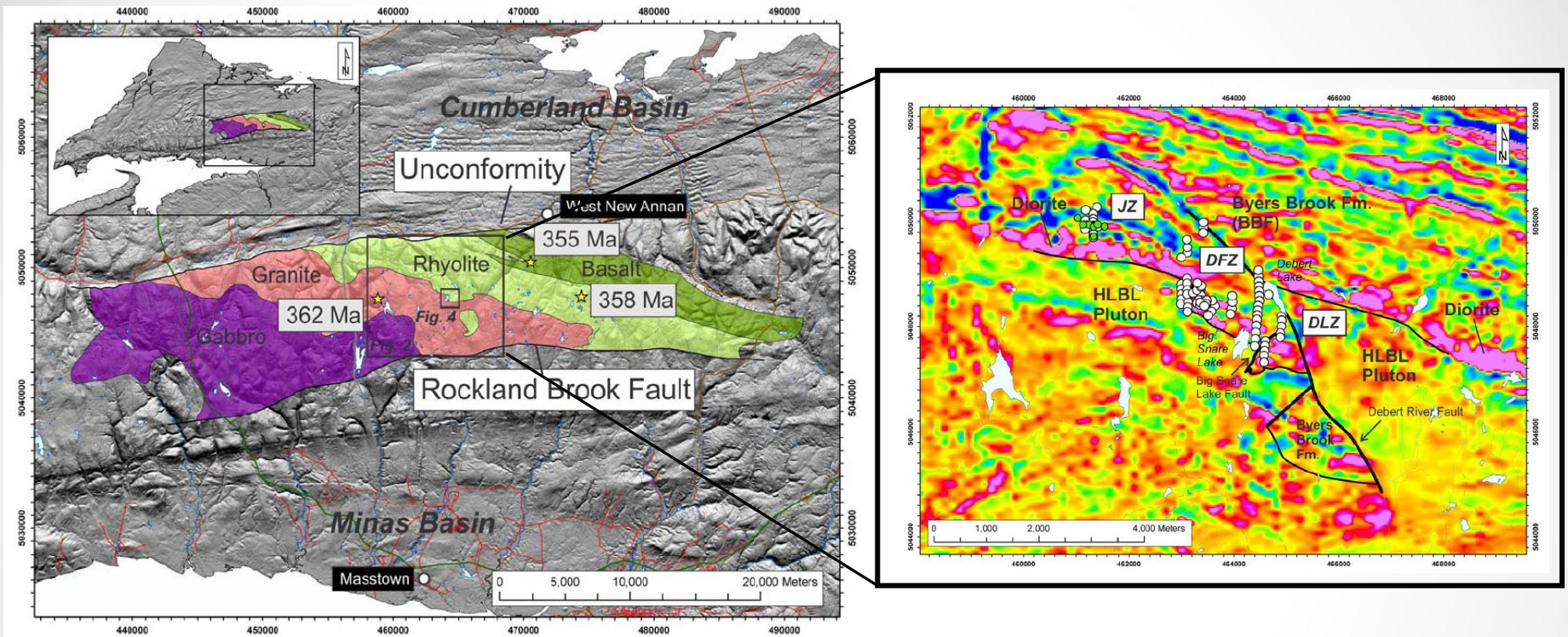


Debert Lake
Heavy REE Deposit

Magnum Resources Inc.
Halifax, Nova Scotia
PDAC Toronto

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3 - 6 March 2024

Wentworth Pluton (HLBL Pluton)

