

The Critical Minerals Institute's Jack Lifton on Vital Metals, the SRC and Ionic Clays and Rare Earths

written by InvestorNews | May 4, 2023

In this InvestorIntel interview, Tracy Weslosky talks with Critical Minerals Institute's (CMI) Co-Chairman Jack Lifton attempts to explain what Vital Metals Limited's recent announcement about "pausing all construction-related activities at the Saskatoon processing facility" means. Clarifying and reinforcing what the Saskatoon Research Council (SRC) has stated online, we would like to redirect our audience to the SRC website where they state: "SRC wants to clarify that its Rare Earth Processing Facility currently under construction is on schedule and on budget and will be fully operational by the end of 2024."

The Saskatchewan Rare Earths industry has the Prime Minister's attention

written by InvestorNews | May 4, 2023

Canadian Prime Minister Justin Trudeau recently toured [Vital Metals Limited's](#) (ASX: VML l OTCQB: VTMXF) rare earths

processing plant in Saskatoon's northern industrial area. Vital Metals' site is next door to another rare earths processing facility built and operated by the Saskatchewan Research Council (SRC) which, in a test run back in August, created the first rare earth element ingots produced in Canada. The fact that the Prime Minister was in Saskatoon and stated that there is a support system for rare earth element mining in Saskatchewan is very encouraging. Readers may recall the [Critical Minerals series](#) we ran in July, 2022 where one of my greatest concerns was how effective our Federal Government would be in doing anything useful to advance the cause of critical materials. However, I suggested that as long as the topic remained at the forefront and politically in vogue, my hope was that they would stay out of the way and let smart, innovative people get on with doing what's best for Canada and its allies.

It appears the Government is heeding my concerns (for now) and that the rare earth industry should be able to continue to progress without too much interference. That is certainly good news if you are developing a rare earth prospect in Saskatchewan. One company that falls into that category is [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQX: APAAF), a Canadian publicly listed company in the rare earth element and uranium sectors. The Company is currently focusing on delineating high-grade critical rare earth elements and gallium on the Alces Lake property, as well as exploring for high-grade uranium in the prolific Athabasca Basin on its Otherside, Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 110,997 hectares (274,280 acres) in Saskatchewan.

Appia's [Alces Lake project](#) encompasses some of the highest-grade total and critical REEs and gallium mineralization in the world, hosted within several surface and near-surface monazite occurrences that remain open at depth and along strike. In early

December, the Company [announced results](#) from the 2022 prospecting program that included:

- 36.11 wt.% TREO returned from samples of massive to semi-massive monazite in outcrop at the West Limb anomaly, first discovered in 2022.
- 3.34 wt.% TREO returned from a mineralized biotite shear zone at the West Limb anomaly
- 4.34 wt.% TREO returned from visible monazite in a shear zone at a previously unexplored and un-named radiometric prospect south of the Magnet Ridge zone
- 2.03 wt.% TREO returned from visible monazite discovered in the Western Anomaly

Still to come are assays from the record 2022 drilling program at Alces Lake where the Company completed 17,481 m over 100 drill holes. Appia's 2022 drilling program at Alces was designed to drill significantly deeper holes compared to the 100 holes (approximately 8,076 m) drilled in 2021 to allow Appia to determine continuity at depth and along the identified REE mineralization trends as the company works towards a maiden resource estimate to be prepared in accordance with NI 43-101 for the area. With high-grade REE mineralization now identified in many locations within an area covering approximately 27 km² of the Alces Lake block, the Company believes the project has the potential to be a world-class source of high-grade critical rare earth bearing monazite.

Momentum is certainly there for critical minerals comprising the battery supply chain. Being relatively close to Canada's first rare earth processing facility is an added bonus for Appia Rare Earths. The Company's [newly appointed President](#), Mr. Stephen Burega, is stepping in at a pretty exciting time, with drill results pending and a resource estimate looming. Additionally,

Appia added C\$3.7 million to its treasure in December with a [non-brokered private placement](#) that provides the Company with plenty of dry powder to pursue its 2023 exploration program at Alces Lake, as well as its various uranium properties. At a market cap of C\$39 million, Appia is currently trading near its lowest levels in over two years. A decent NI 43-101 resource estimate for Alces Lake could go a long way towards changing the look of this stock chart.

Appia Rare Earths & Uranium by the numbers

written by | May 4, 2023

[Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQX: APAAF) recently reported results from its 2021 drilling program and work completed this year on its Alces Lake property in Northern Saskatchewan. While results are still pending from the 34 holes drilled at the recently renamed site Magnet Ridge (formerly Augier), other areas returned values as high as 14.95% TREO over 0.66 metres. This is high compared to most deposits. As of early July Appia has drilled over 14,000 metres in 2022 and plans to drill up to 20,000 metres this year, which should provide them with valuable information on the Alces Lake deposit. Magnet ridge is interesting as Appia has reported it outcrops at surface with a strike length of about 300 metres and a width of 175 metres, and has been penetrated to over 100 metres deep.

