

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's quest to become
the only fully integrated**

company in the radiographic contrast media field accelerates timeline with design of a carbon neutral pharmaceutical plant

written by Tracy Weslosky | November 30, 2022

Did you know that when you go to the doctor and require an X-Ray or scan in many cases they use what's known as 'contrast media' to help diagnose the problem? Today's company is working to become the [only fully integrated company](#) in the radiographic contrast media field, by developing barium and iodine generic radiographic contrast media.

The company is [Voyageur Pharmaceuticals Ltd.](#) (TSXV: VM) (Voyageur). Voyageur's long-term vision is to serve both the barium and iodine contrast media markets, from a fully integrated supply chain: "From The Earth To The Bottle". Voyageur also has potential with 'fullerene-based' contrast agents with Voyageur recently [signing an MOU with Rain Cage Carbon Inc.](#) to develop the product.

Voyageur owns the mineral projects and is now building out the next steps towards the commercialization of their barium and iodine products.

Voyageur [state](#):

"We have assembled a team of contrast media experts and world leading radiologists to drive our decision making for this important patient-led initiative, the starting point being

several Health Canada licenses already approved for barium contrast media. Voyageur is now working with the FDA to register our products in the US market, whilst creating a drug dossier for the European and International markets. “

Voyageur previously [guided](#) that U.S FDA approval could potentially come about 120 days after a June FDA meeting, effectively by October to November 2022, which would be right about now. Of course, this is subject to delay or change.

Voyageur is building a fully integrated supply chain, delivering high quality products to the market



Source: [Voyageur Pharmaceuticals website](#)

Voyageur's roadmap towards barite start of production in 2024

In a significant step forward towards achieving their vertical integration goal, Voyageur [announced](#) on September 22, 2022, that they have submitted a 'notice of work' with the BC Ministry of Mines for the removal of 2,000 tonnes of barite in 2023 from their Frances Creek Project. Upon approval, Voyageur intends to use the 2,000 tonne barite sample for testing on a new active pharmaceutical plant, tentatively scheduled to begin construction in 2023.

As [announced](#) on October 31, 2022 Voyageur has now completed the design of its carbon neutral pharmaceutical plant, with the total capital cost to be C\$30M (excluding land). Voyageur [states](#):

“The manufacturing facility is designed to produce revenue streams from pharmaceutical barium and iodine contrast media products for the radiology drug market. The plant is expected to produce additional revenue stream from industrial barite sales

and produce carbon fullerene allotropes for the new drug development program. Voyageur has chosen to set up operations in Alberta, Canada.....The added benefit of de-carbonizing our customer base by utilizing our carbon credits will make our product line unique and attractive to ensure potential high growth.....The timeline for construction of the pharmaceutical manufacturing and R&D facility will take an estimated 18 months to complete, subject to financing. Upon completion of the facility, the processing of Frances Creek barium will commence.”

Once the Frances Creek Project pilot plant is completed Voyageur will then submit a new ‘notice of work’ for a Small Quarry to the BC Ministry of Mines, with plans for full production in 2024.

By 2025 Voyageur plans to achieve ‘full’ vertical integration of barium and iodine contrast media products.

Voyageur’s timeline to achieve revenues and vertical integration



Source: [Voyageur company presentation](#)

Voyageur’s business strategy

Voyageur intends to initially generate positive cash flow from operations using third party contract pharmaceutical manufacturers in Canada and internationally. Next Voyageur has plans to build all the required infrastructure to become 100% self-sufficient with all manufacturing.

Voyageur Pharmaceuticals aims to be the only company in the world to develop barium sulfate & iodine contrast products from 100% natural resource



Source: [Voyageur company presentation](#)

Certainly, if Voyageur can pull off their ambitious plans to become a vertically integrated barium and iodine manufacturer then there is potentially good money to be made. 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%](#).

Based on the PEA, the Frances Creek Project has [a NPV of \\$344 million with an IRR of 137%](#).

Voyageur Pharmaceuticals trades on a market cap of only ~[C\\$10M](#).

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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Voyageur Pharmaceuticals'
Brent Willis on creating the
first vertically integrated
medical radiological contrast

media supplier in NA

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In this InvestorIntel interview, which may also be viewed on YouTube ([click here to subscribe to the InvestorIntel Channel](#)), Brent Willis highlighted the lack of advancement in the imaging contrast industry and said that Voyageur's Scientific Advisory Board will help create new innovative products, which will change the medical radiological contrast industry and will help detect diseases earlier. With only a few major players in the barium sulfate space internationally, Brent said that Voyageur plans to become the only fully integrated company in the barium sulfate space with its own source minerals, and will also vertically integrate itself in the iodine contrast space.

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

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phases of product manufacturing. Voyageur owns a 100% interest in three barium sulfate (barite) projects including the Frances Creek property, suitable in grade for the pharmaceutical barite marketplace, with additional interests in a high-grade iodine, lithium & bromine brine project located in Utah, USA.

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