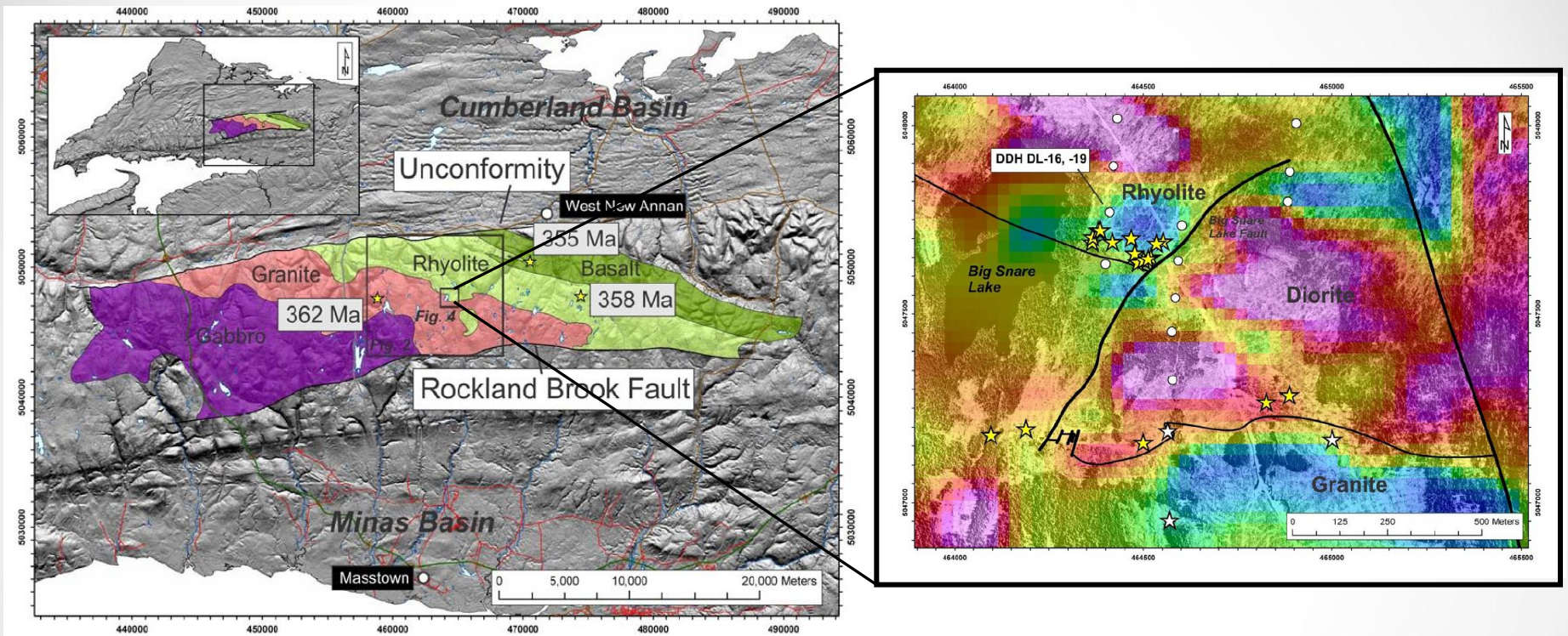


Maps from MacHattie (2010)

General Geology and magnetic gradient map of the Debert Lake area showing the contact between the Hart Lake – Byers Lake (HLBL) Pluton

volcanic activity -> intrusion of the plutons -> intrusion of mafic dykes -> later faulting

Wentworth Pluton (HLBL Pluton)



Maps from MacHattie (2010)

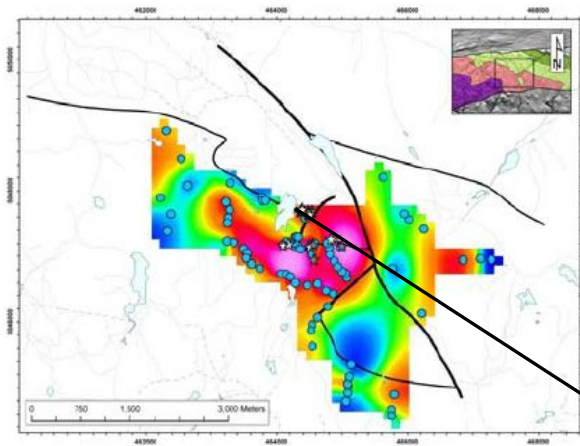
General Geology and vertical magnetic gradient map of the Big Snare Lake area showing the sample localities.

