GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

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

LEGEND

CENOZOIC

QUATERNARY
PLEISTOCENE-RECENT

- **Qu** — *Sand and gravel*

PROTEROZOIC

MIDDLE PROTEROZOIC

- **PM** — *MACKENZIE DIABASE: diabase and gabbro dykes*

EARLY PROTEROZOIC

- **Pd** — *Gabbro sill*

GOULBURN GROUP

- **PB** — *BURNSIDE RIVER FORMATION: pink massive quartzite, quartz-pebble conglomerate and minor green and red argillite and slate*
- **PW** — *WESTERN RIVER FORMATION: undifferentiated*
  - **PWl** — *Lower Argillite Member*
  - **PWs** — *Red Siltstone and Argillite Member*
  - **PWq** — *Quartzite Member*
  - **PWu** — *Upper Argillite Member*
- **PM** — *MALLEY DIABASE: northeast-trending diabase and gabbro dykes*

ARCHEAN

REGAN INTRUSIVE SUITE

- **ÅR** — *Undifferentiated plutonic rocks*
  - **ÅRp** — *Granite pegmatite, aplite dykes*
  - **ÅRgt** — *Granite*
  - **ÅRl** — *Leucogranodiorite*
  - **ÅRm** — *Melagranodiorite*
  - **ÅRg** — *Granodiorite, undifferentiated*
  - **ÅRt** — *Tonalite*
  - **ÅRd** — *Diorite, quartz diorite*
- **Åd** — *Amphibolite dykes of uncertain age and affinity*
- **Ås** — *Synvolcanic tonalite, granodiorite, quartz diorite, migmatite*
- **Åp** — *Trondhjemitic pegmatite*

YELLOWKNIFE SUPERGROUP
BACK GROUP

- **ÅB** — *Undifferentiated volcanic rocks*
  - **ÅBa** — *Massive and pillowed andesite, porphyritic andesite and andesitic tuff*
  - **ÅBb** — *Basalt flows, pillow lavas, breccia and tuff*
  - **ÅBd** — *Massive dacite flows, breccia and tuff*
  - **ÅBs** — *Synvolcanic metagabbro sills and dykes*

BEECHEY LAKE GROUP

- **ÅBL** — *Undifferentiated turbidites*
  - **ÅBLg** — *Greywacke*
  - **ÅBLa** — *Mudstone*
  - **ÅBLc** — *Carbonaceous mudstone*
  - **ÅBLp** — *Porphyroblastic gneiss and schist*
  - **ÅBLm** — *Local migmatite*
  - **ÅBLf** — *Banded iron formation*

HACKETT RIVER GROUP

- **ÅH** — *Undifferentiated volcanic rocks*
  - **ÅHu** — *Includes undifferentiated metamorphosed and deformed equivalents of units Åi and ÅN*
  - **ÅHd** — *Metamorphosed dacitic rocks*
  - **ÅHi** — *Metamorphosed andesitic and/or basaltic rocks*
  - **ÅHm** — *Migmatitic volcanic rocks*

- **Åi** — *IGNERIT FORMATION: undifferentiated felsic and basic flows, fragmental volcanic rocks, volcanic sediments, iron formation, chert, sulphide-rich zones*
  - **Åid** — *Dacite and dacite tuff*
  - **Åii** — *Andesite, basalt and basic tuff*
  - **Åic** — *Carbonate and dacite fragmental rocks*

- **ÅN** — *NAUNA FORMATION: undifferentiated andesite and dacite flows and pyroclastic rocks*
  - **ÅNd** — *Dacite*
  - **ÅNi** — *Andesite and basalt*
  - **ÅNf** — *Felsic synvolcanic sills and plugs*
  - **ÅNm** — *Basic synvolcanic sills and dykes*

- **Ås** — *SIORAK FORMATION: biotite-chlorite schist, sericitic schist, mafic amphibole gneiss, and quartzofeldspathic gneiss derived from volcanic detritus. Mafic rocks may contain rounded quartz clasts*

MARA RIVER COMPLEX

- **ÅM** — *Undifferentiated granitoid rocks*
  - **ÅMv** — *Migmatite derived from unit ÅH*
  - **ÅMs** — *Migmatite derived from unit ÅBL*
  - **ÅMp** — *Pegmatite*
  - **ÅMgt** — *Granite*
  - **ÅMg** — *Granodiorite*
  - **ÅMt** — *Tonalite*
  - **ÅMd** — *Quartz diorite or diorite*
  - **ÅMb** — *Basement migmatite gneiss*

