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GEOLOGICAL SURVEY OF CANADA
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LEGEND

Note: This legend is common to National Geochemical Reconnaissance Map 12-1976, Open File 416; Map 13-1976, Open File 417

PROTEROZOIC

HADRYNIAN (UPPER PROTEROZOIC)

23a 23a, gabbro and diabasic gabbro dykes [GBBR]

HELIKIAN (MIDDLE PROTEROZOIC)

DUBAWNT GROUP (18-22)

21 Conglomerate, pebble sandstone, some intercalated sandstone. In part, may be older than 20 or 19 [CGLM]

20 Mainly porphyritic (quartz and/or feldspar, biotite and/or pyroxene) igneous rocks; probably mainly extrusive, but in part intrusive; some breccia, tuff, agglomerate; minor sub-porphyritic syenitic rocks [QZFP]

19 Sandstone and pebbly sandstone, grit, arkose; siltstone and minor breccia, probably includes some undifferentiated conglomerate (18 and/or 21) [SNDS]

18 Conglomerate; intercalated gritty sandstone [CGLM]

APHEBIAN (LOWER PROTEROZOIC)

13 Granite, granodiorite and allied rocks: in large part gneissic and impure, with many bands of partly assimilated schist, gneiss, amphibolite; stratiform granite-gneiss; mylonitic gneisses of granitic composition; some pyroxene granulite. In part probably older than 9 and, possibly, 7 [GRNT]

12 Gneiss, schist, amphibolite, and granulite derived mainly from sedimentary and volcanic rocks of Archaean and/or Lower Proterozoic (Aphebian) age; some impure quartzite and greywacke; commonly with some granitic material [GNSS]

ARCHEAN

3 Intermediate to basic volcanic rocks (greenstones) and derived amphibole schist and gneiss; in part includes much schistose greywacke (lower Thelon belt); some rhyolite, tuff, agglomerate; minor quartz-mica schist and magnetite iron-formation (Southern Keewatin); undifferentiated basic intrusions. May be younger in part (Hurwitz) [VRCK]

B Diorite and gabbro in granitic and gneissic terrains [DORT]

F Basic syenites, diorites, gabbros [GBBR]

Geological contact....................................

Fault..

Mineral prospect... Fe ×

Geological cartography by the Geological Survey of Canada

Legend and geology for the geochemical map by R.G. Garrett, from map 1216A of G.S.C. Memoir 350 by G.M. Wright

Base-map at the same scale published by the Mapping and Charting Establishment, M.C.E., 1966

Mean magnetic declination 1977, 3°48' East increasing 2.3' annually. Readings vary from 1°39.6' in the SE corner to 5°59.4' in the NW corner of the map area

Elevations in feet above mean sea-level

Geochemical Symbol and Data Presentation

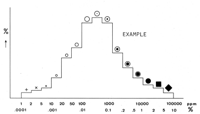
The concentration of an element at a sample site is graphically represented as one of 15 symbols, if a sample was collected but there is no data available a dot is plotted. The symbols are symmetrically arranged so that they first increase in size to the eighth symbol and then increase in blackness to the fifteenth. The two small crosses at the low end of the scale are used to respectively denote concentrations below the analytical detection limit, or, in the data group containing the detection limit. The data are grouped on a semi-logarithmic scale, i.e. 1,2,5,10,20,50,100 etc. Five decades can be spanned and this arbitrary division has been chosen for the continuing Canada wide series of maps constituting the National Geochemical Reconnaissance.

The choice of symbols and the data groups they represent for any specific element is based on the histogram and cumulative frequency plot for the total survey data from one, or more contiguous, open file sheets covered in one field season. The eighth symbol is used for the model group as defined by the histogram, this group usually includes the median of the data as defined by the 0.5 (50%) point on the cumulative frequency plot. Some, or all, of the remaining 14 symbols are chosen so as to achieve an appropriate graphical impact. An example of all 15 symbols is given below.