The samples were selected based on the geochemical maps (primarily Y concentrations) of MacHattie (2010) shown on the next slide

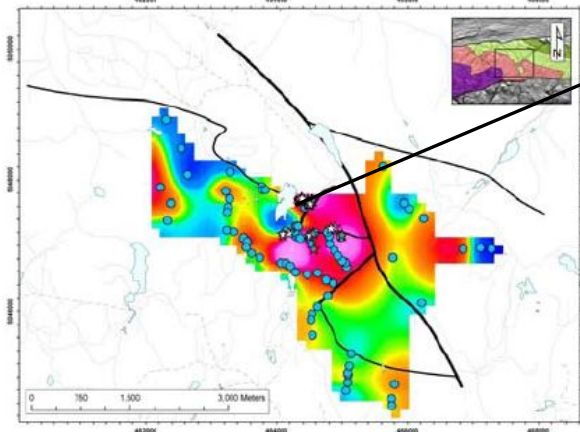
Sample location

General Geology (inset) and geochemical maps showing concentrations of Y (top) and Zr (bottom).

Maps from MacHattie (2010)



Big Snare Lake



The samples were selected based on these geochemical maps (primarily Y concentrations) as well as the field relationships (next few slide) and geochemical analysis

Sample Field Relations



Type 1 dyke cross-cutting the
BBF rhyolite (sample 24)

*REE dykes are younger
than the BBF volcanics*

Image from MacHattie (2010)

Summary of the Geological History

- 1) Volcanic activity which produced the rocks of the Beaver Brook Formation and mafic rocks of the Diamond Brook Formation.
- 2) Intrusion of the Hart Lake – Byers Lake Pluton.
- 3) Emplacement of gabbro and diorite intrusions of the Folly Lake Pluton.
- 4) Emplacement of the REE (HFSE) enriched dykes.
- 5) Tectonic deformation and uplift.

REE dykes in context

The emplacement of the REE (HFSE) enriched dykes is late in the geological history of the area.

The exact timing of this event is not known.

The emplacement (magmatic history) of these dykes was not the only factor in the REE mineralization.

We have later reworking of these rocks.

Could deformation be a factor?

*Suggestion: Further work on
the structural and field
relationships of these dykes
coupled with target
geochronology*

