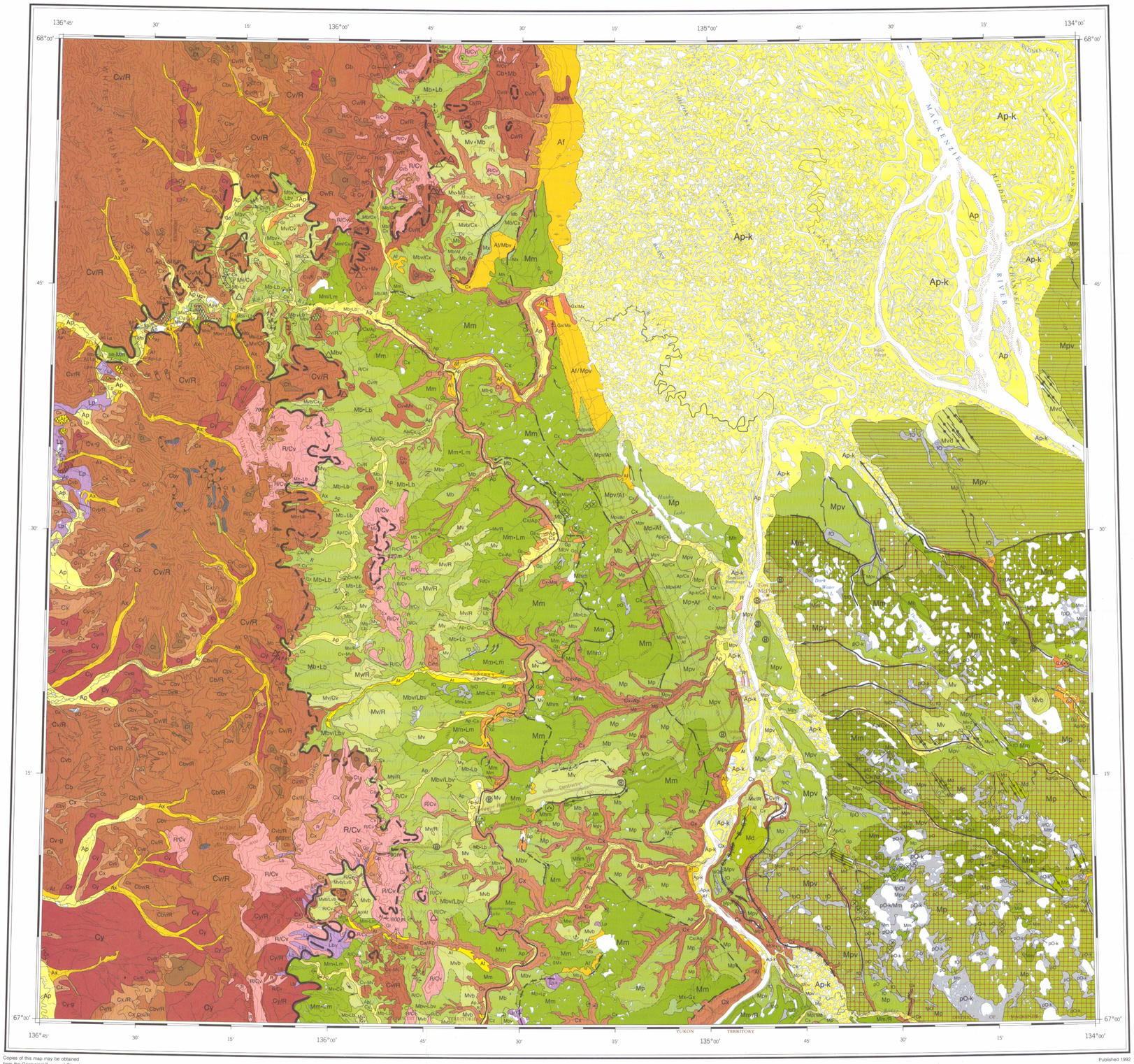
Energy, Mines and Resources Canada
Énergie, Mines et Ressources Canada

GEOLOGICAL SURVEY OF CANADA
COMMISSION GÉOLOGIQUE DU CANADA



Copies of this map may be obtained
from the Geological Survey of Canada:
601 Booth Street, Ottawa, Ontario K1A 0E8
3303-33rd Street, N.W., Calgary, Alberta T2L 2A7
100 West Pender Street, Vancouver, B.C. V6B 1R8