The mineral hosting the rare earths at Alces Lake is monazite. Monazite is regularly processed in China to produce rare earths, so making a concentrate and separating the rare earths is an

established technology. In several jurisdictions, this could be a problem as monazite is typically associated with the radioactive elements Thorium (Th) and Uranium (U). However, it comes down to the old paradigm, location, location, location. Being situated in Saskatchewan, Appia is in a jurisdiction that understands radioactive materials and that they can be properly handled and stored, and in the case of uranium can be a valuable resource. The other advantage for Appia being in Saskatchewan is that the Saskatchewan Research Council is building a pilot plant for rare earth separation over the next 2 years. This will give Appia the ability to test their material locally, which is a significant advantage.

A 2020 Appia [presentation](#) indicates Neodymium (Nd) oxide levels of 17.4% and Praseodymium (Pr) oxide of 5.4% which gives a combined total of just under 23%. This is close to the Lynas levels from its Mt. Weld deposit, which Roskill's Market Outlook 2015 indicates to be 23.8%. The Mountain Pass Mine, the deposit in California owned by MP Materials, has Nd+Pr levels at 16.3%. so they would have to process up to 50% more material to get the same revenue levels as Appia or Lynas. In addition, Appia's report shows added value in Terbium (Tb) and Dysprosium (Dy). Looking at recent pricing in Shanghai Metal Markets (SMM), the Nd/Pr holds 87.8% of the total value. Terbium and Dysprosium add another 0.3%. This assumes that all the elements are sold, which typically is impossible, especially the Cerium, which is over 49% of the total volume. However, there may be markets in North America and possibly Europe for Cerium and Lanthanum. Their current price in China is \$1.22 and \$1.15 per kg respectively and freight can be a high proportion of the total cost of the product outside of Asia.

One way to look at the value of the deposit is to see what potential revenue can be generated from the four main magnetic elements (Neodymium, Praseodymium, Terbium and Dysprosium).

Assuming the long range plans would be to build a 20,000 TPY plant, which is similar to the previous Molycorp output and just below the Lynas present output of around 22,000 TPY, their projected revenues would be around US\$500 million per year. This assumes 90% recoveries and revenues only from Nd+Pr. Any sales of Cerium and Lanthanum would be minimal but an added bonus.

In addition, Appia has properties in the Elliot Lake area in Ontario. This is in the right area code as from the mid-late 1950s to 1990 there were 10 mines producing Uranium. Again location, location, location. Given the push for electric vehicles and the corresponding increase in electrical demand, countries are going to review their long term needs including Germany and China, and possibly India, and given alternative producing options nuclear is a cleaner way than coal or gas to produce electricity. Also given the current Russian situation more focus will come on nuclear and correspondingly Uranium. Thorium may also come into demand as it can reduce the operating temperature and thereby improve safety.

All things considered, Appia has an interesting opportunity and with the grades shown so far, and is poised to take the next steps to becoming a potential domestic producer of rare earths.

Rare Earths and the Challenges of Building a Domestic EV

Material Supply Chain

written by InvestorNews | May 4, 2023

In this InvestorIntel PDAC 2022 Panel on rare earths and “Building the EV Material Supply Chain”, host Byron W King is joined by [Search Minerals Inc.](#)’s (TSXV: SMY | OTCQB: SHCMF) President, CEO, and Director Greg Andrews, [Appia Rare Earths & Uranium Corp.](#)’s (CSE: API | OTCQX: APAAF) President Frederick Kozak, [Avalon Advanced Materials Inc.](#)’s (TSX: AVL | OTCQB: AVLNF) President, CEO and Director Don Bubar, and [Vital Metals Limited](#)’s (ASX: VML | OTCQB: VTMXF) Managing Director Geoff Atkins.

In the video, which can also be viewed in full on the InvestorIntel YouTube channel ([click here](#)), the panel discusses whether there is enough rare earths supply to meet the future demand for electric vehicles. Vital Minerals’ Geoff Atkins talks about the shift from government pressure to move to electric vehicles to increasing consumer demand for EVs, especially outside the United States, and the different processing requirements for EV batteries and rare earths magnet components which make “just in time” supply chain inventory management impossible.