Samples

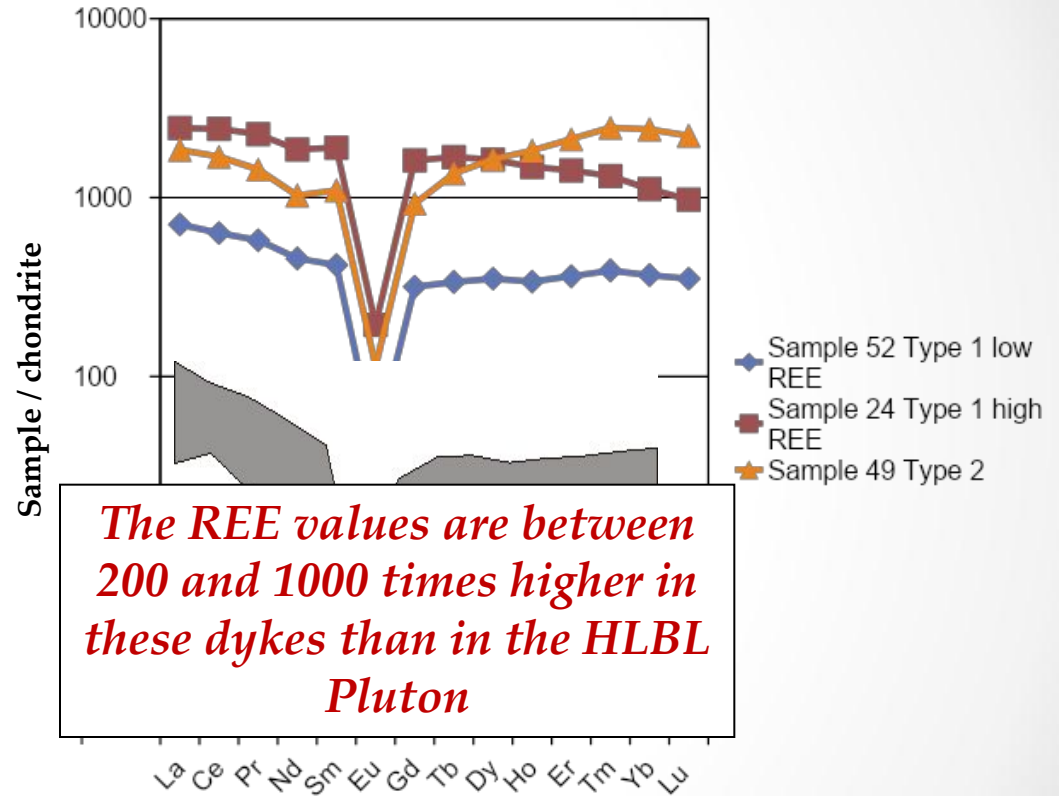
Samples selected for detailed analysis

Sample 52 Type 1 low REE
(non-mineralized)
(mineralized)

Sample 24 Type 1 high REE



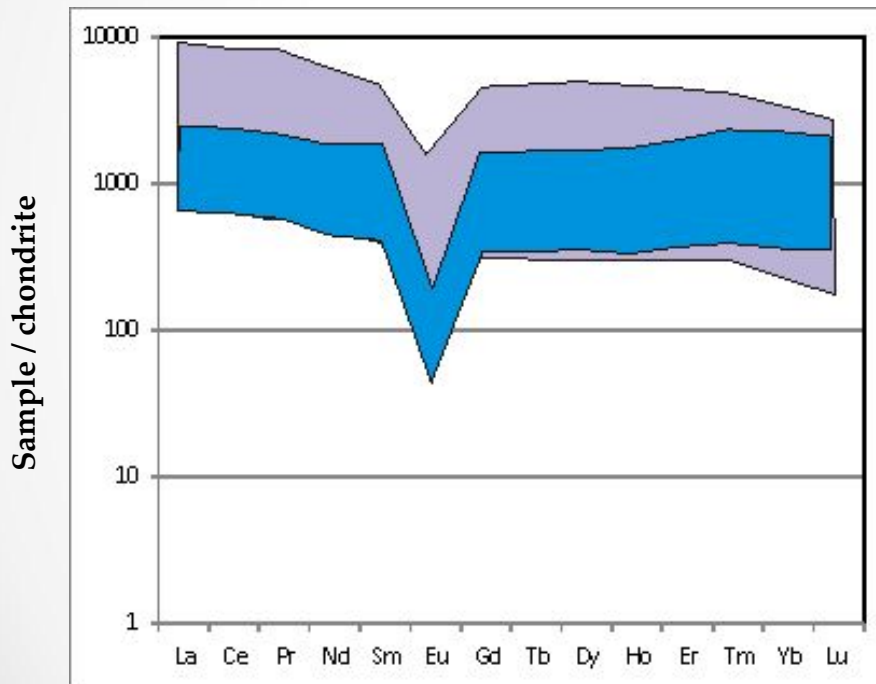
Sample 47 Type 2



Chondrite normalized REE values from the sample used in this study (data from MacHattie 2010)

