



# Hastings Rare Metals Limited ABN 43 122 911 399

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#### **Board**

Charles Lew (Chairman)
Anthony Ho (Non-Exec Director)
Malcolm Mason (Non-Exec Director)

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# **DECEMBER 2014 QUARTERLY ACTIVITIES REPORT**

#### **HIGHLIGHTS**

- Market review identifies neodymium, praseodymium, europium and dysprosium as the optimum target commodities that match Yangibana main components
- Stage 2 Drilling Programme successfully completed
- JORC resource estimations for eight prospects total 6.79mt @
   1.52% TREO containing 0.69% Nd<sub>2</sub>O<sub>3</sub>-Eq
- Highly encouraging diamond drilling results including 5.51m @
   4.32% TREO containing 1.6% Nd<sub>2</sub>O<sub>3</sub>-Eq received and confirmed higher grade carbonatite hosted mineralisation
- Excellent preliminary beneficiation test results support potential savings in plant capital and operating costs
- Scoping Study by independent consultants, Snowden Mining, confirms excellent potential for an economically-viable operation, and justifies decision to proceed to Pre-Feasibility Study (PFS)
- Initial three Mining Lease Applications submitted covering bulk of current JORC resources
- Share Placement and Share Placement Plan raises \$8.5 million to fully fund proposed PFS

#### Yangibana Project

During the period under review the Company made significant advances at its Yangibana Rare Earths Project in the Gascoyne Region of Western Australia.

Review of market information has shown that the largest and fastest growing sectors in the rare earths industry is the super and permanent magnet sector. This sector accounts for around 35% of rare earths consumption and is forecast to grow at a compound annual rate of around 10% (source: Curtin University, IMCOA 2013).

Rare earths magnets are used extensively in clean energy applications including hybrid electric vehicle motors, permanent magnet generators in wind turbines, defence systems, medical and consumer electronics.



The Yangibana Project is particularly enhanced in three of the rare earths used in this sector (neodymium (Nd), praseodymium (Pr) and dysprosium (Dy)) along with high value europium (Eu) that is used in the growing phosphors market for LED lighting.

The value of the Yangibana Project is dominated by these four elements. The Company has established a neodymium equivalent figure (Nd<sub>2</sub>O<sub>3</sub>-Eq) for the project that provides a simple comparison between grades achieved anywhere from individual one-metre reverse circulation (RC) samples through to project-scale resource estimates. These Nd<sub>2</sub>O<sub>3</sub>-Eq grades will be used in all reporting going forward.

#### Metal equivalent calculation

Hastings has applied the same metallurgical recoveries to praseodymium (Pr), dysprosium (Dy), and europium (Eu) as for neodymium (Nd), based on preliminary metallurgical studies of the ore. This indicates a metallurgical recovery in the order of 76.5% of the metal oxide for the four rare earths oxides of economic interest. Calculations are currently based on the 23 October 2014 spot prices for these oxides (Table 1).

Metal oxide	Assumed commodity	Indicative
	price (US\$/kg)	metallurgical
		recovery
Nd <sub>2</sub> O <sub>3</sub>	59.50	76.5%
Pr <sub>2</sub> O <sub>3</sub>	119.50	76.5%
Dy <sub>2</sub> O <sub>3</sub>	340.00	76.5%
EU <sub>2</sub> O <sub>3</sub>	725.00	76.5%

Table 1 – Yangibana Project – Basis of Neodymium-Equivalents (Nd<sub>2</sub>O<sub>3</sub>-Eq)

Since metallurgical recoveries are the same for all targets, the calculation of neodymium equivalent ( $Nd_2O_3$ -Eq) grade is therefore:-

 $Nd_2O_3$ -Eq grade = ((( $Nd_2O_3$  grade + (( $Pr_2O_3$  grade\*( $Pr_2O_3$  price/ $Nd_2O_3$  price)) + (( $Dy_2O_3$  grade\*( $Dy_2O_3$  price/ $Nd_2O_3$  price)) + (( $Eu_2O_3$  grade\*( $Eu_2O_3$  price/ $Nd_2O_3$  price)))

#### **Stage 2 Drilling Programme Completed**

Stage 2 drilling was successfully completed at eight of the main targets (Figure 1) identified by previous work, with encouraging results achieved from each prospect.

