

## ASX Release

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Issued Capital: 211.75 million shares

ASX Symbol: HAR

# Premium Quality Iron Ore Concentrates obtained from Metallurgical Testing at Selenge

Extremely positive metallurgical test results have confirmed the quality of the magnetite ore at the Selenge Project in Mongolia and represent a substantial progression of the Project.

- Coarse grind (75µm) Davis Tube Recovery (DTR) tests were completed on 469 composite (5m) samples representing the entirety of the iron mineralisation drilled thus far at the Bayantsogt Deposit, part of the Selenge Iron Ore Project.
- DTR tests were also completed on all zones of mineralisation drilled at the nearby Dund Bulag and Huiten Gol Prospects.
- All three deposit/prospects produced a consistent, premium quality magnetite concentrate with an average grade of over 65% Fe and very low average silica content:

	(80% passing / 5µm, 10% yield cutoff)												
	Average Fe		SiO2	S	Р								
Deposit	Mass Yield	(%)	(%)	(%)	(%)	(%)							
Bayantsogt	29.1%	65.77	3.25	0.96	1.03	0.02							
Prospects													
Dund Bulag	18.0%	65.15	5.34	1.32	0.18	0.00							
Huiten Gol	29.8%	68.78	1.90	0.41	0.01	0.01							

## Summary DTR Results – Average Concentrate Quality (80% passing 75µm, 10% yield cutoff)

- Contaminant levels are low, apart from sulphur at Bayantsogt. This can be floated, as it is primarily in pyrite, or blended with the nearby lower sulphur material.
- The concentrates produced are of excellent quality and would achieve a significant price premium.
- 75µm may not be necessary to achieve a saleable concentrate and DTR tests will be conducted at coarser grind sizes.
- Selenge's higher grade zones may be upgradable by simple dry magnetic separation (as at the nearby Eruu Gol mine) to allow earlier commercial production. Test work is planned.
- The 2012 drill program at Selenge has recently commenced.



## Selenge Project – Background

The Company's flagship Selenge iron ore project is located in the heart of Mongolia's premier iron ore development region with excellent access to the main trans-Mongolian rail line and nearby rail spurs.





Iron mineralisation has so far been identified at *four primary exploration targets* at Selenge, all lying within 10km of each other. All four targets are associated with large magnetite skarn hills and lie within a well defined structural corridor that contains the major iron ore deposits in the region, including nearby Eruu Gol. This mine currently exports approximately three million tonnes of magnetite concentrate per annum and ships the product via a newly constructed 75km rail spur to the main trans-Mongolian rail line. The 2011 drill program was concentrated at the Bayantsogt Deposit, the northernmost of the targets at Selenge, but first pass drilling was also conducted at the Dund Bulag and Huiten Gol Prospects.



Figure 2: Location of Iron Ore Targets at Selenge Project (within the Iron Mineralisation Corridor)



## Selenge Project Resource and Exploration Target Summary

The 2011 drill program at **Bayantsogt** yielded an initial inferred resource of **32.8Mt at an average grade of 24.4% Fe**, and included some significant higher grade zones as per the Table below.

Cutoff Grade (% Fe)	Tonnes (million)	Average Grade (% Fe)
15% Cutoff	32.8	24.4% Fe
20% Cutoff	21.6	27.5% Fe
25% Cutoff	11.4	32.4% Fe
30% Cutoff	5.4	38.5% Fe

## Table 1: Initial JORC Code (2004) Inferred Resource for Bayantsogt

This resource is based only on the first 35 holes drilled at Bayantsogt and the mineralisation remains open in all directions and at depth. Further extension and infill drilling during the 2012 drill season is expected to expand the resource and convert most of it to the JORC Measured and Indicated categories.

**Dund Bulag** is the largest of the magnetite skarn hills at Selenge, coincident with a magnetic anomaly over twice as large as Bayantsogt in area. Five holes were drilled along one cross section at Dund Bulag in 2011 with four of the five holes containing very wide iron intersections. An **exploration target\* of 120-250Mt** of ore has been set for Dund Bulag.