Avalon President Don Bubar notes that China’s rare earths dominance came from how “they saw before anyone in the West how you have to create the downstream manufacturing and processing capacity in order to justify creating the primary supply, and that’s a foreign concept to the traditional mining industry here in Canada.” Greg Andrews agrees that the challenge is “trying to create rare earths industry in Canada that doesn’t exist,” but as Appia president Frederick Kozak points out, the new Saskatchewan rare earths processing facility makes domestic processing more attractive “as opposed to having to ship it to

China for processing.”

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

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About Search Minerals Inc.

Led by a proven management team and board of directors, Search is focused on finding and developing Critical Rare Earths Elements (CREE), Zirconium (Zr) and Hafnium (Hf) resources within the emerging Port Hope Simpson – St. Lewis CREE District of southeast Labrador. The Company controls a belt 63 km long and 2 km wide and is road accessible, on tidewater, and located within 3 local communities. Search has completed a preliminary economic assessment report for **FOXTROT**, and a resource estimate for **DEEP FOX**. Search is also working on three exploration prospects along the belt which include: **FOX MEADOW**, **SILVER FOX** and **AWESOME FOX**.

Search has continued to optimize our patented Direct Extraction Process technology with support from the Department of Industry, Energy and Technology, Government of Newfoundland and Labrador, and from the Atlantic Canada Opportunity Agency. We have completed two pilot plant operations and produced highly purified mixed rare earth carbonate concentrate and mixed rare earth concentrate for separation and refining. We also recognize the continued support by the Government of Newfoundland and Labrador for its Junior Exploration Program.

Search Minerals was selected to participate in the Government of Canada Accelerated Growth Service (“AGS”) initiative, which supports high growth companies. AGS, as a ‘one-stop shop’ model, provides Search with coordinated access to Government of Canada resources as Search continues to move quickly to production and

contribute to the establishment of a stable and secure rare earth element North American and European supply chain.

To learn more about Search Minerals Inc., [click here](#)

About Appia Rare Earths & Uranium Corp.

Appia is a Canadian publicly-listed company in the rare earth element and uranium sectors. The Company is currently focusing on delineating high-grade critical rare earth elements and gallium on the Alces Lake property, as well as exploring for high-grade uranium in the prolific Athabasca Basin on its Otherside, Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 105,026 hectares (259,525 acres) in Saskatchewan. The Company also has a 100% interest in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario.

To learn more about Appia Rare Earths & Uranium Corp., [click here](#)

About Avalon Advanced Materials Inc.

Avalon Advanced Materials Inc. is a Canadian mineral development company specializing in sustainably-produced materials for clean technology. The Company now has four advanced stage projects, providing investors with exposure to lithium, tin and indium, as well as rare earth elements, tantalum, cesium and zirconium. Avalon is currently focusing on developing its Separation Rapids Lithium Project near Kenora, Ontario while continuing to advance other projects, including its 100%-owned Lilypad Cesium-Tantalum-Lithium Project located near Fort Hope, Ontario. Social responsibility and environmental stewardship are corporate cornerstones.

To learn more about Avalon Advanced Materials Inc., [click here](#)

About Vital Metals Limited

Vital Metals Limited (ASX: VML) 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.

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

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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](https://www.sedar.com) and to carry out independent investigations in order to determine their interest in investing in the Company.

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The Uranium Bull in the Room – Why the Excitement is Back

written by InvestorNews | May 4, 2023

In this InvestorIntel PDAC 2022 Panel on “The Uranium Bull in the Room”, host Tracy Weslosky is joined by [Energy Fuels Inc.](#)'s (NYSE American: UUUU | TSX: EFR) Vice President of Marketing and Corporate Development Curtis Moore, [Appia Rare Earths & Uranium Corp.](#)'s (CSE: API | OTCQX: APAAF) CEO and Director Tom Drivas, [Standard Uranium Ltd.](#)'s (TSXV: STND | OTCQB: STTDF) CEO and Chairman Jon Bey, and [U308 Corp.](#) (NEX: UWE.H) President, CEO and Director Dr. Richard Spencer.

In the video, which can also be viewed in full on the InvestorIntel YouTube channel ([click here](#)), Curtis Moore says that there was a lot of excitement at PDAC this year over

uranium, with the spot price rising and nuclear power being an essential part of the world-wide commitment to carbon-free energy production. Dr Richard Spencer added that “you cannot get to net zero without nuclear” and that a “fundamental driver of the uranium space at the moment is the small modular reactors.”

Jon Bey points out that Canada is moving forward with plans for small modular reactors in several provinces, including Saskatchewan. “Isn’t it amazing the place where uranium is being mined is actually going to be powered by nuclear?”

