

LEGEND

- COPPERMINE RIVER GROUP
- 10 COPPER CREEK FORMATION: basalt flows, minor sandstone
- DISMAL LAKES GROUP
- 9 Dolomite, undivided
- 8 Sandstone, intercalated black shale
- C MUSKOKX INTRUSION COMPLEX
- HORNBY BAY GROUP
- 7 Sandstone, minor conglomerate
- 6 Sandstone, siltstone, shale
- 5 Dolomite
- 4 Sandstone, minor conglomerate
- GREAT BEAR BATHOLITH
- 3 Granodiorite, quartz monzonite, granite
- 2 Volcanic flows and tuffs, sedimentary rocks, felsite intrusions undivided
- 1 METAMORPHOSED EPWORTH GROUP ROCKS
- HEPBURN METAMORPHIC-PLUTONIC BELT
- B Gneiss, migmatite
- A Granitic rocks

Drift-cover.....
Geological boundary.....
Limit of geochemical survey.....
Fault.....

Geology derived from:

B.G. Craig, W.L. Davison, J.A. Fraser, R.J. Fulton,
W.W. Heywood, T.N. Irvine, 1959, G.S.C. map 18-1960

C.H. Smith, T.N. Irvine, D.C. Finlay, 1963
G.S.C. maps 1213A and 1214A

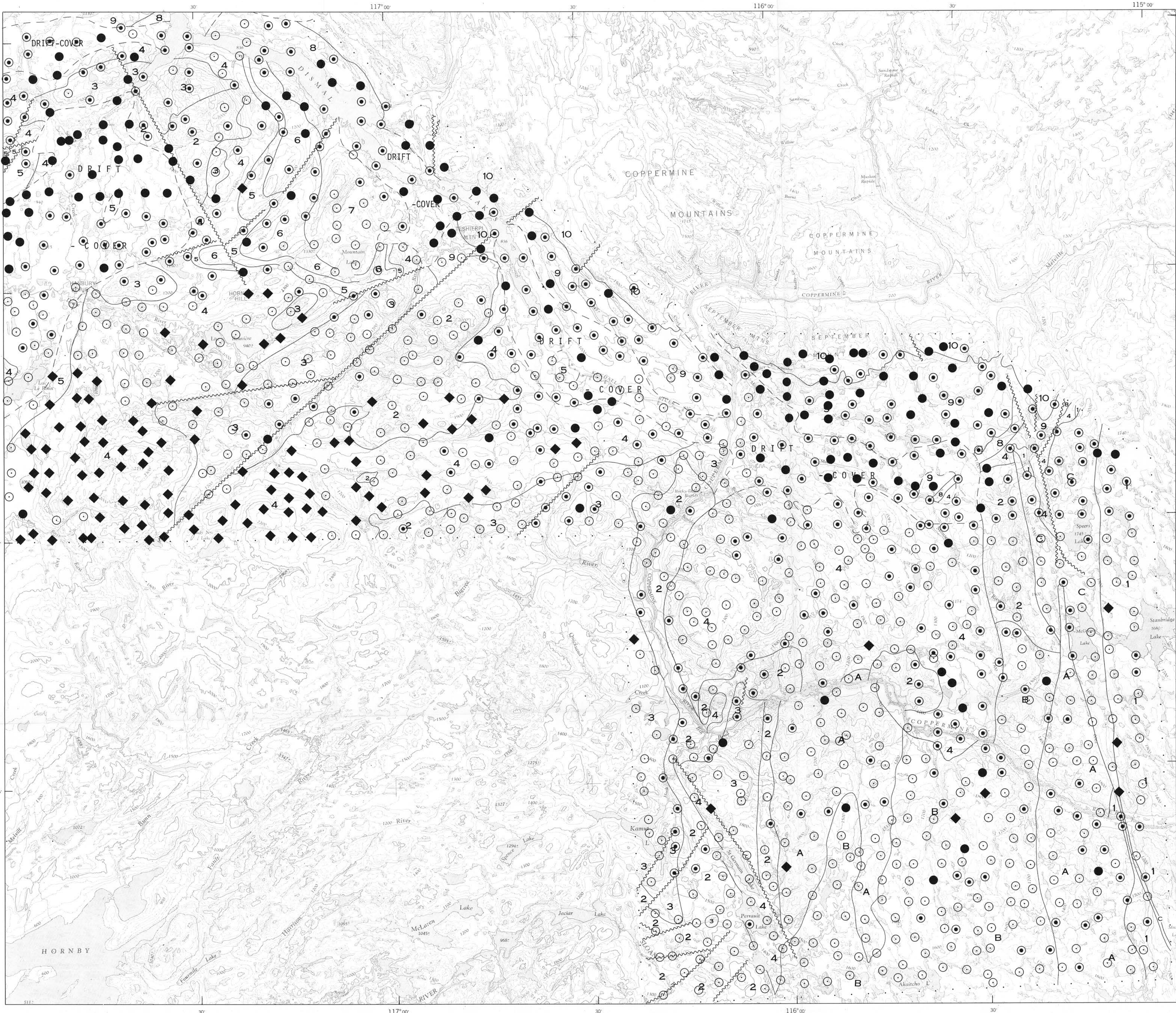
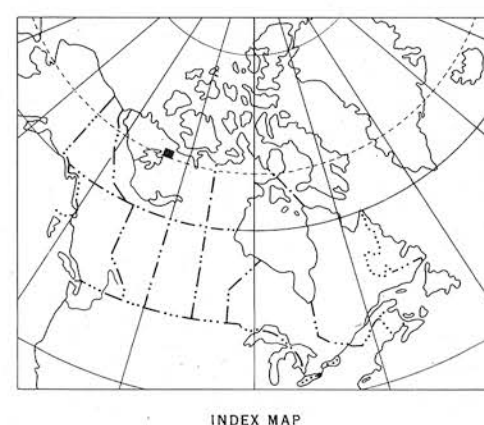
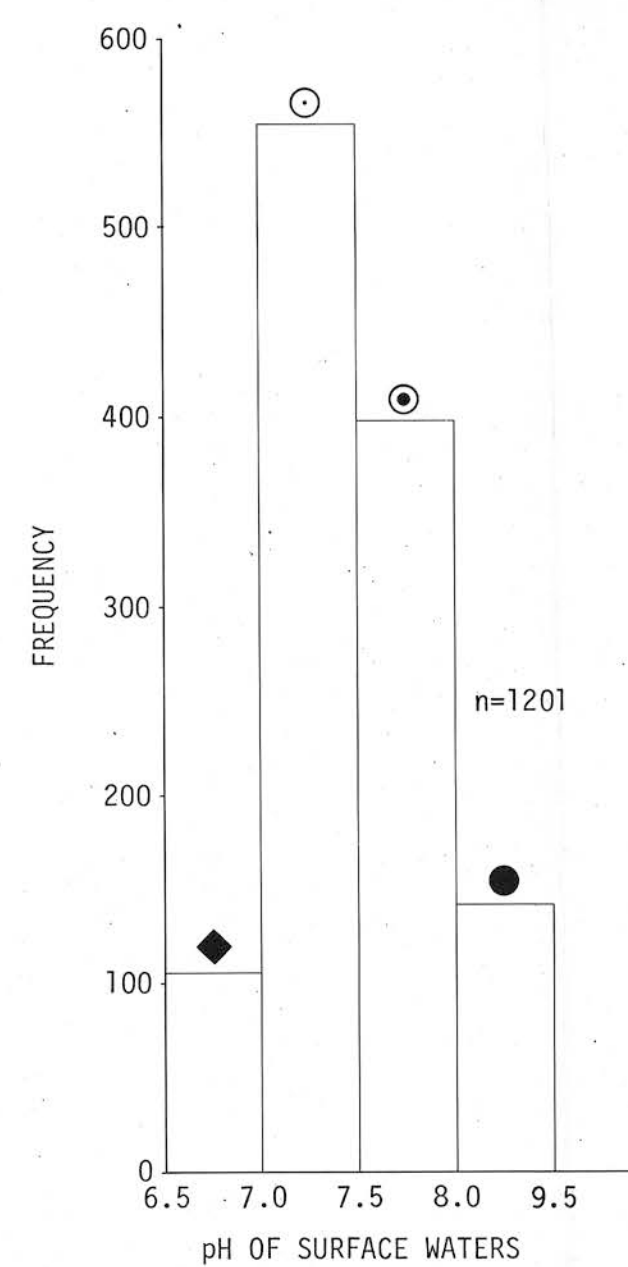
W.R.A. Baragar and J.A. Donaldson, 1969,
G.S.C. maps 1337A and 1338A

