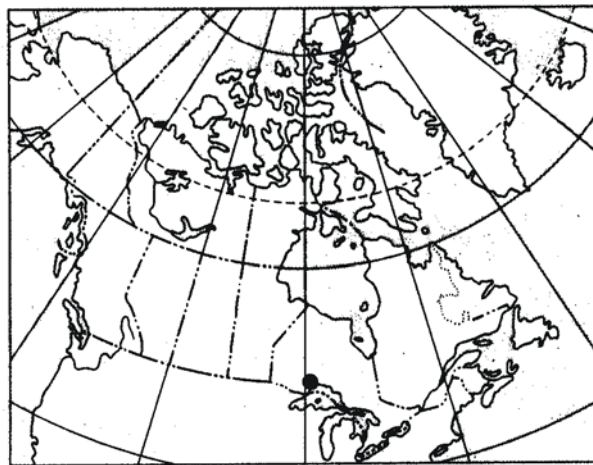


GEOLOGICAL SURVEY OF CANADA OPEN FILE 2026
(parts of NTS 42D, 42E, 52A, 52B and 52H)
CANADA – ONTARIO MINERAL DEVELOPMENT AGREEMENT (1985 – 1990)

**LAKE SEDIMENT AND WATER GEOCHEMICAL INFILL SURVEY DATA:
FOUR AREAS IN NORTHWESTERN ONTARIO**



INDEX MAP

Recommended citation:

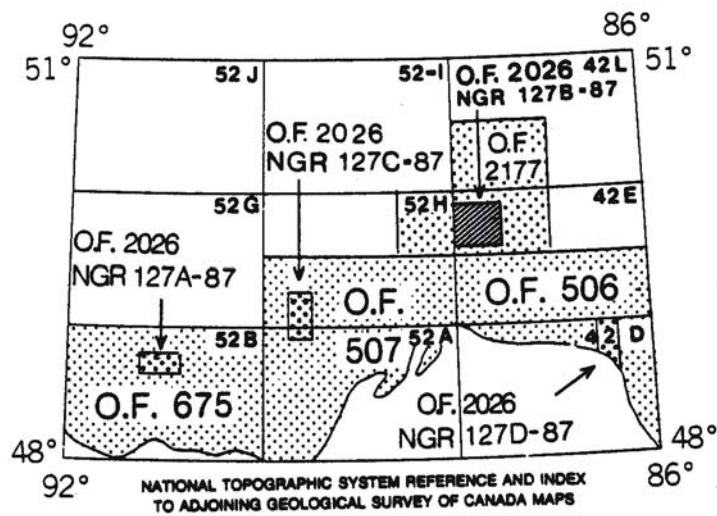
Friske, P.W., McCurdy, M.W., Cook, S.J.

1990: National Geochemical Reconnaissance Lake Sediment and Water Infill Data: Four Areas in Northwestern Ontario (parts of NTS 42D, 42E, 52A, 52B and 52H) Geological Survey of Canada

Open File 2026

August, 1990

NATIONAL GEOCHEMICAL RECONNAISSANCE
LAKE SEDIMENT AND WATER GEOCHEMICAL INFILL DATA
ONTARIO 1990
GEOLOGICAL SURVEY OF CANADA OPEN FILE 2026, NGR 127-1989
Parts of NTS 42D, 42E, 52A, 52B and 52H



Open File 2026 represents a contribution to the Canada – Ontario Mineral Development Agreement (1985-1990), a subsidiary agreement under the Economic and Regional Development Agreement. This project was funded and managed by the Geological Survey of Canada.

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REGIONAL LAKE SEDIMENT AND WATER GEOCHEMICAL DATA, ONTARIO 1990, GSC OF 2026, NGR 127-1989; PARTS OF NTS 42D, 42E, 52A, 52B and 52H

INTRODUCTION

Open File 2026 contains data and statistics for four areas of northern Ontario sampled in 1987 as part of a study to determine the feasibility of using lake bottom sediments as a prospecting tool for precious metals. Open file 2026 makes public analytical data for sediments for 35 elements plus loss-on-ignition and includes data for gold, platinum and palladium. Some interpretation of this data will follow at a later date. Corresponding waters were analyzed for uranium, fluoride, pH and alkalinity.