INDEX MAP

Canada

MAP 1745A

SURFICIAL GEOLOGY

FORT McPHERSON – BELL RIVER

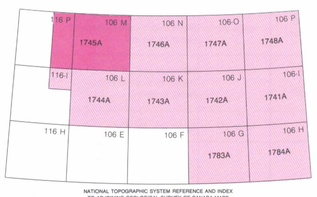
YUKON - NORTHWEST TERRITORIES

Scale 1:250 000 - Échelle 1/250 000

Kilometres 5 0 5 10 15 20 Kilometres

Universal Transverse Mercator Projection

Projection transverse universelle de Mercator



NATIONAL TOPOGRAPHIC SYSTEM REFERENCE AND INDEX TO ADJOINING GEOLOGICAL SURVEY OF CANADA MAPS

Published 1992

LEGEND

This legend is common to maps 1741A to 1748A

* *Dominant map unit or symbol not present in this map (these materials may occur as subordinate part of a map unit)*

QUATERNARY

HOLOCENE

fO, pO, pO-k, pfO, fpO — ***ORGANIC DEPOSITS:*** *peat and muck, occurring as flat to gently sloping plains;* **fO,** *fenland, consisting of woody sedge peat, 2-3 m thick;* **pO,** *peatland, sphagnum peat generally underlain by sedge and woody sedge peat, 2-4 m thick;* **pO-k,** *peatland containing thermokarst depressions;* **pfO,** *peatland and fenland undivided;* **fpO**, *fenland and peatland undivided*

Fenlands constitute 10-50% of map unit

* *Peatlands constitute 10-50% of map unit*

Peatlands and fenlands undivided make up 10-50% of map unit

Ap, Ap-k / At, *Atv / Af, Ax — ***ALLUVIAL DEPOSITS:*** *sand, silt, and minor gravel in association with modern drainage regime;* **Ap,** *coarse sand and gravel with silt and fine sand, occurring as channel and overbank floodplain sediments, 3-5 m thick;* **Ap-k,** *floodplain sediments containing thermokarst depressions;* **At**, *sand and silt, in places underlain by gravel, occurring as terraces, 2-5 m thick;* **Atv,** *terrace deposits 1-2 m thick;* **Af,** *mainly silt, sand, and minor gravel, locally with discontinuous layers of woody peat; occurs as fans and aprons;* **Ax,** *complexes of* **Ap, At,** *and* **Af,** *undivided*

COLLUVIAL AND SHEETWASH DEPOSITS: *diamicton and rubble derived from bedrock and surficial materials by a variety of colluvial and sheetwash processes*

Cb, Ca, Cv — ***Colluvium and sheetwash deposits:*** *diamicton and rubble;* **Cb,** *blanket deposit that conforms to bedrock topography, > 3 m thick;* **Ca,** *organic-rich silt and sand developed as a veneer or blanket on lacustrine sediments or soft bedrock, 1-2 m thick;* **Cv,** *discontinuous veneer overlying bedrock, 0-2 m thick*

Cz — ***Landslide deposits:*** *rubble and/or diamicton occurring as stepped or fan-shaped deposits; formed by rotational slumping or retrogressive thaw flow failure of glacial lacustrine sediments or shale*

Ct — ***Cryoplanation terrace deposits:*** *colluvial rubble, occurring as a 1-3 m thick; mantle on a step or bench in a mountain slope*

Cy — ***Pediment deposits:*** *silty gravel or colluvium, 1-2 m thick, overlain by < 1m of silt; occurs as gently sloping (<6°) surface extending from valley axis to wall in unglaciated mountains*

Cx — ***Slope complex:*** *complex consisting of two or more of* **Cb, Cv, Ca, Cz,** *and* **Af,** *undivided*

