

ASX RELEASE | 9 APRIL 2025

# Heavy Rare Earths Dominant at Harts Range Project, Northern Territory

- ❖ Analysis of samples from Cusp and Bobs Prospects reveals a dominance towards high-value, Heavy Rare Earth Elements (HREE)
- ❖ Results highlighting up to 11.75% Dysprosium Oxide and 1.87% Terbium Oxide within the Total Rare Earth Element (TREO) mix
- ❖ US tariffs have resulted in China restricting exports of seven categories of medium and heavy rare earths—namely Samarium, Gadolinium, Dysprosium, Terbium, Lutetium, Scandium, and Yttrium-related items, commencing April 4, 2025<sup>10</sup>
- ❖ The demand for rare earth elements continues to grow due to their critical role in various industries including defence and high-tech industries:
  - The development of domestic supply chains by the US Department of Defence (DOD) to ensure continued access to rare earth materials needed for permanent magnets used in key U.S. military weapons

**New Frontier Minerals Ltd** (“New Frontier” or “the Company”) (**ASX: NFM**), is a mineral explorer and developer focussed on demand-driven commodities in Australia. The Company has undertaken rare earth distribution analysis of 25 rock chip samples from the primary Cusp and Bobs Prospects at the Harts Range Project, which is located 140km north-east of Alice Springs in the Northern Territory. The initial key findings show high-value, heavy rare earths in particular Dysprosium Oxide (11.75%) and Terbium Oxide (1.87%), underscoring substantial exploration potential.

## **NEW FRONTIER CHAIRMAN, GED HALL, COMMENTED:**

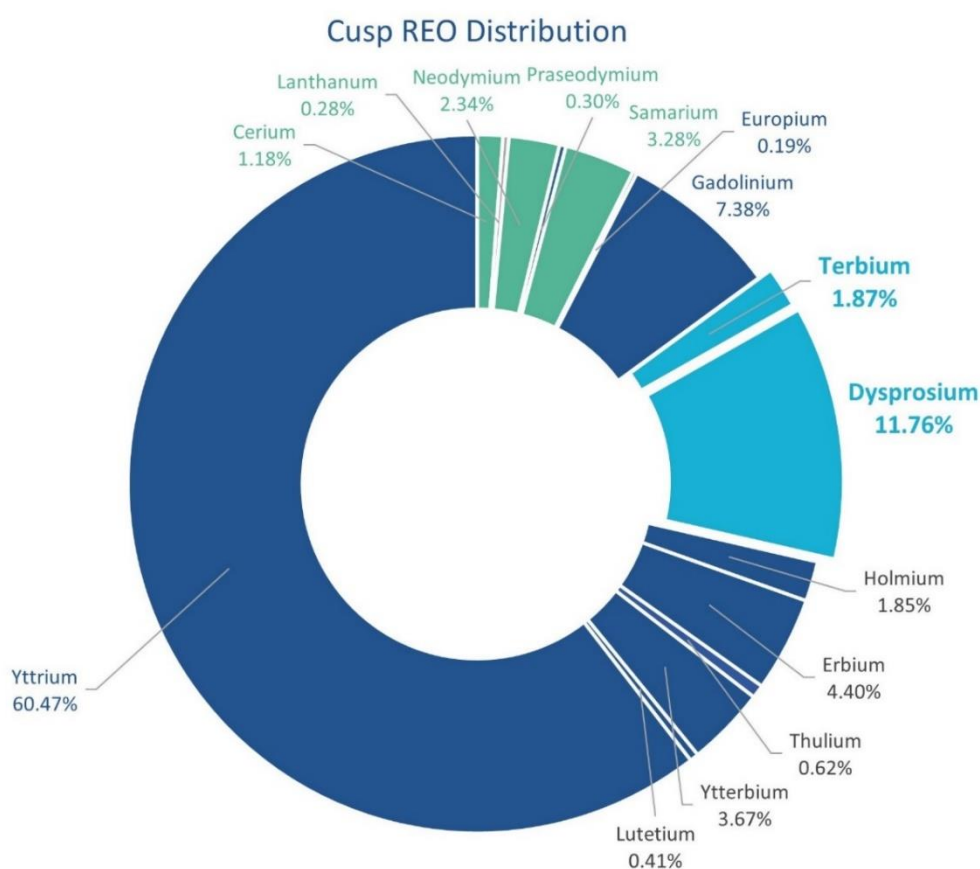
*“The initial analysis at the Cusp and Bobs Prospects of the Harts Range Project has revealed a strong dominance of heavy rare earth elements, in particular Dysprosium and Terbium, which is highly encouraging. China’s recent announcement to restrict the export of these critical heavy rare earths highlights the urgent need for alternative sources of supply.*

*These elements are essential for defence applications and are predominantly supplied and controlled by China, making their availability increasingly rare and strategically important. New Frontier is well-placed to seize this unique opportunity to explore and develop new sources of heavy rare earths at the Harts Range Project.”*

## Dominant Heavy Rare Earth Distribution

Rare earth distribution analysis was undertaken on 13 mineralised rock chip samples (Appendix A) from the outcropping pegmatite at the Cusp Prospect. Using a Rare Earth Oxide (REO) average of the 13 samples, analysis has confirmed the mineralisation at Cusp to be consistently skewed and dominant towards Heavy Rare Earths (HRE).

The rare earth sample distribution at Cusp is particularly rich in Dysprosium (11.76%,  $Dy_2O_3$ ) and Terbium (1.87%,  $Tb_4O_7$ ), with a rare earth basket that comprises over 92% heavy rare earth minerals (Figure 1). The combined Dysprosium and Terbium distribution at the Cusp Prospect makes up 13.63% of the total rare earth oxide (TREO) basket mix.



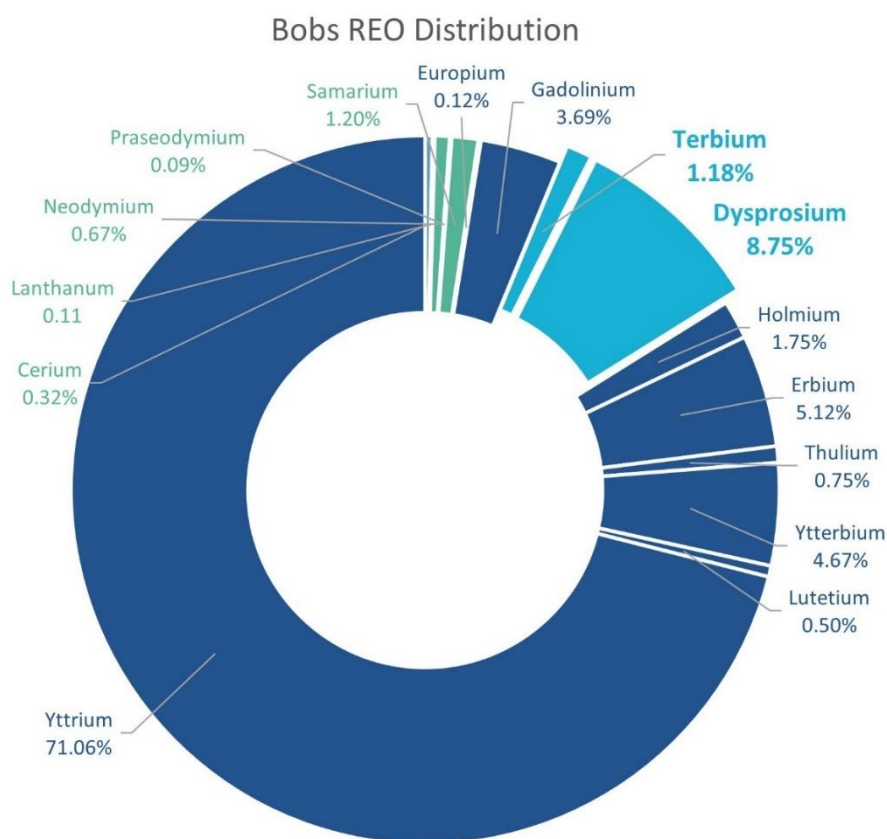
*Figure 1: Distribution of Dysprosium and Terbium rich mineralisation at Cusp Prospect*