The panel discusses how the Sprott Physical Uranium Trust has had an impact on the uranium market. Energy Fuels’ Curtis Moore observes that the Sprott fund “basically swept up a whole bunch of excess inventories that were floating around the market, being traded around and keeping the price depressed,” and has resulted now in “a nice uplift in the price.”

The drive to secure a domestic supply of uranium is also discussed, as well as the concerns about “Russia controlling about two-thirds of the world’s uranium resources.” Tom Drivas says that with current geopolitical uncertainties “even eastern European countries are looking to uranium outside of Russia.”

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

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About Energy Fuels Inc.

Energy Fuels is a leading U.S.-based uranium mining company, supplying U_3O_8 to major nuclear utilities. Energy Fuels also produces vanadium from certain of its projects, as market conditions warrant, and is ramping up commercial-scale production of rare earth element (“**REE**”) carbonate. Its

corporate offices are in Lakewood, Colorado, near Denver, and all its assets and employees are in the United States. Energy Fuels holds three of America's key uranium production centers: the White Mesa Mill in Utah, the Nichols Ranch in-situ recovery ("**ISR**") Project in Wyoming, and the Alta Mesa ISR Project in Texas. The White Mesa Mill is the only conventional uranium mill operating in the U.S. today, has a licensed capacity of over 8 million pounds of U_3O_8 per year, and has the ability to recycle alternate feed materials from third parties, to produce vanadium when market conditions warrant, and to produce REE carbonate from various uranium-bearing ores. Energy Fuels is also evaluating the potential to recover medical isotopes for use in targeted alpha therapy cancer treatments. The Nichols Ranch ISR Project is on standby and has a licensed capacity of 2 million pounds of U_3O_8 per year. The Alta Mesa ISR Project is also on standby and has a licensed capacity of 1.5 million pounds of U_3O_8 per year. In addition to the above production facilities, Energy Fuels also has one of the largest SK-1300/NI 43-101 compliant uranium resource portfolios in the U.S. and several uranium and uranium/vanadium mining projects on standby and in various stages of permitting and development.

To learn more about Energy Fuels Inc., [click here](#)

About Appia Rare Earths & Uranium Corp.

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element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario.

To learn more about Appia Rare Earths & Uranium Corp., [click here](#)

About Standard Uranium Ltd.

Standard Uranium is a mineral resource exploration company based in Vancouver, British Columbia. Since its establishment, Standard Uranium has focused on the identification and development of prospective exploration stage uranium projects in the Athabasca Basin in Saskatchewan, Canada.

Standard Uranium's Davidson River Project, in the southwest part of the Athabasca Basin, Saskatchewan, is comprised of 21 mineral claims over 25,886 hectares. Davidson River is highly prospective for basement hosted uranium deposits yet remains relatively untested by drilling despite its location along trend from recent high-grade uranium discoveries.

To learn more about Standard Uranium Ltd., [click here](#)

About U308 Corp.

U308 Corp. is focused on the development of the Berlin Deposit in Colombia. Apart from uranium for clean, nuclear energy, the Berlin Deposit contains battery commodities; nickel, phosphate and vanadium. Phosphate is a key component of lithium-ion ferro-phosphate ("LFP") batteries that are being used by BYD, Tesla and a growing list of electric vehicle manufacturers. Nickel is a component of various lithium-ion batteries, while vanadium is the element used in vanadium redox flow batteries. Neodymium, one of the rare earth elements contained within the Berlin Deposit, is a key component of powerful magnets that are used to increase the efficiency of electric motors and in generators in

wind turbines.

The Company's mineral resource estimate for the Berlin Deposit was made in accordance with National Instrument 43-101. The preliminary economic assessment ("PEA") on the Berlin Deposit showed positive economics and highlighted areas in which both operating, and capital costs could be reduced to enhance the economics of the deposit. Extensive metallurgical test work showed that revenue streams would be dominated by uranium, phosphate, nickel, vanadium and rare earth elements, of which only two were considered in the economic assessment.

A PEA is preliminary in nature, it includes inferred mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would enable them to be categorized as mineral reserves, and there is no certainty that the preliminary economic assessment will be realized.

To learn more about U308 Corp., [click here](#)

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Frederick Kozak of Appia Rare Earths & Uranium talks about new REE discoveries at Alces

Lake

written by InvestorNews | May 4, 2023

In this InvestorIntel interview with host Tracy Weslosky, [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF) President Frederick Kozak talks about [the discovery](#) of a significant new mineralized zone at its Alces Lake rare earths property.

