

Offering freedom from China on Foreign Medical Imaging Supplies, Voyageur Pharmaceuticals announces another key milestone

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Barium and iodine-based radiographic contrast media (RCM) are types of RCM used in diagnostic imaging. Both work by attenuating X-rays to create clearer images of the body's internal structures. Barium-based RCM is injected orally and used most often for gastrointestinal (GI) radiography and CT , while iodine-based RCM is injected and used primarily for gastrointestinal (GI) radiography and computed tomography (CT) and vascular radiography. These materials are critical for diagnostics and testing in the medical industry.

The Canadian radiology pharmaceutical industry is highly reliant on foreign suppliers, particularly in China. Geopolitical and supply chain issues can drive prices up significantly. Canada is vulnerable to disruptions in the Chinese supply chain. Moreover, quality control issues and intellectual property concerns have also been raised with respect to Chinese-made products.

As a result, the Canadian government has been working on a national strategy to de-couple from China for critical minerals and pharmaceuticals. In order to reduce reliance on foreign suppliers, the industry needs more low-cost producers. One of the companies that is working to reduce this reliance is Voyageur Pharmaceuticals Ltd. (TSXV: VM).

This company has recently hit a large milestone that will help the company achieve its long-term goals. They recently finished a production test batch of their barium contrast suspension for computed tomography imaging, known as SmoothX. This testing batch was completed with their contract manufacturer, who recently received their FDA site registration.

The production test batch is an essential milestone in the development of Voyageur's barium contrast agent, which is being developed as a potential alternative to current products on the market. Barium contrast agents are used in CT scanning to improve the visibility of certain structures and tissues. The successful production of SmoothX opens up the possibility of commercialization in Canada.

Achieving commercial volumes is a key milestone for the company as it looks to establish itself as a major player in the radiology pharmaceutical industry. The company is excited about the potential of SmoothX and believes that it has the potential to be a best-in-class contrast agent. Voyageur is committed to bringing this important new product to market and will continue to invest in its development and commercialization.

The company also holds Health Canada-approved licenses for a total of five barium contrast media products. These licenses give it a great opportunity to expand in the Canadian market. The long-term goal is to develop a fully integrated supply chain for barium and iodine contrast media in Canada. The company has the scale and scope to achieve this. It has a strong product portfolio and a robust research and development pipeline. These capabilities will enable the company to meet the needs of the Canadian market and potentially create shareholder value.

FDA approval is one of the next steps for Voyageur to begin sales in the US. They are also working on building a GMP barium

contrast plant to process barium sulfate that would be supplied from their own Frances Creek barium project. This capability would allow them to produce their own product instead of relying on a third party. By controlling all aspects of its carbon footprint, Voyageur will be able to offer a completely carbon-neutral product to its customers.

The company has a 100% controlling interest in three barium sulfate projects, including the Frances Creek property. The Frances Creek property is suitable in grade for the pharmaceutical barite marketplace. In addition, Voyageur has an interest in a high-grade iodine, lithium, and bromine brine project located in Utah. This capability enhances the company's unique sourcing capability to create its products from its own mineral deposits.

Voyageur's objective is to become a leading global provider of pharmaceutical barite and high-grade iodine products by leveraging its extensive knowledge of geology, mineral processing, and product formulation. The company plans to achieve this by expanding its production capacity to meet growing demand from the medical imaging industry and continue to explore and develop its portfolio of mineral projects.

Voyageur	Pharmaceuticals
completes	FDA submission

milestone for first barium contrast product license application

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[Radiographic contrast media](#) are substances used in diagnostic imaging tests such as ultrasound, X-rays, CT scans and MRI to enhance the visibility of internal structures. Iodine and barium sulfate are the typically used substances to provide the contrast media. [According to](#) IQ41 Research & Consultancy Pvt. Ltd: The global addressable market for contrast media is forecast to grow from US\$4.7 billion in 2021 to US\$7 billion by 2028, at a CAGR of 7.7%.