Distribution analysis was also undertaken at the Bobs Prospect, using a Rare Earth Oxide (REO) average of 12 mineralised rock chip samples (Appendix A) from the outcropping pegmatites. Like Cusp, the distribution analysis at Bobs has confirmed a high concentration of Heavy Rare Earths (HRE) mineralisation, particularly rich in Dysprosium (Dy) and Terbium (Tb) (Figure 2).

The rare earth distribution at Bobs showed higher Yttrium (71.06%,  $Y_2O_3$ ) while still rich in heavy lanthanides Dysprosium (8.75%,  $Dy_2O_3$ ) and Terbium (1.18%,  $Tb_4O_7$ ). The overall heavy rare earth basket mix at Bobs was higher, comprising over 97% heavy rare earths.

The combined Dysprosium and Terbium distribution at the Bobs Prospect makes up 9.93% of the total rare earth oxide (TREO) basket mix.

The Bobs Prospect is located 1.6km along strike from Cusp and sits on the same major east-west trending structure, with similar mineralisation and geological setting.



*Figure 2: Distribution of Dysprosium and Terbium rich mineralisation at Bobs Prospect*



## Introduction to Rare Earth Elements

Rare earths are a group of 15 elements in the periodic table known as the Lanthanide series. They are categorised into Light Rare Earths (Lanthanum to Samarium) and Heavy Rare Earths (Europium to Lutetium)<sup>4</sup> but can also include Yttrium and Scandium.

Although rare earth elements are relatively abundant in the Earth's crust, their geochemical properties cause them to be widely dispersed. As a result, they are rarely found in economically viable concentrations. This scarcity of easily accessible deposits is what earned them the name "rare earths".

Rare earth elements are critical for technologies aimed at reducing emissions, lowering energy consumption, and improving efficiency, performance, speed, durability, and thermal stability. They also play a vital role in advancing technologies aimed at making products lighter and more compact<sup>4</sup>.

## Dysprosium and Terbium Rare Earth Prices

As of April 4, 2025, Shanghai Metals Market<sup>7</sup> have quoted the average market prices for Dysprosium and Terbium rare earths as follows:

Dysprosium (Metal):	US\$253.13/kg <sup>7</sup>
Terbium (Metal):	US\$983.45/kg <sup>7</sup>

## The Essential Role of Heavy Rare Earth Elements in Permanent Magnets

Heavy Rare Earth Elements (HREEs) are crucial for enhancing the performance of Neodymium-Iron-Boron (NdFeB) permanent magnets, which already rely on Light Rare Earth Elements like Neodymium (Nd) and Praseodymium (Pr).

The incorporation of Dysprosium (Dy) and Terbium (Tb) into NdFeB magnets significantly improves their coercive strength and increases resistance to demagnetisation at elevated temperatures<sup>2</sup>. This enables electric vehicle motors to operate at much higher temperatures compared to magnets lacking Dy and Tb. This capability is crucial for ensuring the efficiency and reliability of electric vehicles in diverse operating conditions.

## Global Demand for Dysprosium: Growth Outlook and Market Trends

The global demand for Dysprosium reached USD 1,002.2 million in 2024 and is anticipated to grow by 4.9% year-over-year in 2025, bringing total revenue to USD 1,054.3 million by the end of the year. Looking ahead, this demand is expected to surge to USD 1,750.3 million by 2035, with a compound annual growth rate (CAGR) of 5.2% during the forecast period from 2025 to 2035<sup>1</sup>.

The steady growth in demand for Dysprosium is driven by its increasing demand across a variety of industries. As a vital component in the production of high-performance magnets, Dysprosium plays a pivotal role in advancing technologies that are essential to modern industries.

Dysprosium is most widely used in Neodymium-Iron-Boron (NdFeB) magnets, which are critical for applications in Electric Vehicles (EVs), wind turbines, consumer electronics and other high-tech products.

As the demand for cleaner energy solutions and more efficient technologies grows, Dysprosium's role in driving these innovations is becoming more significant.

### **China's Dominance in Global HREE Supply and Refining Capacity**

China controls 90% of global rare earth processing capacity, including its HREE supply from Myanmar. It remains the dominant producer of Dysprosium Oxide and leads the world in refining capacity<sup>3</sup>.

China's control extends beyond production, as it also leads the world in refining capacity. With the exception of a small facility in Vietnam, China is the only country with operational Heavy Rare Earth Element (HREE) separation plants. Additional separation facilities outside of China include Iluka Resources' rare earth refinery which will have the capacity to process a variety of feedstocks, including those from third-party producers. Starting in 2027, Iluka will begin producing a range of rare earth oxides, including Neodymium, Praseodymium, Dysprosium, Terbium and others<sup>6</sup>.

It is expected that China will maintain its dominant position in the HREE supply chain, with only limited global diversification. Given China's disproportionate role in these critical raw materials and the lack of viable alternative heavy rare earth production facilities, many OECD countries are increasingly looking for alternative supply options.

The scarcity of significant heavy rare earth resources outside of China, combined with the global push to diversify away from Chinese dominance, has created a favorable outlook for the future of heavy rare earths. This presents a unique opportunity for New Frontier Minerals to explore and develop new heavy rare earth sources, particularly at its Harts Range Project.

### **The Critical Role of Permanent Magnets in Defence**

The U.S. Department of Defence (DOD) is advancing efforts to build domestic supply chains for rare earth materials, crucial for manufacturing permanent magnets used in key military systems. These magnets are vital for technologies like the F-35 aircraft, Virginia and Columbia-class submarines, and UAVs, as well as commercial applications such as radar and electrical generation systems<sup>8</sup> (Figures 3 and 4).

Rare earth magnets are used in various Defence systems, including Tomahawk missiles, radar systems, and smart bombs. The F-35 requires over 900 pounds of rare earth materials, while a Virginia-class submarine requires up to 9,200 pounds. These materials are also essential in other systems, such as vehicle-mounted laser rangefinders and sonar equipment<sup>8</sup>.

Defence applications represent a significant and growing portion of rare earth demand, particularly for heavy rare earth elements. Heavy rare earth elements (HREEs) such as Dysprosium, Terbium, and Yttrium are especially crucial for Defence applications, as they are key components in high-performance magnets, lasers, and aerospace technology. Due to their limited availability and strategic significance, these elements often fetch prices 5 to 10 times higher than light rare earths<sup>9</sup>.

