

Australian specialty metals project, Hastings Rare Metals attract Chinese investor interest.

Hitherto my focus on Australian Rare Earth deposits has been on either the Xenotime deposits of Northern Minerals and Spectrum or the more conventional Nolan's Bore deposit of Arafura Resources.

The other obvious Australian deposits are Lynas's Mount Weld mine and Hastings' Yangibana project. It is worth giving Hastings' deposit a review at this point as it is moving forward to the PFS stage.

Hastings, like many other Australian specialty metals projects, has attracted the interest of Chinese investors, though in this case they are Singapore Chinese.

Since 2013 Hastings has advanced the Yangibana Project from a brownfields exploration project based on 1980s drill results to an advanced exploration project with a Scoping Study having been published, initiated a Pre-Feasibility Study and the company is planning to commence the Bankable Feasibility Study over the next twelve months.

The Base of Support

Hastings strength at this time comes from having a strong shareholder base. Without such a base yet another REE company would be destined to flounder. Hastings has stood the test of time and got as far as it has due to this core shareholder group. The latest calculations of shareholder distribution show 29.8% in the hands of the Singapore group, another 5.2% held in Hong Kong, then 6.5% in the UK (a rather healthy and

high number for a REE player) and finally 58.5% held by Australian investors. In the total the top 20 shareholders hold 75% of the issued shares.

The Chairman, Charles Lew, is a Singaporean investment banker that heads a group called Equator Capital while one of the non-exec directors is Tony Ho, who is also a director of Bioxyne, Greenland Minerals, and Apollo Minerals.

Certainly having an Asian dimension on the share register is a step up for any REE company these days. As far as Europe goes, there is the London presence on the register and the stock trades sporadically on the Frankfurt Stock Exchange (under the ticker A1H79R).

Yangibana

Over recent years Hastings has established a significant tenement package covering approximately 650 sq km which it terms the Yangibana Project. The project is centred approximately 270km east-northeast of Carnarvon on Wanna Station in the Gascoyne region of Western Australia and is best accessed via Gascoyne Junction.

Hastings tenements now cover the bulk of the Gifford Creek Carbonatite Complex. The primary mineralisation targets within the Yangibana Project are narrow, discontinuously outcropping ironstone dykes related to this carbonatite complex. These ironstones are considered to be a younger phase which has cut across the carbonatite dykes, possibly leaching and upgrading Rare Earths (and base metals) from the older dykes.

The ironstone dykes have been shown to carry anomalous Rare Earths associated with monazite mineralisation. The carbonatite dykes themselves, along with the associated fenitic alteration, are considered to be sourced from an as yet undiscovered carbonatite intrusion which the company feels might have significant Rare Earth potential as well as possible base metal potential.



Previous exploration at Yangibana has included reverse circulation drilling at a number of prominent targets, and on the basis of this drilling a non-JORC resource of 3.5 million tonnes at 1.63%TREO was estimated by a previous explorer. The vast majority of this resource lies in the near surface oxidised zone. Below can be seen a cross-section of the Yangibana North part of the deposit with the Rare Earths being exceptionally near to the surface and indeed being in a relatively easily mineable band only ten metres in vertical thickness that outcrops at surface. This helps put Hastings in contention with some of the Xenotime deposits in Western Australia that are also at surface.



Beyond this proximity to the surface, the Rare Earths mineralisation contains unusually high neodymium values with its oxide, Nd_2O_3 , averaging 4000ppm or 25% of TREO.

Resource

Drilling in 2014 led to the definition of JORC resources totalling 6.79 million tonnes at 1.5% TREO including 0.35% Nd203.



The mix of REEs in the resource is as follows:



Metallurgical Results

Metallurgical test work in Kyspymet's Adelaide facilities have produce what the company feels are excellent results from flotation work with the target of producing a 20% TREO beneficiated concentrate at +90% recovery into only 7% of the original mass being achieved. Results from the neodymium-rich

Bald Hill South material have been deemed to be “particularly remarkable”.

The Plans

Hastings is rolling along towards a final mine plan and it is a metaphorical cast of thousands bringing good cheer to hard-pressed consultants in these times of thin-pickings. Consultants have been selected to provide input for a PFS on which work commenced early in 2015. The company wants a number of development options assessed and ranked during the PFS.

Beneficiated concentrate samples will be sent to the metallurgical test consultants, The Core group, for hydrometallurgical and then separation test work to be carried out during 2015. From this work Hastings will derive a process design that will enable the Lead Consultants, Tetra Tech Proteus, to undertake process plant design, plant drawings, and costings.

The environmental consultant, Ecoscape is organising the baseline environmental study for site. Ecoscape will also be assisting with native title negotiations, along with the tenement management consultants, Austwide.

As soon as the area is accessible, Hastings will undertake the required drilling programs to define the level of resources and the number of tonnes required to meet PFS requirements, and also undertake drilling to identify sufficient water supply for the proposed operation. Hydrological studies will be assisted by consultants ATC Williams.

