

LEGEND

- NAIN PLUTONIC SUITE**
- PANTS LAKE INTRUSIONS (Units 20 to 23 inclusive)**
- 23 Undivided olivine-gabbro, gabbro and diabase
 - 22 Black olivine-gabbro: medium- to coarse-grained, melanocratic olivine-gabbro and gabbro containing interstitial mafic minerals, and prismatic to acicular plagioclase. Locally pegmatitic, and locally transitional to fine-grained, poikilitic, olivine-diabase; present only in the ca. 1322 Ma North intrusion, and several smaller intrusions. Absent from the South intrusion
 - 21 Massive leucogabbro: coarse-grained, generally leucocratic olivine-gabbro and gabbro containing interstitial mafic minerals, and equant to prismatic plagioclase. Commonly plagioclase-porphyrictic to seriate. Displays chloritic and actinolitic alteration near upper contact regions; present only in the ca. 1322 Ma North intrusion, and in several smaller intrusions. Absent from the South intrusion
 - 20 Fine-grained, layered, olivine-gabbro: generally fine-grained, grey, granular olivine gabbro and troctolite, commonly displaying faint modal layering. Contains cumulus olivine and plagioclase, with interstitial (locally poikilitic) clinopyroxene. Locally plagioclase-porphyrictic, with a speckly texture on fresh surfaces. Includes a variety of complex sulphide-bearing gabbroic rocks (mineralized sequence) and also metatroctolites representing mafic cumulates. 20a: South intrusion (ca. 1337 Ma), 20b: North intrusion (ca. 1322 Ma). Note that this rock type is petrologically indistinguishable in the north and south intrusions

- NAIN PLUTONIC SUITE AND OTHER INTRUSIONS (Units 12 to 15 inclusive)**
- 15 Flowers River Intrusive Suite: medium- to coarse-grained, leucocratic, hornblende ± biotite granite and syenite, with lesser quartz-feldspar porphyry
 - 14 Granitic plutonic rocks: fine- to coarse-grained syenite, quartz syenite to granite s.s., containing hornblende, pyroxene and (locally) Fe-rich olivine. Locally porphyritic, and locally displaying mantled-feldspar (rapakivi) textures
 - 13 Intermediate plutonic rocks: fine- to coarse-grained, texturally variable ferrodiorite, monzodiorite to monzonite and locally intense. Interspersed with paragneiss (Unit 3), and contains pyroxenes, Fe-rich olivines and biotite. Outcrops are typically deeply weathered
 - 12 Anorthositic plutonic rocks: medium- to very coarse-grained leuconorite and anorthosite, typically containing cumulus plagioclase and olivocycloitic to interstitial mafic minerals. Locally heterogeneous, containing blocks of texturally discrete anorthosite and/or pyroxene megacrysts

- HARP LAKE INTRUSIVE SUITE (Units 10 and 11)**
- 11 Granitoid plutonic rocks (Harp Lake granite): medium- to coarse-grained syenite to monzogranite, commonly K-feldspar porphyritic, with pyroxene and hornblende as mafic phases. Mantled-feldspar (rapakivi) textures are widely developed
 - 10 Anorthositic plutonic rocks: medium- to very coarse-grained leuconorite, leucotroctolite and anorthosite, containing cumulus plagioclase and interstitial mafic minerals. Brown Fe-rich olivine is locally abundant

- METAMORPHIC ROCKS OF THE CHURCHILL PROVINCE (Units 3 to 6 inclusive)**
- 6 Granitic orthogneiss: coarse-grained, leucocratic granitic gneiss, typically containing biotite and garnet. Igneous textures are well-preserved locally, suggesting that the protolith was a megacrystic monzogranite to granite. Cataclastic to mylonitic fabric is variably developed and locally intense. Interspersed with paragneiss (Unit 3), and commonly containing inclusions and schlieren of paragneiss, suggesting that it originally intruded Unit 3
 - 5 Charnockitic orthogneiss: medium- to coarse-grained, variably foliated orthogneiss containing biotite and pyroxenes (± hornblende). Generally lacks garnet, and only rarely preserves original igneous textures. Also present, on an outcrop scale, within paragneiss (Unit 3)
 - 4 Intermediate gneiss and amphibolite: fine- to medium-grained, granular to foliated orthogneiss containing abundant plagioclase, with biotite, hornblende and pyroxenes. Also forms discontinuous, outcrop scale schlieren in units 5 and 6. Proton(s) uncertain
 - 3 Pelitic to psammitic paragneiss: fine- to medium-grained, leucocratic, banded paragneiss and migmatitic paragneiss. Typically a quartz-feldspar-biotite gneiss containing variable amounts of garnet (retrogressed to cordierite), orthopyroxene and sillimanite. Leucocratic bands are commonly of granitic to aplitic composition, and contain prominent garnet. Heterogeneous on an outcrop scale. Commonly contains minor pyrrhotite and graphite, and is locally sulphide-rich. Many outcrops contain granitic orthogneiss bands equivalent to Unit 5

- METAMORPHIC ROCKS OF THE NAIN PROVINCE (Units 1 and 2)**
- 2 Mafic gneiss and amphibolite: fine- to medium-grained, melanocratic rocks, commonly interlayered with tonalitic gneisses of Unit 1. Includes migmatitic and agmatitic gneisses
 - 1 Tonalitic to granodioritic orthogneiss: fine- to coarse-grained, grey, quartzofeldspathic orthogneiss, typically containing biotite and hornblende, with relic pyroxenes. Typically banded, with a complex history of migmatization and deformation. Numerous inclusions and bands of mafic gneiss resembling Unit 2

- SYMBOLS**
- Geological contact, defined
 - Geological contact, approximate
 - Geological contact, assumed
 - Fault
 - Foliation, gneissosity (inclined, vertical)
 - Ni-Cu sulphide prospect

Note: The numbering system for units on this map was designed to allow for the definition of additional units within age or lithological groupings without the need to then re-number all other units. Thus, there are no units 7, 8, 9, 16, 17, 18 or 19. The system was retained in the map to ensure compatibility with the associated geochemical database.

