



Friday 20<sup>th</sup> August 2010

ASX Release

## Maiden Scandium Resource announced for Lucknow Nickel–Cobalt & Scandium Deposit

- Maiden resource announced for the Lucknow scandium (Sc - a Rare Earth Element) deposit within the NORNICO nickel-cobalt-scandium project, Queensland.
- Lucknow Sc Indicated and Inferred Resource stands at:  
**6.10Mt @ 169ppm Sc (using a 70 g/t Sc COG)**
- Boosts NORNICO Sc resource by 105% from:  
**9Mt @ 109g/t Sc to 15.1Mt @ 133 g/t Sc (with a 70 g/t Sc COG)**
- Potential exists to increase the size of the scandium deposits
- Separate nickel (Ni) – cobalt (Co) resource estimates for the Lucknow & Greenvale deposits to be announced in the near future
- Maiden Lucknow Sc resource incorporates data from 298 RC holes totalling 7,036m
- Combined Kokomo and Lucknow Scandium resource now in excess of 2,000t of contained scandium metal (approximately 3,000t scandium oxide)
- Well defined high grade scandium zone at Lucknow of:  
**4Mt @ 205 g/t Sc (using 120 g/t COG)**

Metallica Minerals Ltd (MLM) is pleased to announce that a maiden resource estimate has been completed for the scandium (Sc) mineralisation at the Lucknow Scandium Laterite deposit within the NORNICO nickel-cobalt-scandium project in North Queensland.

The combined Indicated and Inferred resource for the entire Lucknow Sc laterite deposits stands at 6.10Mt @ 169g/t Sc, at a 70g/t cut-off grade (COG), including a high grade zone of 4.0Mt @ 205g/t Sc, using a 120g/t Sc COG. A breakdown of the resource categories for Lucknow is included in **Table 1** and **Figure 1** depicts the outline of the scandium resource and the location of the various resource categories with respect to the drilling at Lucknow.



Metallica Minerals commissioned Golder Associates of Brisbane to undertake a block model estimate for the Lucknow scandium resource using data provided by Metallica from its recently completed drilling programs. The maiden resource was completed by using data from 298 RC drill holes comprising 7,036m of drilling. The resource has been drilled out on either a 20m (N-S) by 20m (E-W) grid or a nominal 40m (North South) by 40m (East – West) grid which is sufficient to classify the resource as Indicated, where the drilling has been completed on a 80m (North – South) by a 40m (East-west) grid the resource has been classed as Inferred, (see **Figure 1**). It is likely that once Metallica has additional bulk density data the majority of the Indicated Resource will be classed as Measured.

The scandium ore at Lucknow is covered by a Joint Venture agreement between Straits Resources Ltd (20%) and Metallica Minerals Ltd (80%), under the terms of the JV all scandium ore is to be mined or stockpiled separately and kept for later processing by the JV. Laterite resources are classified as either Ni-Co ore or Sc ore under formulae defined by the terms of the JV agreement. As a result of the JV agreement the total Lucknow resource is separated into two exclusive parts; a nickel-cobalt resource and a scandium resource.

The Lucknow Scandium resource is presented in **Table 1** below and has been estimated using a 70 g/t Sc cut off grade.

**Table 1: Lucknow Sc Resource Subject to the JV Agreement (70 g/t Sc COG)**

Classification	Mt	Sc (g/t)	Ni (%t)	Co (%)	Fe (%)	Mg (%)
Indicated	3.3	176	0.20	0.05	34.0	1.1
Inferred	2.8	161	0.20	0.04	35.0	0.8
<b>Total</b>	<b>6.1</b>	<b>169</b>	<b>0.20</b>	<b>0.04</b>	<b>35</b>	<b>1.0</b>

Grade tonnage data relating to the Lucknow Scandium resource is presented in **Table 2** below.

