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Labrador Sapphire



The Labrador Sapphire Property is located 13 km by road SE of the community of Port Hope Simpson, SE Labrador, which is linked by an all-season gravel highway to Blanc Sablon, Quebec. Port Hope Simpson has an airstrip with regular flights to and from St. Anthony-Deer Lake, Newfoundland. The property can be accessed by foot from the SE Labrador highway a distance of 2.5 km over open country (Maps 1 and 2, NTS 13A/10).

Regional Geology

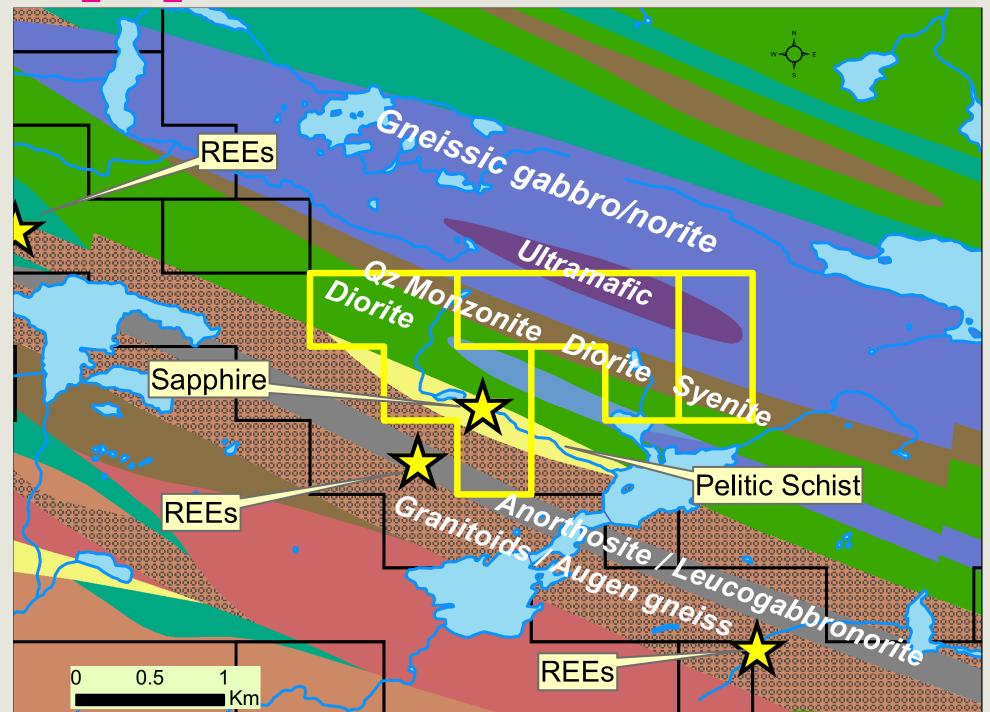
Map 1. Property location map

The property is situated within the Grenville Province, which had major crustal formation between ca 1.7 and 1.6 Ga. The province has undergone collision, accretion and prolonged

metamorphism from several orogenic events. Structure is dominated by E-W trending shear zones. One of the dominant structures in the Port Hope Simpson-St. Lewis River area is the NW-EW trending Gilbert River shear belt (Gower, 1988), a zone of intense deformation about 30 km wide and over 270 km long, forming a southeasterly attenuated part of the Lake Melville terrain. The central part of the belt includes the Alexis River anorthosite and its dioritic gneiss envelope; the adjacent southwestern side of the belt includes a narrow band of intermixed k-feldspar-megacrystic granitoid rocks, k-feldspar augen gneiss and fine-grained granitic gneiss.

Local Geology

The *Labrador Sapphire* Property lies within the SE part of the Gilbert River shear belt, which is dominated by medium- to high-grade metamorphic rocks. On the property, a band of metasedimentary gneiss includes muscovite/garnet/k-feldspar-rich schists interlayered with sillimanite and garnet, quartzite layers and concordant layers of amphibolite. A distinctive gneiss band contains plagioclase, biotite, sillimanite, garnet and corundum sapphires (Gower, et. al., 1998). The currently known sapphire zone has been traced intermittently for over 250 m along strike and is open at both ends. The "Main Showing" as currently exposed is approximately 140 m long, is separated by about 70 m of overburden from the "Eastern Zone" which is > 60 m long. The Main Showing, is considerably thicker than the East Zone and in places appears to be several parallel bands up to 3-4 m thick.