Geological boundary (defined, approximate, assumed)
Bedding (tops known, overturned, tops unknown)
Bedding trends (dip unknown, vertical, tops known)
Bedding- cleavage S1 (inclined tops known, overturned, horizontal)
(inclined tops unknown, vertical, dip unknown)
Pillows (tops unknown, known)
Axial planar foliation S1 (dip inclined, vertical, unknown, horizontal)
S2
S3
Lineation - L1 (mineral, minor fold axis, warp axis, clast elongation)
L2
Fault (defined, approximate, assumed)
Overturned anticline, syncline- F1
F2
Antiform, synform with plunge- F1
F2
Esker (direction of flow known or assumed)
Glacial outwash gorge
Location of age determination sample (material dated, dating method, age in million of years)
Material: b, biotite; m, muscovite; z, zircon; w r, whole rock
Method: K, potassium-argon; R, rubidium-strontium; U, uranium-lead; Pb, galena — Ⓐ zU 2580 m.a.
Biotite isograd
Staurolite - cordierite isograd
Sulphide-rich strata
Iron formation
Carbonate-bearing beds
Coarse metaigneous texture
Conglomerate beds
Inclusions in plutonic rocks — v
Large volcanic clasts — o
Megacryst or phenocryst — a
Tuffaceous rock — t
Breccia — g
Welded tuff — w
Pillowed — p

MINERALS

Andalusite	an	*Cordierite*	cd	*Microcline oikocryst*	mc
Anthophyllite	ay	*Galena*	Pb	*Pyrite*	py
Arsenopyrite	as	*Garnet*	gr	*Sillimanite*	sl
Biotite	bo	*Gold*	Au	*Sphalerite*	Zn
Calcite-dolomite	cc	*Kyanite*	ky	*Staurolite*	st
Chlorite	cl	*Copper*	Cu		

Geology compiled by R.A. Frith, 1981, from fieldwork by R.A. Frith, J.D. Hill (1975, 1976) J.A. Percival and J. Ostler (1976), and from previous compilations by:

Fraser, J.A. (1964) Helicopter mapping of the northeastern District of Mackenzie (1 in. to 8 mile) Geological Survey of Canada, Map 45-1963.
Jefferson, W.A. (1976) Geology of 76F-9, 76F-15 and 76F-16 (1 in. to 1/2 mile, published maps) Department of Indian Affairs and Northern Development.
Lambert, M.B. (1982) The Back River Volcanic Complex, District of Mackenzie (1:25 000 map) Geological Survey of Canada, Open File 848.
Padgham, W.A. and Ronayne, E.A. (1974 and 1975) Geology of 76-5, 76-12 and 76-13 (1 in. to 1/2 mile published maps) Department of Indian Affairs and Northern Development.
Roscoe, S.M. (1976) Geology of the Yava deposit region (1:50 000 and 1:6 000 unpublished maps), Yava Syndicate.
Tremblay, L.P. (1971) Geology of Beechey Lake map area, District of Mackenzie (1:125 000 map with detail mainly on the Goulburn Group) Geological Survey of Canada, Map 1267A.
Wilton, H.P. (1972) Geology of Bathurst-Norsemines region (1 in. to 1/2 mile unpublished map) Cominco Co., Ltd.
Wright, G.M. (1957) Helicopter reconnaissance mapping of the eastern District of Mackenzie (1 in. to 8 mile) Geological Survey of Canada, Map 17-1956.

Classification of plutonic rocks is after Streckeisen (1976, Earth Science Reviews, v. 12, p. 1-33) and volcanic rocks is after Streckeisen (1979, Geology, v. 7, p. 331-335)

Geological cartography by R.R. Perron, Geological Survey of Canada

Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map assembled by the Geological Survey of Canada from parts of maps published at 1:250 000 scale by the Army Survey Establishment R.C.E. in 1964, 1977

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Elevations in feet above mean sea level

