

Lake Ainslie Barite-Fluorite Property Summary

Ownership: 100% owned by 21Alpha Resources Inc. and Perry MacKinnon

Location: Lake Ainslie, Cape Breton Island, Nova Scotia, Canada

Exploration Licence: 51491, 56854

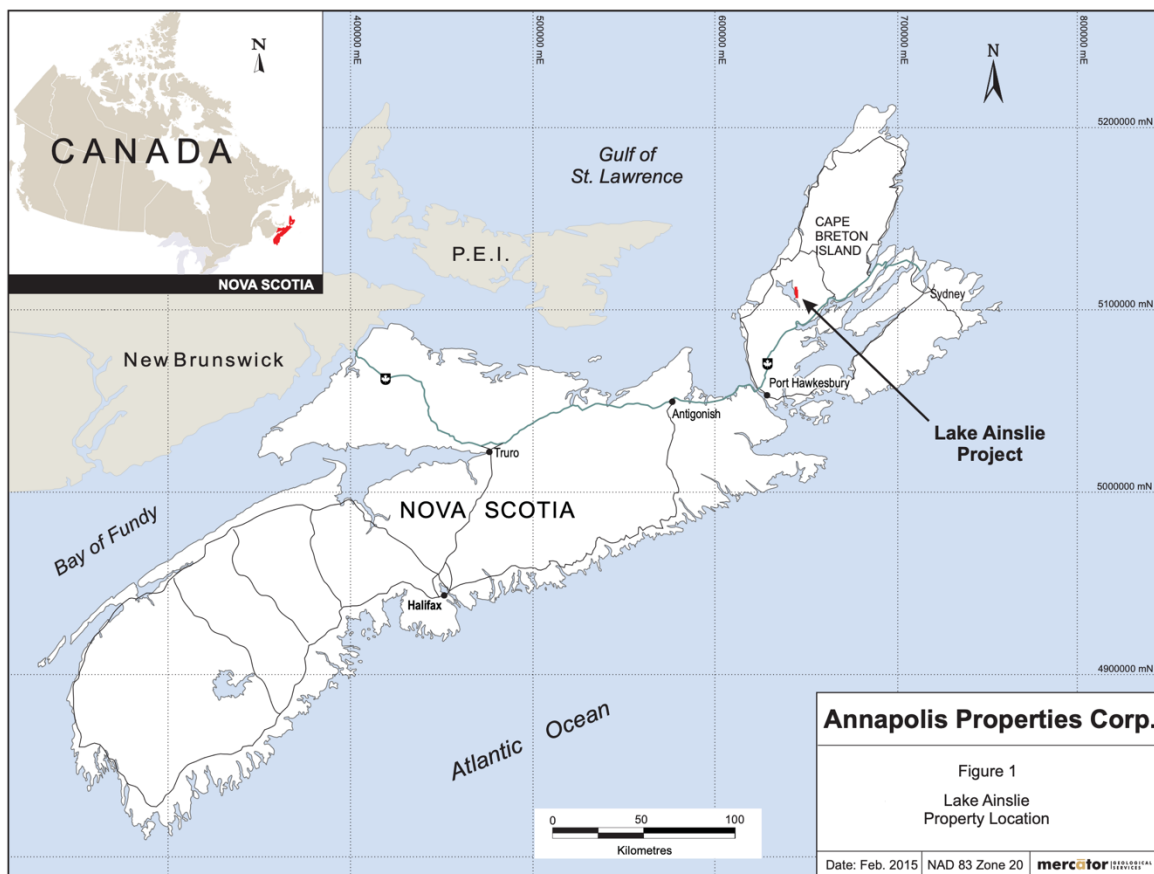
Commodities: Barite (BaSO_4), Fluorite (CaF_2), with associated Pb-Zn mineralization

Property Overview

The Lake Ainslie Property hosts multiple barite-fluorite vein systems that have been explored intermittently since the early 1940s. The project area includes seven defined vein prospects occurring within a felsic volcanic unit that extends across the western side of Lake Ainslie.

Historic exploration and government assessment work have outlined a non-compliant historical resource estimate of approximately **4.3 million tonnes grading 36.7% barite and 18.5% fluorite**, making it one of the most significant combined barite-fluorite occurrences in Atlantic Canada.

The property remains fully controlled, with a comprehensive historical dataset compiled and digitized by Mercator Geological Services in 2015.