Currently, the U.S. has limited domestic production, with only one active rare earth mine. The DOD aims to expand domestic capacity by investing in facilities for mining, separation, processing, and magnet

production. This effort is critical to reducing U.S. reliance on foreign sources, particularly China, and ensuring national security by securing a stable supply of rare earth materials.



*Figure 3: F-35 aircraft requires over 900 pounds of rare earth materials<sup>8</sup>*



*Figure 4: Virginia-class submarine, contains up to 9,200 pounds of rare earths<sup>8</sup>*



## ENDS

This announcement was approved for release by the Board of New Frontier Minerals Limited.

## REFERENCES

- 1) <https://www.futuremarketinsights.com/reports/dysprosium-market#:~:text=This%20demand%20is%20projected%20to,earth%20element%20across%20different%20industries.>
- 2) <https://www.arnoldmagnetics.com/wp-content/uploads/2017/10/Important-Role-of-Dysprosium-in-Modern-Permanent-Magnets-150906.pdf>
- 3) <https://globalwitness.org/en/campaigns/transition-minerals/fuelling-the-future-poisoning-the-present-myanmars-rare-earth-boom/>
- 4) <https://lynasrareearths.com/about-us/what-are-rare-earths/>
- 5) <https://www.adamasintel.com/new-report-rare-earth-magnet-market-outlook-to-2040/>
- 6) <https://www.iluka.com/operations-resource-development/resource-development/eneabba/>
- 7) <https://www.metal.com/Rare-Earth-Metals>
- 8) <https://www.Defence.gov/News/News-Stories/Article/Article/3700059/dod-looks-to-establish-mine-to-magnet-supply-chain-for-rare-earth-materials/>
- 9) <https://discoveryalert.com.au/news-article/defence-critical-materials-australia-strategy-2025/#:~:text=Defence%20applications%20represent%20a%20significant,batteries%2C%20and%20advanced%20electrical%20systems>
- 10) <https://www.reuters.com/world/china-hits-back-us-tariffs-with-rare-earth-export-controls-2025-04-04/>

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## About New Frontier Minerals

New Frontier Minerals Limited is an Australian-based focussed explorer, with a strategy to develop multi-commodity assets that demonstrate future potential as an economic mining operation. Through the application of disciplined and structured exploration, New Frontier has identified assets deemed core and is actively progressing these interests up the value curve. Current focus will be on advancing exploration activity at the Harts Range Niobium, Uranium and Heavy Rare Earths Project which is circa 140km north-east from Alice Springs in the Northern Territory.

Other interests include the NWQ Copper Project, situated in the copper-belt district circa 150km north of Mt Isa in Queensland and the Broken Hill Project in western New South Wales.

New Frontier Minerals is listed on the LSE and ASX under the ticker “NFM”.

## **Competent Persons Statement**

The scientific and technical information in this announcement, which relates to exploration results and the geology of the deposits described, is based on information compiled and approved for release by Mark Biggs. Mark Biggs is a Member of The Australasian Institute of Mining and Metallurgy (AusIMM Member # 107188) and meets the requirements of a Competent Person as defined by the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 Edition). Mark Biggs has 35 years of experience relevant to Rare Earth Elements (REE), industrial mineral copper mineralisation types, as well as expertise in the quality and potential mining methods of the deposits under consideration. Additionally, he has 25 years of experience in the estimation, assessment, and evaluation of exploration results and mineral resource estimates, which are the activities for which he accepts responsibility. He also successfully completed an AusIMM Online Course Certificate in 2012 JORC Code Reporting. Mark Biggs is a consultant with ROM Resources and was engaged by New Frontier Minerals Limited to prepare the documentation for several prospects, specifically those within the Harts Range Prospects upon which the Report is based.

Furthermore, the full nature of the relationship between himself and New Frontier Minerals Limited has been disclosed, including any potential conflicts of interest. Mark Biggs is a director of ROM Resources, a company that is a shareholder of New Frontier Minerals Limited, and ROM Resources provides occasional geological consultancy services to New Frontier Minerals Limited.

The Report or excerpts referenced in this statement have been reviewed, ensuring that they are based on and accurately reflect, in both form and context, the supporting documentation relating to exploration results and any mineral resource estimates. The release of the Report and this statement has been consented to by the Directors of New Frontier Minerals Limited.

## **Forward Looking Statements**

Certain information in this document refers to the intentions of New Frontier Minerals Ltd, but these are not intended to be forecasts, forward-looking statements or statements about future matters for the purposes of the Corporations Act or any other applicable law. The occurrence of events in the future is subject to risks, uncertainties and other factors that may cause New Frontier Minerals Ltd's actual results, performance or achievements to differ from those referred to in this announcement. Accordingly, New Frontier Minerals Ltd, its directors, officers, employees, and agents, do not give any assurance or guarantee that the occurrence of the events referred to in this announcement will occur as contemplated. The interpretations and conclusions reached in this announcement are based on current geological theory and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for complete certainty. Any economic decisions that might be taken based on interpretations or conclusions contained in this announcement will therefore carry an element of risk. The announcement may contain forward-looking statements that involve several risks and uncertainties. These risks include but are not limited to, economic conditions, stock market fluctuations, commodity demand and price movements, access to infrastructure, timing of approvals, regulatory risks, operational risks, reliance on key personnel, Ore Reserve and Mineral Resource estimates, native title, foreign currency fluctuations, exploration risks, mining development, construction, and commissioning risk. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this announcement. No obligation is assumed to update forward-looking statements if these beliefs, opinions, and estimates should change or to reflect other future developments.

## **ASX Listing Rule 5.23.2**

New Frontier Minerals Ltd confirms that it is not aware of any new information or data that materially affects the information included in this market announcement and that all material assumptions and technical parameters underpinning the estimates in this market announcement continue to apply and have not materially changed.



# APPENDIX A: JORC CODE, 2012 EDITION – TABLE 1

The following JORC Code (2012 Edition) Table 1 is primarily supplied to provide background for geological mapping, and rock chip sampling programs, mostly conducted by Barfuss Corporation and New Frontier Minerals Limited since October 2024.

No previous ASX releases have been made about the Harts Range Nb-U-REE Mineral Project.

## Section 1 Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
<b>Sampling techniques</b>	<ul style="list-style-type: none"> <li><i>Nature and quality of sampling (e.g. 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.</i></li> <li><i>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</i></li> <li><i>Aspects of the determination of mineralisation that are Material to the Public Report.</i></li> <li><i>In cases where 'industry standard' work has been done this would be relatively simple (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.</i></li> </ul>	<ul style="list-style-type: none"> <li>Surface samples were collected from approximately a 3m radius around the recorded coordinate location. The rock chip fragments that were collected to make up the sample included fragments that approximately ranged from 2-5cm and 0.2 - 3kg in weight. A total of twenty-eight (28) rock chip samples were collected in calico bags and were progressed for laboratory analysis (sample numbers range from HR419 to 510). Samples were collected from rock outcrops, soils, and occasionally mullock heaps in the vicinity of west to east trending pegmatite dykes. Many of the surface samples contained the U-bearing mineral samarskite.</li> </ul>
<b>Drilling techniques</b>	<ul style="list-style-type: none"> <li><i>Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).</i></li> </ul>	<ul style="list-style-type: none"> <li>Not Applicable – no exploration drilling results as none were drilled.</li> </ul>



