

**References**

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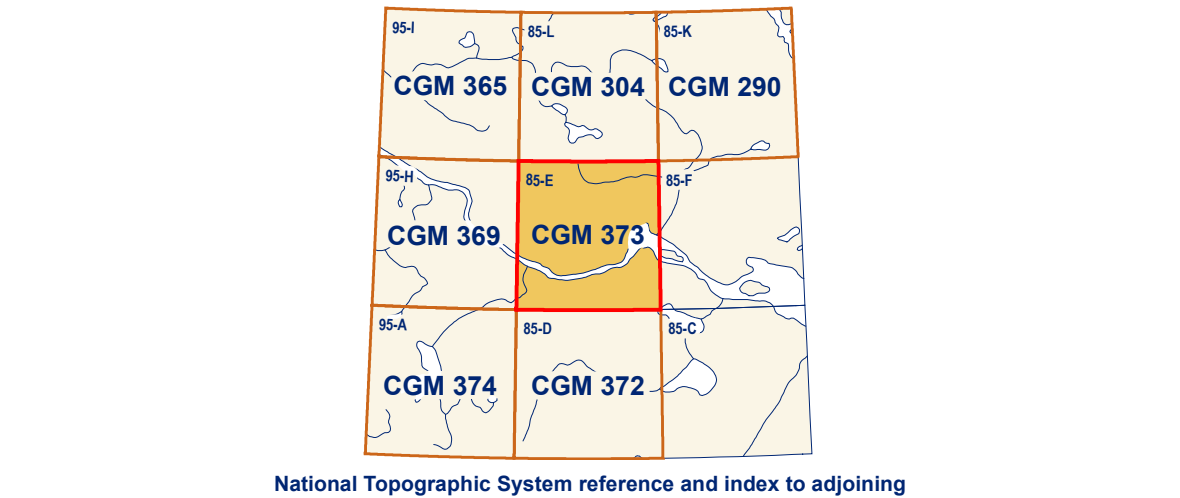
Rutter, N.W., Menzies, G.V., and Nettleton, J.A., 1980. Surficial geology and geomorphology, Mills Lake, District of Mackenzie, Geological Survey of Canada, Map 15-1978, scale 1:125 000. <https://doi.org/10.4095/109708>.

**Abstract**

This new surficial geology map product represents the conversion of Preliminary Map 15-1978 (Rutter et al., 1980) and its legend, using the Geospatial Survey of Canada's Surface Data Model (SDM version 2.3.14) (Debono et al., 2018). All geospatial knowledge and information from Preliminary Map 15-1978 that corresponded to the current SDM were maintained during the conversion process. Additional material on the original map, consisting of an extended legend, is not included. This supplementary limited legend information was added to complement the converted geospatial data. This consists of: (1) a legend and stratigraphic correlation chart (Rutter et al., 1973). It is identified in the accompanying Map Information Document. The purpose of converting legacy map data to a common geospatial format and common legend is to enable and facilitate the efficient digital compilation, interpretation, management, and dissemination of geological map information in a structured and consistent manner. This provides an effective knowledge management tool designed to allow a geoscientist to quickly and accurately determine the type of information to appear on new surficial geology maps.

**Résumé**

Ce nouveau produit cartographique de la géologie des formations superficielles correspond à la conversion de la Carte préliminaire 15-1978 (Rutter et al., 1980) et de sa légende, en se servant du Modèle de données pour les formations superficielles (SDM) version 2.3.14 (Debono et al., 2018). Toutes les connaissances et l'information de nature géospatiale de la Carte préliminaire 15-1978 qui sont en conformité avec le modèle de données ont été conservées pendant le processus de conversion. De l'information supplémentaire contenue dans la légende détaillée de la carte d'origine n'est pas incluse ici. Une quantité limitée de données existantes a été ajoutée en complément aux données géospatiales converties. Il s'agit de données de sondages et de données stratigraphiques tirées de Rutter et al. (1973). Ces données sont identifiées dans le document informatif sur la carte qui accompagne ce produit. Le but de la conversion de cartes publiques antérieurement publiées en langage scientifique commun est de créer une légende commune et de permettre de faciliter la compilation, l'interprétation, la gestion et la diffusion efficaces de l'information géospatiale cartographique en mode numérique de façon structurée et cohérente. Cette façon de faire offre un outil efficace de gestion des connaissances élaboré à l'aide d'une géospatiale qui pourra évoluer suivant le type d'information à paraître sur les nouvelles cartes de la géologie des formations superficielles.



