

# June 2022 start for Vital Metals to produce mixed rare earth carbonates with feed from its own mines

The rare earths sector has been doing very well lately, especially the highly valued magnet rare earths for which prices have doubled over the past year. Neodymium (Nd) and praseodymium (Pr) are the key magnet rare earths used commonly in electric motors. They also fall into the category of the 'light rare earths'. Another group of rare earths, known as the 'heavy rare earths', also have value. They include europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium and yttrium. Dysprosium (Dy) in particular is very valuable and is critically necessary for and used in alloys for neodymium based magnets subject to high temperature swings in operation.

Today's company is working towards becoming a North American producer of both light and heavy rare earths.

Vital Metals Limited (ASX: VML | OTCQB: VTMXF) (Vital) is a rare earths ore producer from their Nechalacho Rare Earths Mine in the Northwest Territories (NWT), Canada. Nechalacho has a measured, indicated and inferred resource of 94.7Mt at 1.46% REO for 1.3Mt contained TREO. The focus to date has been on the high-grade, light rare earths, found in the bastnaesite mineralization there.

Vital has off-take agreements with REEtec in Norway and with Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF) in the USA. In both cases, Vital is working with them to develop a qualified feed stock for them end at commercial scale. In some good recent news, offtake buyer, REEtec, signed a supply

agreement with Germany's large OEM automotive supplier, Schaeffler, thereby potentially securing Vital's revenue from the sale of its product to REEtec.

Vital is currently constructing a Saskatoon, Saskatchewan, based cracking and leaching facility, with first feed to the facility expected in June 2022. An additional C\$5 million of funding/reimbursement was recently achieved to help support the commissioning and ramp-up stage. Vital aims to produce a minimum of 5,000 tons annually of contained REO by 2025 at the Nechalacho Mine.

Vital Metals' Managing Director Geoff Atkins stated: "With production forecast to commence in June 2022, this will make Vital North America's only producer of high purity rare earth carbonate with feed from its own mines providing security of supply for the global rare earths supply chain."

### **Expansion into heavy rare earths**

As announced on April 29, 2022, Vital is now planning to expand their existing light rare earths mine operation to also include heavy rare earths. Vital plans to investigate developing a zone of xenotime mineralization, the principle heavy rare earth hard-rock mineral, at Nechalacho's North T pit, targeting a 10-year operation from the zone. Xenotime, is an yttrium phosphate mineral, and is the only known commercially feasible hard-rock source of dysprosium and terbium, which are the critical magnet rare earth additives for high temperature operations. As Vital stated: "Tardiff contains elevated heavy rare earths mineralization which may complement North T's xenotime deposit as part of Vital's strategy to produce heavy and light rare earths."

### **Next steps**

In 2022, in addition to commencing production at the Saskatoon facility and working on expanding into heavy rare earths, Vital plans further drilling at the Tardiff zone to define a

maiden Ore Reserve.

## **Vital Metals 3 stage strategy to become a North American producer of both light & heavy rare earths**

### **Stage 1: Foundations**

#### Nechalacho North T

- Demonstrate the ability to supply rare earth feedstock at specification critical for rare earth customer acceptance protocols.
- Generate positive cashflow to fund expansion.
- Operations at North T are continuing with approximately 5,000t of product to be transported to Saskatoon this year.

### **Stage 2: Expansion and Growth**

#### Nechalacho Tardiff

- Large-scale operation to provide long-term security to the rare earth supply chain capitalising off a 1 million contained ton rare earth resource.

#### Wigu Hill

- Expansion capability through an additional project.
- Large carbonatite (6km+ strike) with limited drilling.
- Multiple projects enable the flexibility to react quickly to changes in market demand and customer requirements.

### **Stage 3: Heavy Rare Earth Production – North T Xenotime**

#### North T Xenotime/Kipawa

- Enable Vital to be a 'one stop shop' for the supply of the full suite of rare earths.
- Only HREO project in the world able to meet US requirement for non Chinese heavy rare earths.
- Enables Vital to become the first producer of commercial quantities of both light and heavy rare earths.

*Source: Vital Metals March 2022 quarterly report*

## **Closing remarks**

Vital Metals continues to march forward at a rapid pace. In late June 2021 the Nechalacho mine came into production, notably being Canada's first-ever producing rare earths mine. Then only a year later in June 2022, the Saskatoon cracking and leaching facility's first production of a mixed rare earth carbonate is set to commence.

If that wasn't good enough the Company is now planning to also

produce heavy rare earths, also from the Nechalacho Mine. Once achieved Vital announced that they would become the “the world’s first producer of both heavy and light rare earth oxides.”

Vital Metals trades on a market cap of A\$204 million. Exciting times ahead.

---

## **Geoff Atkins discusses exceeding expectations in Vital Metals’ output of rare earths with Peter Clausi**

In a recent InvestorIntel interview, Peter Clausi spoke with Geoff Atkins, Managing Director of Vital Metals Limited (ASX: VML) about Vital Metals’ recent news release on redesigning the North T Pit at Vital’s Nechalacho Rare Earths Mine after the ore sorter exceeded expectations.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Geoff Atkins went on to say that Vital Metals’ Nechalacho ore sorter is now able to sort even lower grade materials allowing Vital to process significant quantities of material previously identified as waste. He went on to explain the unique nature of mineralization at the North T Deposit allowing Vital to classify ore and waste visually without having to send materials to a lab for assaying.