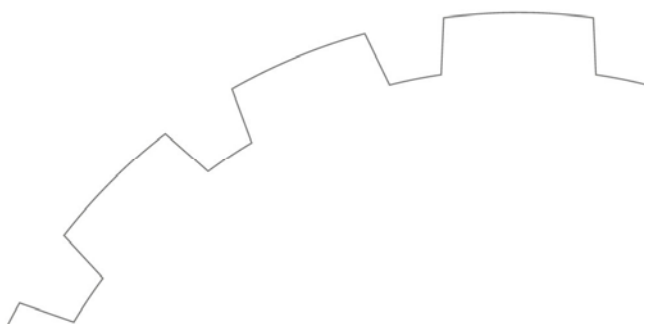
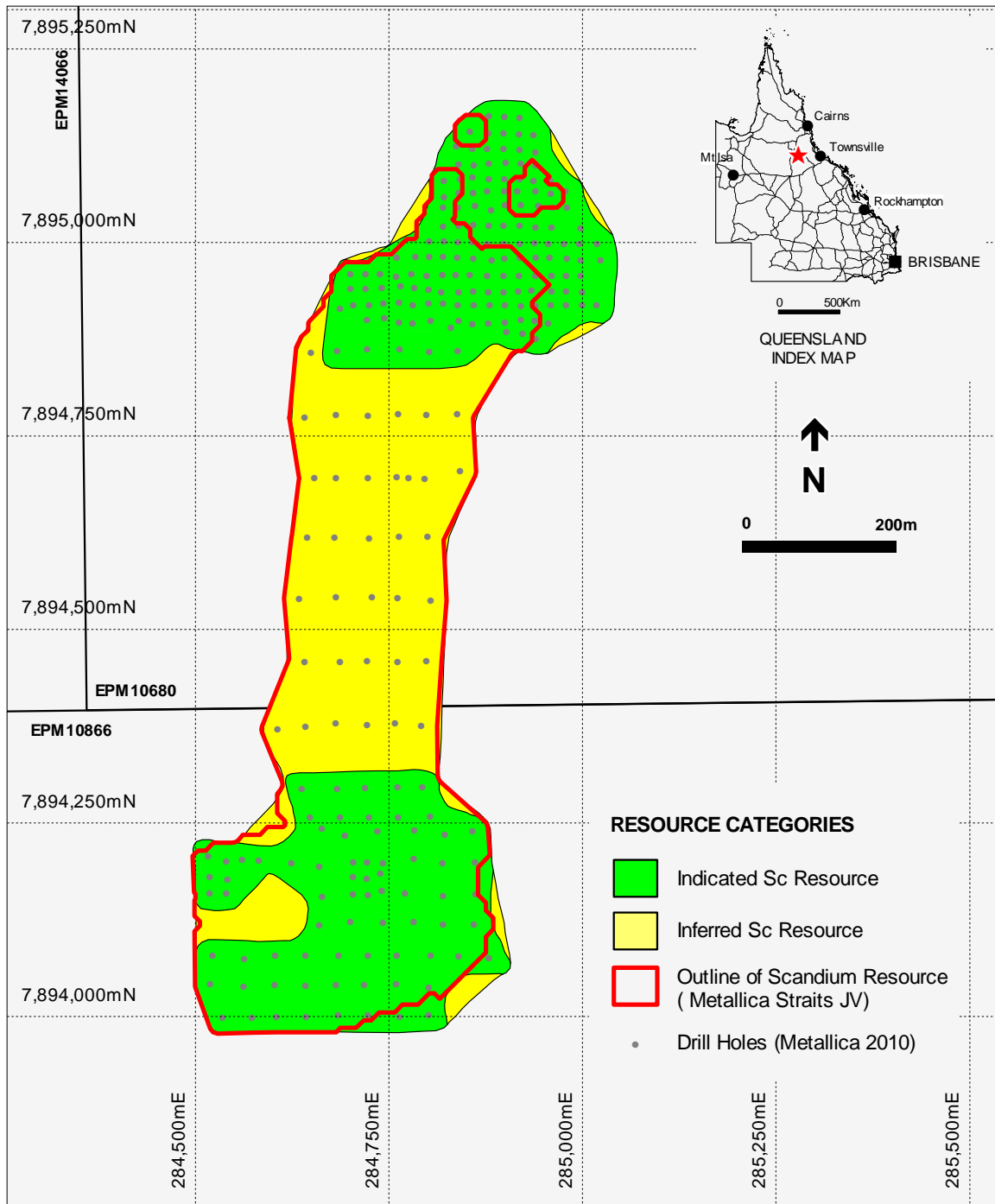




Figure 1: Lucknow Scandium Resource Categories



LUCKNOW PROJECT

SCANDIUM RESOURCE CATEGORIES



**Table 2: Lucknow Scandium Resource – Grade Tonnage Data**

Cut-off Sc g/t	Mt	Sc (g/t)	Ni (%)	Co (%)
70	6.12	169	0.20	0.04
80	5.83	174	0.20	0.04
100	4.98	188	0.21	0.05
120	4.09	205	0.22	0.05
140	3.34	222	0.23	0.06
160	2.60	242	0.23	0.06
180	2.03	263	0.23	0.06
200	1.57	285	0.22	0.07

Using a 70g/t Sc COG<sup>1</sup> the combined Kokomo and Lucknow Scandium Measured, Indicated and Inferred Mineral Resource now stands at 15.1 Mt @ 133g/t Sc, see **Table 3**.