Catalogue No. M183-1073-2018E-PDF  
ISBN 978-1-600-36917-7  
<https://doi.org/10.4095/81291>

Natural Resources Canada  
Ressources naturelles Canada

**CANADIAN GEOSCIENCE MAP 373  
RECONNAISSANCE SURFICIAL GEOLOGY  
MILLS LAKE  
Northwest Territories  
NTS 85-E  
1:125 000**

**Author: Geological Survey of Canada**  
Geology by N.W. Rutter, G.V. Menzies,  
and J.A. Nettleton, 1971  
Geological compilation by R.J. Hawes, 1975  
Geology conforms to Surface Data Model v. 2.3.14 (Debono et al., 2018)  
Geological data conversion by D.E. Kerr, 2016 and 2017

Geology has been spatially adjusted to fit the updated base.  
Geometries by S. Engles, J. Knapley, and C.D. Stevens  
Cartography by A. De Waithon  
Scientific editing by A. Whistler  
Initiative of the Geological Survey of Canada, conducted under the auspices of Natural Resources Canada's Geo-mapping for Energy and Minerals (GEM) program

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Map projection: North American Mercator, zone 11  
North American Datum 1983  
Base map at the scale of 1:250 000 from Natural Resources Canada, with modifications  
Elevations in metres above mean sea level  
Mean magnetic declination 2010, 17°56'E, decreasing 19.8' annually  
Readings vary from 12°22'E in the NW corner to 17°28'E in the SE corner of the map.

This map is not to be used for navigational purposes.  
The Geological Survey of Canada sometimes corrects or additional information from users.  
Data may include additional observations not portrayed on this map. See map info document accompanying the downloaded data for more information about this publication.  
This publication is available for free download through GEOBCAN (<https://www.geobc.ca>) (between-mean grid).

**QUATERNARY**

**Nonglacial Environment**

**Qw** **Fan deposits:** dominantly moderately decomposed fan peat derived from sedge, peat, and mosses; 2-3 m thick; flat to very gently sloping; water of surface through summer months; uniform to at least 5 m; various saturated soil patterns from the topographic base may appear in this unit.

**Qwb** **Bag deposits:** dominantly moderately decomposed forest and/or undecomposed peat derived from black spruce, *Cladonia*, feather-mosses, and mosses; 1-2 m thick; 10-20 m long; 1-2 m wide; flat to gently sloping; areas with scattered mounds, with 1-4 m relief; frozen at 0.5-0.5 m; contains irregularly in a peat and in underlying mineral soil; various saturated and water from the topographic base may appear in this unit.

**Qr** **Dune sediments:** fine to medium sand; 1-20 m thick; dune ridges, usually parallel to subparallel, subject to wind erosion.

**Qz** **Landslide deposits:** silt, sand, rubble, and detritus; derived mainly from glacioclastic silt and clay, 8, and shale bedrock; variable thickness; respected landslide deposits; includes debris avalanches as thin narrow tongues, earthflows, and mudflows, and slump deposits as blocks and hummocks; fine-grained material may contain irregularly bedded ice.

**Qv** **Colluvial veneer:** variable material; clay, silt, sand, and gravel; derived from underlying surficial sediments; poorly graded; less than 1.5 m thick; gently to steeply sloping surfaces, less than 5 to 20 degrees; may include minor organic deposits.

**Qc** **Colluvial deposits, unfossiliferous:** material derived from underlying surficial sediments or bedrock; 5-30 m thick; forming complexes with gently to steeply sloping surfaces, less than 5 to 20 degrees; only clay colluvium contains irregular ice.

**Qp** **Aluvial floodplain sediments:** silt, sand, and gravel; 1-8 m thick; floodplain and terrace deposits; floodplains within plains regions commonly with meander scars; may include small mounds of fluvial sediment; fluvial and vegetated ice may be present in areas where overlying log is more than 1.5 m thick; various saturated soil patterns from the topographic base may appear in this unit.

**Qf** **Aluvial fan sediments:** mostly gravel, some sand; 3-25 m thick; gently to moderately sloping fans and coalescent fans; may include one or more shifting channels.

**Qs** **Aluvial terrace sediments:** silt, sand, and gravel; 1-30 m thick; may be derived from the topographic base; terraces may be associated with Ap, Gf, and GfT; level to slightly sloping surfaces.

**Qv** **Aluvial veneer:** silt, sand, and gravel; less than 1.5 m thick; may include terrace, fan, and floodplain sediments, appears only as secondary unit in complex polygons.

**PROGLACIAL AND GLACIAL ENVIRONMENT**

**GLr** **Glacioclastic beach sediments:** mainly gravel with minor silt, locally includes silt, 0.5-2 m thick; gravelly and/or pebbly parallel to subparallel beach ridges; may be associated with various saturated soil patterns from the topographic base may appear in this unit.