To watch the full interview, click here.

## **About Vital Metals Limited**

Vital Metals Limited is Canada's first rare earths producer following commencement of production at its Nechalacho rare earths project in Canada in June 2021. It holds a portfolio of rare earths, technology metals and gold projects located in Canada, Africa and Germany.

## **Nechalacho Rare Earth Project – Canada**

The Nechalacho project is a high grade, light rare earth (bastnaesite) project located at Nechalacho in the Northwest Territories of Canada and has potential for a start-up operation exploiting high-grade, easily accessible near surface mineralisation. The Nechalacho Rare Earth Project hosts within the Upper Zone, a JORC Resource of **94.7MT at 1.46% TREO** comprised of a Measured Resource of 2.9MT at 1.47% TREO, an Indicated Resource of 14.7MT at 1.5% TREO, and an Inferred Resource of 77.1MT at 1.46% TREO.

To learn more about Vital Metals Limited, [click here](#)

**Disclaimer:** Vital Metals Limited is an advertorial member of InvestorIntel Corp.

This interview, which was produced by InvestorIntel Corp., (IIC), does not contain, nor does it purport to contain, a summary of all the material information concerning the "Company" being interviewed. IIC offers no representations or warranties that any of the information contained in this interview is accurate or complete.

This presentation may contain "forward-looking statements" within the meaning of applicable Canadian securities legislation. Forward-looking statements are based on the opinions and assumptions of the management of the Company as of the date made. They are inherently susceptible to uncertainty and other factors that could cause actual events/results to differ materially from these forward-looking

statements. Additional risks and uncertainties, including those that the Company does not know about now or that it currently deems immaterial, may also adversely affect the Company's business or any investment therein.

Any projections given are principally intended for use as objectives and are not intended, and should not be taken, as assurances that the projected results will be obtained by the Company. The assumptions used may not prove to be accurate and a potential decline in the Company's financial condition or results of operations may negatively impact the value of its securities. Prospective investors are urged to review the Company's profile on Sedar.com and to carry out independent investigations in order to determine their interest in investing in the Company.

If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at [info@investorintel.com](mailto:info@investorintel.com).

---

## **Rare earths ore production continues to ramp up at Vital Metals' Nechalacho Mine**

In the rare earths' business junior miners need to work with off-take partners to find and meet very strict product qualification requirements. These are specialty products, especially when it comes to the high value magnet rare earths used in electric motors for electric vehicles (EV). All of this takes time.

What this means for investors is that it is wise to first

check a rare earths junior's partnerships and off-take relationships before investing. This is because the off-take partners will be very selective as they need a high spec product (low impurity, etc) and those juniors that have succeeded in securing off-take agreements are well on their way to success. The juniors still have to successfully ramp up their production of the 'at spec material', but if successful can then fully qualify their product and hence stand the best chance at progressing to larger scale production. The process can take years not months.

One company doing the above is Vital Metals Limited (ASX: VML) (Vital). Vital has an off-take agreement with REEtec in Norway and another with Ucore in the USA. In both cases, Vital is working with them to develop a qualified end product at commercial scale that can then be sold to end-use customers.

### **Rare earths ore production continues to ramp up at Vital's Nechalacho Mine**

Vital is already mining (lifting, crushing and sorting ore are performing well) at its Nechalacho' Mine in Canada's Northwest Territories (NWT). The Nechalacho Mine is a high grade, light rare earth (bastnaesite) project with a world class resource of 94.7Mt at 1.46% REO (M& I, and Inferred). Nechalacho's North T Zone hosts a high-grade resource of 101,000 tons at 9.01% LREO (2.2% NdPr) and is where mining from a starter pit began in 2021 (Stage 1). Stage 2 will involve the development of the much larger Tardiff deposit.

Further ore processing is to be done at Vital's, under construction, Saskatoon cracking and leaching facility once completed, with first product expected by June 2022. Vital aims to produce a minimum of 5,000 tons of contained REO by 2025 from the Nechalacho Mine.

**Construction is underway on Vital's rare earth extraction facility in Saskatoon. Dense Media Separator (right) to be**

**used in the extraction process**



Source: Vital Metals September 2021 Quarterly Report

Vital states: “More than \$120 million has been spent by previous owners on drilling, permitting and project development at Nechalacho, which includes a 40-person camp and airstrip. Vital aims to be the largest independent supplier of clean mixed rare earth feedstock outside China.”

### **Vital’s off-take agreements**

- Vital has a binding off-take agreement with Norwegian company REEtec for Stage 1 production with the supply of 1,000t REO (ex-Cerium)/yr for an initial five-year period. This was later increased to rare earth carbonate product containing a minimum of 750t NdPr, contained within 2,000t/year total rare earth oxides (TREO) with a maximum of 25% cerium. The amended agreement extends Vital’s product sales to REEtec to 2028 and provides the option to further expand operations during an additional 10 year long term supply agreement to provide up to 2,500t NdPr per annum contained within ~6,800 tonnes TREO (containing a maximum 25% cerium). It also means that the increase to 2,000t/year equates to 75% of Vital’s expanded Saskatoon plant capacity.
- Non-binding MOU with Ucore Rare Metals Inc. (TSXV: UCU |



OTCQX: UURAF) to sell to Ucore a minimum of 500t REO (ex-cerium)/year, commencing H1 2024. Vital to expand production to support a minimum of 50% of Ucore's envisioned 5,000t TREO/yr processing capability (ie: 2,500t TREO/yr) by 2026. Customer acceptance protocols will include the supply of a sample (1-2kg) in Q4 2021 and with a 1t sample supplied in H2 2022.

