Province of Manitoba
Department of Mines, Resources and Environmental Management
Mineral Resources Division

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

LEGEND

This legend is common to National Geochemical Reconnaissance Map 3-1976, Open File 407

PRECAMBRIAN

- **9** Quartzite, siltstone, shale with minor carbonate rocks and iron formation.
- **8** Massive to layered volcanic rocks, with minor sedimentary rocks.
- **7** Grey to pink granite, in part gneissic.
- **6** Porphyritic granite, quartz, diorite and granodiorite.
- **5** Mixed granite and metasedimentary gneiss, migmatite, minor plagioclase amphibolite.
- **4** Massive to pillowed basalt, dacite and derived metamorphic rocks.
- **3** Metasedimentary gneiss, biotite-quartz-feldspar-gneiss.
- **2** Metasedimentary schist and gneiss, quartzite.
- **1** Brown hypersthene-bearing granulite, minor pyroxene granulite and porphyroblastic granulite.
- **A** Hornblende schist, amphibolite, metagabbro, magnetite gneiss.

Drift covered area..........
Geological contact..........
Limit of geological mapping..........
Esker..........
Washboard moraine (individual ridges not indicatd)..........

Legend modified and geology compiled for geochemical map by E.H. Hornbrook and R.G. Garrett from map 17-1965 by W.L. Davison and W.W. Heywood, and map 14-1967 by W.L. Davison.

Geological cartography by the Geological Survey of Canada

Base-map assembled by the Geological Cartography Unit from maps published at same scale by the Surveys and Mapping Branch 1963-1964.

Mean magnetic declination 1977, 8°19.8' East, decreasing 2.9' annually. Readings vary from 5°34.8' in the S.E corner to 11°10.2' in the NW corner of the map area

Elevation in feet above mean sea-level.

Geochemical Symbol and Data Presentation

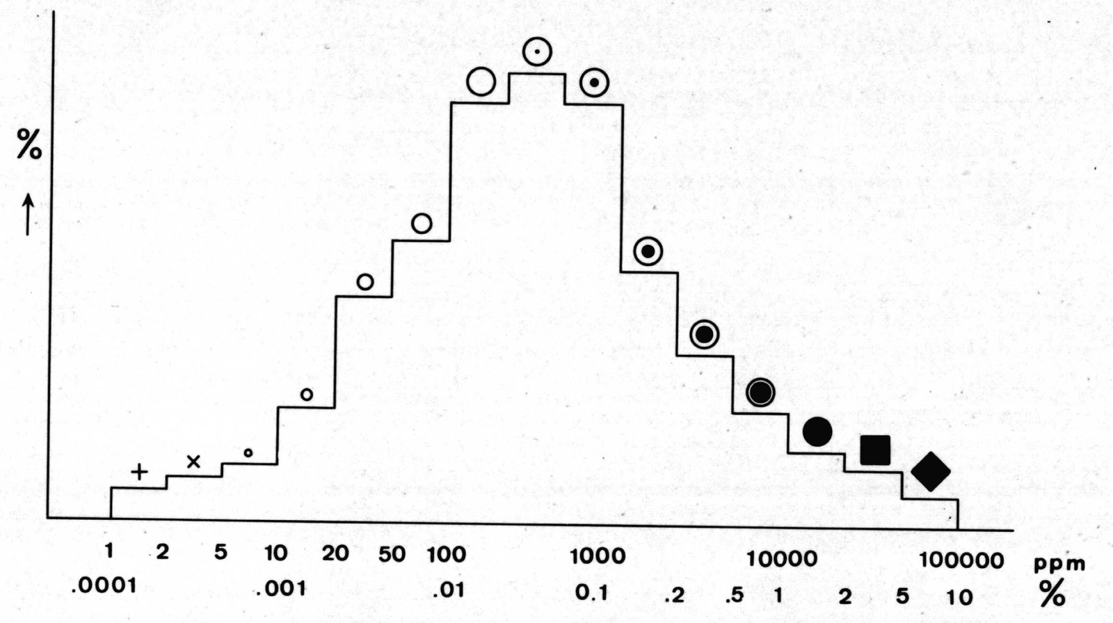
The concentration of an element at a sample site is graphically represented as one of 15 symbols, if a sample was collected but there is no data available a dot is plotted. The symbols are symmetrically arranged so that they first increase in size to the eighth symbol and then increase in blackness to 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.