LATE WISCONSINAN

Lp, Lp-k / Lm, Lb / Ls / Lx, Lx-k, Lv — ***GLACIOLACUSTRINE DEPOSITS:*** *silt and clay with minor sand, in many places overlain by discontinuous veneer of organic deposits and locally overlain by sand; sediments laid down in a glacial lake;* **Lp,** *thick sediments occurring as a flat to gently sloping plain, 2-15 m or more thick;* **Lp-k,** *lacustrine plain containing thermokarst depressions;* **Lm,** *thick sediments occurring as broad hummocks or low hills, 2-15 m or more thick;* **Lb,** *blanket of lacustrine sediments occurring as gently to moderately sloping plain, 2-8 m thick;* **Ls,** *littoral sediments occurring as low ridges of sand and gravel;* **Lx,** *lacustrine complex or transition, lacustrine deposits overlain by up to 3 m of sand;* **Lx-k,** *lacustrine complex containing thermokarst depressions;* **Lv,** *lacustrine veneer, surface conforms to underlying unit, 0-2 m thick*

GLACIOFLUVIAL DEPOSITS: *sand and gravel locally with a veneer of eolian silt or sand; deposited as proglacial or ice contact sediments by glacial meltwater*

Gp, Gt — ***Outwash deposits:*** *sand and gravel with silt and peat in some channels;* **Gp,** *flat to gently sloping plain, 2-30 m thick;* **Gt,** *deposits underlying a terrace, 2-30 m thick*

Gh, Gr — ***Ice contact glaciofluvial deposits:*** *gravel and sand; relief < 25 m; 2-25 m thick;* **Gh,** *hummocks;* **Gr,** *ridges*

Gx — ***Glaciofluvial complex:*** *undivided* **Gh, Gr** *and kettled* **Gp** *and* **Gt**

GLACIAL DEPOSITS: *nonsorted silt, sand, and clay with some coarser clasts (till), deposited by glacier ice and occurring in a variety of different landforms*

Mp, Mb / Mpv — ***Moraine plain:*** *till occurring as:* **Mp,** *flat to gently sloping plain, 3-20 m thick;* **Mb,** *gently to moderately sloping plain controlled by bedrock, 3-6 m thick;* **Mpv,** *flat to gently sloping plain, 1-3 m thick*

Md — ***Drumlinoid plain:*** *till occurring as:* **Md**, *plain with individual drumlins or extensively fluted, 2-30 m thick*

Mv, Mvd — ***Thin till and bedrock:*** **Mv**, *veneer of till with slopes conforming to underlying bedrock topography, 0-2 m thick;* **Mvd**, *thin till over glacially eroded streamlined bedrock ridges, 0-3 m thick*

Mh, Mr / Mm — ***Hummocky, ridged and rolling moraine:*** *generally coarse till (20-50% pebble size);* **Mh**, *individual and coalescent hummocks, locally contains hummocks of gravel, relief 15-50 m, up to 50 m thick;* **Mr**, *individual to compound, either straight or sinuous ridges 15 to 60 m high, up to 60 m thick;* **Mm**, *broad hummocks or low hills with 10-20 m of relief, up to 20 m thick*

Mx — ***Glacial deposit complex:*** *largely hummocky and ridged and rolling till undivided*

PRE-QUATERNARY

R, *Rt — ***BEDROCK:*** *shale, sandstone and limestone of Paleozoic through Mesozoic age;* **R**, *primarily prominent ridges, escarpments and hills;* **Rt**, *subhorizontal bedrock surfaces exposed as channel floors*

DEPOSIT TEXTURE, COMBINED MAP UNITS, AND MODIFYING PROCESSES

Texture may be indicated by a lower case letter preceding the unit designator (e.g., **sGp, pfO**). *These are used only where the texture of the unit is known to differ from that indicated in the legend. Texture terms used are:* **s**-*dominantly sand;* **g**-*dominantly gravel;* **f**-*en organic deposits;* and **p**-*eat organic deposits.*

Combined map units are used where, for reasons of scale, two intermingled units cannot be delineated individually. There are three different forms of combined unit designators: 1) Where the two units are from the same genetic group, the upper case letter representing the genetic category of the subordinate unit is dropped (e.g., alluvial plain and terrace undifferentiated becomes **Ap**†). *In some cases, where the combined unit has characteristics different from the two individual units, the combined unit is described in the legend (e.g.,* **Mpv**-*moraine plain with thin till). 2) the dominant unit (>50%) is followed by a dot and the designator of another unit making up 20-50% of the map area (e.g.,* **Mp•fO**). *3) The dominant unit is followed by a slash and the designator of another unit making up 10-25% of the map area (e.g.,* **Mv/R**).