In the interview, which can also be viewed in full on the InvestorIntel YouTube channel ([click here](#)), Frederick discusses how Appia's drill program identified the continuity of shallow high-grade REE mineralization at their WRCB Area with a strike length of approximately 100 metres and consistently strong assay values. The new discovery of the massive AMP Zone has revealed it is large and continuous across all of the WRCB area and open along strike. Frederick also tells InvestorIntel that Appia is currently in the middle of the largest ever drilling program at its Alces Lake property, as well as on "another project that's a kilometer and a half away that looks like something similar to the AMP Zone but much, much thicker..."

Frederick also talks about Appia's five uranium projects and their upcoming appearance at PDAC.

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

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To learn more about Appia Rare Earths & Uranium Corp., [click here](#)

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InvestorIntel is digging for stories at PDAC 2022

written by Stephen Lautens | May 4, 2023

PDAC 2022 is underway, and InvestorIntel is one of the media sponsors at the world's largest mining and exploration convention. We are busy looking for new stories and meeting old friends at the first in-person PDAC since 2020.

Monday through Wednesday (June 13-15), InvestorIntel is conducting exclusive interviews with industry leaders, presidents and CEOs of some of the most interesting silver, gold, rare earths, uranium and other critical materials companies.

On Monday our first panel was **Rare Earths, Sustainability & Meeting the EV Market Demand** hosted by InvestorIntel CEO and Founder Tracy Weslosky with panelists Mark Chalmers, President and CEO of [Energy Fuels Inc.](https://www.energyfuels.com) (NYSE American: UUUU | TSX: EFR)

and Constantine Karayannopoulos, President, CEO and Director of [Neo Performance Materials Inc.](#) (TSX: NEO).

Our next panel discussion was hosted by Chris Thompson of [eResearch](#) on **Silver, The Technology Metal & Market** with Byron W. King, InvestorIntel columnist, [Bald Eagle Gold Corp.](#)'s (TSXV: BIG) CEO Chris Paul, [Silver Bullet Mines Corp.](#)'s (TSXV: SBMI) VP Capital Markets and Director Peter Clausi, and Simon Ridgway, Founder, Director, President and CEO of [Volcanic Gold Mines Inc.](#) (TSXV: VG).

To finish off Monday's schedule, InvestorIntel columnist and renowned critical materials expert Byron W. King, led a panel discussion on **Building the EV Material Supply Chain** with [Appia Rare Earths & Uranium Corp.](#)'s (CSE: API | OTCQB: APAAF) President Frederick Kozak, [Search Minerals Inc.](#)'s (TSXV: SMY | OTCQB: SHCMF) President, CEO, and Director Greg Andrews, [Avalon Advanced Materials Inc.](#)'s (TSX: AVL | OTCQB: AVLNF) President, CEO and Director, Don Bubar, and [Vital Metals Limited](#)'s (ASX: VML | OTCQB: VTMXF) Managing Director, Geoff Atkins.

If you are at PDAC, be sure to visit the InvestorIntel media studio on Level 700.

Hunting the big North American rare earths elephant

written by Jack Lifton | May 4, 2023

"Amazing discovery... I keep making this point that there is a deficit of rare earths worldwide and Appia is the premier rare

earths discovery in North America.” – Jack Lifton, Global Critical Materials Expert

A mineral discovery is the natural occurrence of a specific chemical compound or a mix of chemical compounds, which may be processed mechanically and chemically to isolate one or more forms of individual chemical elements, and then be purified and converted into useful forms for industrial use. If the discovery is extensive enough and the contained chemical compounds are of a sufficiently high enough grade for efficient and economical separation of them from each other and then can be further processed into forms that can be utilized industrially, then the large-scale production and concentration of the initial mineral concentrate is called mining.

How do you evaluate a rare earth discovery? The best way is to determine if it contains “valuable” rare earth elements, which can be economically and efficiently recovered in the jurisdiction in which it is located, in such quantities that the capital expended can be recovered at a profit.

The old-timers (aka, experienced exploration geologists and mining engineers) have just two simple metrics they use in first determining whether or not there is any point in answering this question: Grade and accessible tonnage.

[Appia Rare Earths & Uranium Corp.](#)’s (CSE: API | OTCQB: APAAF) rare earth discovery at Alces Lake, Saskatchewan, meets the first of the above requirements, and the company is now in the process of a comprehensive drill program to determine if the second one is met as well.

The Appia discovery is of the mixed rare earth mineral, monazite, the most desirable rare earth bearing mineral on the planet. Monazite was the original rare earth mineral mined commercially in the late nineteenth century, not for rare

earths, but for its contained thorium, which was heated, as an oxide in the form of a mixed ceramic mantle, with natural gas, to produce a brilliant white light for illuminating the stage in theatrical performances. Monazite fell out of favor as a mineral resource after World War II because of thorium's natural radioactivity being highlighted as a danger in the early atomic age. Of course, electric lights, had by then long eclipsed the need for thorium.