A comparison with other North American REE deposits

Bokan, Alaska (Kendrick Bay)
Geoduck intersections



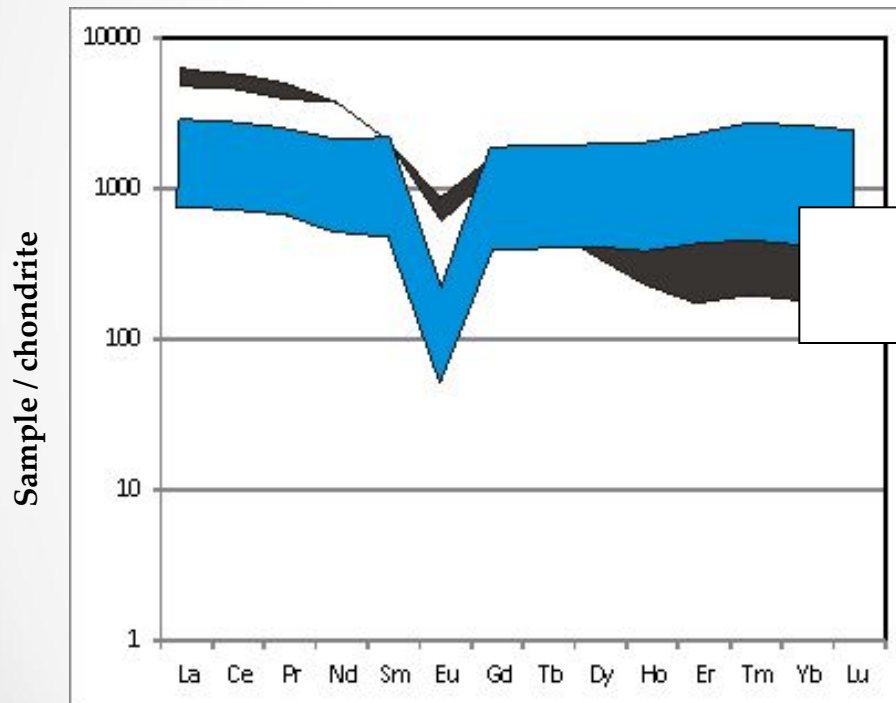
Data and images from Aurora Geosciences
(Alaska) Ltd. for Ucore Rare Metals Inc.
(Technical report, April 2011)



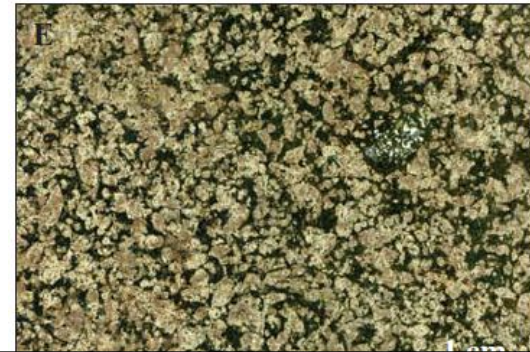
*Comparable HREE
concentrations and dyke /
vein sizes*

A comparison with other North American REE deposits

Thor Lake, NWT
Nechalacho (basal and lower)



Data from Avalon Rare Metals news release, January 2011. Images from Sheard et al. (2012).