122 RC holes were drilled for a total of 6,624m, and 9 diamond holes were drilled for a total of 170.1m. RC drilling tested seven new targets and extended the mineralisation at Yangibana North. Diamond drilling extended the Yangibana North mineralisation, and infill holes were drilled within the recently announced JORC resource at that prospect.



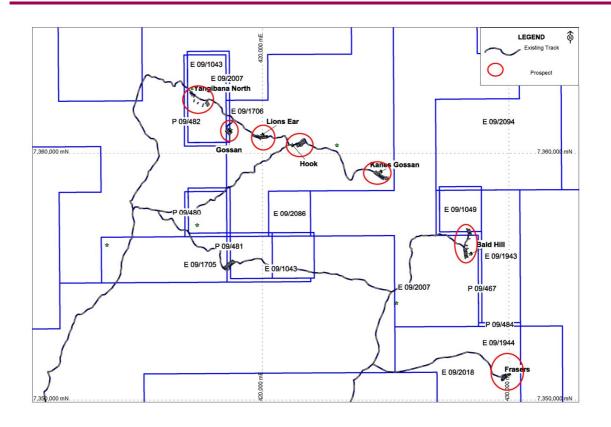


Figure 1 – Yangibana Project – Prospects drilled during Stage 2 Programme

Assay results were reported intermittently over the period with selected major intersections as shown in Table 2.

Prospect Hole No	From (m)	To (m)	Interval (m)	% TREO	% Nd₂O₃- Eq
Bald Hill South					
BHRC07	8	35	15	1.73	1.17
BHRC10	30	36	6	1.26	0.83
BHRC11	49	52	3	0.98	0.57
BHRC12	3	8	5	1.03	0.62
BHRC14	28	35	7	1.37	0.79
BHRC15	34	46	12	1.67	0.93
BHRC25	5	8	3	2.50	1.84
BHRC26	11	15	4	1.24	0.82
Bald Hill North					
BHRC19	11	13	2	1.22	0.80
BHRC24	11	12	1	1.75	1.25



# **ASX Announcement**

# 29th January 2015

Prospect Hole No	From (m)	To (m)	Interval (m)	% TREO	% Nd <sub>2</sub> O <sub>3</sub> -
V N H					Eq
Yangibana North -					
Western Extension	11	1 /	-	0.20	1.00
YN57		16 7	5 5	2.38	1.02
YN63	<u>2</u> 5			2.21	0.79
YN64	5	16	11	2.28	0.95
Yangibana North – Depth Extension					
YN46	94	98	4	1.85	0.97
YN51	63	67	4		0.86
YN54	45		5	2.00 1.77	0.76
Frasers	45	50	3	1.//	0.74
	101	100	7	2.07	2.00
FR9	101 16	108 18	7 2	3.27	2.08
FR10 FR11			8	1.94	1.41
Kane's Gossan	56	64	8	1.42	0.85
	0.4	0.1	7	1 10	0.55
KG4	24	31		1.13	0.55
KG5	65	73	8	1.79	0.68
KG7	23	31	8	1.57	0.64
Hook	70	7.5	0	0.70	0.00
HK2	73	75	2	2.79	0.90
HK5	11	13	2	3.77	1.23
HK7	4	7	3	3.68	1.18
HK11A	43	46	3	2.71	0.88
Lion's Ear	0.5	07		0.00	
LE1	25	27	2	2.28	0.80
LE7	8	14	6	2.76	1.12
LE10	20	27	7	1.49	0.78
LE16	50	61	11	1.96	0.63
LE17	88	89	1	5.26	1.72
Gossan					
G\$1	24	29	5	2.00	0.76
GS8	40	44	4	2.32	0.85
GS9	72	76	4	1.82	0.67

Table 2 - Yangibana Project – Selected major intersections achieved in Stage 2 Drilling Programme

# **New JORC Resource Estimate**

On the basis of these drilling results the Company commissioned independent geological consultants CoxRocks Pty Limited to undertake resource estimates on each of the drilled prospects.