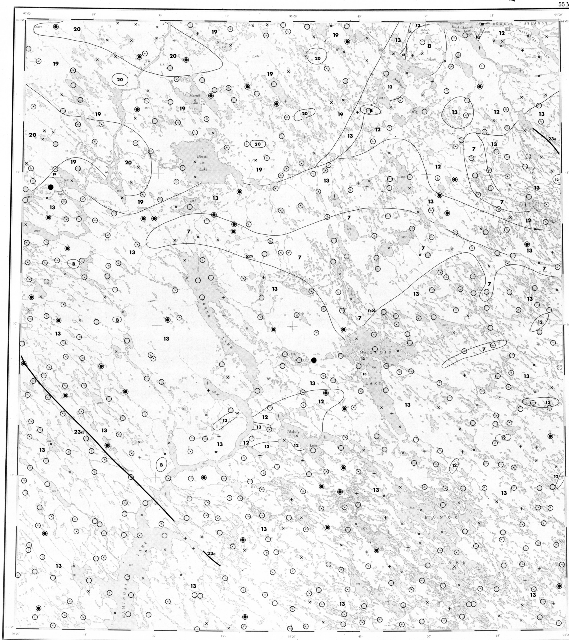
The symbol maps, being based on the total survey data distributions, are unaffected by the availability of ever increasing levels of knowledge in bedrock and surficial geology, and other environmental factors. Therefore, the raw data symbol maps are only intended to assist the rapid inspection of the data for gross regional features. To fulfil the needs of a more specific and thorough interpretation, the raw symbol maps should be modified using the field and analytical data provided in the data listings and any other knowledge available. To assist in the appraisal and modification of the data in terms of the symbol map bedrock geology, a table of summary statistics and proposed threshold values for drainage samples dominantly derived from each mapped bedrock unit, or broad lithologic unit, again based on the total survey data, is presented below the histogram. This table can be used along, or in conjuction, with the sample location map and data listings to indicate above threshold samples where they occur on the map. In many instances, the table will also illustrate, more clearly than the map, the dependence of mean geochemical levels on bedrock type. It may often be also observed that whilst the total data appears to approximate a log-normal distribution the data for individual map or lithologic units appears to approximate a normal distribution. The proposed thresholds presented are believed to be useful in interpreting the data from a mineral exploration viewpoint. Locations of samples with concentrations in excess of the threshold for the rock unit they appear to be derived from, should be studied carefully. The above threshold concentration can be due to a wide range of geological and environmental factors, but one of these could be the presence of abnormal concentrations of the element in a form of interest to the mineral explorationist.

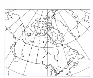
To comprehensively study an area. all available geological, environmental and recorded data should be utilized. The data separation by bedrock type can often be impoved by constructing new data subsets and deriving local threshold levels based on the most detailed and up-to-date knowledge available.

The term reliability factor and value that appears below the table is an estimate of the reliability of the geochemical map. On the basis of duplicate sampling 5% of all lakes sampled it can be stated that there is a 95% chance that if any lake is resampled and identical methods of sample preparation and analysis are used the new value will lie between X ÷ RF and X x RF where X is the original value obtained. This factor takes into account variability due to both heterogeneity of the centre-lake bottom sediments and sample preparation and analytical causes.



Canada
Department of Energy, Mines and Resources
Geological Survey of Canada





NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 13-1976

MERCURY IN LAKE SEDIMENTS

URANIUM RECONNAISSANCE PROGRAM

Scale 1:250,000

Kilometres 6 0 6 12 18 Kilometres

Miles 4 0 4 8 Miles

Universal Transverse Mercator Projection

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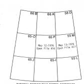

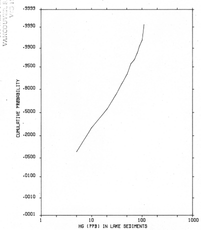

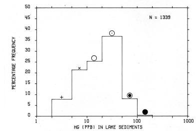

Table of Thresholds by Major Geological Units

Lithology	No. of Samples	Mean	S.D.	C.V.%	Threshold
CGLM	43	18	13	71	60
QZFP	226	27	19	70	100
SNDS	110	24	18	75	100
GRNT	844	28	19	67	100
GNSS	54	21	16	78	100
VRCK	44	23	13	56	80
DORT	4	14	7	55	-
GBBR	14	34	15	46	90

Data units are ppb   Reliability Factor = 2.01

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 13-1976
OPEN FILE 417

Resource Geophysics and Geochemistry Division

Geological Survey of Canada, Ottawa

Geochemistry by E.H.W. Hornbrook
Analytical chemistry by J.J. Lynch
Data monitoring by R.G. Garrett, N.G. Lund and D.J. Ellwood

Contractors

Sample collection by Trigg, Woollett & Associates Ltd.
Sample preparation by Golder Associates
Chemical analyses by Chemex Labs Ltd.

This map forms one of a series of 28 sheets released under Geological Survey of Canada, Open Files 416-417. The Open Files consists of data for 11 elements each for lake sediments, percent loss on ignition, uranium in lake waters and sample site location

The data are also available in digital form. For further information please contact:

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NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 13-1976
OPEN FILE 417
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