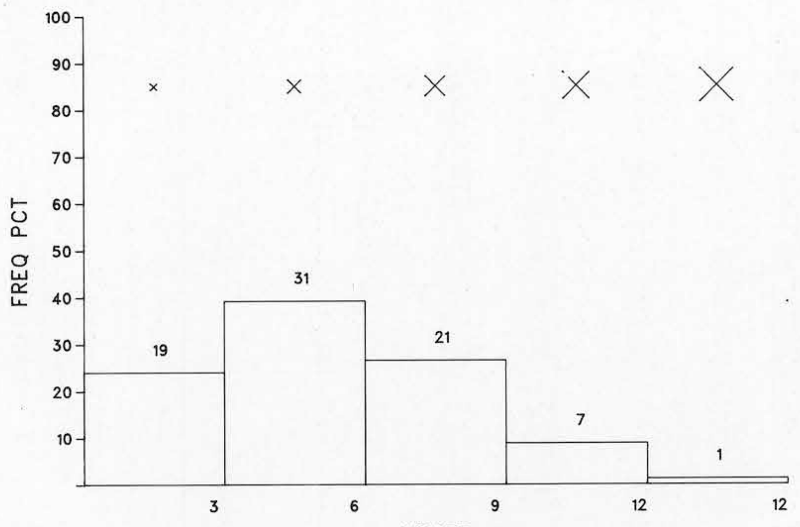

TIN (PPM)

TILL GEOCHEMISTRY
CENTRAL MINERAL BELT, LABRADOR

SNEGAMOOK LAKE NTS 13K

F.J. THOMPSON, R.A. KLASSEN, R.K. BURNS

The normal range of values for Sn is 3-9 ppm. Scattered high background values, 10-12 ppm, occur in tills derived from Seal Lake Group sediments.

Introduction

Geochemical analysis of till in the Snegamook Lake area of central Labrador are presented on the accompaning maps at a scale of 1:250,000. The till samples were collected during the 1984 and 1985 field seasons by the Terrain Sciences Division, Geological Survey of Canada, to establish drift composition and patterns of glacial dispersal in the area and to develop techniques of drift prospecting. The work has been funded by the Canada – Newfoundland Mineral Development agreement.

Sample densities varied from 1-3 per 100 km^2 in areas with limited mineral potential, and from 8-15 per 100 km^2 within the Central Mineral Belt. Pits were dug, by shovel, to depths of 30-70 cm depending on depth to bedrock and on difficulties in penetrating stony till. Samples were collected from the least oxidized and most organic-free section of the modern soil profile near the base of the pit. In areas of tundra vegetation, pits were dug in mudboils where soil zonation was absent or poorly developed due to periglaciial churning.

The clay-sized (<0.002 mm) fraction of the till samples was analyzed for Cu, Pb, Zn, Ni, Cr, Mo, Mn, and Fe by atomic absorption methods and for U by delayed neutron activation. The silt plus clay-sized (<0.063 mm) fraction of selected samples was analyzed for Be, Ce, Nb, Sn, Y and Zr by X-ray fluorescence and Au by fire assay/atomic absorption. All geochemical analyses were done by Bondar-Clegg and Co. Ltd., Ottawa. About 440 clay-sized samples and 111 silt plus clay-sized samples were analyzed.

Physiography and bedrock geology

The study area is rugged, with hills commonly rising 200 m above valley floors. Sample sites were preferentially located on hilltops because valley bottoms are heavily forested, providing few landing sites, and because major valleys are commonly infilled with glaciofluvial and glaciomarine deposits. The bedrock comprises Archean gneiss and Paleohelikian anorthosite to the north, and Grenville gneiss and Paleohelikian granite to the south. The central part of the study area is underlain by supracrustal volcanics and sediments which include Aphebian Aillik and Moran Lake Groups, Paleohelikian Bruce River Group, and Neohelikian Seal Lake Group. The volcanics and sediments are part of the Central Mineral Belt, which is considered to have potential for economic mineralization in base metals, gold and uranium.

Glacial Geology

Regional Ice flow trends are indicated by the orientation of striae and glacial landforms. Sense of movement has been determined by the shape of streamlined landforms and by small scale features on outcrop surfaces. The prominent ice flow trends are east northeast in the central part of the map area, east-south east in the south and northeast in the north. Striations recording an older northeast phase of ice flow are preserved in the central part of the map area. The northeast trending striations are consistent in orientation and relative age with striation recorded in the Churchill falls area, Letitia Lake area and Labrador Trough and are considered to have formed during a major phase of ice flow prior to the last regional phase.

The dispersal patterns of glacial erratics (not shown), Red Wine Alkaline Intrusive Suite, Seal Lake Group Basalt, Bruce River Volcanics and Snegamook Granite demonstrate broad fan-shaped eastward dispersal of 30 to more than 150 km from their respective bedrock sources. Transport of erratics and development of fan shapes is consistent with the last regional ice flow trends. Erratics of Red Wine Alkaline complex occur in till north of the Kanairiktok River, 200 km northeast of the bedrock source demonstrating transport in the earlier northeast phase of ice flow (Thompson and Klassen, 1986). The foregoing suggests that glacial debris has been subjected to a complex history of transport. Furthermore, as yet unrecognized, topographically controlled local variations in ice movement, particularly in low areas or on hillsides, may have played an important role in the transport of glacial debris during the late stages of glaciation.