P.F. Hoffman, I.R. Bell and R. Tirrul, 1975,
in G.S.C. Paper 76-1A, pg 354

J.C. McGlynn, 1976, Bear and Slave Provinces,
compilation map, in preparation

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by
C.C. Durham
Geological Survey of Canada

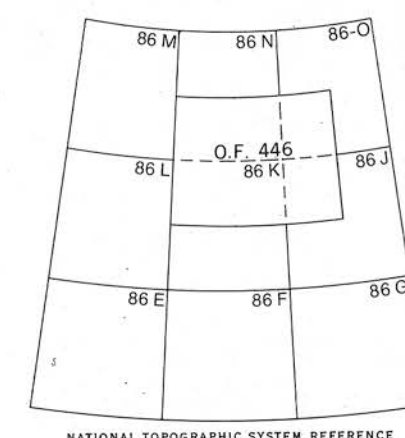


OPEN FILE 446
pH OF SURFACE WATERS
HORNBY BASIN, DISTRICT OF MACKENZIE, N.W.T. 1975

Scale 1:250,000

Kilometres 6 0 6 12 18
Miles 4 0 4 8

Universal Transverse Mercator Projection
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pH OF SURFACE WATERS
HORNBY BASIN
DISTRICT OF MACKENZIE, N.W.T.
1975

MARGINAL NOTES

An orientation survey was conducted in June 1975 to study the feasibility and technology of applying hydrogeochemical methods for uranium in Proterozoic sandstone terrane and to test new rapid methods of field collection. From June 15 to June 27, 1975 surface water was collected from lakes, mainly, and some streams and bogs, over a 6600 km² area in the Hornby Basin area of the Northwest Territories. The map includes parts of N.T.S. map sheets 86J, K, N and O. The primary objective was to investigate if a hydrogeochemical reconnaissance-level survey could outline uranium targets. There are reported occurrences of uranium in the St. Germain Lake area and near Mountain Lake, south of Dismal Lakes. The survey area covered a geological series in which there is uranium potential for primary mineralization in the Great Bear Batholith, secondary mineralization near the sub-Helikian unconformity and roll-type mineralization in the continental sediments. The survey area was also extended to include the base metal occurrences of the Muskox intrusion. The area underlain by the Coppermine basalts was not sampled. These copper-rich basalts were studied by Hornbrook and Allan (1969) and Allan et al (1970).

The surficial geology has been described by Craig (1960). Ice flow direction was generally from the southeast to the northwest. Glacial drift covers broad areas of bedrock along the northern boundary of the map area and in the western part from Lac La Roux north to Dismal Lakes.

In many of the larger lakes (>3 km²) heavy ice conditions prevailed. The effect of the melt water on the surface sample collected from open leads or at the shoreline, was probably a serious dilution factor (MacDonald 1969). As a result the outline of some anomalies could have been missed and severely weakened others.

Sampling Method:

500 ml. of surface water were collected at each site using an automated, helicopter-mounted system described earlier by Cameron and Durham (1975). The system is designed to sample lake waters as rapidly as possible and at the same time to measure pH, conductivity and temperature. This was the first test of the system. While the sampling system performed to specifications, the electronics used to measure the above three parameters gave problems. Thus conductivity and temperature data are not given in this report and pH data are presented only in four broad classes. An overall sampling rate of 25 per hour was maintained at a sample density of one sample per 5 km². Although lake waters were the primary sampling medium, streams, bogs and small pot holes were sampled to fill in areas where large tracts did not contain any lakes.

References

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