The reason for the small initial volumes is that it allows both parties to scale together. As I discussed in the opening paragraphs, it takes time for miners to scale production of a high spec qualified rare earths product and for off-takers to go through their acceptance testing. The positive for Vital is that the process has begun with their two off-take partners, and a pathway towards full production and sale has been mapped out.

### **Vital Metal's other projects**

Vital is acquiring the Zeus heavy rare earth project and 68% of the Kipawa Project in Canada, from Quebec Precious Metals Corporation, for C\$8 million, payable over 4 years. Vital also owns a second light rare earths project in Tanzania.

Vital states: "These projects have the potential to complement our light rare earths operations at Nechalacho and transform Vital into the only North American producer of both light and heavy rare earths."

### **Closing remarks**

Vital Metals is the first commercial scale rare earths producer in Canada and only the second in North America, since rare earth mining was revived earlier in this century. Production began on a small scale in mid 2021 with ore crushing and sorting at the Nechalacho' Mine in NWT, Canada. Further ore processing will begin to produce product from June 2022 from Vital's Saskatoon cracking and leaching facility.

Off-take qualification of a scaled up rare earths' product is ongoing with REEtec in Norway and with Ucore in the USA, but it can take up to 2 years. Vital will grow its production as its customers accept more qualified product. In other words, scale production with your customer, thereby being capital efficient in terms of Vital's capital outlay.

The pieces of the puzzle are all in place for Vital Metals to build a significant rare earths operation. Investors with a little patience should potentially be well rewarded this decade as demand for rare earths takes off.

Vital Metals trades on a market cap of A\$204 million.

---

## **Ucore's Pat Ryan on creating a modern rare earths' industrial processing company in North America**

In a recent InvestorIntel interview, Jack Lifton spoke with Pat Ryan, Chairman and CEO of Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF) about creating a modern rare earths' industrial processing company in North America and about Ucore's RapidSX™ technology for the separation and purification of rare earth elements.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), Pat Ryan explained how he is using his experience as the founder of a multi-million-dollar automotive OEM production part supplier company to develop an independent

North American rare earths supply chain for the electric vehicles market. He went on to provide an update on Ucore's RapidSX™ platform with extraction rates 10 times the industry standard solvent-extraction process. Pat also provided an update on how Ucore is ensuring sufficient feedstock for its Alaska Strategic Metals Complex including a feedstock supply MOU signed with Vital Metals Limited (ASX: VML).

To watch the full interview, [click here](#).

### **About Ucore Rare Metals Inc.**

Ucore is focused on rare- and critical-metals resources, extraction, beneficiation, and separation technologies with the potential for production, growth, and scalability. Ucore has a 100% ownership stake in the Bokan-Dotson Ridge Rare Earth Element Project in Southeast Alaska, USA. Ucore's vision and plan is to become a leading advanced technology company, providing best-in-class metals separation products and services to the mining and mineral extraction industry.

Through strategic partnerships, Ucore's vision includes disrupting the People's Republic of China's control of the US REE supply chain through the development of a total, light and heavy-rare-earth processing facility – the Alaska Strategic Metals Complex in Southeast Alaska and the long-term development of reliable sources of feedstocks outside of China's control.

To learn more about Ucore Rare Metals Inc., [click here](#).

**Disclaimer:** Ucore Rare Metals Inc. is an advertorial member of InvestorIntel Corp.

This interview, which was produced by InvestorIntel Corp., (IIC), does not contain, nor does it purport to contain, a summary of all the material information concerning the "Company" being interviewed. IIC offers no representations or warranties that any of the information contained in this

interview is accurate or complete.

This presentation may contain “forward-looking statements” within the meaning of applicable Canadian securities legislation. Forward-looking statements are based on the opinions and assumptions of the management of the Company as of the date made. They are inherently susceptible to uncertainty and other factors that could cause actual events/results to differ materially from these forward-looking statements. Additional risks and uncertainties, including those that the Company does not know about now or that it currently deems immaterial, may also adversely affect the Company’s business or any investment therein.

Any projections given are principally intended for use as objectives and are not intended, and should not be taken, as assurances that the projected results will be obtained by the Company. The assumptions used may not prove to be accurate and a potential decline in the Company’s financial condition or results of operations may negatively impact the value of its securities. Prospective investors are urged to review the Company’s profile on Sedar.com and to carry out independent investigations in order to determine their interest in investing in the Company.

If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at [info@investorintel.com](mailto:info@investorintel.com).

---

**Jack Lifton, Byron King and**

# Vital Metals' Geoff Atkins on the global rare earths market

In this episode of the Critical Materials Corner, Critical Materials' industry expert and InvestorIntel Editor-in-Chief Jack Lifton is joined by Critical Materials Corner Co-Host & InvestorIntel Columnist Byron King, and Geoff Atkins, Managing Director of Vital Metals Limited (ASX: VML) to discuss how Vital Metals plans to guarantee feedstock to the non-Chinese rare earths supply chain and about how a rare earths project is different from any other mining project.