Three special designators are used to indicate the former or current activity of modifying processes; these are thermokarst activity (**k**), *gullying* (**g**), *and channelling* (**c**). *They are added to the end of the unit designator and separated from it by a dash (e.g.,* **Lp-k**).

Geological boundary (defined, approximate)
All-time limit of Laurentide ice (defined, approximate, assumed)
Limit of Tutsieta Lake Phase (defined, approximate)
Limit of advance or at time of stillstand (defined, approximate, assumed)
Erratic of Shield origin
Terrace of preglacial origin
Cryoplanation terrace
Filled channel or buried valley
Cirque
* *Crag and tail*
Drumlin or drumlinoid ridge (sense of ice flow determined, not determined)
Moraine ridge
Esker
Kame
Glacial meltwater channel (major, minor)
* *Shoreline of former lake*
Rock glacier
Pingo (open system; probable or collapsed)
Slope failure (in most places, retrogressive - thaw flow slides)
* *Dunes and windblown sand*
* *Eolian veneer mainly of fine sand*
Borrow pit
Gravel pit

Final interpretation and compilation by A. Duk-Rodkin (1986-1987) and geology by O.L. Hughes (1969-1973), with additional information from field observations of D.A. Hodgson, 1971-1972

Geological cartography by L.A. Daley, Geological Survey of Canada

Colour separations were produced using digital methods

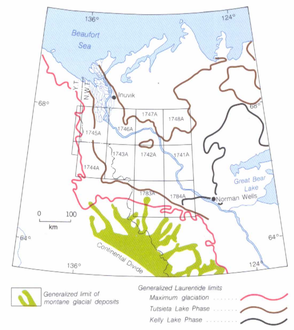
Any revisions or additional geological information known to the user would be welcomed by the Geological Survey of Canada

Base map assembled by the Geological Survey of Canada from map 106 M (1959) and part of map 116 P (1959), published at the same scale by the Surveys and Mapping Branch

Copies of the topographical editions covering this map may be obtained from the Canada Map Office, Department of Energy, Mines and Resources, Ottawa, Ontario, K1A 0E9

Mean magnetic declination 1992, 34°38' E, decreasing 12.6' annually. Readings vary from 33°37' E in the SW corner to 35°39' E in the NE corner of the map

Elevations in feet above mean sea level



ACKNOWLEDGMENTS

Additional information on surficial geology and granular materials obtained from: Canadian Arctic Gas Pipeline Ltd., 1974, Alignment sheets (atlas) Pipeline route in Canada north of 60° latitude; Foothills Pipe Lines (Yukon) Ltd., 1979, The Dempster Lateral Gas Pipeline Project, Alignment sheets (atlas), 77 maps; Ripley, Klohn & Leonoff Alberta Ltd. and J.C. Sproule and Associates Ltd., 1970, Mackenzie Valley Pipeline. Vol. III Photo mosaics and pipeline route; Amaco, Aquitaine, Dome, Imperial, Shell and Union oil companies provided borehole data from seismic shotholes

This map supersedes 106 M, 116 P (part) in:

Hughes, O.L., Hodgson, D.A., and Pilon, J.
1972: Surficial geology maps of part of the Mackennzie Valley. District of Mackenzie, Northwest Territories; Geological Survey of Canada, Open File 97, scale 1:125 000, 106-I, 106 M, 106 N

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Hughes, O.L., Rampton, V.N., Bamber, E.W., Mountjoi, E.W., Norford, B.S., Norris, A.W., Norris, D.K., Price, R.A., Procter, R.M., and Taylor, G.C.
1971: Surficial geology, northern Yukon Territory, and northwestern District of Mackenzie; Geological Survey of Canada, Map 1319A, Paper 69-36

Hughes, O.L., Hodgson, D.A., and Pilon, J.
1972: Surficial geology maps of part of the Mackenzie Valley, District of Mackenzie, Northwest Territories; Geological Survey of Canada, Open File 97, scale 1:125 000, 106-I, 106 M, 106 N

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1992: Surficial geology, Fort McPherson-Bell River, Yukon-Northwest Territories; Geological Survey of Canada, Map 1745A, scale 1:250 000

1745A