Geochemistry

The geochemistry of the till generally reflects the geochemistry of underlying and immediately up ice bedrock. Isolated anomalous values may reflect economically interesting mineralization in the bedrock up ice.

Contribution to the
CANADA-NEWFOUNDLAND MINERAL DEVELOPMENT AGREEMENT 1984-1989

DEPARTMENT OF MINES AND ENERGY
GOVERNMENT OF NEWFOUNDLAND AND LABRADOR

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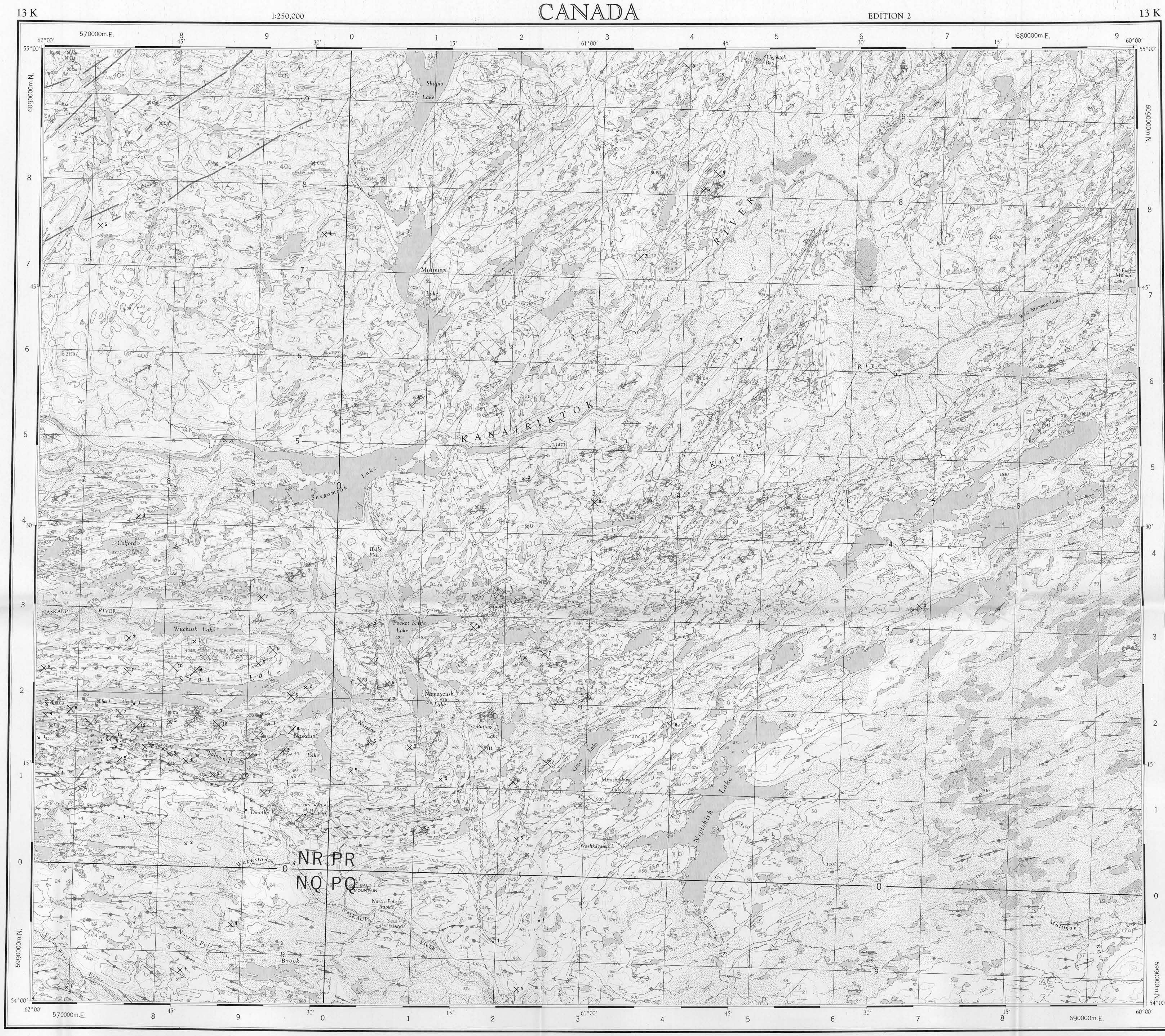
DEPARTMENT OF ENERGY, MINES AND RESOURCES
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