In this InvestorIntel interview, which may also be viewed on YouTube (click here to subscribe to the InvestorIntel Channel), the panel discussed the high grades of neodymium and praseodymium found at Vital Metals' Nechalacho Rare Earths Project in Canada. With a growing push from the governments globally to establish rare earths supply chains outside of China, Geoff provided an update on Vital's off-take agreements signed with new separation facilities entering Europe and North America.

To watch the full interview, click here.

## **About Vital Metals Limited**

Vital Metals Limited is Canada's first rare earths producer following commencement of production at its Nechalacho rare earths project in Canada in June 2021. It holds a portfolio of rare earths, technology metals and gold projects located in Canada, Africa and Germany.

## **Nechalacho Rare Earth Project – Canada**

The Nechalacho project is a high grade, light rare earth (bastnaesite) project located at Nechalacho in the Northwest Territories of Canada and has potential for a start-up

operation exploiting high-grade, easily accessible near surface mineralisation. The Nechalacho Rare Earth Project hosts within the Upper Zone, a JORC Resource of **94.7MT at 1.46% TREO** comprised of a Measured Resource of 2.9MT at 1.47% TREO, an Indicated Resource of 14.7MT at 1.5% TREO, and an Inferred Resource of 77.1MT at 1.46% TREO.

To learn more about Vital Metals Limited, [click here](#)

**Disclaimer:** Vital Metals Limited is an advertorial member of InvestorIntel Corp.

This interview, which was produced by InvestorIntel Corp., (IIC), does not contain, nor does it purport to contain, a summary of all the material information concerning the “Company” being interviewed. IIC offers no representations or warranties that any of the information contained in this interview is accurate or complete.

This presentation may contain “forward-looking statements” within the meaning of applicable Canadian securities legislation. Forward-looking statements are based on the opinions and assumptions of the management of the Company as of the date made. They are inherently susceptible to uncertainty and other factors that could cause actual events/results to differ materially from these forward-looking statements. Additional risks and uncertainties, including those that the Company does not know about now or that it currently deems immaterial, may also adversely affect the Company’s business or any investment therein.

Any projections given are principally intended for use as objectives and are not intended, and should not be taken, as assurances that the projected results will be obtained by the Company. The assumptions used may not prove to be accurate and a potential decline in the Company’s financial condition or results of operations may negatively impact the value of its securities. Prospective investors are urged to review the

Company's profile on Sedar.com and to carry out independent investigations in order to determine their interest in investing in the Company.

If you have any questions surrounding the content of this interview, please contact us at +1 416 792 8228 and/or email us direct at [info@investorintel.com](mailto:info@investorintel.com).

---

## **The Post-COP26 World Looks To Australia For Future Non-Chinese Rare Earths Production**

To achieve U.N. climate change management goals the world needs to shift rapidly to clean energy, and that means we need to build or secure, reliable sources of rare earths. While the USA and Canada have made some progress in this direction, Australia will also be needed to play a key role.

When looking at a chart of rare earths reserves by country, China shows the largest reserves followed by Vietnam, Brazil, Russia, India, and Australia, in that order. The USA is ranked 8th and Canada is outside of the top ten. Given Australia's stellar track record as a reliable supplier of raw materials, it should not be surprising to know that the West is looking towards Australia to step up production of rare earths, especially those needed to support the surging cleantech sectors of electric vehicles, wind energy, and solar energy.

ClearWorld.us says it well, stating:

“Renewable energy development relies upon sufficient quantities of rare earth minerals, specifically neodymium, terbium, indium, dysprosium, and praseodymium. These are used in the production of solar panels and wind turbines. **If the world is to meet the greenhouse gas emissions targets sought in the Paris Climate Agreement the availability of these minerals must increase by 12 times by 2050.**”

*(Emphasis by the author.)*

**Rare earths are key elements in the cleantech revolution**



**Australian listed rare earths companies:**

***Producers***



## **Lynas Rare Earths Limited (ASX: LYC) (“Lynas”)**

Lynas is the second largest neodymium and praseodymium (“NdPr”) producer in the world. Lynas owns the Mt Weld rare earth mine, which is one of the world’s highest grade rare earths’ mines, and the Mt Weld ORE Concentration Plant, both located in Western Australia. Lynas also owns the Lynas Advanced Materials Plant (LAMP), which is an integrated manufacturing facility, separating and processing rare earths’ materials in Malaysia. The Lynas 2025 growth strategy encompasses plans to build the Kalgoorlie Rare Earths Processing Facility (cracking and leaching) in Australia and an LRE/HRE separation and specialty materials facility in the USA. Lynas trades on a market cap of A\$7.3 billion.

## **Iluka Resources Ltd. (ASX: ILU) (“Iluka”)**

Iluka is a relatively new (April 2020) producer of rare earths at their Eneabba Project in Western Australia. Iluka intends to ramp to selling 50,000 tpa of a 20% monazite-zircon ore concentrate for further processing offshore. Iluka has an offtake agreement for 50,000 tpa. Iluka is working on developing a Phase 2 of the Eneabba Project which involves investigating techniques to beneficiate and purify the monazite to an 80% concentrate for sale further down the value chain. Iluka is mostly known for being an Australian heavy mineral sands, zirconium and titanium, producer. Iluka trades on a market cap of A\$3.5 billion.

