

SEARCH MINERALS INC.

Magnet Rare Earth Element (REE) Project: Deep Fox and Foxtrot Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy), Terbium (Tb)

Search Minerals Inc. (TSXV-SMY) is developing its Canadian magnet rare earth element (REE) mine and concentrator project in Labrador. In tandem with this, Search is focused on developing a mixed REE carbonate hydrometallurgical production plant, plus a REE separation facility on the Island of Newfoundland. Search continues to delineate additional deposits within its Labrador Critical Rare Earth Elements (CREE) properties.

Search Minerals (TSXV-SMY) has been active in the Port Hope Simpson – St. Lewis Critical Rare Earth Elements (CREE) District in South-East Labrador, Canada since 2009. The 64 km long CREE District contains our advanced flagship Deep Fox and Foxtrot deposits.

The Port Hope Simpson – St. Lewis CREE District has 20 other rare earth element (REE) showings, including the potential for at least two other significant REE deposits including the Fox Meadow prospect, which had its maiden 2,000 m drill program completed in December 2022, and the Fox Valley prospect. The Company owns another REE District in Central Labrador – the Red Wine CREE District.

In July 2022, a Preliminary Economic Assessment (PEA) Report was released for the two flagship deposits, outlining a 26-year mine life and robust economics.

Search has advanced a processing flowsheet for producing a primary REE concentrate using magnetic beneficiation in Labrador. This non-chemical process utilizes conventional magnetic separation technology and has been pilot plant tested to produce a 3.5% Total Rare Earth Oxide (TREO) concentrate.

Hydrometallurgical processing (direct extraction) of concentrate will occur at a Search-owned facility on a brownfield site on the island of Newfoundland. Bench scale and hydrometallurgical pilot plant work was successfully completed to produce a 99% mixed REE oxide concentrate or 56% mixed rare earth carbonate precipitate. Further demonstration plant scale hydrometallurgical work will be initiated in 2023 at SGS Lakefield (SGS), Ontario.

The 1 tonne mixed REE concentrate produced from the hydrometallurgical demonstration plant at SGS will be sent to the Saskatchewan Research Council facilities, for test separation into individual REE oxides, which are needed to produce the metals and alloys required for permanent magnet production.

Discussions with the Government of Newfoundland and Labrador (NL) to establish full separation capacity in the province to produce individual REE oxides are ongoing.

Search and its technical partner SGS are collaborating with the College of the North Atlantic (CNA) and Memorial University of Newfoundland (MUN) to advance initiatives to evaluate and establish full REE supply chain facilities within the province.

Project Highlights

The project consists of two components. The first component involves 26 years of open pit and underground mining at Deep Fox/Foxtrot and primary magnetic concentration in Labrador; REE concentrate will then be shipped from the nearby port of St. Lewis. The open pit plus concentrator will provide 128 direct jobs. When the project progresses to peak underground production, there will be 249 direct jobs. The second component includes processing of the REE concentrate at a hydrometallurgical plant (direct extraction), located at a brownfield site on the Island of Newfoundland, to produce a mixed 56% REE carbonate precipitate. The mixed REE carbonate will then be transferred to a solvent extraction plant where REE are separated from one another to produce pure rare earth oxides (Nd_2O_3 , Pr_6O_{11} , Dy_2O_3 , and Tb_4O_7). The hydrometallurgical plant will create 110 direct jobs, and the separation facility will create 50 direct jobs. The full project will create approximately 409 direct jobs.

Major milestones include:

- July 2022: Deep Fox and Foxtrot PEA with increased mineral resource estimates, 26-year mine life, and \$ 1.3B NPV₈.
- September 2022: Successfully tested a magnetic separation process on a 70 tonne (t) Deep Fox/Foxtrot bulk sample. The resulting 20 t of upgraded 3.5% TREO concentrate will be further processed at a hydrometallurgical (direct extraction) demonstration plant project at SGS.
- October 2022: Deep Fox 14,000 m resource delineation, geotechnical, and hydrogeological drill program completed.
 - The drill program was designed to increase the mineral resource classification confidence within the open pit portion of the resource, while also characterizing the geotechnical and hydrogeological characteristics of the deposit, with the objective of supporting the continued design of an open pit and underground mine, as well as the Impact Assessment Review Process.
 - Search successfully delineated the open pit resource to an approximate depth of 200 m and anticipates this will have a significant positive impact on the economics and logistics of the deposit.
 - The results of this drill program will be used in updated mineral resource estimate for 2023.