All resources were estimated using a 0.5% (5,000ppm) Total Rare Earths Oxides (TREO) cutoff, which correlates with the geological structure hosting the majority of the rare earths at each prospect.

#### **Total Resources**

Resource Classification	Tonnes (mt)	% TREO	% Nd <sub>2</sub> O <sub>3</sub> - Eq
Indicated	3.96	1.59	0.74
Inferred	2.83	1.43	0.63
TOTAL	6.79	1.52	0.69

The total resource contains 103,000 tonnes of TREO including approximately 23,500 tonnes of  $Nd_2O_3$ , 6,600 tonnes of  $Pr_2O_3$ , 360 tonnes of  $Dy_2O_3$  and 625 tonnes of  $Eu_2O_3$ .

## Yangibana North Prospect

Resource Classification	Tonnes (mt)	% TREO	% Nd <sub>2</sub> O <sub>3</sub> - Eq
Indicated	2.73	1.75	0.72
Inferred	0.73	1.65	0.68
TOTAL	3.46	1.73	0.71

Figure 2 shows the grade distribution of the block model established for Yangibana North on the recently flown high quality aerial photography.

# **Bald Hill South Prospect**

Resource	Tonnes	%	%
Classification	(mt)	TREO	Nd₂O₃-Eq
Indicated	1.23	1.22	0.77

Bald Hill South mineralisation has a 10% higher in-ground value than Yangibana North, despite a lower TREO resource grade (1.22% compared to 1.73%).



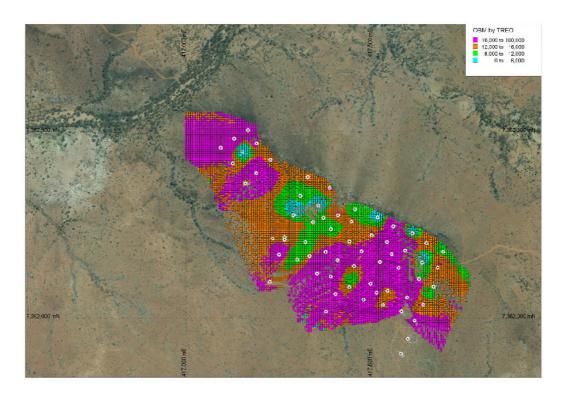


Figure 2 – Yangibana Project, North Yangibana Prospect, Grade Distribution in Block Model for November 2014 JORC Resource Estimation

#### Other Prospects - Inferred Resources

Prospect – Inferred Resources	Tonnes (mt)	% TREO	% Nd₂O₃-Eq
Frasers	0.35	1.31	0.85
Bald Hill North	0.14	0.87	0.59
Kane's Gossan	0.61	1.18	0.50
Hook	0.10	1.93	0.65
Lion's Ear	0.67	1.55	0.62
Gossan	0.23	1.39	0.53

Each of the prospects hosts mineralisation that has the potential to be economically viable. As such, each prospect will be further drill tested at a later stage to extend its mineralisation. In some instances, superior drill intersections were achieved in holes at the edge of the Stage 2 drilling pattern indicating that mineralisation of potential interest could extend to areas beyond the strong outcrop.



#### Yangibana North Prospect - Infill Drilling

Results were subsequently received for four infill diamond holes drilled within the Indicated Resources at Yangibana North. These holes confirmed the tenor of the earlier reverse circulation (RC) results and provided material for the measurement of specific gravity/bulk density of the mineralised zone. The locations of holes 48, 49, 52 and 53 are shown on Figure 3. All four infill holes returned results in line with expectation, with best intersections as shown in Table 3.