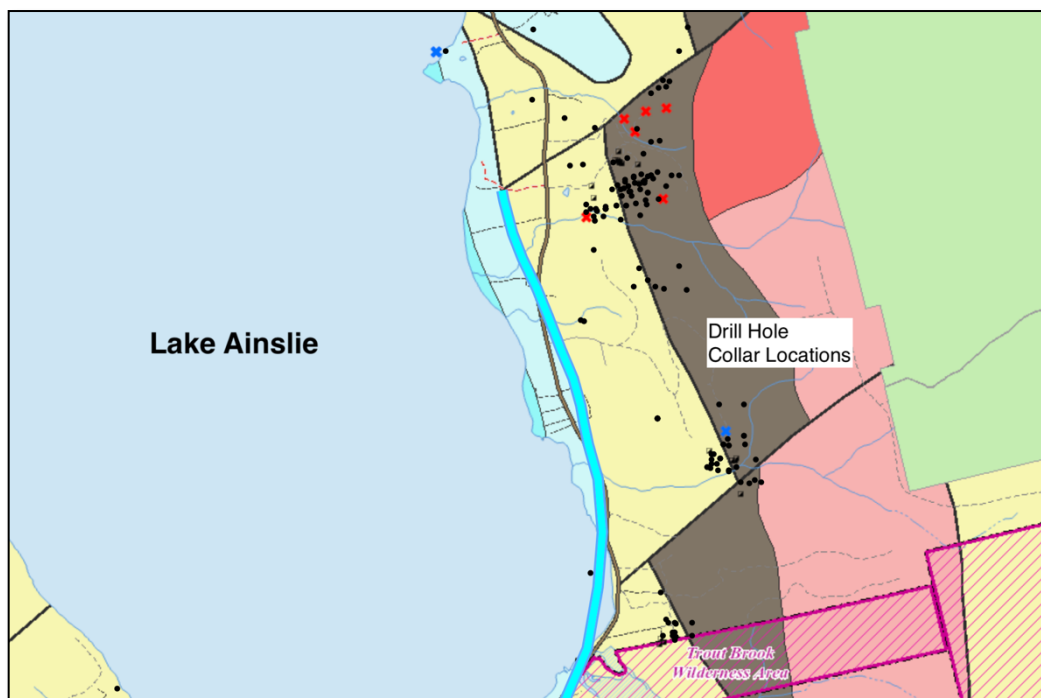


Exploration History

The area has a long exploration record by both government agencies and private companies. Documented programs include the following:

- 1941 Dominion Steel and Coal Corporation**
Drilled 441.73 metres in seven holes at the Evans/Trout Brook prospect targeting fluorite.
- 1944 Nova Scotia Department of Mines and Energy (NSDME)**
Completed five follow-up holes at the same prospect.
- 1955 Fluor-Bar Mines Ltd.**
Conducted approximately 21 holes on the CampbellMacMillan prospect. (Exact drilling meterage unknown; several records missing.)
- 1971 International Mogul Mines Ltd.**
Completed 2,448.02 metres in eight holes (71-1 to 71-8, including one extension) in the Campbell-MacMillan and D.J. MacDougall prospect areas.
- 1972 International Mogul Mines Ltd. / Conwest**
Drilled nine holes (72-1 to 72-9) at the Upper Johnson and D.J. MacDougall prospects. Records for this drilling were not located.
- 1988 Nova Scotia Department of Mines and Energy**
Completed one 65.53 metre hole (LAN-88-1) on the northwest side of the property.
- 2003 Atlantic Industrial Minerals Ltd.**
Drilled 524 metres in five holes (J-14 to J-19) on the Upper Johnson prospect.

Collectively, over **3,500 metres of drilling** have been documented across the property area.



Geological Setting

The mineralized veins are hosted within a welded tuff and felsic volcanic unit that underlies the Campbell-MacMillan, Johnson, and Evans prospect areas. These rocks form prominent topographic highs on the property.

- To the east, the volcanic rocks are overlain by basalt, andesite, and lithic wacke of the Fisset Brook Formation.
- To the west, they are unconformably overlain by Early Mississippian Horton Group clastic sediments.

Seven barite-fluorite vein prospects have been documented on the property, from south to north:

1. Evans/Trout Brook
2. J.A. MacDougall
3. Lower Johnson
4. Upper Johnson
5. MacLean
6. Campbell–MacMillan
7. D.J. MacDougall

Mineralization

The Lake Ainslie veins contain barite and fluorite with lesser calcite, and localized Pb-Zn mineralization in adjacent sedimentary rocks.

Barite occurs as white to pink, aphanitic to coarse-grained mineralization.

Fluorite varies in colour from pale green and colourless within the main vein zones to violet and bluish-violet in fractures adjacent to the veins.

The veins exhibit compositional and textural banding that is parallel to the vein walls, reflecting multiple stages of deposition.

- Fine-grained barite is typically present near wall-rock contacts.
- Coarse-grained barite occupies the central portions of the veins.
- Pale green fluorite is most common at vein margins, with barite dominant in vein cores.
- Late-stage calcite fills voids between barite and fluorite crystals.

This zoned pattern suggests repeated hydrothermal fluid movement and cooling events.

In addition, Sogemines drilling (McCulloch, 1975) intersected Pb-Zn mineralization within a calcareous sandstone facies of the Horton Group in the north-central portion of the licence area, indicating polymetallic potential beyond the barite-fluorite system.



Data Compilation

In 2015, Mercator Geological Services compiled all available hardcopy and digital records associated with exploration at Lake Ainslie.

- Data from historic reports filed with the Nova Scotia Department of Natural Resources were digitized and standardized.
- Drill collar, lithology, and assay information were entered into a validated Microsoft Excel and GIS database.
- Reports not available in digital form were obtained from NSDNR archives and scanned.

This compilation provides a complete record of exploration history and serves as a technical foundation for modern 3D modeling and resource verification.

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