As of April 2022, Voyageur Pharmaceutical reports that barium sulfate prices are [up](#) 300% in the past 12 months, to \$17,000/tonne; due to a worldwide shortage of high-quality natural USP pharmaceutical barium sulfate which has forced most manufacturers to use synthetic, high-cost barite for their products.

[Voyageur Pharmaceuticals Ltd.](#) (TSXV: VM) (Voyageur) is advancing its plan to become the [only fully integrated company](#) in the radiographic contrast media field, by developing barium and iodine generic radiographic contrast media. Voyageur is unique, as it plans to source its own raw materials (barium sulfate & iodine) from its own mineral deposits located in Canada and USA respectively.

Progressing towards potentially achieving FDA approval in the USA

As [announced](#) on May 18, 2022, Voyageur has recently completed a

milestone with their FDA submission. According to Voyageur: “Based on preliminary discussions with the FDA, Voyageur has submitted extensive documentation for the first barium contrast product license application. Voyageur is currently scheduled to meet with the FDA in June, to finalize submission requirements for this product and once this application is approved, the Company plans on submitting applications for additional products. Upon receipt of the application, the FDA may grant the license within 120 days, thus giving Voyageur the approval to market its first barium sulfate contrast agent in the United States.”

The current timeline suggests the potential FDA licensing approvals may be obtained by October to November 2022, all going well.

Product development

Voyageur recently completed the design and testing of the first batch of its smoothie product line of barium sulfate contrast agent. Voyageur [says](#) that “once this testing is completed, the data will be used to support the initial marketing and sale of the Company’s line of barium sulfate imaging products that are approved for the Canadian market and in tandem will be used for the Food and Drug Administration (FDA) submission.”

Voyageur plans to achieve initial cash flow through third-party pharmaceutical manufacturing, sourcing third-party minerals, turnkey manufacturing, bottling, and distribution of barium and iodine radiographic pharmaceutical drugs. The longer-term plan is to be vertically integrated.

Voyageur Pharmaceuticals completed milestones



Source: [Voyageur Resources company presentation](#)

Next steps and a positive PEA announced in January 2022

Voyageur has engaged an engineering firm to design and build the barium processing and contrast manufacturing plant and the pharmaceutical product manufacturing plant. [According to Voyager](#): “These two facilities will become the foundation of the only fully integrated and totally controlled entry into the global imaging market for barium sulfate contrast agents. This control is intended to provide Voyageur with a low-cost advantage that should support the gaining of market share and improved margins.”

The master plan is for the plant to be fed by Voyageur’s 100% owned barium sourced from the [Frances Creek Project](#). The Project is located near the town of Radium Hot Springs, British Columbia, Canada. All of the above is subject to funding.

The Frances Creek Pharmaceutical Barium Project Preliminary Economic Assessment (PEA) was [announced](#) in January 2022, resulting in a base case pre-tax net present value 8% (“NPV8%”) of C\$464 million and an internal rate of return (IRR) of 168%, while the post-tax NPV8% was C\$344 million with an IRR of 137%. The total capital required over 3 years for the Project was estimated at C\$36 million. Operating gross margins were estimated to average 75% over the Project.

Voyageur Pharmaceuticals 2022 PEA for the Frances Creek Pharmaceutical Barium Project



Source: [Voyageur Resources company presentation](#)

Closing remarks

Voyageur Pharmaceuticals already has a very high grade ([37.75%](#)) barium sulfate Indicated Resource and has released a solid PEA for the integrated Frances Creek Pharmaceutical Barium Project.

The next major steps mostly revolve around further product development testing, FDA regulation in the USA, project funding, and finally getting into production. Beyond that is development of the Company's Iodine-lithium-bromine brine project in Utah and potentially some battery mineral projects as you can read [here](#).

2022 looks like being a key year for Voyageur Pharmaceuticals.