Once updated resources are estimated, mining consultants Snowden will undertake pit optimisation and pit design (incorporating geotechnical and hydrological data), mine scheduling, equipment selection and capital and operating cost estimations for the mining section of the operation.

ATC Williams will assist Hastings with site selection for waste rock dumps, tailings storage facilities and infrastructure and will undertake all work necessary to ensure that these are planned to the highest level possible.

Tetra Tech Proteus will consolidate these into a final study report that will include its economic analysis of the project, its risk analysis and its outline for the requirements of the Bankable Feasibility Study. Therefore it looks like a PFS could be out in early 2016 and a BFS later in 2016.

Conclusion

There must be something in the Australian water that produces managements who want to move projects forward. Every company we know of in the Australian REE space is advanced in planning for their mine. Most have Asian partners of some sort. Meanwhile over in Canada the vast majority of REE plays have fallen by the roadside, have no strategic partner and either are not advanced at all or “too advanced” to the point that they have enough consultant reports to capsize a ship but no intention of moving to construction/production because they are waiting for that elusive beast (the Greater Fool) to be found to take it off their hands. Good luck with that one...

Unlike the other REE deposits in Australia, Hastings is working with a more conventional carbonatite with monazite and thus is more “apples to apples” with some of the North American deposits than with its closer competitors. What is most evident in stacking the company up against its North American peers is that it seems to be moving faster with its project than many others. The adage that the “race goes to the swift” still pertains. It will be interesting also to see when the PFS hits the streets if the various options being considered by the consultants includes one in line with my colleague, Jack Lifton’s theory of rightsizing of REE operations. *Watch this space.*

Hastings raises 6.5 million ahead of pre-feasibility study for Yangibana Project



Hastings Rare Metals Ltd. ('Hastings', ASX: HAS) owns, or has controlling interests in, two major rare earths (REE) projects in Western Australia: the Hastings Project and the Yangibana Project. Hastings has full ownership of the Hastings Project, which is developing a JORC resource, containing Dysprosium, Yttrium, Zirconium and Niobium among other rare earths. As for the Yangibana Project, Hastings maintains 70% control in a joint venture with Rare Earth Minerals PLC ('REM', LON: REM) and its deposits contain several critical demand REE's including neodymium.

Hastings has recently announced the raising of AUD\$ 6.5 million (with the possibility to raise an additional AUD\$ 2.5 million) through a share placement in support of its 70% joint venture partner REM to fund a prefeasibility study (PFS) for the Yangibana Rare Earths Project in the Gascoyne Region of Western Australia. The placement reflects the favorable results of an independent Scoping Study for Yangibana, which predicts excellent project economics based on relatively low capital investment and high returns in view of its potential to deliver a great variety of critical rare earths. The injection of funds allows for the Project to advance to the next development stages even as Hastings enjoyed a good cash position ahead of the placement.

The project is relatively inexpensive, given that it needs an

additional AUD\$ 390 million investment, while having an estimated value of around a billion dollars – which is what most rare earth projects cost. The PFS will provide a better assessment of the costs while including mining lease applications, mine engineering, processing, regulatory matters as well as environmental and social impact (relations with local indigenous populations) studies. Until the PFS is completed, a previous scoping study suggests that the Yangibana Project is rich in neodymium oxide, praseodymium, dysprosium oxide and europium oxide, which are some of the highest demand critical rare earths featuring high potential recovery rates.

Last November, Hastings, announced that Yangibana's JORC mineral resource had been increased from 45,000 tons of total rare earth oxides (TREO) to 103,000 tons (with grade improving from 1.34% TREO to 1.73% TREO). Moreover, the JORC update continued to show that the resource presents a high volume of high demand REE's including 23,500 tons of neodymium oxide, 6,500 tons of praseodymium oxide, 360 tons of dysprosium oxide and 625 tons of europium oxide.

At the 'Hastings Project', Hastings is targeting the eventual production of yttrium oxide, niobium oxide and zirconium oxide, making the Project very attractive for high technology companies looking to secure critical rare metal supplies outside of China – which, for the time being, remains the main, if not the only, producer of dysprosium. The high density of the HREE mineralization is especially significant given that europium, terbium, dysprosium and yttrium all have their own 'individual' markets. One of the most high demand HREE's is dysprosium and the historical metallurgical results from the Hastings resource pilot plant tests have yielded recoveries of around 75% for Yttrium and Dysprosium, 80% for Niobium and Zirconium.

The rare earth market is especially in Europe important because it does not have resources comparable to those in

North America, Africa or the former Soviet Bloc countries and Hastings has had the foresight to take advantage of an Australian trade mission to target the European market, which is in a scramble to secure reliable supplies of REE's. Hastings' mineralogy, moreover, is conducive to the delivery of a high grade beneficiation product, which will not require a large or very complex processing facility: the smaller the processing plant will be, the lower the capital costs (CAPEX) for comparable rare earth oxide (REO) output capacity. Indeed, the rare earth mineral at Hastings is xenotime, which is one of the minerals that can best be beneficiated into high grade mineral concentrates. Other minerals can also lead to good REO values but not as economically as xenotime, given lower grade and higher CAPEX for the same REO output with more by-product.