Hole Number	From (m)	To (m)	Int (m)	% TREO	% Nd₂O₃- Eq
YGDD048	32.05	36.40	4.35	2.11	0.82
YGDD049	57.48	64.88	7.40	1.83	0.68
incl	61.05	62.60	1.55	5.36	1.87
YGDD052	9.00	12.10	3.10	1.46	0.61
YGDD053	17.05	17.30	0.25	1.71	0.61
and	20.65	21.20	0.55	2.35	0.85
and	24.60	25.68	1.08	1.06	0.43
and	26.70	27.55	0.85	1.03	0.49

Table 3 – Yangibana Stage 2 Drilling Programme, Yangibana North Prospect, Infill DD Intersections

Hole 49 also provided the highest individual drill sample assay to date from Hastings' drilling at Yangibana, with an interval of 0.63m at 10.9% TREO with 3.80% Nd<sub>2</sub>O<sub>3</sub>-Eq.

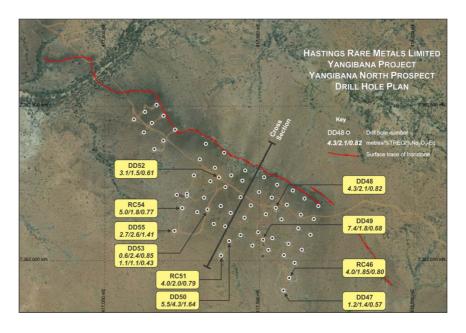


Figure 3 – Yangibana Stage 2 Drilling Programme, Yangibana North Prospect, Infill and Deep Holes



## Yangibana North Prospect – Depth Extension Drilling

Results were also received from three deeper diamond holes at Yangibana North, confirming the down dip extension of the mineralisation. The locations of holes 47, 50 and 55 are shown on Figure 3. Best intersections were as shown in Table 4.

Hole Number	From (m)	To (m)	Int (m)	% TREO	% Nd₂O₃- Eq
YGDD047	110.60	111.80	1.20	1.38	0.57
YGDD050	48.74	54.25	5.51	4.31	1.60
and	57.25	57.80	0.55	1.27	0.50
YGDD055	44.60	45.00	0.40	2.84	1.17
and	57.20	59.85	2.65	2.63	1.41

Table 4 – Yangibana Stage 2 Drilling Programme, Yangibana North Prospect, Deep DD Intersections

Results from hole 47 met expectations, whereas **holes 50 and 55 returned outstanding results.** Hole 50 was collared 250m south of the outcropping ironstone and intersected the mineralisation at a depth of only 45m below surface (Figure 5). This hole returned the best intersection achieved by Hastings at the Yangibana Project to date. Of particular interest, the interval 48.74-49.90m (1.16m) **averaged 8.00% TREO with 2.90% Nd<sub>2</sub>O<sub>3</sub>-Eq** from a zone hosted by magnetite-rich carbonatite rather than the usual massive ironstone host to the mineralisation.

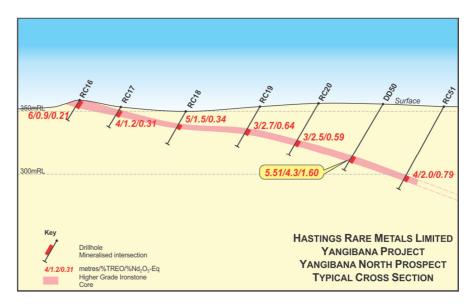


Figure 5 – Yangibana Project, Yangibana North Cross Section showing hole 50



## **Metallurgical Test Work**

While Stage 2 Drilling was progressing the Company also undertook preliminary metallurgical test work at Kyspymet in Adelaide under the management of Dr Kwan Wong, on samples derived from the Yangibana North deposit.

Mineral Liberation Analysis (MLA) confirmed that the main rare earths-bearing mineral is monazite, a mineral known to be amenable to commercial processing. MLA showed that more than 80% of the monazite is liberated at a grind size of 80% passing 75 microns, and early beneficiation tests using flotation achieve a significant 85% recovery of rare earths into 25% of original mass with a 3.5 times increase in rare earths grade.