**GLv** **Glacioclastic veneer:** silt and sand; 0.5-1.5 m thick; reflects topography of underlying material; appears only as a secondary unit in complex polygons.

**GLb** **Glacioclastic blanket:** silt and sand, may include minor gravel; 1.5-50 m thick; flat to gently sloping; surface may be channelled; if associated with organic deposits greater than 1.5 m thick, permafrost may be present.

**GL** **Glacioclastic sediments, unfossiliferous:** silt, sand, and gravel; 1.5-50 m thick; appears only as secondary unit in complex polygons and in stratigraphic relationships within polygons.

**Gf** **Glacioclastic outwash-plain sediments:** silt, sand, and gravel; 1-30 m or more thick; flat to gently sloping; may include minor glacioclastic silt and minor organic deposits; surface may be channelled; may include veneer when covered by organic deposits greater than 1.5 m thick, permafrost may be present.

**GfT** **Glacioclastic terrace sediments:** silt, sand, and gravel; 1-30 m or more thick; flat to gently sloping; surface may be channelled; if associated with organic deposits greater than 1.5 m thick, permafrost may be present.

**GfH** **Glacioclastic hummocky sediments:** mainly gravel with sand; 1-10 m thick; hummocks with local relief up to 10 m.

**GfV** **Glacioclastic older sediments:** mainly gravel with sand; 1-30 m thick; king hummocks with local relief up to 10 m.

**GLv** **Glacioclastic veneer:** mainly gravel and sand; 0.5-1.5 m thick; reflects topography of underlying material; appears only as a secondary unit in complex polygons.

**GLACIAL ENVIRONMENT**

**Th** **Hummocky till:** sand, gravel, and detritus; 1-20 m thick; individual to coalescent local hummocks, with slopes up to 20 degrees; hummocky terrain may include minor ridges; moderately to strongly calcareous.

**Tt** **Ridged till:** sand, gravel, and detritus; 1-10 m thick; crevasse fillings or ridges consisting of individual gravel; grades to subparallel, straight to sinuous ridges within a moraine plain; 0.5-5 m relief; slopes of 5-30 degrees; may include minor till; moderately to strongly calcareous; appears only as secondary unit in complex polygons.

**Tp** **Till plain:** clay, silt, sand, pebbles, boulders, and detritus; 1.5-50 m thick; flat to uniformly sloping moraine plain; from 2-15 degrees; may be channelled; may include other minor till units and organic deposits; moderately to strongly calcareous; various saturated soil patterns from the topographic base may appear in this unit.

**Tv** **Till veneer:** sand, gravel, and detritus; less than 1.5 m thick; reflects topography of underlying material.

**Tb** **Till blanket:** sand, gravel, and detritus; 5-30 m thick; subparallel hummocks and rising terraces; slopes of 5-30 degrees; moderately to strongly calcareous; appears only as secondary unit in complex polygons.

**Tu** **Till, unfossiliferous:** sand, gravel, and detritus; 1-10 m or more thick; includes other minor till units; may include minor organic deposits; appears only as secondary unit in complex polygons and in stratigraphic relationships within polygons.

**NONGLACIAL ENVIRONMENT**

**Wv** **Regolith veneer:** clayey gravel with sand and silt; poorly graded; less than 1 m thick; disintegrates to sand and silt; may be associated with Ap, Gf, and GfT; 15-35 degrees; underlain by shale in dissected areas of mountainous relief.

**Complex units:** two map-unit designations separated by a dot (.) are used where the surficial cover forms a complex area and the units are too small to be mapped individually (e.g. AL.Tp designates an area of alluvial terrace sediments with till plain).

**Stratigraphic relationship:** two map-unit designations separated by a slash (/) are used where a stratigraphic relationship is observed or confidently inferred (e.g. GLvT indicates glacioclastic blanket overlying till).

**Legend:**

- Thermokarst area
- Patterned ground area
- Bermose pit, small, active
- Geological contact
- Defined
- Approximate
- Landslide escarpment, potential slumping
- Terrace slope, escarpment
- Beach crest, depositional
- Ice gouge, iceberg scour
- Meltwater channel
- Minor, paleocurrent direction unknown
- Major, paleocurrent direction known
- Minor, unspecified
- Major, end or lateral
- Small outcrop
- Station location, ground observation, stratigraphic section, with number (see Map Information Document)
- R-14-0

**Recommended citation**  
Geological Survey of Canada, 2018. Reconnaissance surficial geology, Mills Lake, Northwest Territories, NTS 85-E. Geological Survey of Canada, Canadian Geoscience Map 373. Surface Data Model v. 2.3.14 conversion of Map 15-1978, scale 1:125 000. <https://doi.org/10.4095/81291>