Map 2. Claims and geology map

Previous Work; Sapphire quality and carats



Typical cluster of sapphire crystals in o/c Sawn channel sample/sapphire crystals Dearin, 2011



Labrador sapphire rings made by present owner from Labrador corundum

Much of the following is taken from Dearin (2011). Gower (1988) first located blue/pinkish/purplish-corundum-rich gneiss. Six claims were staked in 1994 by Andrews & DiCicco (1995) who carried out a prospecting and sampling program. Laboratory analysis confirmed the corundum to be sapphire; sample cutting/ polishing of several stones yielded 23 carats of sapphire. Sampling and sieving-panning alluvial tills adjacent to the sapphire-rich outcrops and selecting crystals from broken outcrops recovered 17 euhedral corundum crystals; nine were sent to the USA for initial preparation and analysis, which confirmed them to be untwinned sapphires. These were sent to Sri Lanka for preliminary cutting, en cabochon, and polished with 50,000 grit diamond powder; sapphire gemstones, weighing a total of 22.9 carats were produced. The property was optioned to Cartaway Resources Corp in 1995. Further recce prospecting and sampling was carried out over the sapphire zones (Andrews, 1996; Beecham, 1996). Crystals made up 5 to 10% of the gneiss in places, thereby yielding a large carat to rock tonnage ratio. Approximately 9,000 carats (about 1.5 coffee mugs) of sapphire-corundum were extracted from the Main Showing; 6,000 carats were processed in 40% HF acid. Two of the better crystals (untreated) were cut into faceted stones (Andrews, 1996): a 1 carat round brilliant cut lilac sapphire, a 2+ carat emerald step cut lilac sapphire. The potential for extensive glacial/fluvial placer sapphire deposits along the south side of the gneiss unit was recognized during the

program. The ground was dropped due to lack of funds and the property was then staked by South Coast Resources in 2004. The Main Showing appears to average about 3-5% bluish sapphire-corundums up to 4 cm long (Dearin, 2005) (Plate 1). Several point counts of the higher-grade section near the western end had concentrations of 10,000 to 20,000 carats per tonne (Beecham, 1996). The East Zone, a distinct horizon, is over several m thick. Hand stripping and mapping (Dearin, 2005) showed that the sapphire-corundum zone was heavily concentrated (up to 15% locally, corundum porphyroblasts) in a 0.20 to 1.2 m thick unit. The East Zone appears to average about 5-8% sapphires over an average width of 0.5 m for a length of over 25 m; one point count of a large slabbed sample averaged about 13.7 weight % or 684,000 carats per tonne (Beecham, 1996). Quick field estimates of small (20 x 20 cm) areas of cleaned flat surfaces of outcrop yielded three 'high-grade' zones of 10%, 12% 'and 17% (by surface area) sapphire-corundums (Dearin, 2005). These crystals are up to 4 cm long but are more compact and appear to have a deeper blue color than the West Showing crystals.

Colour: The cut-gems exhibit a distinct colour change in natural and artificial light from blue to lilac purple and were favorably compared to the US produced gems known as "Idaho Purple". The colour was due to unusually high chromium content; supposedly a rare subclass of sapphires thereby classifying them as "chrome-sapphires". Heat-treating these Cr-rich

sapphires may cause them to turn red thereby producing Ruby. In fact some of the stones collected in 1996 had a natural pinkish-reddish tinge.

Carat: An outstanding characteristic of the stones is their large size. Some of the initially exposed outcropping crystals exceeded 4 cm long by 2.5 cm diameter; this would roughly equate to 8 to >10 carat roughstones. **Clarity**: Four of the nine gemstones (in 1994) had inclusions of rutile (in sapphires) and chromite (in ruby). Sapphire, being a class-2 gemstone, ubiquitously contains such inclusions. All nine contained "silk", which is a common gemological phenomenon caused by the sapphire crystal containing variable amounts of

microcrystals of rutile, chromite or cobalt. Variations of these elements plus other elements produce a variety of additional colored sapphires (pink, yellow, green, orange, etc.) known as "fancy sapphire".

The present owners staked the property in 2020 and have carried out further work highlighting the gem quality of the sapphires (Plate 2).

Potential

From the few point counts completed by Cartaway in 1997 and Dearin in 2004 there appears to be a significant volume of sapphires in bedrock. From the few panned till samples taken near the bedrock source, it appears that the tills may be another

significant source, if not a primary source of stones. To date no alluvial tills sampling has been done in the local alluvial plain. Personal communications between the present owner and industry personnel (Montana sapphire mine) confirmed that the Labrador sapphires are semitranslucent, commercial grade stones suitable for jewelry making. Plate 2 illustrates the quality of the finished product **June**, **2021**

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