

- QUATERNARY**
- SURFICIAL DEPOSITS**
- POST LAST GLACIATION**
- NONGLACIAL ENVIRONMENT**
- H** Anthropogenic deposits: culturally-made or modified geological materials such that their physical properties have been drastically altered, generally >2 m thick, and includes open pit mines, mine tailings, waste piles and settling ponds and reworked overburden associated with the Pine Point mine operation and former town site (1964-1988).
  - C** Colluvial deposits, undifferentiated: mass wasting debris, poorly sorted, massive to stratified debris, variable thickness, deposited by direct, gravity-induced movement; composition is dependent on source material.
  - Owb** Organic deposits-bog: sphagnum or forest peat formed in an ombrotrophic environment; wet terrain; may be treed with black spruce or tamarack; area may be locally underlain by ground ice or shallow permafrost conditions, with thermokarst terrain related to melting ground ice.
  - Owf** Organic deposits-fen: derived from sedge and partially decayed shrubs in a eutrophic environment; forms relatively open peatlands with a mineral-rich water table that persists seasonally near the surface; generally covered with low shrubs and an occasionally sparsely treed with larch (tamarack).
  - O** Organic deposits, undifferentiated: undifferentiated bog and fen deposits; area may be locally underlain by ground ice or shallow permafrost, often associated with minor channels established for surface drainage and impacted by beaver activity.
  - Er** Eolian dune sediments: generally >2 m thick, forming parabolic and longitudinal dune ridges.
  - E** Eolian sediments, undifferentiated: sand, variable thickness.
  - Ap** Alluvial sediments: sorted gravel, sand, silt and organic detritus, commonly stratified, variable thickness, deposited by streams.
  - At** Floodplain sediments: gravel, sand silt and organic detritus, sorted, >1 m thick, forming active floodplains close to river level with meander channels and scroll bars.
  - At** Alluvial terrace sediments: >2 m thick, inactive terraces above modern floodplain.
  - At** Alluvial fan sediments: gravel, sand, silt and organic detritus, poorly sorted, >1 m thick.
  - A** Alluvial sediments, undifferentiated: gravel to silt, variable thickness.
  - Lr** Lacustrine sediments: cobble to pebble gravel, sand, silt and minor clay, >1 m thick, consisting of beach and storm deposits, ice-rafted debris and also formed from recent fluctuations in lake levels, deposited along the shoreline of Great Slave Lake.
  - Ln** Lacustrine beach sediments: fine sand to coarse cobble gravel, forming beach ridges of gravel up to 2 m high, sediments deposited adjacent to Great Slave Lake.
  - Ln** Littoral and nearshore sediments: fine to coarse sand beaches with minor gravel and ice-rafted debris, relief is typically <1 m, sediments formed in the nearshore environment of Great Slave Lake.
- POSTGLACIAL OR LATE WISCONSIN**
- PROGLACIAL AND GLACIAL ENVIRONMENTS**
- GLr** Ridget beach sediments: pebbly to granular sand, well-sorted, formed from glaciolacustrine sedimentation during isostatic rebound and/or lowering of proglacial Lake McConnell; commonly overlain by later extensive ridges; relief is typically 0.5 to 2.0 m.
  - GLn** Littoral and nearshore sediments: sand and gravel grading up from a fine silt-sand sediment, moderately sorted, commonly overlain by an open framework cobble lag <1 m thick.
  - GL** Glaciolacustrine sediments, undifferentiated: sand, silt and minor clay deposits; commonly overlain by organic deposits, low relief terrain.
  - GL** GLACIAL SEDIMENTS (TILL): diamict, carbonaceous sandy to silty matrix with striated and faceted clasts of various lithologies; clast content varies from 10 to 15%; thickness ranges from 1 to >30 m thick; till ridges have typically been exposed to varying degrees of washing and winnowing from proglacial Lake McConnell; generally increasing in thickness to the west, deposited directly by the Laurentide ice sheet.
  - Tv** Till veneer: diamict, <2 m thick; unit includes local patches of outcrop and till blanket.
  - Tb** Till blanket: diamict, >2 m thick, continuous till cover forming undulating topography that locally obscures underlying units.
- PRE-QUATERNARY**
- BEDROCK, PALEOZOIC**
- R** Bedrock, undifferentiated: sedimentary bedrock; Devonian dolomitized carbonate rocks of the Presqu'île barrier, consisting of the Upper Keg River and Sulphur Point formations.
  - Mine waste rock
  - Winnowed sediments with lag deposits
  - Geological contact, defined
  - Buried drumlinoid ridge
  - Drumlinoid ridge
  - Minor meltwater channel, sense known
  - Minor meltwater channel, sense unknown
  - Beach crest
  - Terrace scarp
  - Corrected age (OSL) of 11.1 ± 1.1 ka 11-PTA-105A
- Recommended citation**  
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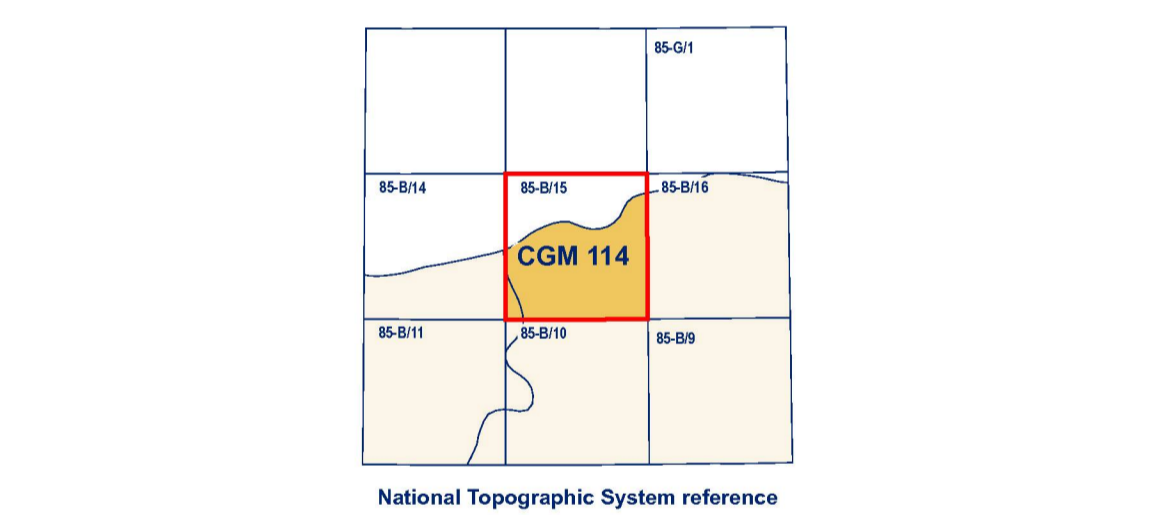
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**Abstract**