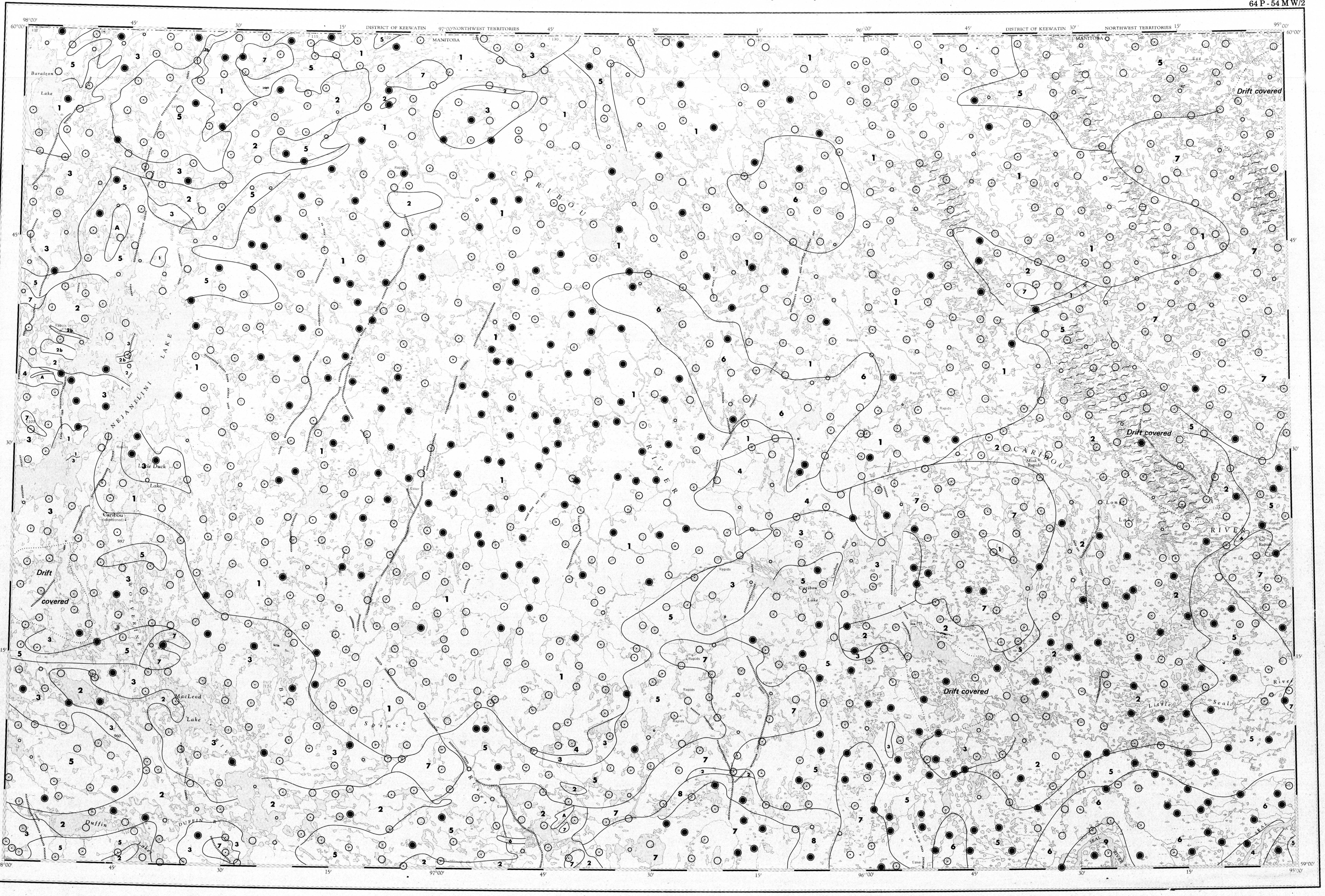
The choice of symbols and the data groups they represent for any specific element is based on the histogram and cumulative frequency plot for the total survey data from one, or more contiguous, open file sheets covered in one field season. The eighth symbol is used for the model group as defined by the 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.