**Table 3: Combined Kokomo and Lucknow Scandium Resource (Using a 70g/t Sc COG)**

Classification	Mt	Sc g/t	Ni %	Co %	Fe %	Mg %
<b>Lucknow</b>						
Indicated	3.3	176	0.20	0.05	34.00	1.10
Inferred	2.8	161	0.20	0.04	35.00	0.80
<b>Kokomo</b>						
Measured	0.7	154.0	0.22	0.035	35.60	0.64
Indicated	3.8	120.8	0.32	0.046	28.50	2.14
Inferred	4.4	91.0	0.18	0.022	13.40	6.04
<b>Totals</b>	<b>15.1</b>	<b>133</b>	<b>0.22</b>	<b>0.04</b>	<b>29.36</b>	<b>2.73</b>

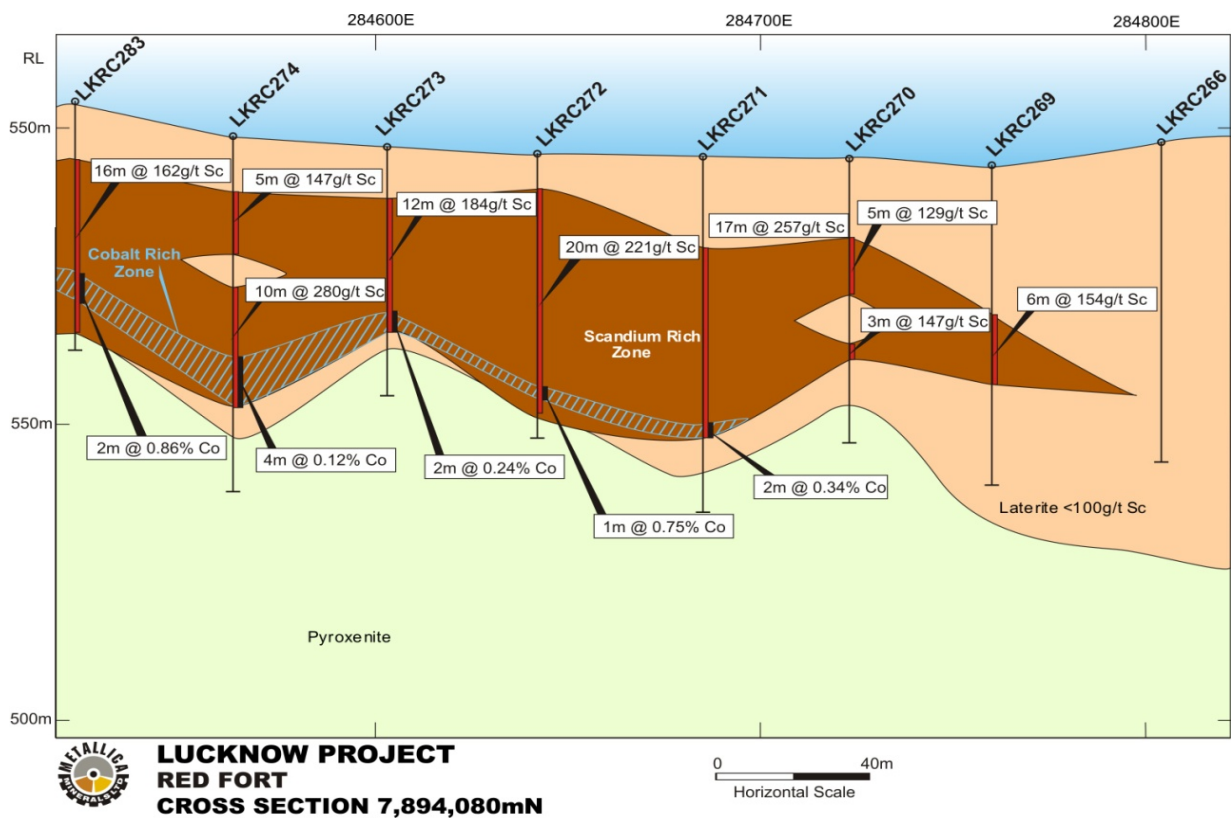
<sup>1</sup> 70 g/t Sc has been chosen as the COG as this reflects one of the definitions of scandium ore as defined by the JV between Metallica and Straits Resources