The Pine Point region is of very low relief and characterized by black spruce bogs with local relief not exceeding 20 m. During Wisconsin time, the Breynat Point map sheet was actively and continuously glaciated by the Laurentide ice sheet which was generally flowing to the west. Multiple till units were observed in the open pits, however only the uppermost unit was mapped at surface. The map area was completely inundated by proglacial Lake McConnell which formed during deglaciation. Glaciolacustrine sediments are the dominant materials that occur as beach ridges and littoral sediments. Reworked beach ridges form eolian dunes up to 15 m high. Raised strandlines form the former isostatic rebound of the land surface. Organic deposits are extensive with mature peatlands and fens, which are underlain by discontinuous permafrost with active thermokarst. Abandoned open pits and waste piles pockmark the former Pine Point mining district.

**Résumé**

La région de la mine Pine Point, au relief très peu élevé, est caractérisée par des tourbières à épinettes noires avec, par endroits, un relief qui ne dépasse pas 20 m. Au cours du Wisconsin, la région de la carte Breynat Point était recouverte de façon active et continue par les glaces de l'Inuitien lauréntidien. De nombreuses unités de till ont été observées dans les mines à ciel ouvert, toutefois, seule l'unité supérieure a été cartographiée à la surface. Pendant la déglaciation, le lac proglaciaire McConnell a entièrement submergé la région de la carte, où les sédiments glaciolacustres sont les matériaux prédominants sous forme de crêtes de plage et de sédiments littoraux. Des crêtes de plage remaniées prennent la forme de dunes éoliennes atteignant jusqu'à 15 m de hauteur. Des anciennes lignes de rivage soulignées, formées par les phases précoces du Grand lac des Esclaves, indiquent l'ancien relèvement isostatique de la région. Les dépôts organiques très étendus, comportant des tourbières et des marais matures, reposent sur un pergélisol discontinu avec un modèle de thermokarst actif. Des mines à ciel ouvert et des amas de stériles abandonnés ponctuent le paysage de l'ancien district minier de Pine Point.



**Cover illustration**

Photo of an expansive black spruce peatland developed on low-relief Glacial Lake McConnell sediments, looking to the northeast from top of the waste pile at PIS-85. Waste piles from PIS-R-41 and T-58 rise above the peatland terrain in the background. 85-B/15 (60° 48' 53.436" N 114° 37' 17.814" W), Northwest Territories. Photograph by Roger C. Paulen, 2013-002

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**CANADIAN GEOSCIENCE MAP 114**  
**SURFICIAL GEOLOGY**  
**BREYNAT POINT**  
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Map projection  
Universal Transverse Mercator, zone 11,  
North American Datum 1983  
Base map at the scale of 1:50 000  
from Natural Resources Canada,  
with modifications,  
Elevation in meters above mean sea level.  
Magnetic declination 2013, 17°45'E, decreasing  
23' annually

The Geological Survey of Canada welcomes  
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