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Deep Fox and Foxtrot Project Information

Mine and Concentrator in Labrador:

- Mine Type: Open pit followed by underground.
- Mine Life: 26 years; primary processing rate of 2,000 tonnes per day; 730,000 tonnes per annum (tpa).
- Non-chemical magnetic beneficiation, with magnetic rejects permanently dry stack stored (potential to blend with waste rock to eliminate tailing impoundment structures).
- Concentrate production: Following magnetic beneficiation, 200,000 tpa of 3.5% TREO concentrate (equivalent of 6.9 to 9.2 kg/tonne of magnet REE) will be shipped from the port of St. Lewis, utilizing 15,000 deadweight ton (DWT) bulk carriers (i.e., 14-15 shipments per annum) to a brownfield site on the Island of Newfoundland.
- Distance from the Deep Fox and Foxtrot deposits to the deep-water Port of St. Lewis is 2.7 km and 11 km, respectively.
- The 1,100 km paved Trans-Labrador Highway travels through and adjacent to the entire Port Hope Simpson – St. Lewis CREE District.
- Jobs: Open pit mine plus concentrator will create 128 direct jobs, increasing to 249 jobs for underground plus concentrator.
- Communities of St. Lewis, Port Hope Simpson, and Mary's Harbour are supportive, and each has a small airstrip and a local workforce awaiting employment and training opportunities.
- Completed evaluation of existing port facilities in St. Lewis, Labrador. Confirmed ability to upgrade the port to be suitable for the mine operation. Cost of wharf upgrades and dredging is estimated at \$28 million.
- Spent to date: Approximately \$40M since 2009 investment.
- Estimated CAPEX for the development of the mine and primary concentrator in Labrador is more than CAD \$200M.

Stage of Development

- Environmental baseline work is ongoing.
- Pre-feasibility engineering work has been initiated.
- Primary processing has been pilot plant scale tested.
- Hydrometallurgical processing has been bench- and pilot-scale tested. Demonstration plant scale test work planned for 2023.
- Natural Resources Canada has awarded \$5 Million in non-dilutive support to Search Minerals via a Contribution Agreement which will be used to fund the construction and operation of the demonstration plant.
- The total demonstration plant cost is estimated at approximately \$9.3 Million. Search Minerals' contribution to the construction and operation costs is anticipated to be approximately \$3.3 million, with a further \$1 Million of funding under application from other sources.
- The funding of the demonstration plant helps Search to:
 - Confirm application of the Direct Extraction Process to the rare earth concentrate materials
 - Obtain engineering data for feasibility study completion, expected in 2024
 - Prepare ~ 1 tonne of high purity mixed rare earth carbonate precipitate to be used to validate separation of individual rare earth products

Hydrometallurgical Plant at a brownfield site on the Island of Newfoundland:

- Hydrometallurgical plant will receive the 3.5% TREO concentrate from Labrador and produce a 99% mixed rare earth oxide or 56% mixed rare earth carbonate concentrate.
- Ideal location: within a 1.5 hour drive of St. John's.
- Jobs: 110 direct jobs.
- Estimated CAPEX for the development of a hydrometallurgical facility is more than CAD \$200M.

Individual REE Oxide Separation Facility at a brownfield site on the Island of Newfoundland:

- The estimated cost for development of a separation facility is CAD \$200M.
- The total production will average 1,437 tpa: 1,291 tpa Nd/Pr, 125 tpa Dy, and 21 tpa Tb.
- Separation facility will create an estimated 50 direct jobs.

Classification	Tonnage (000s t)	Pr ppm	Nd ppm	Dy ppm	Tb ppm
Open Pit					
Indicated	8,433	381	1,422	187	32
Inferred	1,441	329	1,231	179	30
Underground					
Indicated	6,611	368	1,376	182	31
Inferred	4,862	380	1,427	191	33
Total Indicated	15,094	375	1,402	185	32
Total Inferred	6,303	369	1,382	188	32

Mineral Resource: Summary of the Deep Fox and Foxtrot mineral resource, as of December 31, 2021.

Regulatory Approvals and Indigenous Engagement

- Located in the secure and mining friendly province of Newfoundland and Labrador.
- Permitting and licensing for exploration activities are secured on an annual basis.
- Exploration agreement with our Indigenous partner NunatuKavut Community Council (NCC), 2012. NCC is a significant shareholder, and there is a strong working relationship between the parties.