#### Figure 3: Dund Bulag Drill Plan shown over Magnetic Map

**Huiten Gol** was the third target to be drilled at Selenge in 2011. No exploration target has yet been set for this prospect, but the drilling intersected thinner (4-8m in apparent width), higher grade lodes of iron from surface that have potential for beneficiation by dry magnetic separation or even direct shipping without processing.

The magnetite skarn hill at **Undur Ukhaa** looks to be an adjunct of nearby Dund Bulag and will be drilled this year, as will a number of other smaller anomalies at Selenge that are yet to be ground checked. It is believed that at least some of these smaller anomalies will ultimately add to the total iron ore resource at Selenge.



## **Metallurgical Test Work Program and Results**

At the commencement of the metallurgical test work program, preliminary Davis Tube Recovery (DTR) tests were conducted by ALS Ammtec in Perth along with a detailed suite of mineralogical tests, including QEMSCAN, to ascertain basic properties of the minerals in the ore such as mineralogy, particle and grain size distribution, mineral associations and liberation characteristics.

The preliminary metallurgical test work suggested a coarse grind of 125 to 75 micron ( $\mu$ m) for optimal liberation of iron. **75µm was chosen in order to generate a conservative and consistent baseline study.** The full suite of DTR testing at 75µm grind (i.e. 80% passing 75µm) was conducted by ALS Alex Stewart Laboratories in Ulaanbaatar, Mongolia.

The DTR tests were conducted on 5m composite samples **encompassing every single metre of mineralised core drilled to date** at each of the three deposit/prospects. This exhaustive initial test program was planned in order to conclusively ascertain and model the beneficiation characteristics of the magnetite ore across the entire zone of drilled mineralisation because the ability (or otherwise) to beneficiate the ore had been identified as the crucial factor in the development of the Selenge project.

In total, 633 samples, each comprising 5m composites from the mineralised zones, were submitted for DTR analysis. The sample distribution by location was: Bayantsogt: 469 samples, Dund Bulag: 154 samples, Huiten Gol: 10 samples.

	Average	Average		Concentrate Quality - Average Assay Results											
Mass Yield	Mass	Raw Assay	Al <sub>2</sub> O <sub>3</sub>	CaO	Cr <sub>2</sub> O <sub>3</sub>	Fe	K <sub>2</sub> O	MgO	MnO	Na₂O	P	TiO <sub>2</sub>	SiO <sub>2</sub>	S	Zn
Cut Off	Yield (%)	Fe (%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
6%	25.13	27.84	1.02	1.60	0.02	65.10	0.10	0.45	0.08	0.06	0.022	0.37	3.63	1.10	0.005
8%	27.62	29.29	0.98	1.52	0.02	65.50	0.10	0.42	0.08	0.06	0.022	0.35	3.42	1.06	0.004
10%	29.11	30.09	0.96	1.45	0.02	65.77	0.10	0.41	0.08	0.06	0.022	0.34	3.25	1.03	0.004

## Table 2: Bayantsogt Deposit – Summary of DTR Results\*\* (80% passing 75µm)

#### Table 3: Dund Bulag Prospect – Summary of DTR Results\*\* (80% passing 75µm)

	Average	Average		Concentrate Quality - Average Assay Results											
Mass Yield	Mass	Raw Assay	$AI_2O_3$	CaO	$Cr_2O_3$	Fe	K₂O	MgO	MnO	Na₂O	Ρ	TiO₂	SiO <sub>2</sub>	s	Zn
Cut Off	Yield (%)	Fe (%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
6%	16.94	18.00	1.35	1.78	0.05	64.94	0.09	0.55	0.03	0.30	0.003	0.14	5.50	0.19	0.001
8%	17.46	18.22	1.35	1.75	0.05	64.97	0.09	0.55	0.03	0.31	0.003	0.14	5.47	0.18	0.001
10%	18.04	18.48	1.32	1.69	0.05	65.15	0.09	0.54	0.03	0.31	0.003	0.13	5.34	0.18	0.001