<b>Drill sample recovery</b>	<ul style="list-style-type: none"> <li>• Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>• Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable – no exploration drilling results as none were drilled.</li> </ul>
<b>Logging</b>	<ul style="list-style-type: none"> <li>• 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.</li> <li>• Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>• The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>• Descriptions of the rock chip and soil samples are given in a table contained in Figure A1-1 of this CCZ's ASX Announcement dated the 14<sup>TH</sup> of October 2024.</li> <li>• Where appropriate strike and dip measurements were taken at several sites, additional to the twenty (28) rock chip sample sites. Measuring bedding is difficult because of the high metamorphically - disturbed rock types.</li> </ul>
<b>Subsampling techniques and sample preparation</b>	<ul style="list-style-type: none"> <li>• If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>• If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>• For all sample types, the nature, quality, and appropriateness of the sample preparation technique.</li> <li>• Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>• 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.</li> <li>• Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>• Of the sample collected about 0.3-2kg of rock chip were presented for analyses.</li> <li>• Assays were done by independent laboratory Ultra Trace Pty Ltd at Canning Vale Perth WA (now Amdel Limited) throughout 2007 and 2008. The samples were sorted and dried. Primary preparation was then by crushing the whole sample. The whole sample was pulverised in a vibrating disc pulveriser.</li> <li>• All samples were initially crushed to 4 mm then pulverised to 75 microns, with at least 85% passing through 75 microns. Standard sample preparation and analyses procedures were performed on all samples and are considered appropriate techniques.</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li>• The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>• 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.</li> </ul>	<p>Analytical Methods are described in detail as follows:</p> <p><b>Au, Pt, Pd</b></p> <ul style="list-style-type: none"> <li>• The samples have been analysed by firing a 40g (approx.) portion of the sample. This is the classical fire assay process and will give total separation of Gold, Platinum, and Palladium in the sample. These have been determined by Inductively</li> </ul>



	<ul style="list-style-type: none"> <li>• <i>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.</i></li> </ul>	<p>Coupled Plasma (ICP) Mass Spectrometry. The sample(s) have been digested with a mixture of acids including Hydrofluoric, Nitric, Hydrochloric and Perchloric Acids. This digest approaches a total digest for many elements however some refractory oxides are not completely attacked.</p> <ul style="list-style-type: none"> <li>• The mineral Cassiterite is not efficiently attacked with this digest.</li> <li>• If Barium occurs as the Sulphate mineral, then at high levels (more than 4000 ppm) it may re-precipitate after the digest giving seriously low results. Using this digest, some sulphur losses may occur if the samples contain high levels of sulphide.</li> </ul> <p><b>Cu, Zn, Co, Ni, Mn, P, Sc, V, Al, Ca, Na, K, S</b></p> <p>have been determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry.</p> <p><b>As, Ag, Ba, Be, Bi, Cd, Ga, Li, Mo, Pb, Sb, Sn, Sr, W, Y, La, Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, Th, U, Se, In, Te, Cs, Re, Ti</b></p> <ul style="list-style-type: none"> <li>• have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry. The samples have been fused with Sodium Peroxide and subsequently the melt has been dissolved in dilute Hydrochloric acid for analysis. Because of the high furnace temperatures, volatile elements are lost. This procedure is particularly efficient for determination of Major element composition (Including Silica) in the samples or for the determination of refractory mineral species.</li> </ul> <p><b>B, Cr, Si, Fe, Mg, Ti</b></p> <ul style="list-style-type: none"> <li>• have been determined by Inductively Coupled Plasma (ICP) Optical Emission Spectrometry.</li> </ul> <p><b>Ge, Ta, Hf, Zr, Nb, Rb</b></p> <ul style="list-style-type: none"> <li>• have been determined by Inductively Coupled Plasma (ICP) Mass Spectrometry.</li> </ul>
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		<ul style="list-style-type: none"> <li>The assay results were in line with previous rock chip and drilling results obtained since 2006 at Harts Range.</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>Independent Laboratory assaying by Ultra Trace has confirmed, within acceptable limits, the occurrences of high-grade Nb, U, and REE from the initial in field XRF readings. Laboratory standards and duplicates were used in accordance with standard procedures for geochemical assaying as noted below.</li> <li>It has met the recommended insertion rates for the company QAQC controls (standards, blanks) with an overall insertion rate of 20%. However, no field duplicates were included in the three (3) batches and is recommended that 3% be included in future sampling programs. Summary of QAQC insertion rates.</li> <li>Both the company standards and blanks were verified for elements Nb, U and Dy and returned results within 2 standard deviations (SD). Field duplicates are not present in the batch therefore were not reviewed.</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>The spatial location for the rock chips and soils collected during the 2006 and 2007 fieldwork were collected by handheld GPS (-/+ 5m accuracy) [MGA94 Zone53]: The table of reported rock chip locations and descriptions are given in throughout the ASX release and in Figure A1-1 (at the end of the section).</li> </ul>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>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.</i></li> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>The Harts Range licenses lie north-west of the Entia Dome and are underlain by the Harts Range Group (Harts Range Meta-igneous Complex), which predominantly consists of feldspar-biotite-amphibole-garnet gneisses. The Harts Range region at has undergone repeated and substantial crustal reworking between Proterozoic and Palaeozoic times and is now thought to represent an ancient and strongly altered/metamorphosed version of a continental collision zone.</li> </ul>



		<ul style="list-style-type: none"> <li>• Most of the observed mineralisation is related to a swarm of west to east and southeast-trending pegmatite dykes, with an anomalous occurrence of the U-bearing mineral samarskite.</li> <li>• At the Cusp Prospect, niobium-HREE-Tantalum identified in pegmatites running approximately east-west, up to 10 metres thick and over 70 metres long.</li> <li>• At Bob's Prospect niobium-HREE-Tantalum mineralisation in pegmatites trend east-west and is several metres thick and over 30 metres long, with similar geological setting to the Cusp Prospect.</li> <li>• 200m west of Bobs (Bobs West), outcropping pegmatite along the same orientation, hosted exclusively within felsic gneiss of the Irindina Gneiss. The pegmatite is semi-continuous for ~300m with a similar geological setting and has notably large green muscovite flakes present.</li> <li>• The Niobium Anomaly Prospect is another variant with high Niobium results but low in rare earths and uranium. Elevated radiometrics located with the scintillometer recorded 1,300 cps within a small historic pit at the top of a knoll. Anomalies appear to correlate with intrusions of porphyritic "granitoid" and granitic gneiss, which are geologically consistent with the pegmatites mapped at Bob's and the Cusp Prospects.</li> <li>• The Thorium Anomaly Prospect was previously located via airborne radiometric images. The radiometric anomalies are low order (10 to 20x background) compared to the spot anomalies at Bob's and Cusp (50-200x background). Anomalies appear to correlate with intrusions of porphyritic "granitoid" and granitic gneiss, which presumably are geologically features like the pegmatites at Bob's and the Cusp Prospects.</li> </ul>
<b>Orientation of data in relation to geological structure</b>	<ul style="list-style-type: none"> <li>• <i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></li> <li>• <i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have</i></li> </ul>	<ul style="list-style-type: none"> <li>• In general, the strata of the area surrounding the pegmatite dykes in the Harts Range Meta-Igneous Complex dip steeply (&gt;45 degrees) to the north and strike between east to southeast.</li> </ul>



