Poepjes visits site on a regular basis.
Study status	• The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. • The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered	• AMC has undertaken life-of- mine planning for Nifty at a PFS level.
Cut-off parameters	• The basis of the cut-off grade(s) or quality parameters applied.	• AMC estimated the cut-off grade to be 1.65% copper using FY2017 parameters. However the Nifty Ore Reserve estimate is based on a design cut-off grade of 1.5% copper, which has been used for stope design.
Mining factors or assumptions	• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design). • The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc. • The assumptions made regarding geotechnical parameters (eg pit slopes, stope sizes, etc), grade control and pre-production drilling. • The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate). • The mining dilution factors used. • The mining recovery factors used. • Any minimum mining widths used. • The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. • The infrastructure requirements of the selected mining methods.	• The Ore Reserve estimate is based on life of mine planning, utilising a long hole open stoping mining method. • Long hole open stoping has been the applied mining method at Nifty since production started. • Geotechnical assessment is undertaken at Nifty on an ongoing basis as it is an operating mine. The life of mine plan has been prepared considering current geotechnical conditions of access development, stopes and backfill. • The Mineral Resource model used to estimate Ore Reserves was "sulmod0316depv1.1.dm". • Mining dilution is estimated for each stope. Waste dilution varies up to a maximum of 30%, depending on the stopes place in the sequence and the anticipated condition of surrounding areas. • Mining recovery is estimated for each stope and ranges from 50% to 98%, depending on the stopes place in the sequence and the anticipated condition of surrounding areas. • Inferred Mineral Resources were not utilised in the life-of- mine planning. • Nifty is an established and operating mine, and significant additional infrastructure is not required for the extraction of Ore Reserves based on the existing mining method.

Criteria	JORC Code Explanation	Commentary
Metallurgical factors or assumptions	• The metallurgical process proposed and the appropriateness of that process to the style of mineralisation. • Whether the metallurgical process is well-tested technology or novel in nature. • The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied. • Any assumptions or allowances made for deleterious elements. • The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. • For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	• The current process uses conventional grinding and flotation equipment. It is the industry standard for copper sulphide extraction and considered appropriate. • The process is very well established, although there is scope for the use of different reagents. • Ore sourced from existing parts of the mine has been processed successfully since the commencement of processing, is well understood and requires no further test-work. • Test-work is continuing for ore sourced from new areas, although they are expected to behave similarly to the ore previously encountered.
Environmental	• The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	• Nifty is an operating mine and has environmental approvals in place.
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	• Nifty is an established and operating mine, and significant additional infrastructure is not required for the extraction of Ore Reserves.
Costs	• The derivation of, or assumptions made, regarding projected capital costs in the study. • The methodology used to estimate operating costs. • Allowances made for the content of deleterious elements. • The source of exchange rates used in the study. • Derivation of transportation charges. • The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. • The allowances made for royalties payable, both Government and private.	• Capital costs include allowance for replacement of mobile equipment, relocation of underground infrastructure, access development for new mining areas and sustaining capital for the processing plant and site infrastructure. • Mining operating costs are based on budgeted and historical costs from the existing operation. • Processing and site administration operating costs are estimated from historical performance and budgeted costs. • No deleterious elements have been identified and thus no allowances made. • Concentrate transport, shipping and treatment charges are based on actual performance and consensus forecasts of future charges. • A state government royalty of 5% applies.
Revenue factors	• The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. • The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	• The head grade is estimated from life-of-mine planning. • NCO used consensus median copper prices and exchange rates forecasts for the purposes of estimating Ore Reserves. NCO has included that advice in its financial model. • Forecast copper prices increase from US$4,935/t in FY2017 to US$5,333/t in FY2020, with a peak of US$5,762/t in FY2019. • Forecast exchange rates increase from US$0.715 : 1$A in FY2017 to US$0.77 : 1$A in FY2020.

Criteria	JORC Code Explanation	Commentary
Market assessment	• The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. • A customer and competitor analysis along with the identification of likely market windows for the product. • Price and volume forecasts and the basis for these forecasts. • For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	• For the Ore Reserve estimate, it is assumed that current arrangements in place for the sale of copper concentrates to the Hindalco owned copper smelter in India will continue.
Economic	• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. • NPV ranges and sensitivity to variations in the significant assumptions and inputs.	• The financial model prepared for life-of-mine planning indicates a positive NPV, and consequently that the project is economic. • The NPV of the Project is estimated using a post-tax discount rate of 9.5%.pa. Achieving a positive NPV is not sensitive to discount rate or capital costs, when considering +20% sensitivities. • The Project is sensitive to copper price and operating costs, and requires only a 5% deterioration in either to exhibit a negative NPV.
Social	• The status of agreements with key stakeholders and matters leading to social licence to operate.	• Nifty is an ongoing mining operation in northern Western Australia, and maintains a social license to operate.
Other	• To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: • Any identified material naturally occurring risks. • The status of material legal agreements and marketing arrangements. • The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	• No naturally occurring hazards have been identified • Nifty is on ongoing mining operation, and is in possession of necessary approvals.
Classification	• The basis for the classification of the Ore Reserves into varying confidence categories. • Whether the result appropriately reflects the Competent Person's view of the deposit. • The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	• Mining areas have been classified into Ore Reserves categories based on Mineral Resource classification. In the main Checkerboard mining area the majority of Measured Mineral Resources are classified as Proved Ore Reserves. Area that consist of a majority of Indicated Mineral Resources are classified as Probable Ore Reserves. • In the North Limb and West Limb mining areas, which have not been accessed for mining yet, have been classified as Probable Ore Reserves to reflect that risk.
Audits or reviews	• The results of any audits or reviews of Ore Reserve estimates.	• The Ore Reserve estimate has not been audited or reviewed.

Criteria	JORC Code Explanation	Commentary
Discussion of relative accuracy/ confidence	• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve 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 reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. • The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. • Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. • It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	• Factors that affect the global relative accuracy and confidence of the Ore Reserve estimate include: • All currently reported reserve calculations are considered representative on a local scale. Regular mine reconciliations occur to validate and test the accuracy of the estimates at NCO.