This Mineral Resources detailed above are appropriate for a selective open pit mining scenario, but does not account for mining dilution or losses and conforms to JORC guidelines for the reporting of mineral resources, the resources have been classed as either Indicated or Inferred based on geological continuity, sample intervals and drill hole spacing, parts of the resource could be classed as Measured once additional bulk density data has been obtained. The Indicated resource is sufficient for initial pit design and scheduling.

The high grade scandium mineralisation at Lucknow is contained within highly oxidised and weathered red-brown lateritic material and in many areas the mineralisation starts at surface, to a maximum depth of 40m. Where the scandium is associated with high grade nickel–cobalt grades, it usually occurs above them in the laterite profile. However the scandium mineralisation is predominantly associated with low grade nickel and cobalt mineralisation which is possibly a reflection of the pre-cursor ultra-mafic unit on which the laterite formed, typical cross sections through the Lucknow Scandium deposit are shown in **Figures 2 and 3**, and a cross section showing the outline of scandium ore blocks is included as **Figure 4**.

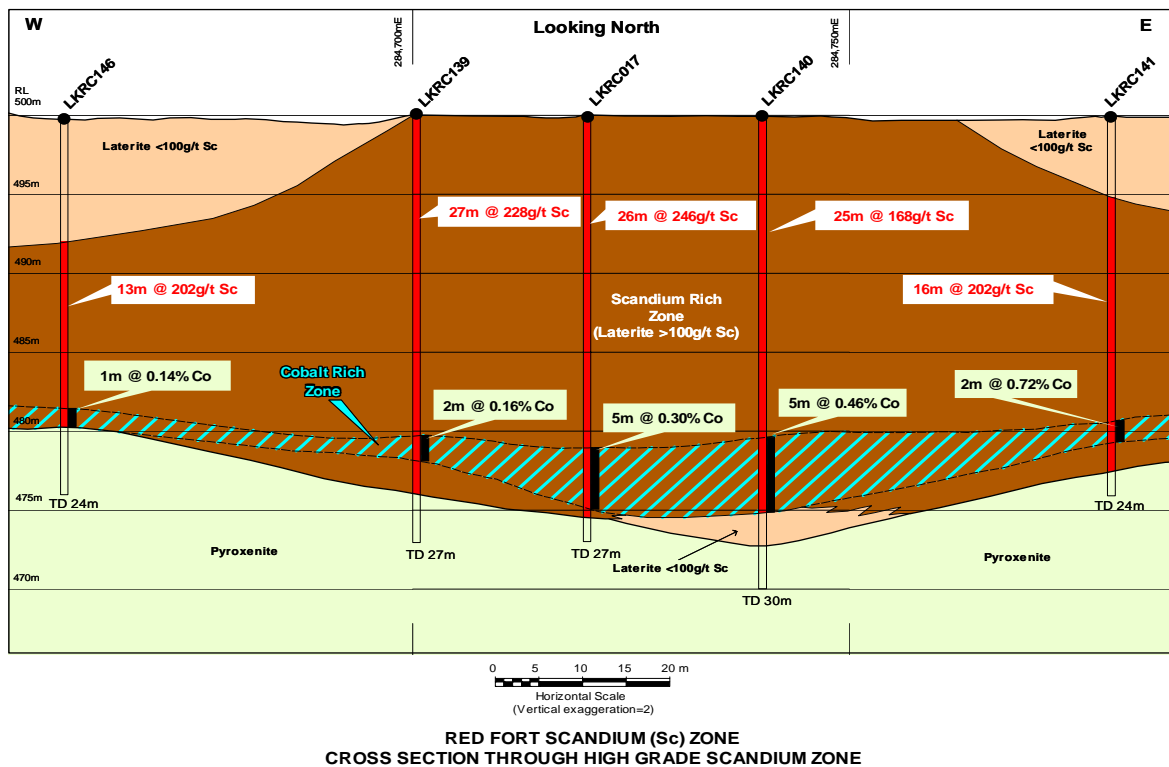
**Figure 2: Lucknow Scandium Cross Section, 7,894,080mN**