## **Vital Metals Limited (ASX: VML) (“Vital”)**

Vital recently began mining ore at its Nechalacho’ Mine in Canada’s Northwest Territories (NWT), with commencement of ore processing at Vital’s, under construction, Saskatoon cracking and leaching facility expected to begin in 2022. The Nechalacho Mine is a high grade, light rare earth (bastnaesite) project with a world-class resource of 94.7Mt at 1.46% REO (measured, indicated and inferred). Nechalacho’s

North T Zone, which is being mined by Vital, hosts a high-grade resource of 101,000 tonnes at 9.01% LREO (2.2% NdPr). Vital has a non-binding MOU with Ucore Rare Metals Inc. for the supply to it of a mixed rare rare earth carbonate, beginning H1 2024. Vital Metals trades on a market cap of A\$250 million.

***Explorer/Developers (in alphabetical order):***

**Arafura Resources Limited (ASX: ARU) (“Arafura”)**

Arafura 100% own the Nolan’s Bore rare earth project 135kms from Alice Springs in the Northern Territory, Australia. Arafura states: “The Project is underpinned by low-risk Mineral Resources that have the potential to supply a significant proportion of the world’s NdPr demand. It is a globally significant and strategic NdPr project which, once developed, will become a major supplier of these critical minerals to the high-performance NdFeB permanent magnet market.”

The deposit contains a JORC 2012-compliant Mineral Resources of 56 million tonnes at an average grade of 2.6% total rare earth oxides (TREO). 26.4% of the total rare earths contained are NdPr. The Project is supported by Export Finance Australia (EFA), and the Northern Australia Infrastructure Facility (NAIF), via non-binding letters of support for a proposed senior debt facility of up to A\$200 million and A\$100 million respectively. Arafura is looking to raise further funds to get the project started. Arafura recently stated: “The momentum with offtake discussion has enabled engagement to expand to include the options for strategic investment as part of the Nolan’s project funding.” Market cap is A\$379 million.

**Australian Rare Earths Limited (ASX: AR3) (“AREL”)**

AREL is progressing in the exploration of a significant deposit of valuable ‘clay-hosted’ rare earth elements, located

at their Koppamurra Project spread over ~4,000km<sup>2</sup> of tenements in South Australia and Victoria. Past exploration of the Koppamurra region has shown it contains mineralization containing the rare earth elements neodymium, praseodymium, dysprosium and terbium. The Koppamurra Project is an 'ionic clay' rare earth opportunity with a 2021 JORC Inferred Mineral Resource of 39.9Mt @ 725ppm TREO. AREL trades on a market cap of A\$98 million.

### **Australian Strategic Materials Ltd. (ASX: ASM) ("ASM")**

ASM owns the Dubbo Rare Earths Project in NSW, Australia. The Dubbo Project is a 100% owned 'construction ready' poly-metallic and rare earths project with potential to become a key global supplier of specialty metals and rare earths. ASM's goal is a "mine to metal" strategy to extract, refine and manufacture high-purity metals and alloys, supplying directly to global technology manufacturers. Market cap is A\$1.92 billion.

### **Northern Minerals Limited (ASX: NTU)**

Northern Minerals own the Browns Range heavy rare earth minerals project in Western Australia. Northern Minerals has built a pilot plant to test a number of deposits and prospects that contain high-value dysprosium and other Heavy Rare Earths (HREs) such as yttrium, hosted in xenotime mineralization.

The Company states: "Northern Minerals is positioned to become the world's first significant producer of dysprosium outside of China. Accounting for 60% of the Browns Range Project's (the Project) revenue, dysprosium is the key value driver of the Project and is at the core of Northern Minerals' marketing strategy. With a high value, high purity, dysprosium rich product, the Company is set to become a long term and reliable supplier of dysprosium and other critical heavy rare earths to world markets." Market cap is A\$339 million.

### **Peak Resources Limited (ASX: PEK)**

Peak Resources 75% owns the Ngualla Tanzania rare earth project, which the Company states is one of the world's, largest and highest grade, undeveloped rare earth projects. The Ngualla Project has ore reserves of 18.5 million tonnes at 4.8% REO; 22% of the total mineral resource is NdPr, with an expected 26 year life of mine. The Project is currently at the funding stage having completed a BFS in 2017. The BFS summary details are here. About 90% of the Project's revenues will be coming from NdPr. Peak Resources state: "Operating cost of US\$ 34.20/kg NdPr\* Oxide, demonstrating potential to be the world's lowest-cost fully integrated rare earth development project." Market cap is A\$135 million.

### **Closing remarks**

With rare earths demand set to grow strongly this decade as the world moves towards cleaner energy and technology, investors would be wise to take a second look at the rare earths sector.

Australian critical minerals projects were recently in the news after the Government announced that they would receive an A\$2 billion boost (via a loan facility), to support the sector. This bodes well for the Australian rare earths junior miners to join Lynas as producers. Stay tuned as this sector looks set to shine this decade.