Brent Willis of Voyageur Pharmaceuticals discusses the high IRR and NPV in its recent PEA

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In a recent InvestorIntel interview, Tracy Weslosky spoke with Brent Willis, President and CEO of [Voyageur Pharmaceuticals Ltd.](#) (TSXV: VM) about Voyageur's recent [Preliminary Economic Assessment](#) resulting in an internal rate of return (IRR) of 137% and a NPV of \$344 million for their Frances Creek Pharmaceutical Barium Project located in British Columbia, Canada.

In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Brent Willis highlighted the limited supply of naturally

occurring, high grade, barium sulfate. He went on to explain how having one of the most accessible and highest-grade barium sulfate deposits in the world, grading over 98% barium sulfate, allows Voyageur to become a low-cost producer of high-value barium sulfate products and ensure full integration of the radiology drug market. Brent also provided an update on Voyageur's newly created [Scientific Advisory Board](#) of world-class leading physicians in the medical radiology industry.

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

About Voyageur Pharmaceuticals Ltd.

Voyageur is a Canadian public company listed on the TSXV under the trading symbol VM. Voyageur is focused on the development of barite and iodine Active Pharmaceutical Ingredients ("API") and high-performance cost-effective imaging contrast agents for the medical radiology marketplace. Voyageur's goal is to initially generate positive cash flow from operations using third party GMP pharmaceutical manufacturers in Canada and internationally. Ultimately, Voyageur has plans to build all the required infrastructure to become 100% self-sufficient with all manufacturing. Voyageur owns a 100% interest in three barium sulphate (barite) projects including the Frances Creek property, suitable in grade for the pharmaceutical barite marketplace, with interests in a high-grade iodine, lithium & bromine brine project located in Utah, USA.

Voyageur is moving forward with its business plan of becoming the only fully integrated company in the radiology medical field, by controlling all primary input costs under the motto of: "From the Earth to the Bottle".

To learn more about Voyageur Pharmaceuticals Ltd., [click here](#)

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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.

Voyageur Pharmaceuticals' X-Ray Contrast Media Provides a Dramatic Increase in Valuation

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Assuming you aren't a meme stock or an equity driven by the Reddit army, then you know you've told the market something it really wanted to hear when your stock is up 80% in one day. Even great news might get you a 5-10% bump so it has to be pretty exceptional to attract this kind of attention. Another indication of excitement is when this move occurs on volume that is 32x your average daily trading activity. If you didn't have [Voyageur Pharmaceuticals Ltd.](#) (TSXV: VM) on your watchlist (or in your portfolio) prior to today, you might want to put it on your radar now.

So, what was the news that drove this bullish rally? We'll get to that in a moment as a little background may be required unless you are up to speed on the uses and importance of barium sulfate. Barium sulfate (BaSO_4) is a naturally occurring environmentally friendly mineral with a high specific gravity (4.5) and very low solubility. Barium sulfate is used in many industrial applications and is in high demand. Voyageur is pursuing production into the highest margin market worldwide, having developed nine barium products for sale into the radiology pharmaceutical market for MRI, X-ray and CT scan applications.

Now that we've established that Voyageur is a drug manufacturing company focused on radiographic contrast media products for the

healthcare market, we need to understand what separates it from most other companies. Voyageur is sourcing its own main ingredients from its own mineral deposits, building a business model that will allow it to be a fully integrated company in the radiographic marketplace. Voyageur is implementing a strategy to control its own supply chain and all input costs, leading to the Company motto "From the Earth to the Bottle". Which is where yesterday's news becomes important. The Company announced the results of its [Preliminary Economic Assessment](#) (PEA) for the development of its Frances Creek pharmaceutical barium sulfate project, located 40km from Radium Hot Springs in British Columbia. The base case economics for the project indicate a pre-tax net present value (NPV) of C\$464 million and internal rate of return (IRR) of 168%, while the post tax NPV is C\$344 million with an IRR of 137% at a discount rate of 8%. The project assumes a pre-production period of 2 years for equipment delivery and installation, and mine permitting with a payback period of 11 months.