	<p><i>introduced a sampling bias, this should be assessed and reported if material.</i></p>	<ul style="list-style-type: none"> <li>Rock chip samples were taken at areas of interest from observed mineralisation along and across strike of the line of lode of the mineralised pegmatite dyke (very generally east west tends, secondary structures, surrounding spoil heaps, and across the four (4) anomalous areas originally identified in the planning stage.</li> <li>However, no modern systematic exploration has been conducted, nor any of the mineralised prospects have ever been drilled.</li> </ul>
<b>Sample security</b>	<ul style="list-style-type: none"> <li><i>The measures taken to ensure sample security.</i></li> </ul>	<ul style="list-style-type: none"> <li>The rock chip samples taken during the historical fieldwork were securely locked within the vehicle on site until delivered to Alice Springs by the field personnel for despatch to the laboratory (Ultra Trace in WA) by courier.</li> </ul>
<b>Audits or reviews</b>	<ul style="list-style-type: none"> <li><i>The results of any audits or reviews of sampling techniques and data.</i></li> </ul>	<ul style="list-style-type: none"> <li>The sampling techniques and the data generated from the laboratory assay results have been peer reviewed by consultant geologists independent of Castillo Copper Limited (Audax Resources and ROM Resources) familiar with the overall Harts Range Project and deemed to be acceptable.</li> <li>No other external audits sampling techniques and data have yet been planned or undertaken.</li> </ul>





**FIGURE A1-1: HARTS RANGE PROJECT – VARIOUS SURFACE SAMPLES LOCATIONS AND DESCRIPTIONS**

Sample ID	Prospect Name	Easting	Northing	AHD	Type	Rock Type	Lab Job#	Niobium (Nb) %	Uranium (U) %	Yttrium (Y) %	Tantalum (Ta) %	Dysprosium (Dy) %	Terbium (Tb) %	Full Description
HR419	Cusp Prospect	507843.0	7447754.0	622.0	Grab sub-crop composite	PEG	U109728	17.5	10.1	5.6	9.3	1.1	0.18	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; weathered broken mass (ca. 10 fragments up to several cm diam.); in weathered extremely coarse mica zone on N side of quartz vein in core of E-W pegmatite
HR420	Cusp Prospect	507859.3	7447754.0	625.0	Sub-crop composite	PEG	U109728	1.1	0.2	16.0	0.9	0.0	0.05	MICA (weathered muscovite); weathered extremely coarse mica; on S side of quartz vein in core of pegmatite; same site as (radioactive) HR421
HR421	Cusp Prospect	507859.3	7447754.0	625.0	Sub-crop & float (near in situ) composite	PEG	U109728	22.7	11.0	6.9	5.5	1.6	0.24	SAMARSKITE (&/or similar): dense brittle blackish radioactive mineral, some platy; float on & sub-crop in weathered extremely coarse mica zone on S side of quartz vein in core of E-W pegmatite; some attached to



														quartz; same site as HR420
HR423	NB Anomaly	510122.0	7450655.0	592.0	Outcrop composite	PEG	U109728	1.3	0.018	0.029	n/a	0.004	<0.001	GRANITIC (-pegmatitic) DYKE: pink-grey m-coarse grained feldspar-quartz; ca. 0.5-1m band in gneiss.
HR424	NB Anomaly	510105.0	7450423.0	608.0	Channel (~2.5m) (rough) (selective)	AMP	U109728	1.3	0.007	0.015	0.008	0.003	<0.001	CHLORITE: ca. 2.5m-thick zone of extremely coarse pale greenish chlorite; inc. thin bands hornblende-actinolite rock & leucocratic gneiss/amphibolite (not sampled) (= attenuated equivalent of amphibolite-anorthosite + meta-ultramafic unit to NE, where it passes (here) through a thick epidote-rock zone)
HR425	NB Anomaly	510105.0	7450423.0	608.0	Channel (~2.5m) (rough) (selective)	AMP	U109728	1.3	0.003	0.006	0.001	0.001	<0.001	AMPHIBOLITE (& anorthosite): composite of thin bands of hornblende-actinolite rock & leucocratic gneiss/amphibolite, occurring in ca. 2.5m-thick zone of extremely coarse pale greenish chlorite (sample HR425) (= attenuated equivalent of amphibolite-anorthosite + meta-ultramafic)



														unit to NE, where it passes (here) through a thick epidote-rock zone)
HR480	Cusp Prospect	507834 .3	7447748 .5	620.0	Float (near in situ)	PEG	U10990 5	21.0	11.4	8.0	7.0	1.7	0.27	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; two fragments (larger up to 2-4cm) on soil cover along S side of quartz vein in pegmatite core
HR481	Cusp Prospect	507843 .5	7447749 .8	626.0	Scree/float composite (near in situ)	PEG	U10990 5	16.3	10.4	3.3	11.0	0.7	0.1	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; five fragments (ca. 1 cm) in soil cover along S side of quartz vein in pegmatite core
HR482	Cusp Prospect	507847 .7	7447751 .5	623.0	Grab (sub-crop)	PEG	U10990 5	23.2	12.1	8.6	5.9	1.9	0.29	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; one fragment (ca. 1-2 cm) in/on weathered coarse mica beneath soil cover along S side of quartz vein in pegmatite core
HR483	Cusp Prospect	507848 .8	7447751 .8	623.0	Grab outcrop composite	PEG	U10990 5	23.0	12.2	8.1	6.6	1.7	0.27	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; cluster of 14+ fragments (or broken weathered





														larger piece - ca. 10 cm) in weathered coarse mica beneath soil cover along S side of quartz vein in pegmatite core (trace reddish resinous betafite also at site - excluded from sample)
HR484	Cusp Prospect	507848.8	7447751.8	623.0	Grab outcrop composite	QUART Z	U109905	1.0	0.0	0.0	0.1	0.0	<0.01	QUARTZ: smoky grey quartz from pegmatite (or quartz vein) beside radioactive sample HR483 site
HR485	Cusp Prospect	507836.3	7447748.5	621.0	Float/sub-crop (in situ)	PEG	U109905	24.0	11.6	7.9	5.9	1.8	0.27	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; one fragment (ca. 1-2 cm) at base of soil, on weathered coarse mica along S side of quartz vein in pegmatite core
HR486	Cusp Prospect	507849.8	7447752.0	623.0	Float composite (near in situ)	PEG	U109905	0.206	0.112	0.074	0.041	0.016	0.0025	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; three fragments (ca. 1-3 cm) in soil cover along S side of quartz vein in pegmatite core
HR487	Cusp Prospect	507852.5	7447752.0	624.0	Grab (sub-crop)	PEG	U109905	20.0	11.2	8.3	5.2	1.8	0.27	SAMARSKITE (or similar): dense brittle blackish lustrous



														radioactive mineral; two fragments (ca. 1-2 cm) in weathered coarse mica beneath soil cover along S side of quartz vein in pegmatite core
HR488	Cusp Prospect	507854.5	7447752.5	629.0	Grab outcrop composite	QUART Z	U109905	19.4	11.3	7.8	4.7	1.7	0.26	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; cluster of 10+ fragments, most over 1cm (or broken weathered larger piece - ca. 5-10 cm) in chalky white feldspar, beside weathered coarse mica beneath soil cover along S side of quartz vein in pegmatite core
HR490	Cusp Prospect	507850.8	7447755.3	626.0	Float composite (near in situ)	PEG	U109905	18.0	11.3	7.3	6.3	1.5	0.24	SAMARSKITE (or similar): dense brittle blackish lustrous radioactive mineral; five fragments (ca. 1-2 cm) beneath soil, in/on contact of coarse mica zone and feldspar pegmatite rock; along N side of quartz vein in pegmatite core
HR499	Bobs Prospect	506312.0	7447586.0	-	Scree composite (2 frags, in soil, near in situ)	SMK	U115520	3.0	11.5	10.0	13.4	1.4	0.19	SAMARSKITE (or similar): dark grey black to red brown (slightly