**LUCKNOW PROJECT  
RED FORT  
CROSS SECTION 7,894,080mN**

0 40m  
Horizontal Scale

Figure 3: Lucknow Scandium Cross Section 7,894,160mN

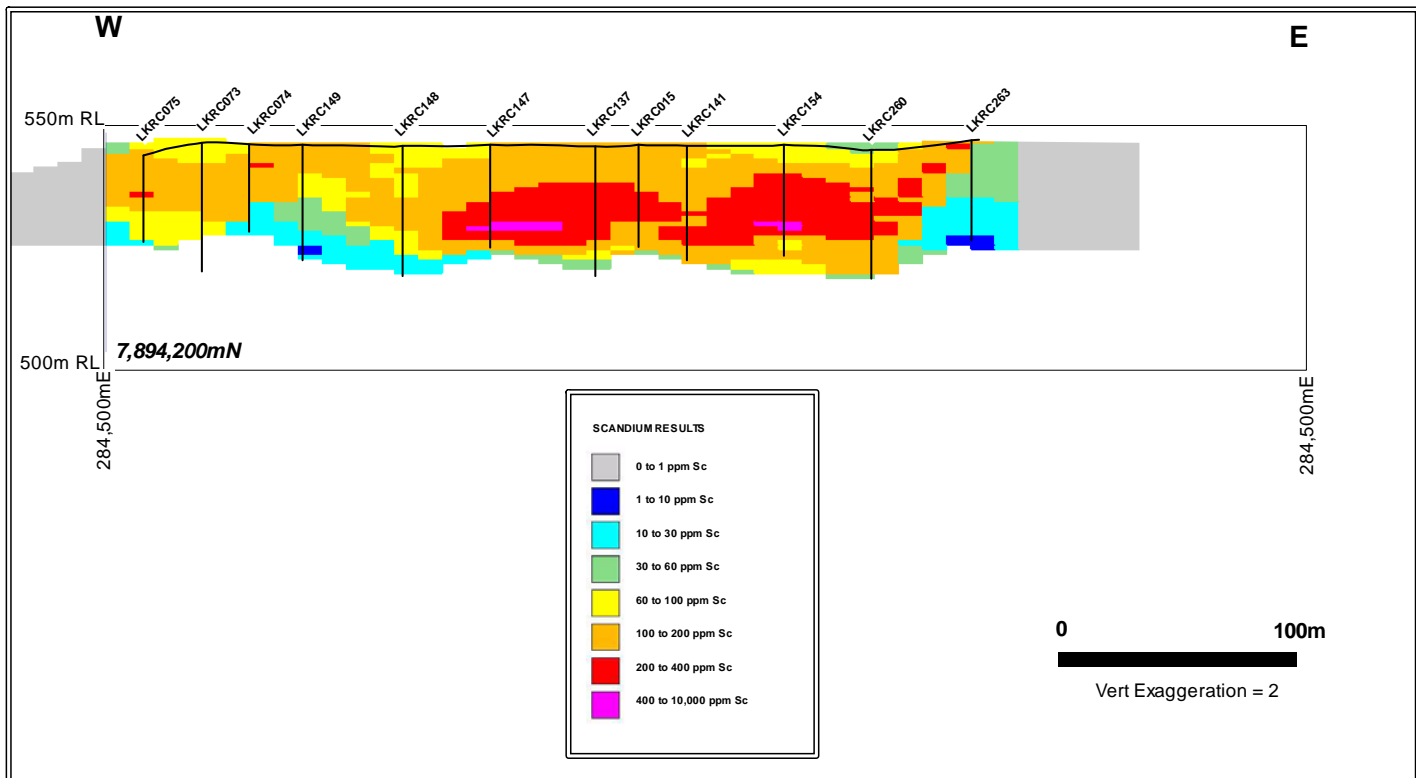


### Resource Estimate Methodology

The resource estimate was undertaken by Golder Associates of Brisbane using block modelling Ordinary Kriging (OK) techniques. The estimate was completed using unfolding techniques to make a wire framed model to represent the paleo-laterite surfaces between drill holes, and was further refined by incorporating data from sectional interpretations of the considered logged geology and scandium, nickel, cobalt, iron, magnesium and manganese assays. A nominal 60g/t Sc mineralised envelope was used to constrain the mineralisation and grade estimates. The wireframe was then filled with 10m by 10m by 1m blocks, with the grades of the various elements estimated by ordinary kriging using a three pass search strategy and a maximum of 3 composites selected from any one drill hole. Mineralisation was extrapolated a maximum of 20m from drill hole intercepts, depending on supporting information. Details of how the Lucknow Resource was estimated are listed at the back of this report.