In the 1950s though, thorium again became of interest when it was discovered that nuclear reactors for the commercial production of electricity could be fueled with thorium, which could not easily be used to make nuclear weapons. Anglo-American Mining in that period discovered the highest-grade thorium and rare earths deposit then known in the world in South Africa and began producing thorium for the UK's civilian nuclear reactor program. Thorium reactors fell out of favor by the mid 1960s and thorium (monazite) mines were shut down, even though they were associated with high grade rare earths, because of the problems of disposing of the thorium and the then extremely expensive processes for separating the rare earths from each other, ion exchange, and fractional crystallization.

The discovery of a huge primary, accessible, mineable deposit of the rare earth mineral bastnaesite at Mountain Pass, California, in the late 1940s, and the development in the 1960s of the commercial application of solvent extraction to the separation of the rare earths, led to the eclipse of the use of high thorium monazites by bastnaesite as the primary mineral for rare earth mining.

The development of the rare earth permanent magnet in the late 1970s, at first using the rare earth element, samarium, and the rare earth elements neodymium and praseodymium, revived interest in monazite, because monazite contains 50% more, by weight, of

neodymium and praseodymium, than bastnaesite.

However, the low thorium bastnaesite in California, because of its accessibility, became the world's largest source of the magnetic rare earths, samarium , neodymium and praseodymium by the early 1980s. It was eclipsed by the bastnaesite recovered, more economically, as a byproduct of iron mining in China's Inner Mongolia by the late 1980s. The Chinese iron deposits also contained some monazite, and this was processed there also to recover the rare earths. The thorium co-produced was stored, but its radioactivity ultimately led China to bring its control under the aegis of its China Nuclear Corporation (CNC), which stored it along with any other thorium produced as a byproduct of rare earths or its own uranium minerals processing.

Today, as Chinese bastnaesite grades seem to have declined from high grading and as pollution (environmental) consciousness has come of age in China, monazite, as a source of magnetic rare earths has revived dramatically in China. And China has become the world's largest processor of monazite. Chinese mining and processing companies already import nearly 40% of their rare earth ore needs annually. They get bastnaesite from California and CNC is licensed to process up to 50,000 tons per year of monazites containing up to 30,000 tons of rare earths. All monazite imported into China must first go to CNC for thorium and uranium removal, before it goes to the Chinese purchaser, which will then recover the rare earths contained. China buys monazites as ore concentrates from the USA (until very recently), Brazil, Madagascar, Australia, and Myanmar, and Chinese companies are scouring the world seeking more.

The Chinese had the use of monazites as a source of magnetic rare earths to themselves until 2017, when Australia's [Lynas Rare Earths](#) (ASX: LYC) went into commercial production and separation of the individual rare earths from its massive

monazite mine at Mt. Weld, Australia. Then, in 2020, the only privately owned licensed uranium ore processor and thorium storage facility in the USA, [Energy Fuels Inc.](#) (NYSE American: UUUU | TSX: EFR), began a project to process monazite for its rare earths and to stockpile and sell the uranium recovered and store the thorium. Energy Fuels is and remains the sole such facility in the Americas. Its business plan is to become vertically integrated by building, on-site, a separation facility, and a rare earth metals and alloys operation also.

Energy Fuels has acquired domestically produced American monazite from the heavy mineral sands operations of The Chemours Company, and is actively seeking additional materials both domestically and internationally. Energy Fuels has already produced and sold commercial quantities of mixed rare earth carbonates cleaned of uranium and thorium.

Now, at last, we come to Appia and Canada's entry into the rare earths' mining and processing arena.

Australia's [Vital Metals Limited](#) (ASX: VML | OTCQB: VTMXF) is now mining bastnaesite just outside of Yellowknife in Canada's Northwest Territory from a high-grade deposit discovered by [Avalon Advanced Materials Inc.](#) (TSX: AVL | OTCQB: AVLNF) and licensed to Vital. The ore concentrate will be first sent to an operation being built by the Saskatchewan Resource Council (SRC), a Crown Corporation, where the uranium and thorium will be removed and a mixed rare earth carbonate produced for use in further downstream processing. The first such production has already been pre-sold to both American and European processing customers.

But the SRC has plans to construct not only a cracking, leaching, and radioactive recovery and storage system (Saskatchewan is Canada's largest uranium mining and processing

province, so the business there is well established and understood), but also a rare earths separation system in the form of a dedicated solvent extraction facility, the first of its kind in Canada.