---

**Vital Metals' Rare Earths  
off-take MOU with Ucore**

# positions Vital as a key supplier for a non-Chinese Total Rare Earths' Supply Chain

A key element for junior miners to demonstrate progress is to secure off-take agreements. This then typically leads to a greater degree of confidence that the company is credible as a supplier and that there is demand for its mined material. Such progress attracts not only investors but also potential project financiers. In the case of Vital Metals, the production of ore concentrates containing the key magnet rare earths neodymium & praseodymium (NdPr) that commenced in the summer of 2021 in the past year coincided with strong price gains that confirm strong demand.

**Neodymium 1 year price chart shows strong price gains the past year**



Source: Trading Economics

## **Vital Metals MOU with Ucore**

Vital Metals Limited (ASX: VML) (“Vital”) recently announced news of signing a non-binding MOU with Ucore Rare Metals Inc. (TSXV: UCU | OTCQX: UURAF) for the supply of a mixed rare earth carbonate, beginning H1 2024. Ucore’s Alaska Strategic Metals’ Center, SMC, facility is planned to be commissioned in the first half of 2024 with an initial 2,000tpa total rare earth oxide (TREO) separation and purification capacity, ramping to at least 5,000t/year TREO by 2026.

That means Ucore is looking to secure concentrate supply over 2.5 years in advance of when it is needed, showing the strength of demand for Western produced rare earths concentrate. It also means Vital has a growing off-take partner, making it a win-win relationship for both parties.

Vital Metals’ Managing Director Geoff Atkins stated: “Vital to commence product acceptance with Ucore in Q4 CY21 by supplying a sample of concentrate produced from its Nechalacho rare earths project in NWT, Canada....**The MOU will position Vital as a key supplier of rare earths in the North American market,** building on its offtake agreement with REEtec in Europe.....We are continuing to grow our operations in Canada and are well-placed to supply both geographies with the complete suite of rare earths.”

Ucore Chairman and CEO, Mr. Pat Ryan, P.Eng, stated: “This partnership with Vital is an integral step in the development of the Alaska SMC, as Ucore continues to cultivate relationships with potential like-minded upstream and downstream partners in the evolving Western world market; with the ultimate goal of ensuring that original equipment manufacturers transforming to an electrified economy continue to have access to a comprehensive North American raw material and finished goods supply chain.”

## **A reminder about Vital Metals**

Vital is already mining ore at its Nechalacho Mine in Canada's Northwest Territories (NWT), with commencement of ore processing, at Vital's now under construction Saskatoon cracking and leaching facility, expected to begin in 2022. The Nechalacho Mine is a high grade, light rare earths (bastnaesite) project with a world-class resource of 94.7Mt at 1.46% TREO (measured, indicated and inferred). Nechalacho's North T Zone hosts a high-grade resource of 101,000 tonnes at 9.01% LREO (2.2% NdPr). Vital's strategy is to develop Nechalacho in two stages. Stage 1 of the operations focuses on the North T Zone resource, now in production, and is fully funded; Stage 2 will involve the development of the much larger Tardiff deposit.

**Vital Metals' Nechalacho rare earths project in the NWT's of Canada – production of beneficiated ore commenced in June 2021**



Source: Vital Metals Annual report – June 2021

Vital has successfully produced a beneficiated product which is to be further processed at the Company's, now under construction, extraction facility in Saskatoon targeted to commence by late 2021 and with commercial production by mid-2022. Vital aims to produce a minimum of 5,000 tonnes of contained REO by 2025.

### **Vital's off-take summary**

- Binding off-take agreement with Norwegian company REEtec for Stage 1 production with the supply of 1,000t REO (ex-Cerium)/yr for an initial five-year period. This was recently increased to rare earth carbonate product containing a minimum of 750t NdPr, contained within 2,000t/year total rare earth oxides (TREO) with a



maximum of 25% cerium. Amended agreement extends Vital's product sales to REEtec to 2028 with option for an additional expanded 10-year agreement.

- Non-binding MOU with Ucore Rare Metals Inc. to sell to Ucore a minimum of 500t REO (ex-cerium)/year, commencing H1 2024. Vital to expand production to support a minimum of 50% of Ucore's envisioned 5,000t TREO/yr processing capability (ie: 2,500t TREO/yr) by 2026.

The off-take agreements above combined, if completed, amount to 2,500t REO/yr (2,000 + 500) out of Vital's production target to achieve "5,000 tonnes of contained REO by 2025". It looks quite likely the Ucore off-take will be increased later.

**Vital Metals' Nechalacho rare earths project is a simple open pit operation in northern Canada's NWT's**



Source: Vital Metals Annual report – June 2021

### **Closing remarks**

Vital is now the first rare earths producer in Canada and only the second in North America, from their Nechalacho rare earths mine, with commercial production set to be reached in

mid-2022. Vital's extraction facility in Saskatoon will be built and produce a rare earths concentrate from about June 2022. Vital has secured off-takes in Europe with REEtec and now with Ucore in North America. These companies will take Vital's concentrate for further separation and purification.

Vital has agreed to acquire the Zeus heavy rare earth project (& 68% of the Kipawa Project) in Canada and it also owns a second light rare earths project in Tanzania.

Vital Metals Limited trades on a market cap of A\$248 million and certainly looks to be a company with a very bright future in the non-Chinese total rare earth supply chain.

