

Location/Identification

MINFILE Number:	082M 173		
Name(s):	<u>TRIDENT MOUNTAIN</u>		
Status:	Developed Prospect	Mining Division:	Golden
Regions:	British Columbia	Electoral District:	Columbia River-Revelstoke
BCGS Map:	082M100	Resource District:	Columbia Forest District
NTS Map:	082M16E	UTM Zone:	11 (NAD 83)
Latitude:	51 54 20 N	Northing:	5751160
Longitude:	118 09 04 W	Easting:	420811
Elevation:	2300 metres		
Location Accuracy:	Within 1KM		
Comments:	Main stock (Geological Survey of Canada Map 12-1964 and Paper 64-32, p. 14).		

Mineral Occurrence

Commodities:	Nepheline Syenite, Feldspar, Rare Earths		
Minerals	Significant:	Nepheline, Microcline, Albite	
	Associated:	Biotite, Ilmenite, Sodalite, Cancrinite, Calcite, Apatite, Sphene, Pyrochlore	
	Associated Comments:	Also zircon.	
	Mineralization Age:	Unknown	
Deposit	Character:	Massive, Concordant	
	Classification:	Magmatic, Industrial Min.	
	Type:	R13: Nepheline syenite	
	Dimension:	3000x700x0 metres	

Host Rock

Dominant Host Rock:	Plutonic		
Stratigraphic Age	Group	Formation	Igneous/Metamorphic/Other
Hadrynian	Horsethief Creek	Undefined Formation	-----
Devonian-Mississipp.	-----	-----	Unnamed/Unknown Informal
Isotopic Age	Dating Method	Material Dated	
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380 Ma	Uranium/Lead	Zircon	
Lithology:	Nepheline Syenite, Gneiss, Pelitic Schist, Psammitic Schist		
Comments:	Dating age from Open File 1987-17.		

Geological Setting

Tectonic Belt:	Omineca	Physiographic Area:	Selkirk Mountains
Terrane:	Kootenay		
Metamorphic Type:	Regional		

Inventory

Ore Zone: TRIDENT MOUNTAIN
Category: Inferred
Quantity: 330,750,000 tonnes

Year: 1989
Report On: Y
NI 43-101: N

Commodity	Grade
Nepheline Syenite	100.0000 per cent

Comments: Reserves estimated to a depth of 75 metres.

Reference: F. Reyes, personal communication, 1991.

Capsule Geology

Nepheline syenite gneiss occurs as a concordant lenticular mass at Trident Mountain, approximately 85 kilometres northeast of Revelstoke.

The area surrounding Trident Peak consists of a light coloured banded nepheline syenite body. The syenites were emplaced circa 380 Ma (uranium-lead isotope date from zircons, Open File 1991-10) and intrude psammatic and kyanite-bearing pelitic schists of the Hadrynian Horsethief Creek Group.

The nepheline syenite-gneiss occurs in the core of an undulating, recumbent nappe forming a lenticular body, diminishing in thickness to the northwest and southeast. The syenite gneisses are concordant with the host rocks. The rock is white to grey, medium (1 to 5 millimetres) to coarse-grained (greater than 5 millimetres) and consists of microcline, albite and nepheline with minor biotite, ilmenite, sodalite, cancrinite, calcite, apatite, sphene, pyrochlore and zircon (Open File 1987-17). The composition of three samples collected is:

Major oxides	Weight (per cent)
SiO ₂	55.59 - 63.70
Al ₂ O ₃	20.73 - 24.69
Fe ₂ O ₃	0.17 - 0.59
CaO	0.56 - 1.20
Na ₂ O	8.16 - 8.39
K ₂ O	3.12 - 8.22

A 20-kilogram sample, sent to CANMET, was crushed and passed through a magnetic separator with the following results:

Mesh	Magnetic concentrate (Weight in per cent)	Nonmagnetic concentrate
-10 + 35	4.1	67.7
-35 + 100	1.3	19.8
-100	0.5	6.6

Analyses of the nonmagnetic concentrate are:

Major oxides	-10 + 35 mesh (Weight in per cent)	-35 + 100 mesh	-100 mesh
SiO ₂	56.6	58.0	62.0
Al ₂ O ₃	16.8	17.3	18.5
Fe ₂ O ₃	0.07	0.03	0.10
CaO	0.75	0.76	0.95
Na ₂ O	6.11	5.79	5.63
K ₂ O	7.59	8.05	8.31

Processing results indicate that the nepheline syenite is low in magnetic impurities, has a high recovery rate of nonmagnetic materials and has,

therefore, a very good potential to produce commercial grade nepheline syenite. Processing indicates a product brightness of 85 per cent can be obtained.

Samples tested are comparable to nepheline syenite currently imported into western Canada from Ontario. Geological mapping by Pell (Open File 1987-17) has documented large lenticular bodies of nepheline syenite over a distance of 7 kilometres at Trident Mountain. This large body has excellent potential to contain nepheline syenite similar to the samples tested. The samples tested were from float located approximately two kilometres north of Trident Mountain peak. Preliminary processing data indicates that a product of 85 per cent brightness can be obtained (McVey, H, 1988, Mineral Development Agreement, Report 4).

At the mouth of Trident Creek, which drains the area, placer uranium, thorium and niobium has been recorded (082M 077).

Bibliography

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Date Coded:	1985/07/24	Coded By:	BC Geological Survey (BCGS)	Field Check:	N
Date Revised:	2010/04/01	Revised By:	Sarah Meredith-Jones (SMJ)	Field Check:	N