Now we come to Appia Rare Earths & Uranium Corp., a Canadian company, originally exploring for uranium in Saskatchewan's world-famous Athabasca Basin. About 5 years ago its then geologist discovered a dramatically high-grade sample of monazite on the company's Alces Lake Property in Saskatchewan. He soon found that the sample had come from an outcrop showing extensive monazite veining. He continued to explore the area and predicted that the monazite field was extensive. Analysis of samples he took showed that it was also the highest grade neodymium rich monazite ever found in North America.

I was a speaker that year at a Metal Events' Rare Earth Conference in Henderson, Nevada, and the Appia geologist, James Sykes, was an attendee. I had never met him, but we shared a cab to the airport, and he excitedly told me the Alces lake, monazite, story. I was intrigued, but I had reservations about the thorium and uranium that would be present in such a high-grade material. I thought of the highest grade rare earths deposit ever worked, Steencompskraal, in South Africa, which was actually worked as a thorium mine with no interest (in the 1960s) in the rare earths contained. I didn't then know of the monazite project in China or CNC's role in it. I listened politely to Mr Sykes and wondered what anyone would do with this discovery if it were confirmed to be extensive enough to qualify as a NI 43-101 resource.

Did I mention that James Sykes also said that he believed the extended discovery to be near surface, so that a quarrying operation would obviate the need for underground operations?

It is now the Spring of 2022, and Appia has raised approximately \$15.5 million in the last year. This funding is for a [drilling program](#) which is underway to prove a resource.

Energy Fuels is processing monazite, the Saskatchewan Resource Council has approved \$31 million to acquire monazite, and other rare earth ore concentrates, and build a first of its kind in Canada cracking and leaching and separation facility dedicated to rare earths, and Canada's [Ucore Rare Metals Inc.](#) (TSXV: UCU | OTCQX: UURAF) has begun construction of a Strategic Metals Center in Alaska for the central processing of critical metals, beginning with rare earth mixed carbonates from a variety of sources including Canadian and Australian monazites.

Appia's drilling results so far are very encouraging, and have been extensively reported.

I think we may see the highest grade neodymium-rich monazite in the America's flow from Alces lake before 2025. If so, It will certainly be in high demand.

Did I mention that the Appia monazite discovery contains 1% of xenotime, the hard rock mineral source of yttrium, dysprosium, and terbium? A one-stop-shop for magnet makers?

The stars and this planet are coming into alignment for this one. Monazite is back.

Disclosure: Jack Lifton is a member of Appia Rare Earths & Uranium Corp.'s Advisory Board and the Advisory Board for Energy Fuels Inc., and may hold securities or options in some of the companies mentioned in the above article.

Tom Drivas and Frederick Kozak on Appia Rare Earths & Uranium's best in class rare earths deposit and its prospective uranium property

written by InvestorNews | May 4, 2023

In a recent InvestorIntel interview, Tracy Weslosky spoke with Tom Drivas, CEO and Director, and Frederick Kozak, President of [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF) about how “Appia is part of the solution” to the current energy shortage and the global push towards electrification of vehicles.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Tom Drivas provided [an update](#) on Appia's recently acquired contiguous uranium mineral claims in the Athabasca Basin which “has a lot of similarities to other known high-grade uranium deposits in the Athabasca Basin.” In the interview, Frederick Kozak highlighted the gap in the rare earths market given that “China still controls about 90% of the global rare earths industry and the demand for magnet rare earths expected to grow five times by 2030.” He went on to provide an update on Appia's Alces Lake Rare Earths Property and explained why it “looks to be one of the best rare earth discoveries in the world.”

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

[About Appia Rare Earths & Uranium Corp.](#)

Appia is a Canadian publicly listed company in the rare earth element and uranium sectors. The Company is currently focusing on delineating high-grade critical rare earth elements and gallium on the Alces Lake property, as well as exploring for high-grade uranium in the prolific Athabasca Basin on its Otherside, Loranger, North Wollaston, and Eastside properties. The Company holds the surface rights to exploration for 105,026 hectares (259,525 acres) in Saskatchewan. The Company also has a 100% interest in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario.

To learn more about Appia Rare Earths & Uranium Corp., [click here](#)

Disclaimer: Appia Rare Earths & Uranium Corp. is an advertorial member of InvestorIntel Corp.

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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.

Leading rare earths junior Appia adds a new uranium claim block to their expanding asset portfolio

written by InvestorNews | May 4, 2023

Two of the best-performing commodities in the past year have been the key rare earth magnet material blend, neodymium, praseodymium (NdPr), and the energy metal, uranium. Today's company has established itself as a leading rare earths junior in Canada, but recently [changed its name](#) and expanded its

uranium portfolio. This means investors get exposure to both the key magnet rare earths and also uranium. Even better, it controls 3 projects/properties.