13 K | 1:250,000 | CANADA | EDITION 2 | 13 K



SNEGAMOOK LAKE
NEWFOUNDLAND

Scale 1:250 000

Kilometres 5 0 5 10 15 20 Kilometres

Universal Transverse Mercator Projection
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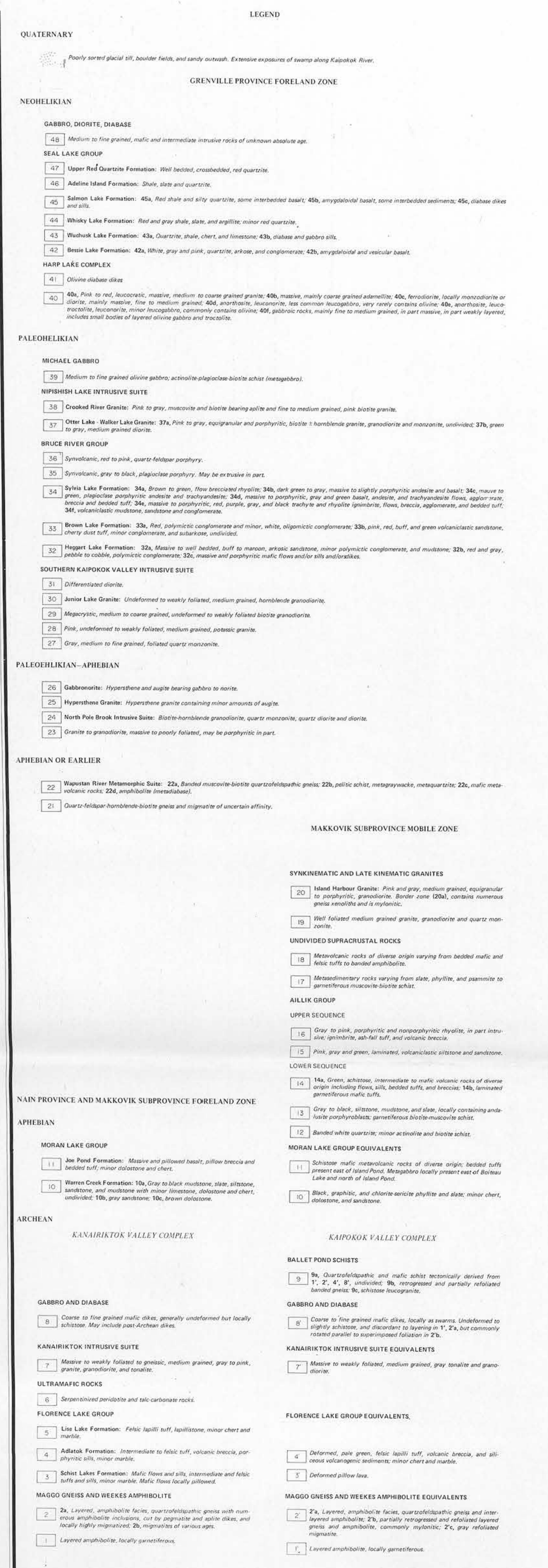

Geology from:

O'Driscoll, C.F. and Noel, N. (compilers)
1983: Mineral occurrences Snegamook Lake; Mineral Development Division, Department of Mines and Energy, Government of Newfoundland and Labrador, Map 83-36.

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Thompson, F.J. and Klassen, R.A.
1986: Ice flow directions and drift composition, central Labrador; in Current Research, Part A, Geological Survey of Canada, Paper 86-1A, p. 713-717.

The reader is also referred to
1983: Regional Lake Sediment and Water Geochemical Reconnaissance Data, Labrador, Geological Survey of Canada, Open File 997, NGR-62-1983, NTS 13K.
1983: Mineral Occurrence Map, Wuchusk Lake, Map 83-37; compiled by C.F. O'Driscoll and N. Noel, Department of Mines and Energy, Newfoundland.
1983: Mineral Occurrence Map, Snegamook Lake, 13 K, Map 83-36; compiled by C.F. O'Driscoll and N. Noel, Department of Mines and Energy, Newfoundland.

SYMBOLS

- Drift covered area
- Bedding, tops known (inclined, overturned)
- Bedding, tops unknown (inclined)
- Schistosity, gneissosity, cleavage (inclined, vertical, dip unknown)
- Fault (defined, approximate, assumed)
- Thrust fault (defined, approximate, assumed)
- Anticlinal axis
- Synclinal axis
- Geological boundary
- Unconformity
- Igneous layering (inclined, dip unknown, estimation from airborne observation)

STRIAE, WELL DEFINED (FLOW DIRECTION KNOWN,UNKNOWN) NUMBERS INDICATE RELATIVE AGE)

STRIAE, POORLY DEFINED (FLOW DIRECTION KNOWN,UNKNOWN)

STREAMLINED LANDFORMS (FLOW DIRECTION KNOWN,UNKNOWN)

From:
Fulton, R.J. Hodgson, D.A., Minning, G.V., and Thomas, R.D.
1980: Surficial materials, Snegamook Lake, Labrador; Geological Survey of Canada Map 27-1979.

Mineral showing.................................×
Mineral prospect................................●

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