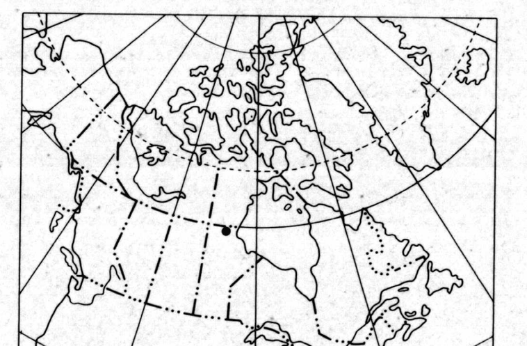
The symbol maps, being based on the total survey data distributions, are unaffected by the availability of ever increasing levels of knowledge in bedrock and surficial geology, and other environmental factors. Therefore, the raw data symbol maps are only intended to assist the rapid inspection of the 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 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 improved 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 geochemcial 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.







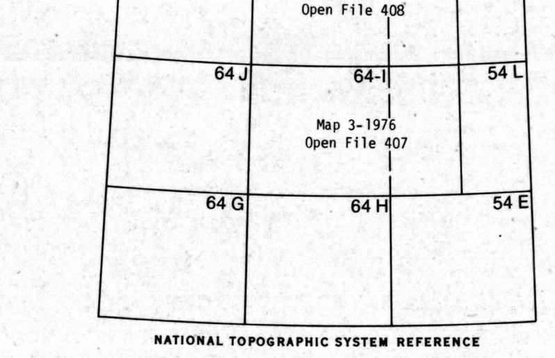
NATIONAL GEOCHEMICAL RECONNAISSANCE Map 4-1976
LOSS ON IGNITION SAMPLE LOCATIONS

