REFERENCE COPY ONLY
Not to be taken from the Library
GEOLOGICAL SURVEY OF CANADA
615 BOOTH STREET
OTTAWA, ONTARIO
K1A 0E8

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

LEGEND

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

HADRYNIAN (UPPER PROTEROZOIC)

20(sy) Syenite, gabbro and diabasic gabbro dykes [GBBR]

HELIKIAN (MIDDLE PROTEROZOIC)

EKWAN RIVER GROUP (?) [EKW]

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) granite, granodiorite and quartz monzonite; some pegmatite; some breccia, tuff, agglomerate, minor sub-porphyritic granitic rocks [EQPY]

19 — Sandstone and pebbly sandstone, grit, arkose; siltstone and minor breccia, ? - probably includes some undifferentiated conglomerate [18 and/or 21] [SMDS]

18 — Conglomerate; intercalated gritty sandstone [CGLM]

ARCHEAN (LOWER PROTEROZOIC)

13 — Granite, granodiorite and allied rocks: in large part gneissic and impure, but includes areas of massive, non-foliated rock; gneiss, amphibolite; stratiform granite-porphyry hylasitic 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; in part migmatitic; commonly with some granitic material. Includes impure quartzite and pyroxenite, commonly with some granitic material [GNSS]

2 — Intermediate to basic volcanic rocks (greenstones) and derived amphibole schist and gneiss; in part includes much ultrabasic rock (Lower Thelon belt); some rhyolite, tuff, agglomerate; minor quartz-mica schist and magnetite iron-formation (Southern Kewaunis); undifferentiated basic intrusions. May be younger in part (Hurwitz) [VOLC]

8 — Diorite and gabbro in granitic and gneissic terranes [DORT]

7 — Basic syenites, diorites, gabbros [GBBR]

Geological contact.....
Fault.....
Mineral prospect.....

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 360 by R.M. Wright

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

Mean magnetic declination 1977, 0°48' East increasing 2.3' annually. Readings vary from 1°28.0' in the SE corner to 0°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 fifteen symbols. Where no sample was taken or there is no data available a dot is plotted. The symbols are symmetrically concentric circles with the smallest 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 consisting of only two values, the lower value. The data are grouped on a user-specified basis, i.e. 1,2,5,10,20,50,100 etc. Any two decades can be spanned and this arbitrary division has been chosen for the conventional decade wide series of maps constituting the National Geochemical Reconnaissance.

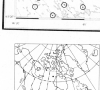
The choice of symbols and the data groups they represent for any specific element is based on the histogram and cumulative frequency plot for the total survey data from one, or more contiguous, open file sheets covered in one field season. The class limits, that is, the data values represented by the symbols are given, 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.

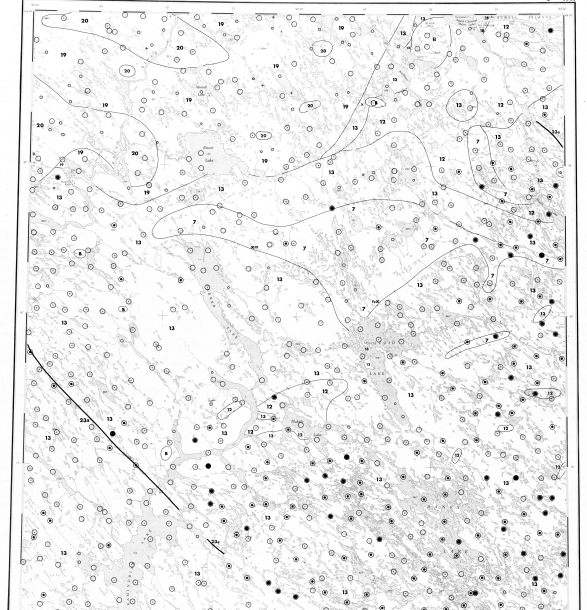
The class limits are usually based on the total survey data distributions, are unaffected by the availability of ever increasing levels of knowledge in bedrock and surficial geology, and other environmental factors. Therefore, the raw data symbol maps are only intended to assist the rapid inspection of the data for gross regional features. To fulfill the needs of a more specific and thorough interpretation, it is necessary to modify the class limits using the field and analytical data provided in the data listings and any other source data available. To assist in the appraisal and modification of the data in terms of the geology of the survey area, a table of summary statistics and proposed threshold values for each map sheet is dominantly derived from each mapped bedrock unit, or broad lithologic unit, again. Where the total data appears to approximate a log-normal distribution the data can be used alone, or in conjunction with the sample location map and data listings to indicate above-threshold samples which may reflect mineralization. In other 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 within the total data appears to approximate a log-normal distribution the data for individual rock or lithologic units appears to approximate a normal distribution. The above-threshold concentrations may reflect the effect of mineralization or 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 factors may be the presence of anomalous concentrations of the element to a form of interest to the miners/ explorationists.

To comprehensively study an area, all available geological, environmental and recorded data should be utilized. The data separation by bedrock type can often be improved by constructing new data subsets and deriving local threshold levels for the data from areas underlain by specific bedrock units.

The term reliability factor and value that appears on the table is an estimate of the reliability of the geochemical map. On the basis of duplicate sampling (C) 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 value will lie between R ÷ RF and R x RF where R is the original value obtained. This factor takes into account variability due to both heterogeneity of the source-lake bottom sediments and sample preparation and analytical causes.

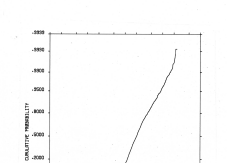
EXAMPLE





NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 13-1976
COPPER IN LAKE SEDIMENTS
URANIUM RECONNAISSANCE PROGRAM
Scale 1:250,000
Kilometres 0 5 10 15 Miles
Miles 0 5 10 15 20 25 30 Kilometres
Universal Transverse Mercator Projection
© Crown Copyrights reserved

This map has been reproduced from a scanned version of the original map. Reproduction per current Bulletin of use policy for paper.



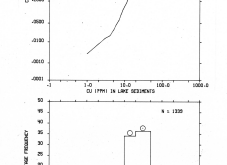


Table of Thresholds by Major Geological Units

Lithology	No. of Samples	Mean	S.D.	C.V.%	Threshold
CGLM	43	12	5	41	50
EQPY	226	17	15	84	60
GNSS	110	13	7	60	60
GRNT	132	10	17	160	100
GBBR	84	29	29	95	150
VOLC	44	47	48	101	200
DORT	4	14	3	21	-
QBBR	14	27	21	76	150

Data units are ppm — Reliability Factor =1.50

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.C. Lynch
Data monitoring by R.G. Garrett, N.G. Lund and D.J. Ellwood

Contractors:

Sample collection by Trigg, Woolfrats & 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:

The Director,
Computer Science Centre,
Department of Energy, Mines and Resources,
Ottawa, Ontario K1A 0E9

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 13-1976
OPEN FILE 417
BAKER LAKE N.W.T., 1976
COPPER