The Company is [Appia Rare Earths & Uranium Corp.](#) (CSE: API | OTCQB: APAAF) (Appia) formerly known as Appia Energy, with its Alces Lake rare earths project and its newly acquired uranium mineral claim block (Otherside), as well as other uranium properties located in Northern Saskatchewan, Canada, and its Elliot Lake uranium and rare earths property in Ontario, Canada.

Appia's very high-grade rare earths project at Alces Lake

For background on Appia's rare earths projects you can read some past articles [here](#) which focus on Appia's tremendous asset at Alces Lake, Canada which has the 2nd highest average rare earth's grade in the world, at [16.65 wt% TREO](#). High-grade zones are up to 49 wt% TREO. The rare earths are hosted in favorable 'monazite' ore at or near surface spread over 27sq km of tenements. There is a [23-25%](#) Critical Rare Earth Oxide (CREO) component, including neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb).

Appia's 100% owned Alces Lake Project has the world's second highest average grade of TREO



Source: [Company presentation](#)

Appia has access to use the Government funded Saskatchewan Research Council (SRC) processing facility in Saskatoon, Canada. Existing pilot facilities there(1,000 tpa capacity) have already optimized a monazite processing flow sheet for Appia. The SRC production-scale processing facility is expected to be partially operational in early 2023.

Appia plans a smaller surface and near-surface operation to start production with an open-pit scenario which is easier to permit and manage and should have a low CapEx/Opex.

Appia's latest results include:

- Drill results at Wilson North (Alces Lake) with [average 17.5 wt% TREO over 9.38 metres](#) with up to 37.9 wt% TREO.
- [High grade REE mineralization](#) identified over an estimated 27 square kilometre area. Channel sample of 14.71 wt % TREO from Sweet Chili Heat and 11.94 wt % TREO from Diablo. 10.35 wt % TREO returned from grab sample at Zesty. 7.86 wt % TREO returned from grab sample along the Oldman River trend. New discovery of REEs with 2.27 wt % TREO grab sample from "Train Domain". Elevated critical electronics metal, Gallium, values have also been returned for all samples enriched in TREO.
- Promising Results from Initial Metallurgical Tests on a Composite Sample from Alces Lake. Laboratory heavy liquid separation tests recovered 95% of the total rare earth oxide (TREO). Appia President Frederick Kozak [stated](#): "TREO recoveries and the percentage of TREO in concentrate are comparable to other producing global rare earths projects, supporting the potential for Alces Lake as a future monazite rare earths supply."

Appia is waiting on further drilling core and channel sample assay results from the 2021 program. In terms of major near-term catalysts, Appia [states](#): "Analysis of 2021 drilling and assays may lead to NI 43-101 report early 2022."

Saskatchewan Uranium Properties

Appia recently [announced](#) that they significantly increased their uranium claims by acquiring the Otherside claim block of 27,291 contiguous hectares. Appia [states](#): "The claims were staked on

the basis of similar geological and geophysical signatures to the Company's Loranger property as well as other known high-grade, large-tonnage uranium deposits in the Athabasca Basin including Fission Uranium Corp's Triple R deposit, NexGen Energy's Arrow deposits and others."

Appia now owns 4 uranium properties/claims over a total of 69,344 hectares – Loranger, North Wollaston, Eastside, and Otherside. The properties are well located with proximity to infrastructure such as roads, highway, powerline, an airstrip as well as two uranium mills. The properties are ready to explore, with at or near-surface high-grade uranium, no sandstone cover, and negligible overburden.

Saskatchewan Uranium Properties – Loranger, North Wollaston, Eastside, and Otherside



Source: [Company news January 10, 2022](#)

Appia [stated](#) on January 10, 2022 that the next steps are: "Appia has commenced the permitting process for a winter drilling program on the Loranger property and anticipates commencement of drilling in approximately one month, depending on weather and permits. The Company is fully funded for this program."

Elliot Lake (Ontario, Canada)

Appia also has a 100% interest in 12,545 hectares (31,000 acres), with rare earth element and uranium deposits over five mineralized zones in the Elliot Lake Camp, Ontario. The Resource details are shown in the table below.



Source: [Company presentation](#)

Closing remarks

Appia is becoming a significant rare earths and uranium junior. Appia now owns three very promising projects – Alces Lake (very high grade and critical rare earths), Saskatchewan Uranium Properties (Loranger, North Wollaston, Eastside, and Otherside), and Elliot Lake (rare earths & uranium).

Appia trades on a market cap of [C\\$54 million](#).