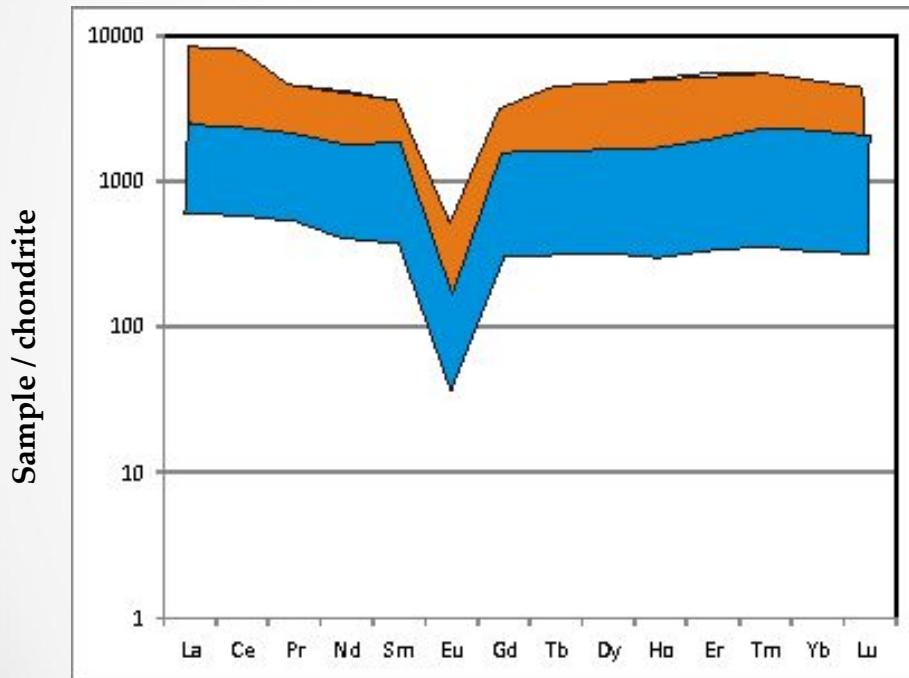
Secondary reactions to breakdown zircon



Somewhat higher HREE concentrations than Thor Lake. This is unusual given that Thor Lake is a rare zircon cumulate.

A comparison with other North American REE deposits

Strange Lake, Labrador



Similar HREE and similar textures to the Type 2 patches / dykes

Data and image from Kerr (2011)

REE dykes in context with other deposits

The Dykes from the Cobequid Highlands are very comparable in HREE contents to several of the known REE deposits.

The LREE's are generally lower but still highly enriched.

Y, Nb and Zr also show almost identical patterns (except for Thor Lake).

Volumes (surface outcrops / intersections) are very similar to other deposits.

We have later reworking of all of these deposits.

Which minerals are present?

VALUE

Concentrations of Y and the rare earth elements

in the Debert Lake prospect

Compiled from data provided by Magnum Resources and based on 235 samples.

Element	Sym bol	Concentration (wt. ppm or g/ton) n=235			Value* 12 / 21
		Median	Mean	Maximum	
YTTIRIUM	Y	241	585	6182	\$ 25.62
LANTHANUM	La	87.8	162	1030	\$ 0.71
CERIUM	Ce	207	411	2460	\$ 1.92
PRASEODYMIUM	Pr	25.0	47.6	310	\$ 8.74
NEODYMIUM	Nd	96.0	183	1320	\$ 30.03
SAMARIUM	Sm	28.2	54.7	439	\$ 3.82
EUROPIUM	Eu	1.3	2.5	17.0	\$ 500.00
GADOLINIUM	Gd	32.2	64.4	526	\$ 4.50
TERBIUM	Tb	6.2	14.9	144	\$ 33.11
DRYSPROSIUM	Dy	41.3	108	1120	\$ 61.91
HOLMIUM	Ho	8.8	24.3	299	\$ 4.87
ERBIUM	Er	28.4	78.7	1000	\$ 676.82
THULIUM	Tm	4.5	13.2	172	\$ 924.00
YTTERBIUM	Yb	29.6	88.2	1000	\$ 467.46
LUTETIUM	Lu	4.5	13.0	159	\$ 59.80
			1850		\$ 2,803.31
					US \$/tonne

Value* - Based on 0% mining dilution and 100% processing recoveries.

Assumed Au Eq of ~1 oz per tonne of ore.

Conclusions

Magnum's Debert Lake Deposit and HREE minerals

- 1) Even a simple comparison shows several similarities with many of North America's major REE deposits.
- 2) Secondary processes have liberated the REE into phases such as Fergusonite which are recoverable.
- 3) Best HREE to LREE ratio of any North American Deposit.
- 4) An estimated value \$2,800.00 per tonne of ore (2021).
- 5) Textures, reactions and HREE-minerals of these rocks are very similar to Bokan, Alaska.
- 6). Located on forestry land, good access to grid, paved highways, ports, local work force and support facilities.