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Customer/Oftake

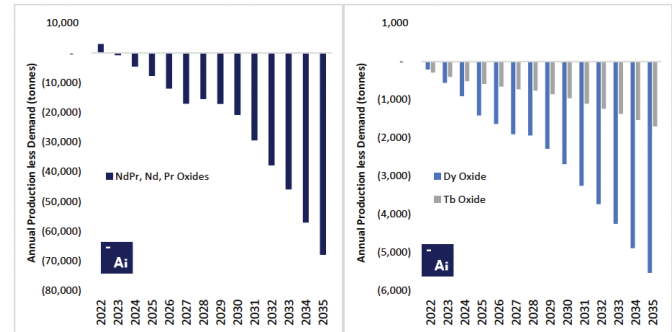
- October 2021: Following an earlier technical collaboration framework agreement, Search signed a non-binding Memorandum of Understanding (MOU) with USA Rare Earth LLC for an offtake of 500 tpa of Nd and Pr from future production at the Deep Fox or Foxtrot deposits.
- October 2020: Search signed an MOU with Saskatchewan Research Council (SRC). Search and SRC are collaborating on the testing of Search's 56% carbonate precipitate for separation into individual rare earth oxides.
- Search is actively pursuing end users in the rare earth supply chain, which could include the automotive and wind turbine industries, along with producers of metals, alloys, and permanent magnets.

Market Analysis

- The new and emerging markets driven by net-zero and low carbon government policies require permanent rare earth magnets to meet these goals.
- Adamas Intelligence (Adamas) forecasts that global magnet rare earth oxide consumption will triple by 2035 from USD \$15.1B this year, to \$46.2B by 2035.
- Adamas forecasts magnet rare earth oxide deficiencies from 21,000 tpa by 2030, to over 68,000 tpa by 2035.
- Search will supply 1,437 tpa of magnet rare earth oxides, amounting to 6.8% of the predicted 2030 shortage, and 2.1% of the 2035 shortage (i.e., about 48 Deep Fox and Foxtrot-sized mines needed to eliminate the projected shortage in 2035).
- Adamas provided Search a life-of-mine magnet rare earth element price forecast (USD):
 - Nd oxide = \$212/kg
 - Pr oxide = \$201/kg
 - Dy oxide = \$587/kg
 - Tb oxide = \$2,493/kg
- Adamas states: "Looking forward to 2035, Adamas forecasts that global demand for NdFeB magnets will triple while global production will only double, constrained by long lead times to bring online new rare earth oxide production."
- Building a reliable and secure rare earth supply chain is essential to managing disruptions.
- China produces 80% of REE and consumes 60%.
- Wide range of customers – Automotive industry (i.e., GM, Ford, Tesla, Hyundai, VW, etc.), wind turbines (i.e., GE, Siemens, Vestas), consumer electronics, industrial robotics, and energy efficient appliances.

Investment Opportunity

- Initial capital: CDN \$422 million (including \$61 million contingency) for mine and concentrator in Labrador and the hydrometallurgical facility at a brownfield site, plus additional costs (approximated to be CAD \$200M) to build separation facility on the Island of Newfoundland.
- Project Gross Revenue: \$13.7 billion over 26 years.
- Internal Rate of Return: 41.5% (after-tax).
- Bankable Feasibility Study (BFS) in H2, 2024.
- Market Capitalization (March 01, 2023): CAD \$27,000,000.
- Share structure:
 - Issued and outstanding: 414,487,014
 - Outstanding options: 39,530,000
 - Warrants: 51,075,503
 - Fully diluted: 505,092,517



Forecasted global production - demand balance for rare earth oxides used in permanent magnets (Adamas Intelligence, 2022)

Magnet Rare Earth Elements (REE) and Permanent Magnets (PM)

- Nd, Pr, Dy, and Tb are known as the magnet REEs, used to produce the world's most efficient and highest strength permanent magnets.
- Permanent magnets enable the conversion of electrical energy into motion via permanent magnet motors that power EVs, mobile devices, and robots; they also enable the conversion of wind motion into electrical energy via wind turbines.
- NL has potential to be hub for mining, processing, and full separation of REEs required to make the metals and alloys required for permanent magnet production.

Estimated Timeline to Production

- Pre-feasibility work continuing in 2023
- Demonstration plant completion: March 31, 2024
- Bankable Feasibility Study: H2, 2024
- Construction in Labrador: 2025/2026
- First production of concentrate: Q4, 2026
- Brownfield site on island of NL: construction period of hydrometallurgical, and separation plant TBD

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