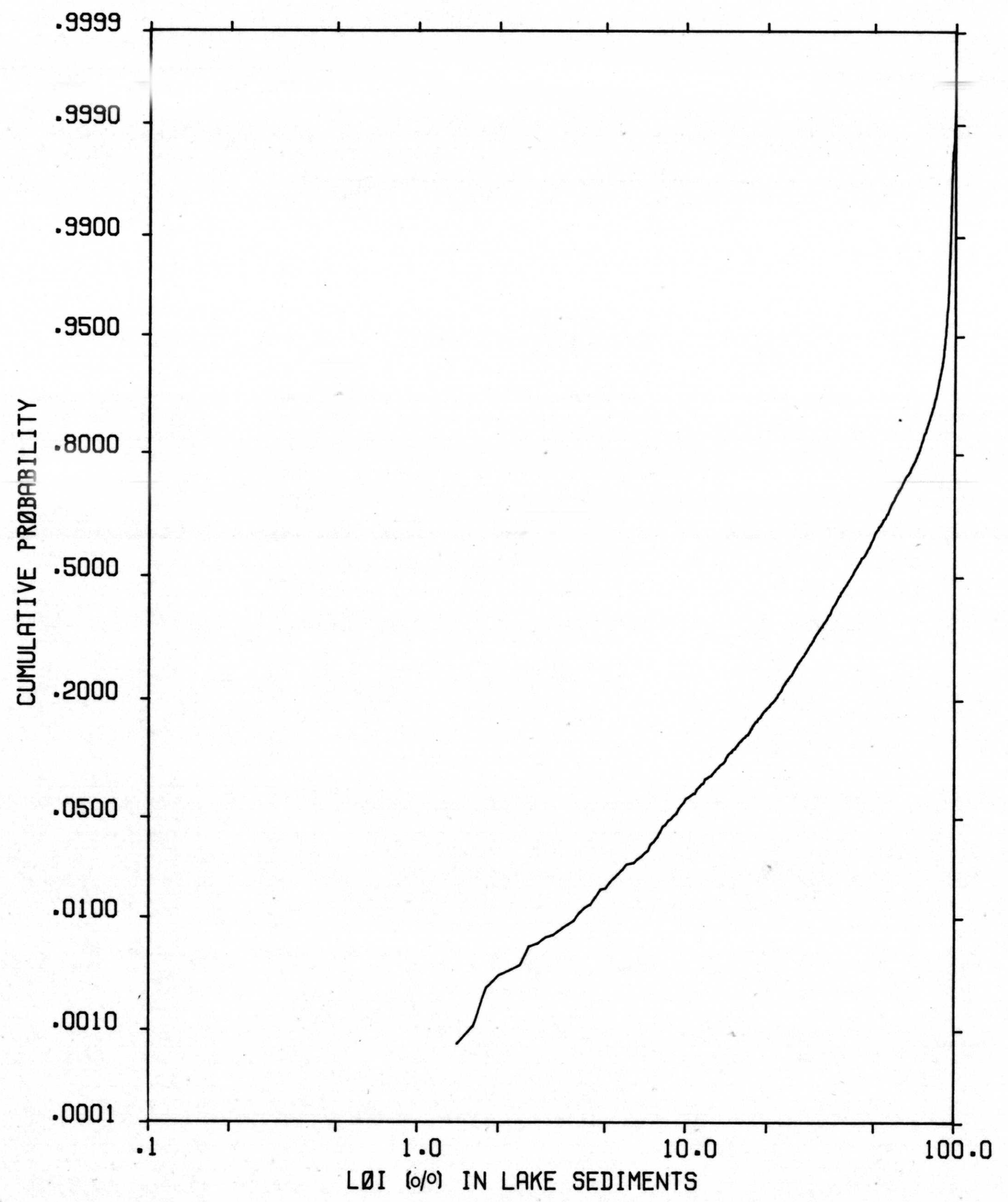
CANADA-MANITOBA SUBSIDIARY AGREEMENT ON MINERAL EXPLORATION AND DEVELOPMENT

Scale 1:250,000

Kilometres 6 0 6 12 18 Kilometres
Miles 4 0 4 8 Miles

Universal Transverse Mercator Projection





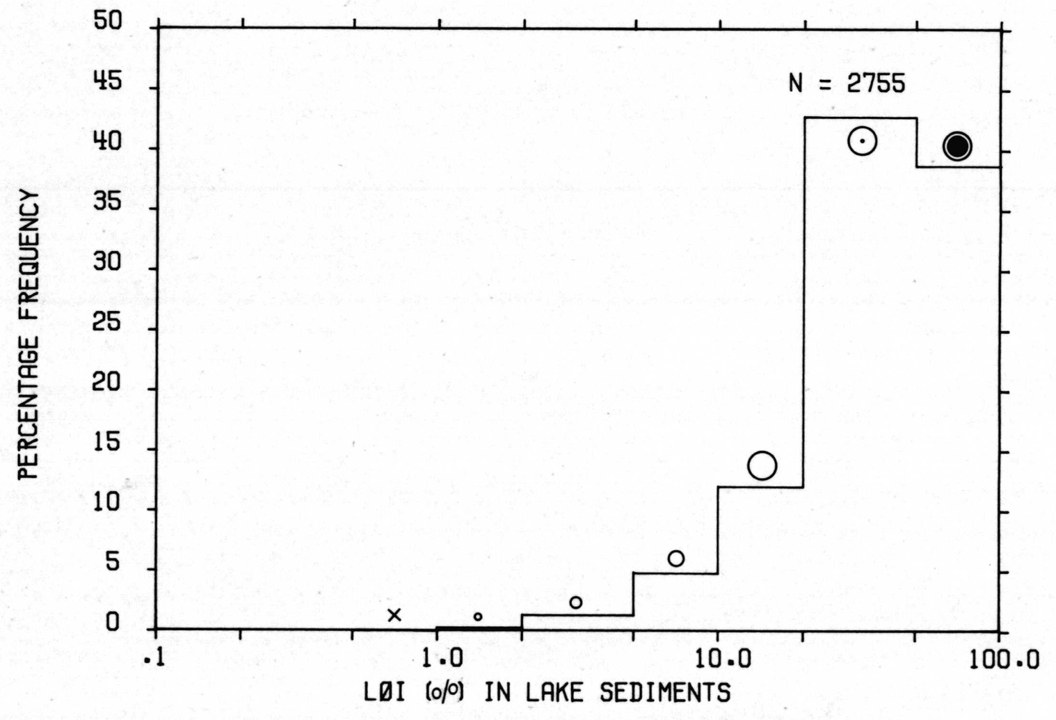


Table of Thresholds for Major Geological Units

Unit	No. of Samples	Mean	S.D.	C.V.%	Threshold
9	30	51	26	51	50
8	13	51	24	47	50
7	290	38	22	58	50
6	28	59	26	43	50
5	235	35	25	71	50
4	1	55	-	-	50
3	147	34	22	64	50
2	187	38	23	61	50
1	547	39	22	58	50
A	1	15	-	-	50
Unknown	1164	55	26	47	50

Data units are percent

Reliability Factor = 1.58

NATIONAL GEOCHEMICAL RECONNAISSANCE MAP 4 -1976
OPEN FILE 408

Resource Geophysics and Geochemistry Division

Geological Survey of Canada, Ottawa

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

This map forms a series of 28 sheets released under Geological Survey of Canada, Open Files 407-408. The open files consist of data for 12 elements each, per cent loss on ignition 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 4-1976
OPEN FILE 408
NORTHEASTERN MANITOBA, 1976