														translucent) mineral; irregular crystalline fragments; with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly Radioactive
HR500	Bobs Prospect	506308.0	7447585.0	-	Scree composite (14 frags, below soil, in situ)	SMK	U115520	3.2	9.2	8.8	13.9	1.2	0.16	SAMARSKITE (or similar): dark grey black to red brown (translucent) mineral; irregular crystalline fragments, mostly < ca. 1cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly Radioactive
HR501	Bobs Prospect	506306.5	7447584.5	-	Scree composite (11 frags, in soil, near in situ)	SMK	U115520	3.1	10.6	9.2	14.7	1.2	0.17	SAMARSKITE (or similar): dark grey black to red-brown mineral; irregular crystalline fragments, mostly < ca. 1.5cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly Radioactive
HR502	Bobs Prospect	506304.0	7447583.5	-	Scree composite (12 frags, below soil, in situ)	SMK	U115520	3.1	10.0	9.2	13.5	1.2	0.17	SAMARSKITE (or similar): dark grey black to red brown (translucent) mineral; irregular crystalline



														fragments, mostly < ca. 1cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly. Radioactive
HR503	Bobs Prospect	506296.0	7447580.0	-	Float composite (7 frags, in soil, near in situ)	SMK	U115520	3.3	11.2	11.1	14.7	1.5	0.21	SAMARSKITE (or similar): dark grey black to red brown (translucent) mineral; irregular crystalline fragments, mostly < ca. 1cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly. radioactive; inc. flattish tabular "lozenge"-shaped crystals; + one fragment ca. 4cm diam.
HR504	Bobs Prospect	506294.0	7447578.5	-	Scree composite (18 frags, below soil, in situ)	SMK	U115520	3.2	10.5	9.9	14.0	1.3	0.19	SAMARSKITE (or similar): dark grey black to red-brown mineral; irregular crystalline fragments, mostly < ca. 1.5cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly. Radioactive
HR505	Bobs Prospect	506292.5	7447578.0	-	Float composite (3 frags, in soil, near source)	SMK	U115520	3.4	11.1	10.9	14.3	1.5	0.22	SAMARSKITE (or similar): dark grey-black mineral;





														irregular crystalline fragments, few very small fragments only (< 2-4 mm); with surface coating of light greenish yellow tan oxidation; strongly radioactive
HR506	Bobs Prospect	506289.5	7447575.5	-	Float composite (3 frags, in soil, near in situ)	SMK	U115520	3.2	11.7	11.1	14.2	1.5	0.18	SAMARSKITE (or similar): dark grey-black mineral; irregular crystalline fragments, few very small fragments only (< 2-6 mm); with surface coating of light greenish yellow tan oxidation; strongly radioactive
HR507	Bobs Prospect	506294.0	7447576.0	-	Float composite (3 frags, in soil, may be from HR509 site)	SMK	U115520	3.3	11.9	10.2	14.0	0.1	0.18	SAMARSKITE (or similar): dark grey-black mineral; irregular crystalline fragments, few very small fragments only (< 2-4 mm); with surface coating of light greenish yellow tan oxidation; strongly radioactive (may be lag from HR509 site)
HR508	Bobs Prospect	506295.0	7447576.0	-	Float composite (3 frags, in soil, may be from HR509 site)	SMK	U115520	3.4	11.3	11.4	14.9	1.5	0.21	SAMARSKITE (or similar): dark grey-black mineral; irregular crystalline fragments, few small fragments



														only (< 2-4 mm); with surface coating of light greenish yellow tan oxidation; strongly radioactive (may be lag from HR509 site)
HR509	Bobs Prospect	506295.0	7447577.0	-	Scree composite (9 frags, below soil, in situ)	SMK	U115520	3.1	12.7	10.5	14.5	1.5	0.19	SAMARSKITE (or similar): dark grey black to red-brown mineral; irregular crystalline fragments, mostly < ca. 1.5cm (not broken); with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly Radioactive
HR510	Bobs Prospect	506298.5	7447578.0	-	From weathered sub-crop, 21 frags; in situ	SMK	U115520	2.9	12.6	10.0	12.3	1.5	0.19	SAMARSKITE (or similar): dark grey black to red-brown mineral; irregular crystalline fragments, mostly < ca. 1cm (not broken); in weathered pegmatite; with surface coating (1-3mm) of light greenish yellow tan oxidation; strongly radioactive (fragments embedded in pegmatite also found here - not included in sample)

Source: Barfuss Corporation (Reference 1)



FIGURE B1-1: SAMPLE DESCRIPTIONS					
Sample ID	Easting	Northing	Location	Samarskite Estimate %	Description
HRS001	506304	7447586	Bobs	0-1	Grey, dense pegmatite. Fine grain texture comprised of quartz, microcline feldspar and muscovite, ~1cm wide rock chip samples. Varying degree of radiation ranging between 15-100 mSv. Samples collected from ~1foot deep into weathered pegmatite
HRS002	506296	7447583	Bobs	0-5	Grey, dense pegmatite. Fine grain texture comprised of quartz, microcline feldspar and muscovite ~1cm wide rock chip samples. Varying degree of radiation ranging between 15-100 micro mSv. Additional dense and dark minerals, metallic lustre, ~ 0.5cm, ranging between 15-100 mSv. Samples collected from ~1foot deep into weathered pegmatite.
HRS003A	507859	7447753	Cusp	2-15	Samarskite pegmatite. Hard black minerals, metallic lustre. Very dense. Ranging in size from 0.5cm-4cm. Ranging in radiation from 20-100 mSv. Samples collected using geo pick from fresh pegmatite. *Mineralised crystal sample present in quartz. Hand specimen ~4cm. Image attached.
HRS003B	507860	7447755	Cusp	Nil	Pegmatite, appears unmineralised.
HRS004	507859	7447754	Cusp	1-10	Samarskite pegmatite. Hard black minerals, metallic lustre. Very dense. Ranging in size from 0.5cm-4cm. Ranging in radiation from 20-100 mSv. Samples collected using geo pick from fresh pegmatite.