Recommended citation:
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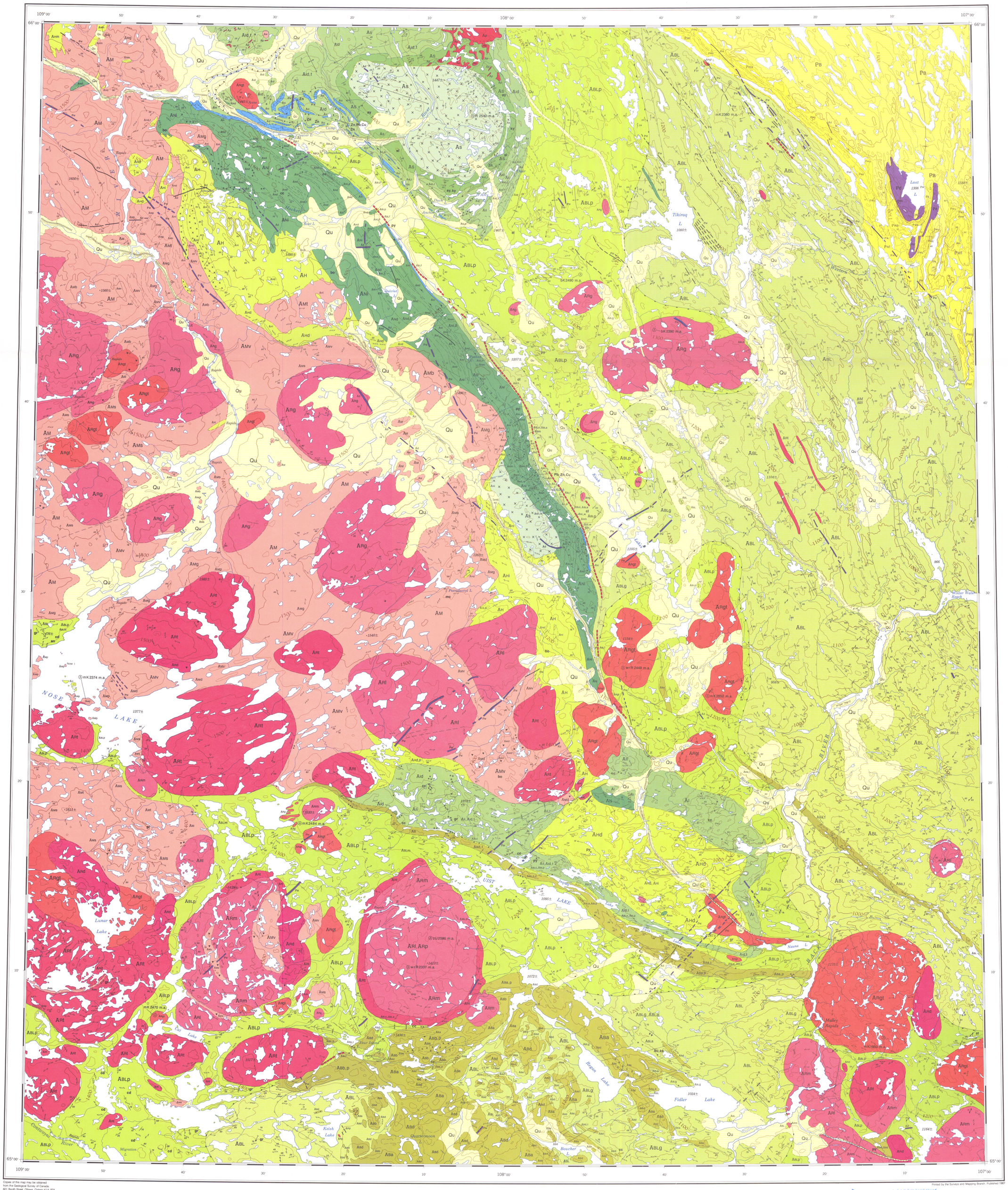
1986: Geology, Hackett River area, District of Mackenzie, Northwest Territories; Geological Survey of Canada, Map 1619A, scale 1:125 000



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INDEX MAP

MAP 1619A
GEOLOGY
HACKETT RIVER
DISTRICT OF MACKENZIE
NORTHWEST TERRITORIES

Scale 1:125 000

Kilometres 2 0 2 4 6 8 10 Kilometres

Transverse Mercator Projection
cm 108°, Scale Factor 0.9996
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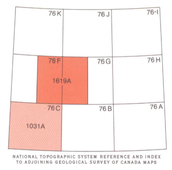

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