## Table 4: Huiten Gol Prospect – Summary of DTR Results\*\* (80% passing 75µm)

	Average	Average		Concentrate Quality - Average Assay Results											
Mass Yield	Mass	Raw Assay	$AI_2O_3$	CaO	$Cr_2O_3$	Fe	K <sub>2</sub> O	MgO	MnO	Na <sub>2</sub> O	Р	TiO <sub>2</sub>	SiO <sub>2</sub>	S	Zn
Cut Off	Yield (%)	Fe (%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
6%	25.64	25.15	0.82	0.60	0.02	66.19	0.04	0.48	0.05	0.11	0.010	0.91	3.96	0.04	0.001
8%	25.64	25.15	0.82	0.60	0.02	66.19	0.04	0.48	0.05	0.11	0.010	0.91	3.96	0.04	0.001
10%	29.76	27.70	0.41	0.29	0.01	68.78	0.01	0.30	0.02	0.04	0.006	0.31	1.90	0.01	0.001

The results confirm that the banded magnetite skarn mineralisation found at Selenge is amenable to straightforward beneficiation. The test work at all three Selenge locations produces a remarkably **consistent magnetite concentrate with an iron grade that generally averages over 65% Fe**. Contaminant levels are very low, the one exception being the 1% sulphur content in the Bayantsogt concentrate. 1% sulphur will typically result in an approximately 5% price penalty on magnetite concentrates in the domestic Chinese market, so this product remains highly saleable, but the mineralogy work found that this sulphur exists primarily in pyrite and thus should be easily removable by reverse flotation. A simpler solution might be to blend this material in with the nearby lower sulphur material in any future processing operation.



## Summary of the Met Test Results and Future Work

At a reasonably coarse 75µm grind, the DTR tests show that the ore at Selenge produces a premium quality magnetite concentrate that is not only highly saleable but will command a significant premium over standard specification domestic Chinese magnetite concentrates (Standard Spec: 61.5% Fe, 7% SiO<sub>2</sub>).

It is considered likely that a 75µm grind size is not necessary and that a coarser grind will also produce a saleable concentrate. DTR tests at coarser grind sizes will be conducted.

It is also believed that some of the higher grade zones at Selenge can be upgraded using simple 'crush and screen' followed by dry magnetic separation. This is the process used at neighbouring Eruu Gol, Mongolia's largest iron ore export mine. Beneficiating the higher grade zones close to surface at Selenge in this manner would allow for earlier commercial production. Further test work in this area is planned.

A preliminary scoping study and project valuation model based on the drilling and metallurgical test results completed thus far is currently being conducted by a third party consultancy firm and should be completed within one month.

The drill program at Selenge for the 2012 field season has commenced. Additional drill results should allow the existing resource inventory at Selenge to be greatly expanded and the metallurgical test results will ultimately allow future resource models to employ a yield cutoff and report to higher JORC classifications.

## Dr Robert Wrixon Managing Director Haranga Resources Limited

\* Exploration Targets are conceptual in nature and should not be construed as indicating the existence of a JORC Code compliant mineral resource. There is insufficient information to establish whether further exploration will result in the determination of a mineral resource within the meaning of the JORC Code.

\*\* DTR tests give theoretical yield results which need to be verified by pilot plant scale testing using bulk samples, the results of which may differ from the results presented here.

The information in this report that relates to Exploration Results is based on information compiled by Mr Kerry Griffin, who is a Member of the Australian Institute of Geoscientists. Mr Griffin has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Griffin is the Technical Director of Haranga Resources Limited and consents to the inclusion in this report of the matters based on his information, and information presented to him, in the form and context in which it appears.

The technical information contained in this announcement in relation to the JORC Compliant Resource for the Bayantsogt Deposit has been reviewed by Mr Peter Ball of DataGeo Ltd, who is a member of the Australasian Institute of Mining and Metallurgy. Mr Ball has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Mineral Resources and Ore Reserves'. Mr Ball consents to the inclusion in this report of the matters based on his information, and information presented to him, in the form and context in which it appears.