Notes: Coordinates in MGA94Z53S

Source: NFM geology team



FIGURE B1-2: TREO RESULTS

		FP6/MS																		TREO (ppm)
	Description	Ag	Th	U	Ce	La	Y	Dy	Er	Eu	Gd	Ho	Lu	Nd	Pr	Sm	Tb	Tm	Yb	
Sample ID		ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	
HRS001	Pegmatite	<2	11,061	114,346	485	233	93,860	13,498	7,419	184	5,642	2,535	782	1,073	142	1,807	1,715	1,127	7,175	
Bobs																				
	Avge. Element		11,061	114,346	485	233	93,860	13,498	7,419	184	5,642	2,535	782	1,073	142	1,807	1,715	1,127	7,175	
	Avge.Oxide				595	273	119,193	15,492	8,483	213	6,503	2,904	889	1,252	172	2,883	2,018	1,287	8,170	170,328
HRS002	Pegmatite	<2	10,794	119,047	429	115	108,080	14,212	7,841	189	6,136	2,678	841	1,032	118	1,954	1,845	1,203	7,777	
HRS002D	Duplicate	<2	10,559	117,776	437	116	106,972	14,359	,791	219	6,148	2,693	834	1,046	119	1,974	1,855	1,186	7,565	
Bobs																				
	Avge. Element		10,677	118,411	433	116	107,526	14,285	7,816	204	6,142	2,686	838	1,039	118	1,964	1,850	1,195	7,671	
	Avge.Oxide				531	136	136,547	16,395	8,937	236	7,079	3,077	953	1,212	143	3,134	2,176	1,364	8,735	190,655
HRS003A	Samaskarite	14	11,440	85,639	2,201	684	56,791	11,220	4,077	164	7,309	1,687	344	3,013	426	3,429	1,756	559	3,334	
Cusp																				
	Avge. Element		11,440	85,639	2,201	684	56,791	11,220	4,077	164	7,309	1,687	344	3,013	426	3,429	1,756	559	3,334	
	Avge.Oxide				2,704	802	72,119	12,877	4,663	189	8,424	1,933	391	3,514	514	5,473	2,066	638	3,797	120,105
HRS003B	Pegmatite	<2	81	614	12	3	438	80	29	1	53	12	3	20	3	24	13	4	25	
Cusp																				
	Avge. Element		81	614	12	3	438	80	29	1	53	12	3	20	3	24	13	4	25	
	Avge.Oxide				15	4	556	92	33	1	61	14	3	23	3	39	15	4	28	891
HRS004	Samaskarite	12	9,652	72,383	716	61	48,979	9,861	3,590	144	6,319	1,517	309	2,024	212	2,829	1,525	492	2,964	
Cusp																				
	Avge. Element		9,652	72,383	716	61	48,979	9,861	3,590	144	6,319	1,517	309	2,024	212	2,829	1,525	492	2,964	
	Avge.Oxide				880	72	62,199	11,317	4,105	167	7,283	1,737	351	2,361	257	4,514	1,794	562	3,375	100,973



Notes: Coordinates in MGA94Z53S  
Source: NFM geology team

Prospect	Sample ID	Easting	Northing	Date Collected	Description	Radioactivity (µS)
Dune	HRS006	510106	7450427	19/11/24	amphibolite schist.	0.4
	HRS007	510122	7450655	19/11/24	Granite/pegmatite	-
Cusp North	HRS008	507726	7448141	19/11/24	Felsic schist, copper enriched	-
	HRS009	507730	7448076	19/11/24	Felsic schist, copper enriched	-
	HRS010	507737	7448047	19/11/24	Felsic schist	-
Cusp	HRS011	507848	7447749	19/11/24	Biotite pegmatite	-
	HRS012	507848	7447755	19/11/24	Muscovite pegmatite	-
Bobs North	HRS013	505947	7448424	20/11/24	Biotite pegmatite, copper enriched	-
Bobs West	HRS014	506097	7447593	20/11/24	Muscovite pegmatite, 2% K from PXRF	1.5
	HRS015	506104	7447590	20/11/24	Muscovite pegmatite, 6% K from PXRF	
Big Jay	HRS016	506736	7445987	21/11/24	Pegmatite	0.50
	HRS017	506775	7445989	21/11/24	Pegmatite	0.70
	HRS018	506686	7445972	21/11/24	Pegmatite	0.50





## Section 2 Reporting of Exploration Results

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

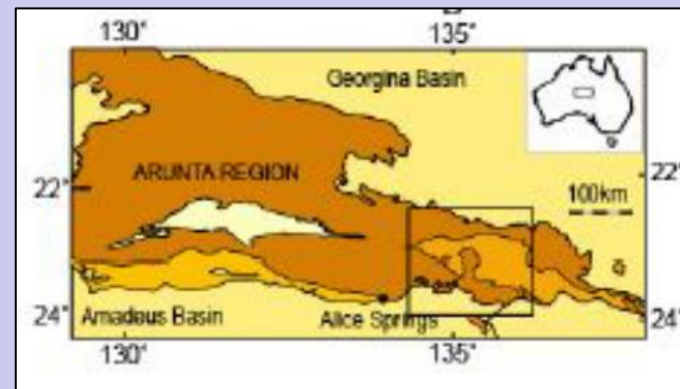
Criteria	JORC Code explanation	Commentary
<b>Mineral tenement and land tenure status</b>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>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. in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The Harts Range Project lies in the south-east of the Northern Territory, roughly 120 kilometres north-east of Alice Springs. Two granted tenements (EL 32046 and 32513) comprising a total 110 km<sup>2</sup> tenement package is located near essential infrastructure and accessible via the Plenty Highway.</li> <li>A check on the tenures status was completed in the NTGS system 'Strike' on the 10 of October 2024, to validate the currentness of the exploration areas. All are current.</li> <li>The region is serviced by excellent roads (Stuart Highway), train (the famous Ghan rail) and bus links connect the area.</li> <li>Domestic and some international flights are available from Alice Springs (1 hour drive south of Harts Range) while all international flights are available direct from Darwin.</li> <li>As a major regional centre, the town of Alice Springs provides public and private schools. There are churches, supermarkets, speciality shops, hotels, motels, cafés &amp; restaurants, medical centres.</li> <li>There is a professional police and emergency services presence throughout the area. Local professional and trade services support the community and the mining industry. Mobile phone and internet access are good.</li> </ul>



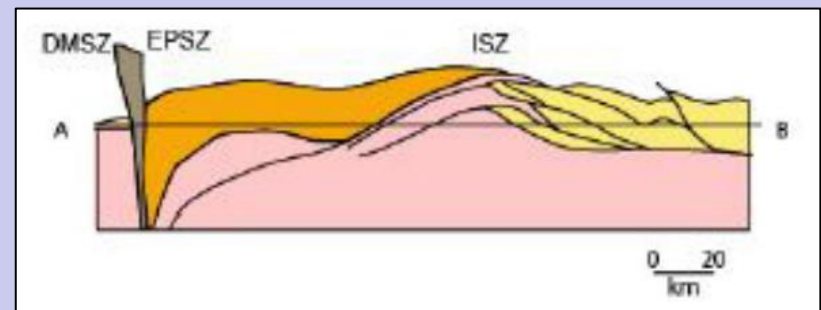
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>• <i>Acknowledgment and appraisal of exploration by other parties.</i></li> </ul>	<ul style="list-style-type: none"> <li>• Historical “Strike”-based mineral exploration reports have been reviewed for historical tenures that cover or partially cover the Project Area in this announcement. Federal and State Government reports supplement the historical mineral exploration reporting (QDEX open file exploration records).</li> <li>• Most explorers were searching for either Cu-Au-U, gemstones, or industrial minerals in the 1990’s, and proving satellite deposit style extensions to the several small subeconomic uranium or copper deposits.</li> <li>• The project is flanked by Independence Group (IGO) to the north, south and west. IGO is exploring for a raft of critical battery minerals.</li> </ul>
<b>Geology</b>	<ul style="list-style-type: none"> <li>• <i>Deposit type, geological setting, and style of mineralisation.</i></li> </ul>	<b>Regional Geology</b> <ul style="list-style-type: none"> <li>• The Harts Range Niobium, Uranium-Heavy Rare Earth Project lies north-west of the Entia Dome (Figure A2-1) and is underlain by the Harts Range Group (Harts Range Meta-igneous Complex), which predominantly consists of feldspar-biotite-amphibole-garnet gneisses.</li> <li>• The Harts Range region has undergone repeated and substantial crustal re-working between Proterozoic and Palaeozoic times. As a result, it is now believed to represent an ancient and strongly altered/metamorphosed version of a continental collision zone.</li> <li>• Magnetotellurics data interpreted by a team consisting of Adelaide University and NTGS geologists (Selway et al, 2006) suggests the Entia Dome system is a deep-crustal feature that can be shown extending to the mantle.</li> <li>• The below maps (Figures A2-2 and A2-3) show a traverse through the Arunta from north to south and skirted around the dome to the east and highlighting a major subduction zone to the north of the dome. The latter diagram shows the distribution of regional stratigraphic units.</li> </ul>