Results indicate that a relatively low cost and significant uplift of rare earths grade can be achieved early in the processing route and that a relatively small hydrometallurgical plant will be required.

At this stage the Company is proposing a standard processing route for its Yangibana material which, based on similar projects worldwide will comprise the processes as indicated in the conceptual schematic diagram, Figure 6. At this stage insufficient test work has been undertaken to ensure that all or any of the proposed processes will achieve the expected results. This test work will be undertaken in the coming period.

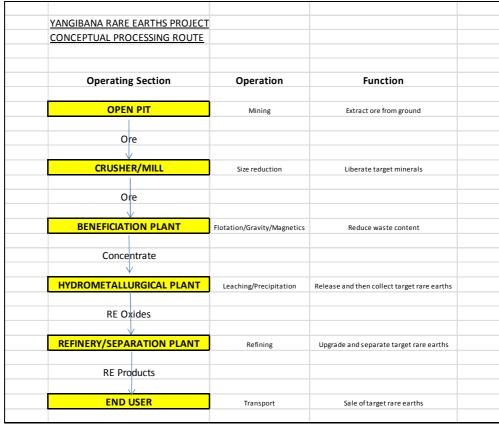


Figure 6 – Schematic Processing Route for Yangibana Rare Earths Products



Simplistically, the process involves the mining, crushing and milling of the mineralisation with the aim of achieving the optimum liberation of the target minerals (predominantly monazite) from the waste (gangue) materials (predominantly silicates and iron oxides and hydroxides.

The finely ground material is fed into the beneficiation plant where target minerals are upgraded into a higher grade concentrate by the removal of as much waste as can be achieved while retaining as much target as possible.

The beneficiated concentrate passes to the hydrometallurgical plant where the target minerals are dissolved by acid and subsequently precipitated, generally as mixed rare earths oxides, oxalates or carbonates.

These products pass to a refinery/separation plant where the rare earths are separated and prepared for sale in the form required by the end user.

# **Scoping Study**

Following the completion of Stage 2 drilling, the subsequent Resource Estimation, and the ongoing positive metallurgical test results, the Company commissioned an independent Scoping Study (Study) by Snowden Mining Industry Consultants (Snowden).

### High Confidence Case (based on part of the current JORC Resources)

The Study shows potential for strong economic returns with an indicative NPV based on mining 3.7 million tonnes (largely current Indicated Resources) of \$295 million to \$360 million at a 10% discount rate over a 3.7-year operating mine life with a 1.6-year payback period from commencement of production.

#### **Expanded Case**

Extrapolating the operation out over a total of 15 years, based on the reasonable assumption that resources of the same tenor as the current resources will continue to be defined by exploration, provides a NPV of \$900 million to \$1.2 billion at a 12% discount rate. The 12% discount rate reflects the risk profile of a longer mine life.

Hastings considers that this case is supported by an Exploration Target, as defined by the JORC Code, Clause 17, of between 11 and 12 million tonnes of plant feed at a grade of in the order of 0.6% to 0.8% total rare earths oxides. This target is conceptual, but is supported by the JORC resources and exploration results announced recently for the Frasers, Bald Hill North, Kane's Gossan, Hook, Lion's Ear, and Gossan prospects, by additional prospects defined by exploration drilling in the 1980s (Hook South, Yangibana South, Yangibana and Tongue), and by the surface expression of ironstones (the host to the rare earths mineralisation) both along strike from the prospects listed above and elsewhere within the Yangibana Project tenements.



#### **Financial Summary and Assumptions**

As indicated previously, Hastings' initial efforts at Yangibana are planned to be focussed on the production of separated (or combined if required by the customer) oxides of the rare earths neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and europium (Eu). Additional rare earths might be considered at a later date when suitable markets and opportunities are identified.

Key parameters used in the Study are shown in Table 5.