**Figure 4: Lucknow Scandium Cross Section – Block Model**



**LUCKNOW PROJECT  
SCANDIUM RESOURCE  
DRILL CROSS SECTION 7,894,200mN  
(looking North)**



**Future Work**

- Drilling 3 to 4 PQ Diamond drill holes for metallurgical, geological and bulk density purposes.
- Additional Metallurgical testwork
- Initial pit design and scheduling
- Possible Feasibility Study based on a 180,000tpa Ni-Co-Sc processing plant based at the Greenvale.
- Complete a desktop study and commence scoping studies into processing high grade scandium ore (low Ni-Co).

For further information

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### Competent Persons

*Technical information and exploration results contained in this report has been compiled by Metallica Minerals Ltd full time employees Andrew Gillies in the position of Managing Director and Metallica Minerals Ltd Exploration Manager, Mr Pat Smith MSc. B.Sc (Hons),. Mr Gillies and Mr Smith are members of the Australasian Institute of Mining and Metallurgy and have relevant experience to the mineralisation being reported on to qualify as Competent Persons as defined by the Australasian Code for Reporting of Minerals Resources and Reserves. Mr Gillies and Mr Smith consent to the inclusion in this report of the matters based on the information in the form and context in which it appears*

*This Mineral Resource estimate is based upon and accurately reflects data compiled, validated or supervised by Mr John Horton, Principal Geologist, who is a Member of the Australasian Institute of Mining and Metallurgy and a full time employee of Golder Associates Pty Ltd. Mr Horton has sufficient experience that is relevant to the style of mineralisation and the type of deposit under consideration and to the activity which he has undertaken to qualify as a Competent Person as defined in the 2004 edition of the 'Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr. Horton consents to the inclusion of this information in the form and context in which it appears in this letter.*

### **About Scandium**

Scandium (Sc - element 21- next to zirconium, yttrium and titanium) is a Rare Earth Element (REE) which has the potential to significantly enhance and possibly revolutionise the "Green Economy". It is currently used in fuel cells, high strength low weight aluminium alloys (AlSc), high intensity lamps and structural ceramics (PSZ). The lack of readily available and reliable long term scandium supply in the market has limited its commercial applications to date.

Scandium is generally marketed as scandium oxide (e.g. 99.9% purity) which sells for more than US\$1,400 per kilogram (kg).

Scandium bearing aluminium alloys (ScAl) is increasingly being used in a number of industries including aerospace, automotive, sporting equipment and mobile consumer electronics. Scandium stabilised zirconia (ScSZ) is a critical component of high efficiency Solid Oxide Fuel Cells (SOFC's). Partially stabilized ScSZ has the potential to replace high strength alloys in mechanical and aerospace applications.

Scandium has similar properties to other important and commonly used elements, such as titanium, zircon and rare earth yttrium. All three are currently used in a broad range of commercial applications and Scandium has similar characteristics that – in combination make it an extremely desirable element, however, with limited reliable supplies available it has been difficult to establish a strong market base beyond its current uses – hence an opportunity for Metallica.

For further information on scandium – *for more detailed information on Scandium - see ASX Release dated 10 May 2010.*