---

## **North American Rare Earth Juniors Consolidate Capabilities to Advance Towards a Total Domestic Supply Chain**

There were otherwise unrelated announcements last week, but, with a common purpose, by separate pairs of rare earth juniors: The common purpose was **the advancing of the creation of a domestic American rare earth enabled product(s) total supply chain.**

In one case the Canadian rare earth Junior miner, **Search Minerals Inc. (TSXV: SMY | OTCQB: SHCMF)**, entered into a non-binding MOU for the future delivery of a rare earth mineral concentrate supply, containing 500 tpa of

Neodymium/Praseodymium, with one of its investors, privately owned, **USA Rare Earth LLC**, which has committed itself to producing commercial tonnages of rare earth permanent magnets in the United States as early as 2022-23. Another announcement was made by the Canadian rare earth junior critical metals' processor, **Ucore Rare Metals Inc.** (TSXV: **UCU** | OTCQX: **UURAF** | FSE: **U9U**), which announced that it had entered into an MOU with Australia's **Vital Metals Ltd.** (ASX: **VML** | OTCMKTS: **VTMXF**): for a supply of rare earth ore concentrates from Vitals' already underway mining operations in Canada's Northwest Territory, to be first processed into a mixed rare earth carbonate in a facility funded by Canada's Saskatchewan Research Council in Saskatoon, Saskatchewan, and then shipped to Ucore's proposed Strategic Metals (processing) Center in Ketchikan, Alaska, USA, for separation into individual rare earths.

These announcements are indicative of a sea-change in the thinking of an increasing number of non-Chinese junior rare earth companies. In the last rare earth boom from 2007-2012 hundreds of juniors had the same goal, the production and sale of a "mixed con" of rare earths, in other words, of an ore concentrate or a concentrate of mixed rare earth solids prepared by hydrometallurgical treatment of ore concentrates. It was commonly believed at that time that Chinese rare earth separation companies, then the only customers, would pay 65% of the "basket value," defined as the market price of separated versions of the rare earths contained in the mixed concentrate. This was magical thinking based on a complete misunderstanding of the value of, and the markets for, either ore concentrates or mixed rare earth concentrates. Even today some juniors still insist that their ore concentrates have a basket value based on the values of finished goods. Chinese separators typically have offered 40% of the basket value, delivered into China for high grade ore concentrates free of elements that interfere with solvent extraction separation of mixed rare earths.

The "supply chain crisis" has clarified the thinking of many juniors. They realize that their product must have an immediate determinable-price demand and that this demand must be by processors who add enough value, so that they can afford to buy the junior's product at a price that allows the junior to make a profit. This may seem trivially obvious, but it was blithely overlooked in the 2007-12 rare earth boom.

A new factor has entered the calculus for determining the price of mixed rare earth ore concentrates or of mixed rare earth solids free of both radioactive and of SX interfering contaminants. That factor is any added value governments and industries are willing to pay for non-Chinese, or domestic, materials of these descriptions.

So far, only one non-Chinese vendor has entered the market with mixed rare earth carbonate (solids) free of radioactive and SX interferences. That is America's **Energy Fuels Inc. (NYSE American: UUUU | TSX: EFR)**, which is processing non-Chinese monazite ore at its White Mesa, Utah, uranium processing mill. The mixed rare earth carbonate solids are being sold, at a profit to Energy Fuels, to Canada's **Neo Performance Materials Inc. (TSX: NEO | OTCMKTS: NOPMF)**, which has them delivered to its rare earth separation facility in Estonia, where the material is separated into individual rare earths for further processing by Neo or its customers into rare earth permanent magnets, phosphors, ceramic additives, and other fine chemicals. The European Union is already well ahead of the USA in organizing a financial facility to underwrite the creation of a European domestic rare earth enabled products total supply chain without Chinese participation at any level.

In the United States and Canada the supply chain issue is downstream of mining, and is manifested in the total lack of commercial facilities for rare earth separation, metal and alloy making, magnet making, and end use manufacturing.

Europe has existing facilities for up to 12,000 tpa of rare

earths separation, a thousand tpa of rare earth metals and alloys, and substantial capacity and existing expertise to make rare earth permanent magnets of the most widely used, sintered, type. Further, both the UK and the EU governments have already begun to support the expansion of existing rare earth processors financially.

The United States and Canada should take a lesson from the UK and the EU: Get industrial end users involved from the very beginning. The UK and the EU speak with industrial experts as well as academics and bureaucrats. The difference is really beginning to show.

---

## **Jack Lifton with Vital Metals' Geoff Atkinson on the commencement of rare earths production in NA**

In a recent InvestorIntel interview, Jack Lifton speaks with Geoff Atkins, Managing Director of Vital Metals Limited (ASX: VML) about Vital's recent milestones including the commencement of rare earths production and acquisition of two heavy rare earths projects in Canada.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Geoff went on to say that the heavy rare earths projects will complement Vital's light rare earths operations at Nechalacho making them "one-stop-shop for rare earths." As Canada's first producer of rare earths, Geoff told InvestorIntel that Vital Metals is fully funded and discussed

how it is well-positioned to be a strategic player in the North American rare earths supply chain at a time when demand continues to grow.