Item	Units	Base Case	Expanded Case
Plant Throughput	Million tonnes per	1.0	1.0
- '	annum		
Project Life	Years	3.7	15
Nd <sub>2</sub> O <sub>3</sub> -Eq production	Tonnes per	5,450	5,450
	annum		
Nd <sub>2</sub> O <sub>3</sub> -Eq price assumption*	US\$/kg	60	60
Annual Gross Revenue	US\$m	327	327
Annual Operating costs	A\$m	117	117
Exchange Rate	A\$:US\$	0.80	0.80
Capital Cost	A\$m	390	390
Discount Rate	%	10	12
Payback after construction completed	Years	1.6	1.6

<sup>\*</sup>With no projected metal price escalation

Table 5 – Yangibana Project Scoping Study, Key Project Parameters

#### Mining

Snowden has used the Company's Indicated Resources (prepared under the guidelines of the JORC 2012) with an average grade of 0.70% Nd<sub>2</sub>O<sub>3</sub>-Eq at a stripping ratio (tonne for tonne) of approximately 8.5; as the basis for its modelling of open pit mining operations at the Yangibana North and Bald Hill South Prospects. 10% dilution at zero grade has been incorporated in the pit optimisation with 100% mining recovery.

Mining costs were developed by Snowden based on industry standard drill and blast, load and haul costs.

The optimised pits are based on the proposed mining rate of 1.0 million tonnes per annum of ore.



The optimised pits extract:-

- Yangibana North (70% owned): 2.51 million tonnes of mineralisation (79% from Indicated Resources and 21% from Inferred Resources) with an average grade of 0.70% Nd<sub>2</sub>O<sub>3</sub>-Eq at a stripping ratio (tonne for tonne) of 9.2; and
- **Bald Hill South (100% owned):** 1.18 million tonnes of mineralisation (100% from Indicated Resources) with an average grade of 0.76% Nd<sub>2</sub>O<sub>3</sub>-Eq at a stripping ratio (tonne for tonne) of 3.78.

### **Processing**

It is planned that mined ore will be fed to a crushing plant for size reduction, prior to milling to reduce the feed to the required sizing for the flotation processing.

At a plant throughput rate of 1.0 million tonnes per annum, it is considered that a flotation plant can achieve an 80% reduction to 200,000 tonnes of concentrate with a recovery of 85% of the contained rare earths (i.e. loss of only 15% of contained rare earths).

The subsequent hydrometallurgical plant leaches the 200,000 tonnes per annum of concentrate to extract the target rare earths. The rare earths are then treated in a separation plant/refinery to produce individual or combined rare earths oxides products as specified by the customers.

All processes from crushing to milling, flotation to hydrometallurgy and separation are standard processes used within the rare earths industry. This further de-risks the project. All rare earths projects have unique characteristics that require specific methods to be developed, but the Yangibana rare earths are hosted almost exclusively in the mineral monazite that has a long and well established history in commercial processing. A number of other projects are currently considering this processing route and this provides support to the plans.

The Company considers it reasonable that the conceptual processing route will achieve the recovery rates incorporated in the Study.

The conceptual Yangibana operation based on processing 1 million tonnes per annum of mineralisation will produce approximately:-

- 2,700 tonnes per annum of neodymium oxide;
- 750 tonnes per annum of praseodymium oxide;
- 40 tonnes per annum of dysprosium oxide;
- 70 tonnes per annum of europium oxide;



# **Capital Costs**

Snowden has established capital costs for the project based on industry standards for the basic equipment, milling and beneficiation sections, and by factoring costs available in the public arena from similar operations, that sums to a total estimated at \$390m. Table 6 provides a breakdown of these estimated capital costs.

Category	Cost A\$m
Mill and Beneficiation Plant	88
Hydrometallurgical and Separation	250
Plant	
Total Direct Capital Costs	338
Construction facilities/EPCM	52
Total Indirect Capital Costs	52
Total Capital Costs	390

Table 6 – Yangibana Scoping Study – Estimated Capital Costs

## **Operating Costs**

The operating costs are based on contract mining and crushing and 90% processing plant availability. The Study assumes the sale of separate (or combined if required by the customer) rare earths oxides at site. Table 7 provides a breakdown of the estimated operating costs.