**Key features of the resource estimate:**

- Topography was provided as spot heights that were surveyed by PES surveyors of Cobar using a differential GPS with a stated accuracy of  $\pm 20$  mm.
- Collars of holes drilled by Metallica were surveyed by PES surveyors of Cobar using a differential GPS with a stated accuracy of  $\pm 20$  mm.
- All drill holes used for resource estimation were drilled by Metallica in 2010.
- All drill holes used for resource estimation were drilled vertically. Visual inspection of some drill holes indicated no significant down-hole deviations. Due to the shallow nature of the drilling (<40 m) it is unlikely that material drill hole deviations would have occurred.
- Sample recovery in the mineralised zone is believed to be good to excellent.
- All drilling used for resource estimation was by face-sample RC.
- The drill holes were sampled by spearing, predominantly over 1 m intervals.
- SGS Laboratories (SGS) in Townsville were used for assaying. SGS used a four acid digest method with an ICP finish.
- The QAQC program for Metallica drilling involved intra-laboratory pulp duplicates and blind field duplicates. The QAQC results indicated that the assays for the Metallica drilling program were satisfactory for resource estimation purposes.
- The mineralisation has a surface expression that was observed in places during a field visit by Mr Horton.
- Golder undertook basic validation checks of the drill hole database, including checks between digital assay certificates and the supplied database.
- Drill hole data was composited to 1 m, which was the dominant sample interval.
- Appropriate high-grade cuts to Ni, Co and Sc outlier values were applied on a zone by zone basis.
- A wireframe of the paleo-laterite (enrichment) horizon between drill holes was constructed based on sectional interpretations. A nominal 0.3% Ni was the underlying basis of a Ni-Co mineralised wireframe. A nominal 60 ppm Sc was the underlying basis of a Sc mineralised wireframe. Laterite profile wireframes were also constructed to constrain major material types based on either geochemistry or logging.
- The mineralised envelope wireframes included a nominal 20 m horizontal extrapolation from the drill holes at the margins of the mineralised zone.
- A computer block model was constructed by filling the mineralised wireframes with 10 m by 10 m by 1 m blocks. Additional blocks were retained to the topography and base of drilling as well as peripheral to mineralisation to permit open pit optimisation. Sub-blocking was not employed, with whole blocks assigned to mineralised/geological domains on a maximum proportion basis.
- Grades of Ni, Co, Fe, Mg, Mn, Al, Ca, Cr, Cu and Sc were estimated by ordinary kriging using a three pass search strategy with a maximum of 15 composites, including a maximum of 3 composites selected from any one drill hole. A minimum of 10, 8, and 1 composites were used for Pass 1, 2, and 3 respectively.
- Hard boundaries were used between the mineralised envelopes and the laterite domains for Ni, Co and Sc. All other elements used hard boundaries between different laterite horizons.
- Unfolding methods were employed during variogram analysis and block grade estimation to represent adequately the paleo-laterite (enrichment) horizon between drill holes.
- Validation included visual observation, statistical checks, and swath plots.



- Internal dilution has been accounted for, but not dilution at the margins of the mineralised wireframe.
- Drilling was mostly on a reasonably regular pattern of 20 m (NS) by 20 m (EW) or 40 m (NS) by 40 m (EW) for Indicated Mineral Resources. The closer spaced drill pattern would be appropriate for Measured Mineral Resources except that no dry bulk density measurements have been recorded. The 20 m by 20 m area represents approximately 20% of the Sc and 60% of the NiEq Indicated Resource tonnage. Inferred Mineral Resources were mostly drilled on a reasonably regular pattern of 80 m (NS) by 40 m (EW), with some small areas at larger spacings.
- Dry bulk densities (DBD) were assigned to blocks according to nearest neighbour estimates of lithology. Bulk density values applied were assumed by analogy to the geologically similar Kokomo Ni-Co-Sc nickel laterite project of Metallica, where DBD for each lithology has been adequately established by several techniques, including Archimedes water displacement, sand replacement of excavated voids and caliper measurement.
- Metallica advises that the 0.7% NiEq (Ni + 2\*Co) cut-off grade is considered appropriate based on ongoing feasibility studies at the nearby Bell Creek nickel laterite deposit. The suitability of this cut-off grade is to be confirmed as economic evaluation and metallurgical test work as part of feasibility studies at Lucknow.
- High Sc and high Ni-Co mineralisation overlap in places and for practicality Resource classification was maintained though Ni-Co displays less lateral continuity. It should be noted that some additional infill drilling maybe required to convert Resources based on Sc alone to Reserves. This is partly related to the economics of Sc that may only be fully defined during feasibility assessment.
- Resource classification is based on target drill spacing of 20 m by 20 m for Measured (downgraded to Indicated due to lack of local DBD measurements), 40 m by 40 m for Indicated and 80 m by 40 m for Inferred Mineral Resource. This classification is based on the continuity of the principal Ni-Co mineralisation. Sc displays greater continuity in places but cannot be practicably classified separately for Ni-Co as the two mineralisation zones largely overlap. Golder consider that for economic analysis of selective Sc mining, further drilling may be required to convert the current Indicated Resource to Reserve status.