At present, Voyageur's Frances Creek project is the only natural pharmaceutical grade barium sulfate project outside of China. Most companies use high-cost synthetically made barium due to supply and quality constraints. Which is why current pricing of 97.5% BaSO₄ available from China has a delivered price (to Calgary) of US\$4,760 per tonne, or C\$5,960 per tonne. This project is very convenient for Voyageur given its proximity to Calgary where the corporate head office and manufacturing facilities are located. It's less than a 2 hour drive and although I don't know exactly where their asset is situated I'm pretty sure I've either fished or hiked within 5 kms of the project.

Another reason for the robust PEA economics is a function of the resource being a mere 2 meters below surface. I've said it before, and I'll say it again, any resource that can be accessed

by someone with a good shovel has to have advantageous economics. The total capital cost estimate for the project is a miserly C\$36.4 million including a 15% contingency on process capital costs, which also contributes to the outstanding PEA economics.

And the best part is, Voyageur expects to be generating its own cash flow using third party barium active pharmaceutical ingredients and manufacturing in 2022. With its manufacturing partner Alberta Veterinarian Laboratories/Solvat it has [completed its first test batch of barium contrast media](#) and is working on clinical testing of this first batch to ensure quality and performance. Voyageur's goal is to complete testing for the Canadian product launch by February followed by a marketing campaign for sales into the Canadian radiology market. Ultimately, Voyageur has plans to build all the required infrastructure to become 100% self-sufficient with all manufacturing but for now, one step at a time.

This isn't the first time Voyageur has seen a massive one day move on enormous trading volume. On February 12, 2021, following news of [Health Canada approval for SmoothX](#), a barium radiographic contrast suspension that is specifically formulated for computer tomography procedures (CT Scans), the stock was up 228% on 7 million shares. You could say Voyageur has a flare for the dramatic and perhaps there is still opportunity for lightning to strike a third time. With roughly 101 million shares outstanding, the market cap was roughly C\$18.2 million based on yesterday's close of \$0.18 versus the PEA NPV after tax of \$3.38 per share. Obviously, there is some work to be done before the Frances Creek project becomes a reality, but there's also a pretty big gap between yesterday's price and what could be.

High-Grade Barium Project Creates High-Value Opportunity for Voyageur Pharmaceuticals

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[Voyageur Pharmaceuticals Ltd.](#) (TSXV: VM) (Voyageur) is a Canadian-based company that is focused on developing barium and iodine radio-contrast pharmaceutical suspension products for the X-ray/medical scan industry.

Currently, China has the only natural, pharmaceutical-grade barite project and only exports a fraction of the current world demand. The rest of the supply is made up of higher-cost chemically-manufactured, synthetic barium precipitate.

Voyageur is unique in that it plans to capture value from a source-to-finished product. The Company owns a 100% interest in three barium sulfate (barite) projects in British Columbia, Canada, including two properties suitable in grade and purity for the pharmaceutical barite market.

Currently, the Company is focusing on the high-grade Frances Creek project as preliminary work with SGS Canada (SGS) resulted in a gravity-separated, high-grade concentrate of 98.6% barium sulfate.

In a barium contrast suspension product, barium sulfate comprises almost 98% of the cost of the ingredients. With the Frances Creek deposit, Voyageur believes that it will have the lowest ingredient costs for barium contrast in North America and

can sell any excess production into the barite market for additional cash flow.

Starting with Health Canada then Shifting to the U.S.

In late 2019, Voyageur submitted applications for product registrations to Health Canada in order to begin sales in Canada. A total of five barium sulfate suspension products were registered with Health Canada.