Category	Cost A\$/t ore mined
Contract Mining (\$3.50/t rock at	33
Stripping/Ratio 8.46)	
Contract Crushing	10
Milling and Beneficiation	40
Hydrometallurgical and Separation	27
General/Administration	7
Total Operating Costs	117

Table 7 – Yangibana Scoping Study – Estimated Operating Costs

## Pricing

The Study is based on the current commodity prices for the four target rare earths – neodymium, praseodymium, dysprosium and europium, with no projected metal price escalation. Current commodity prices and those used in the Study are:-

- Neodymium Oxide US\$59.5/kg
- Praseodymium Oxide US\$119.5/kg
- Dysprosium Oxide US\$340/kg
- Europium Oxide US\$725/kg



#### Market

Hastings decision to focus its project evaluation on the four target rare earth is based on its evaluation of a number of recent publications relating to the comparative demand growth rates of the various rare earths. The industry is in consensus that the strong growth segment will be in permanent magnets area. Three of Hastings' target rare earths (neodymium, praseodymium, and dysprosium) are used extensively in this market segment. Europium is used in the phosphors market and there are indications that this market will continue to grow in the future.

The Company is confident that it will be able to achieve full market penetration for its four target rare earths oxides products.

Assessment of other rare earths comprising the Yangibana mineralisation will be undertaken at a later date and will only improve the economics of the operation.

## **Mining Lease Applications**

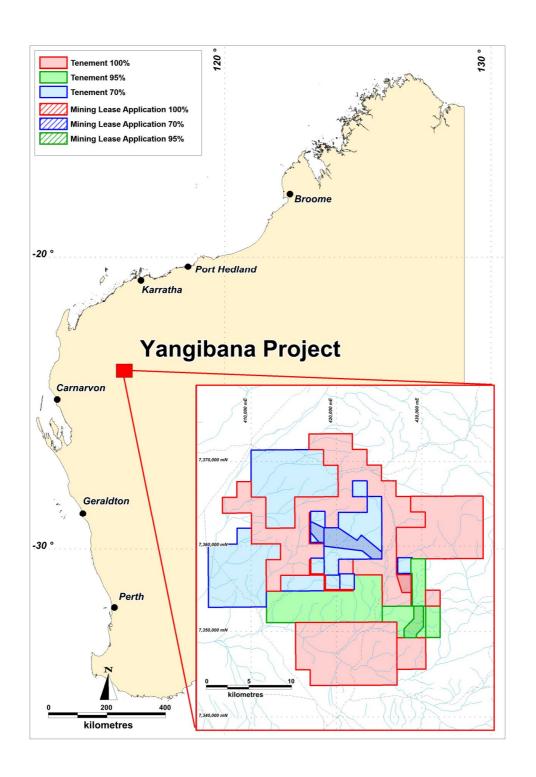
The Company has made application for three initial Mining Leases covering the bulk of the current JORC resources. Additional exploration planned as part of the ongoing Pre-Feasibility Study will determine whether additional Mining Leases are applied for in the future.

The applications cover a total of around 2,288 hectares and cover the discontinuous ironstone between Yangibana North and Kane's Gossan prospects in one application, the Bald Hill South resource and extensions in a second, and the Frasers resource and extensions in the third.

#### **Cautionary Statement**

The Study referred to in this announcement is an indicative analysis subject to follow up Feasibility Studies. It is based on a low level technical and economic assessment, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusion of the Study will be realised.





Yangibana project – showing mining lease application areas.



#### **Brockman (formerly Hastings) Project**

The company undertook limited metallurgical work on the Brockman project during the quarter.

\*TREO is the sum of the oxides of the heavy rare earth elements (HREO) and the light rare earth elements (LREO).