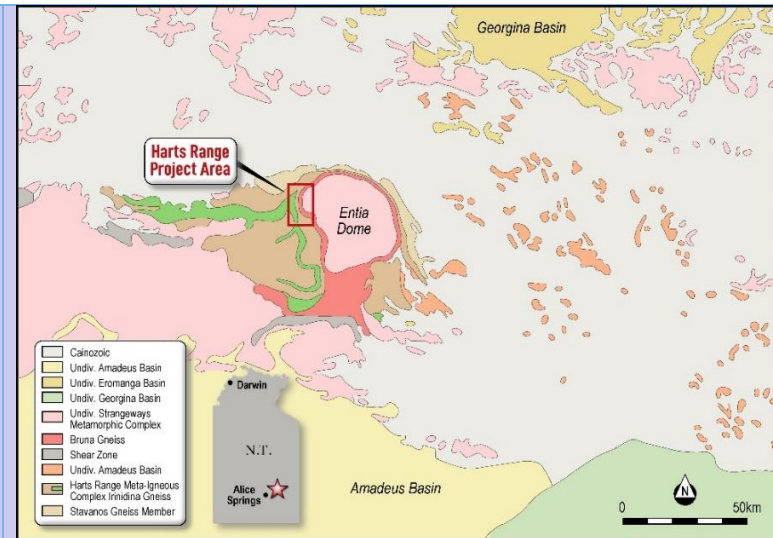
**FIGURES A2-1: REGIONAL STRUCTURE PLAN**



**FIGURE A2-2: WEST TO EAST REGIONAL CRUSTAL CROSS-SECTION**



**FIGURE A2-3: REGIONAL GEOLOGY**



### Local Geology

- The main rock types mapped and sampled at various REE Prospects include:
  - Biotite Schist/Granofels: brown-blackish biotite-rich rock; thin (5-10cm) poorly exposed zone on N side of ~6m thick unit/zone of similar rock (e.g. HR398, HR399 sites) (on N side of HR399).
  - Pegmatite, apatite-bearing: scree frags near W end of E-W pegmatite, near intersection with north-south calcite vein; very coarse-grained feldspar-quartz with common coarse apatite - pale semi-translucent slightly greenish (rare honey-brown) blocky/tabular/hexagonal, some intergrown with feldspar/quartz.
  - Garnet-Cummingtonite rock: coarse-grained rock; with abundant interstitial pale greenish malachite-magnesite material; small patch of sub-crop amongst scree.
  - Gneiss: weathered, moderately banded, fine-to-medium grained quartz-feldspar-hornblende-garnet; some



		<p>coarser quartz-garnet rock; some brown haematite on fractures; sample below HR444.</p> <ul style="list-style-type: none"> <li>○ Ultramafics: slightly weathered medium grained, greenish/brownish amphibole/olivine-dominated meta-ultramafic.</li> <li>○ Amphibolite: grey fine-grained hornblende -quartz rock; (approx. adjacent rough channel samples: HR461 (1m) above HR462 (3m) above HR463 (3m) above HR464 (1m)).</li> <li>○ Samarskite (or similar), being a dense brittle blackish lustrous radioactive mineral; cluster of 10+ fragments, most over 1cm (or broken weathered larger piece - ca. 5-10 cm) in chalky white feldspar, beside weathered coarse mica beneath soil cover along southern side of quartz vein in a pegmatite core.</li> </ul>
<b>Drillhole Information</b>	<ul style="list-style-type: none"> <li>• 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: <ul style="list-style-type: none"> <li>○ easting and northing of the drill hole collar</li> <li>○ elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar</li> <li>○ dip and azimuth of the hole</li> <li>○ down hole length and interception depth</li> <li>○ hole length.</li> </ul> </li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Not Applicable – no exploration drilling results presented.</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <li>• In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>• 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.</li> </ul>	<ul style="list-style-type: none"> <li>• Independent Laboratory Assay results for the 28 rock chip samples from various Harts Range Prospects were averaged if more than one reading or determination was given. There was no cutting of high-grade REE results as they are directly relatable to high grade mineralisation styles readily visible in the relevant samples.</li> <li>• There were no cut-off grades factored into any reporting of the laboratory assay results.</li> </ul>





	<ul style="list-style-type: none"> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul style="list-style-type: none"> <li>The 2006-7 rock chip and soil samples were taken at areas of interest from observed mineralisation along the line of lode of the mineralised pegmatite dyke, secondary structures, and surrounding spoil heaps. Twenty-one (21) rock chip samples collected from rock faces and/or outcrops.</li> <li>Eight (8) rock chip samples collected from stockpiles, shaft waste piles, and/or boulders of rock onsite.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Appropriate diagrams are presented in the body and the Appendices of the current ASX Release. Where scales are absent from the diagram, grids have been included and clearly labelled to act as a scale for distance.</li> <li>Maps and Plans presented in the current ASX Release are in MGA94 Zone 53, Eastings (mN), and Northing (mN), unless clearly labelled otherwise.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced avoiding misleading reporting of Exploration Results.</li> </ul>	<ul style="list-style-type: none"> <li>Rock chip samples were taken at areas of interest from observed mineralisation along the line of lode of the mineralised pegmatite dyke, secondary structures, surrounding spoil heaps, and to the north and south of the line of lode to check the validity of the defined four (4) anomalous map areas.</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>The area is covered by regional airborne government and private radiometric, gravity, magnetic, and hyperspectral surveys. Unfortunately, other than the 2006 radiometric ground survey, no other ground surveys have been undertaken.</li> <li>Substantial historical and current ground geochemical (stream sediment, soil, and rock chip samples have been undertaken and two episodes of shallow drilling, mostly for industrial</li> </ul>



		minerals (gemstones and vermiculite) by the owners of the leases, since 2006.
<b>Further work</b>	<ul style="list-style-type: none"> <li>• <i>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li>• <i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>○ A future exploration strategy should encompass the following steps in subsequent field programs:</li> <li>○ Reconnaissance mapping programs.</li> <li>○ Close-spaced radiometric geophysical surveys.</li> <li>○ Detailed mapping and rock chip sampling across prospects.</li> <li>○ Regional soil sampling campaigns.</li> <li>○ Mineral characterisation studies and petrological analysis.</li> <li>○ Target generation and prioritisation; and</li> <li>○ Exploratory drill-testing.</li> </ul>