- SmoothX_{Ba}: A barium sulfate oral suspension used in computed tomography scans (CT) of the abdomen to view the gastrointestinal tract in adult and pediatric patients.
- HDX_{Ba}: A high-density dry barium powder that is engineered to be mixed with water to create a barium sulfate suspension for radiographic oral consumption. HDX is used during X-ray procedures to view the upper gastrointestinal tract.
- MultiXthin: A specially formulated, low density, pre-mixed barium suspension product that will be sold in a 2-liter container, similar in use and composition to the dry-powder MultiX
- MultiXthick: A specially formulated, high density, pre-mixed barium suspension product that will be sold in a 2-liter container, similar in use and composition to the dry-powder HDX.
- MultiX_{Ba}: MultiX is similar in use and composition to HDX but the barite has been ground to 1-micron size.

Unfortunately, events pertaining to COVID-19 impacted Voyageur's plans as Health Canada focused on approving products related to the pandemic. However, earlier this year, Health Canada approved and issued the product licenses for SmoothX, HDX, and MultiX. The Company is waiting for approvals for MultiXthin and MultiXthick but expects to receive them shortly.

Ramping Up Production and Marketing

In November 2020, Voyageur announced signing [an agreement](#) with Alberta Veterinarian Laboratories (AVL) for the manufacturing of barium radiographic contrast media.

AVL is a Calgary-based contract pharmaceutical manufacturing company and manufactures both human and veterinarian pharmaceuticals products.

It operates a Health Canada-approved medical testing laboratory and a Good Manufacturing Practices (GMP) pharmaceutical manufacturing facility.

As Voyageur progresses through sourcing the barite from its Frances Creek project, it acquired USP (US Pharmacopeia) barium sulfate from third-party sources for the initial product formulation and near-term sales.

AVL and Voyageur are currently working on the formulation testing for the initial barium contrast product using the procured barite.

A [recent decision](#) in the U.S. that upheld a prior ruling concluding radiographic contrast agent barium sulfate qualifies as a device rather than a drug could result in reduced cost and faster approvals for Voyageur barium products with the U.S Food & Drug Administration (FDA).

Earlier this month, Voyageur signed a marketing and product development [agreement](#) with Dash Consulting since the products are nearing roll-out in Canada and the Company is seeking U.S. FDA approval.

Dash is a consulting firm focused on the barium and iodine radiographic contrast media market and it has already begun working on preparing for the product applications globally,

including in the U.S., U.K., South America, and Southeast Asian markets.

From PEA/Pre-Feasibility and Bulk Sample this Year to Mining in 2022

Voyageur is working with SGS to complete a Preliminary Economic Assessment (PEA) and Pre-Feasibility (PF) study that it expects to complete by mid-year. As part of this process, Voyageur filed an updated [NI 43-101 Technical Report](#) on the Frances Creek project in November 2020.

Previous results from the ore testing in December 2019 indicated that the barite could be separated from the ore using gravity, eliminating the need for the use of water and a tailings pond, and resulted in high-concentrate grades of 98.6% barium sulfate.

Voyageur plans to mine a 10,000-tonne bulk sample within the next 12-months and process it through a smaller, pilot plant. The barium sulfate produced from the bulk sample could generate cash flow from product sales into the pharmaceutical market.

If the project economics are robust and meet the economic threshold to move forward, the application for the quarry permit for full production would be submitted.

To further upgrade the barite concentrate and to add value, Voyageur plans to build a 25,000 tonne-per-year plant that could sustain pharmaceutical production requirements for the next 40 years, this plant is targeting 2022 for completion.

Final Thoughts

Currently, Voyager is raising \$1.73 million as it completes a PEA and Pre-feasibility, and ramps up sales and marketing, including product roll-out and testing, and U.S. FDA and International registrations.

Earlier this month, Voyager's stock increased sharply after it [received approval](#) from Health Canada for one of its products. With a series of milestones planned for this year, expect investors' optimism will continue to move the share price higher as the opportunity comes closer to production.

Voyageur closed yesterday at \$0.16 with a Market Cap of \$14.3 million.