HREO is the sum of the oxides of the heavy rare earth elements europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb), lutetium (Lu), and yttrium (Y)

LREO is the sum of the oxides of the light rare earth elements lanthanum (La), cerium (Ce), praseodymium (Pr), neodymium (Nd), and samarium (Sm).

CREO is the sum of the oxides of Nd, Eu, Tb, Dy and Y that were so designated by the US Department of Energy (2010) based on the availability and future perceived requirements for these particular rare earths.

#### **CORPORATE**

In December 2014 the Company completed a placement issuing 87,856,134 shares at 7 cents each raising \$6.15 million before costs.

A further \$395,000 has been raised through the placement of 5,643,866 shares at 7 cents each to Directors, following shareholder approval at the EGM held on 20 January 2015.

A further \$2 million has been raised through a fully underwritten share purchase plan.

In total the Company has therefore raised **\$8.5 million** which will enable it to fund the Pre-Feasibility Study of the Yangibana project through to completion. This follows the positive results shown by the Scoping Study prepared by Snowden<sup>1</sup>. The Pre-Feasibility Study will include the following:

- Mining Lease application(s)
- Further drilling to achieve target tonnage
- Mine design and scheduling metallurgical test work and detailed flow sheet design
- Processing plant design and costing (for capital and operating costs)
- Infrastructure design and costing
- Government regulatory approvals
- Environmental studies
- Pilot plant confirmation
- Indigenous Culture & Heritage Agreements

<sup>&</sup>lt;sup>1</sup> See ASX Announcement dated 3 December 2014





#### **About Hastings Rare Metals**

- Hastings Rare Metals is a leading Australian rare earths company, with two rare earths projects in Western Australia.
- The Yangibana deposit is at an advanced stage of evaluation and contains JORC Indicated and Inferred Resources totalling 6.79 million tonnes at 1.52% TREO, including 0.69% Nd<sub>2</sub>O<sub>3</sub>-Eq (comprising 3.96 million tonnes at 1.59% TREO Indicated Resources and 2.83 million tonnes at 1.43% TREO in Inferred Resources).
- The Brockman project contains JORC Indicated and Inferred Resources totalling 36.2 million tonnes at 0.21% TREO, including 0.18% HREO, plus 0.89%  $\rm ZrO_2$  and 0.35%  $\rm Nb_2O_5$ .
- Rare earths are critical to a wide variety of current and new technologies, including smart phones, hybrid cars, wind turbines and energy efficient light bulbs.
- The Hastings deposit contains predominantly heavy rare earths (HREO) (85%), such
  as dysprosium and yttrium which are substantially more valuable than the more
  common light rare earths (LREO).
- The company aims to capitalise on the strong demand for heavy rare earths created by expanding new technologies. It is currently validating the extensive historical work and undertaking further scoping study to confirm economics.

### For further information please contact:

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Guy Robertson, Company Secretary +61 2 8268 8689

### **Competent Persons' Statement**

The information in this report that relates to Resources is based on information compiled by Simon Coxhell. Simon Coxhell is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. The information in this report that relates to Exploration Results is based on information compiled by Andy Border, an employee of the Company and a member of the Australasian Institute of Mining and Metallurgy.

Each has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("JORC Code"). Each consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.



# TENEMENT SCHEDULE (All tenements are in Western Australia)

# YANGIBANA PROJECT

Hastings Rare Metals Limited

E09/2084	100%
E09/2086	100%
E09/2095	100%
P09/480-482	100%
MLA09/157	100%
ELA09/2129	100%

Gascoyne Metals Pty Limited (100% subsidiary)

E09/1989	100%
E09/2007	100%
E09/1043	70%
E09/1049	70%
E09/1703-1706	70%
MLA09/159	70%

Karramindie Resources Pty Limited (95% subsidiary)

E09/1700	95%
E09/1943-1944	95%
E09/2018	95%
P09/467	95%
MLA09/158	95%

# **BROCKMAN PROJECT**

Hastings Project Holdings Pty Limited (100% subsidiary)

P09/1626-1635	100%
E09/4555	100%