SOURCES AND ACKNOWLEDGMENTS

The geology depicted on this summary map is largely derived from mapping conducted by Teck Corporation on behalf of Donner Minerals, and various Joint Venture partners in 1997 and 1998, with some modifications, based on work by the Geological Survey in specific areas. In areas not covered by exploration company mapping, notably south of Pantis Lake, the geology has been compiled from the 1:100 000 scale maps of Thomas and Morrison (1991). The original maps resulting from exploration company mapping are included with assessment reports by Fitzpatrick et al. (1998, 1999).

Base maps include parts of NTS 1:50 000 sheets 13M/8, 13M/9, 13N/5 and 13N/12, as indicated in the index map.

For locations of diamond-drill holes referred to in the text, readers should refer to figures in the accompanying report (Kerr, 2012).

Lake names used on this map are informal.

This map accompanies Report 2012-2 by A. Kerr, but is published separately.

REFERENCES

Fitzpatrick, D., Moore, P., MacGillivray, G., House, S. and Emon, K.
1998: Report of work, South Voisey's Bay project, central Labrador: Core program. Teck Explorations Ltd., unpublished assessment report submitted to the Newfoundland Department of Mines and Energy.

1999: Report of work, South Voisey's Bay project, central Labrador: Core program: Teck Explorations Ltd., unpublished assessment report submitted to the Newfoundland Department of Mines and Energy.

Kerr, A.
2012: The Pantis Lake Intrusions, central Labrador: Geology, geochemistry and magmatic Ni-Cu-Co sulphide mineralization (parts of NTS 13N/5, 13N/12, 13M/8 and 13M/9). Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Report 12-02, 135 pages.



Thomas, A. and Morrison, R.S.
1991: Geological map of the central part of the Ugioktok River (NTS 13N/5 and parts of 13M/8 and 13N/6), Labrador (with accompanying notes). Newfoundland Department of Mines and Energy, Geological Survey Branch, Map 91-160, scale 1:50 000.

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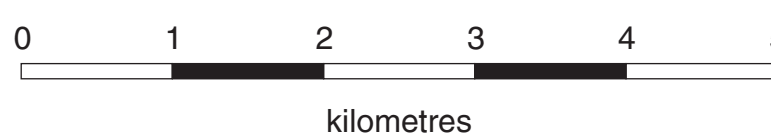
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MAP 2012-18
OPEN FILE LAB/1604

GEOLOGY OF THE PANTS LAKE INTRUSIONS AND SURROUNDING AREA, LABRADOR

Scale 1:50 000



Digital NTS base maps (13M/8, 9; 13N/5, 12) used for this map are available from Surveys and Mapping Branch, Natural Resources, Ottawa, Canada.

The 1976 Magnetic North bearing is 33° 06' West of Grid North; Grid North is 1° 02' East of True North for centre of map 13N/5. Annual change, decreasing 9.6'.

Elevations are in metres above mean sea level. Contour interval is 20 metres.

Universal Transverse Mercator (UTM) Grid Zone 20.

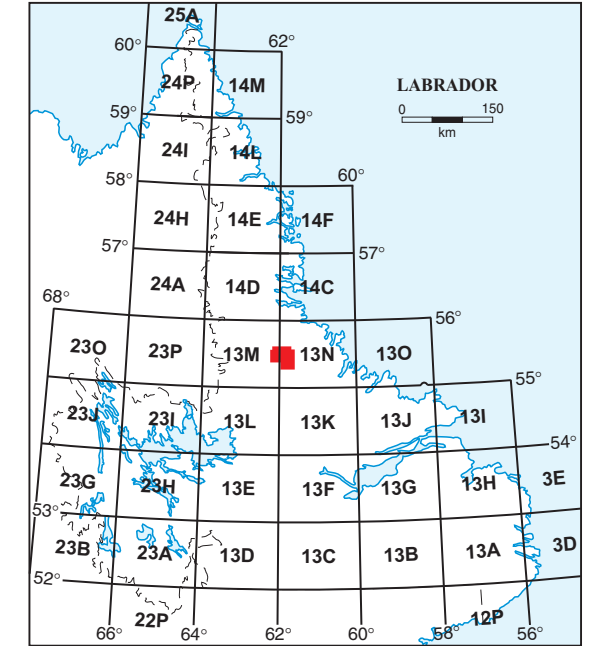
North American Datum 1927.

Copies of this map may be obtained from the Geoscience Publications and Information Section, Geological Survey, Department of Natural Resources, Government of Newfoundland and Labrador, P. O. Box 8700, St. John's, NL, Canada, A1B 4J6. (pub@gov.nl.ca).

Department Website: <http://www.nr.gov.nl.ca/nr>
Geological Survey Website: <http://www.nr.gov.nl.ca/nr/mines/Geoscience/>

Published 2012.

Recommended Citation
Kerr, A.
2012: Geology of the Pantis Lake Intrusions and surrounding area, Labrador. Government of Newfoundland and Labrador, Department of Natural Resources, Geological Survey, Map 2012-18. Open File LAB/1604.



INDEX MAP