To watch the full interview, [click here](#)

### **About Vital Metals Limited**

Vital Metals Limited is an explorer and developer focussing on rare earths, technology metals, and gold projects. Their projects are located across a range of jurisdictions in Canada, Africa and Germany.

### **Nechalacho Rare Earth Project – Canada**

The Nechalacho project is a high-grade, light rare earth (bastnaesite) project located at Nechalacho in the Northwest Territories of Canada and has potential for a start-up operation exploiting high-grade, easily accessible near-surface mineralization. The Nechalacho Rare Earth Project hosts within the Upper Zone, a measured, indicated, and inferred JORC Resource of 94MT at 1.46% TREO.

To learn more about Vital Metals Limited, [click here](#)

***Disclaimer:*** *Vital Metals Limited is an advertorial member of InvestorIntel Corp.*

This interview, which was produced by InvestorIntel Corp. (IIC) does not contain, nor does it purport to contain, a summary of all the material information concerning the “Company” being interviewed. IIC offers no representations or warranties that any of the information contained in this interview is accurate or complete.

This presentation may contain “forward-looking statements” within the meaning of applicable Canadian securities legislation. Forward-looking statements are based on the opinions and assumptions of management of the Company as of the date made. They are inherently susceptible to uncertainty

and other factors that could cause actual events/results to differ materially from these forward-looking statements. Additional risks and uncertainties, including those that the Company does not know about now or that it currently deems immaterial, may also adversely affect the Company's business or any investment therein.

Any projections given are principally intended for use as objectives and are not intended, and should not be taken, as assurances that the projected results will be obtained by the Company. The assumptions used may not prove to be accurate and a potential decline in the Company's financial condition or results of operations may negatively impact the value of its securities. Prospective investors are urged to review the Company's profile on Sedar.com and to carry out independent investigations in order to determine their interest in investing in the Company.

If you have any questions surrounding the content of this interview, please email [info@investorintel.com](mailto:info@investorintel.com).

---

## **What was really said on the rare earths market in our last Critical Materials Corner**

Friday, June 18, 2021. In a Zoom room of more than a dozen rare earths industry leaders, we had the pleasure of hosting: Critical Materials Corner, hosted by Jack Lifton with guests Pini Althaus from USA Rare Earth, LLC and Geoff Atkins from Vital Metals Ltd. (ASX: VML) – it has taken me over a month to

publish my notes.

Reviewing Pini's LinkedIn post today, he starts: "Yesterday, President Biden reiterated the need for a stronger, more resilient domestic supply chains for components used in semiconductors and advanced batteries..." I am committed to regular geopolitical coverage on InvestorIntel.com for all of us investors' trying to understand how these positions may impact our portfolios.

Numerous people wrote me asking how our 1st Critical Materials Corner went, here you go as we are planning our 2nd one on August 27th...

There was initially muted discussion after presentations by Pini Althaus, Geoff Atkins and notable rare earths expert Jack Lifton, but as the hour transpired, the discussion became more lively, interesting and informative.

### **What did we learn?**

USA Rare Earth, LLC as a private company has looked at the opportunity of becoming a publicly-traded company and has pondered the possibility of use of a Special Purpose Acquisition Company (SPAC).

Similarly, Vital Metals Ltd. (ASX: VML) is only traded "down under" and was asked about where and when they are going to trade elsewhere (US or Canada). "Considering and examining all options" was the reply...patience is a virtue and virtue is its own punishment...

And we also learned that patience is required when it comes to Canada's next producing rare earths mine. According to Geoff Atkins of Vital Metals, while the Nechalacho project is proceeding, the key to the output will be consistent measurable product output specifications. We should note that Geoff is the only rare earths company executive who has actually seen an exploration project become a mine and a rare



earths producer (through his executive role at Lynas and now leading Vital).

**There was much discussion around actual demand for rare earths.** Of note is that it appears that China is or is on the verge of becoming a net importer, so to Jack Lifton's point "This time it really is different" for the rare earths, unlike the past rare earths bull market 10+ years ago.

As the world looks to remove China from the global supply chain, there was also discussion around what is the cost of building a rare earths processing facility. The answer? "It depends" and we have seen in the market facilities costs that range from tens of millions to nearly a billion dollars.

The burning question on people's minds was related to pricing. Would buyers accept a higher-than-market price to source rare earths (or metals and magnets) that were not from China? Well, we know that the US Department of Defense will, but historically (and currently) the profit-oriented users of rare earths metals and magnets are not likely to do that. We were reminded that initially, Tesla said they would only use motors source from the USA. And where do they come from now...? Of course, the world's primary supplier.

However, it was pointed out that the industry is going to change. The world knows what an ecological and environmental disaster China has perpetrated through their industrial processes in the rare earths processing chain. And while it may not be important now, think about blood diamonds. Eventually, the world said no more and that was a watershed moment. How long will it be before the manufacturing world and, more importantly, consumers, also say "no more" to China for their distressing lack of environmental considerations? At a slightly higher cost for clean, ethical rare earths that could already be happening. And like it or not ESG (environmental, social and governance) really is a "thing", even in the world of rare earths.

There's a lot more to be said on this and the other topics that were discussed in the hour, so don't miss the next one on Friday, August 27! This is the best information from knowledgeable rare earths experts from around the world.