The sampling program was carried out by Geological Survey of Canada personnel in consultation with the Ontario Ministry of Northern Development and Mines under the Canada-Ontario Mineral Development Agreement (1985-1990).

Analytical results and field observations are used to build a national geochemical data base for resource assessment, mineral exploration, geological mapping and environmental studies. Sample collection and preparation procedures and analytical methods are thus strictly specified and carefully monitored to ensure consistent and reliable results regardless of the area, the year or the analytical laboratory.

CREDITS

E.H.W. Hornbrook directed the survey.

P.W.B. Friske coordinated the operational activities of contract and Geological Survey of Canada staff.

Contracts were let to the following companies for sample preparation and analysis and were managed by the following staff of the Regional Geochemical Studies section:

Collection: GSC Personnel, Ottawa
P.W.B. Friske, S. Cook, M. McCurdy

Preparation: Golder Associates, Ottawa,
J.J. Lynch

Analysis: Bondar-Clegg & Co., Ottawa
Chemex Labs Ltd., North Vancouver
Acme Analytical Labs, Vancouver,

M. McCurdy edited open files and coordinated production.

A.C. Galletta managed the digital geochemical data and provided computer processing support.

The personal computer data base and software programs used for data entry, verification, processing and presentation in the publication of reports were designed and programmed by Harry Gross, Geochemical Data Manager for the Exploration Geochemistry Subdivision.

Sample location, gold value and symbol-trend maps were prepared by GSC staff.

Pat Doyle, C.C. Durham and Rob Phillips provided technical assistance.

DESCRIPTION OF SURVEY AND SAMPLE MANAGEMENT

Helicopter and truck supported sample collection was carried out during the summer of 1987. Lake sediment and water samples were collected at an average density of one sample per three square kilometres throughout the four survey areas, which varied in size from 200 to 360 square kilometres.

Sample site duplicate samples were routinely collected in each analytical block of twenty samples.

The field data were recorded on standard lake sediment field cards (Rev. 74) used by the Geological Survey of Canada (Garrett, 1974).

The sample site positions were marked on appropriate 1:50 000 scale NTS maps in the field. These maps were digitized at the Geological Survey in Ottawa to obtain the sample site UTM coordinates.

In Ottawa, field dried samples were air-dried, crushed, ball milled and sieved. The minus 80 mesh (177 micron) fraction was used for subsequent analyses. At this time, control reference and blind duplicate samples were inserted into each block of twenty sediment samples. For the water samples, only control reference samples were inserted into the block. There were no blind duplicate water samples.

The sample site coordinates were checked as follows: a sample location map was produced on a Calcomp 1051 drum plotter using the digitized coordinates; the original sample location map produced in the field was then overlain on the Calcomp map; the two sets of points were checked for coincidence. The dominant rock types in the lake catchment basins were identified on appropriate geological maps used as the bedrock geological base on NGR maps.

Thorough inspections of the field and analytical data were made to check for any missing information and/or gross errors.

Quality control and monitoring of the geochemical data was undertaken by a standard method used by the Exploration Geochemistry Subdivision at the Geological Survey of Canada.

ANALYTICAL PROCEDURES

Instrumental Neutron Activation Analysis (INAA)

The weighed sample (generally 10 to 40 g) is irradiated epithermally for 20 minutes in a neutron flux with an approximate density of 1×10^{11} neutrons/cm²/second. Counting begins seven days after irradiation. The counting time is somewhat variable (6 to 11 minutes) and is matrix dependent. Counting is done on a germanium-lithium co-axial counter. The counting data is accumulated on a VAX computer and is subsequently

converted to concentrations. Numerous international reference samples are irradiated with each batch of routine samples. Elements determined by INA analyses include: Na, Sc, Cr, Fe, Co, Ni, Zn, As, Se, Br, Rb, Zr, Mo, Ag, Cd, Sn, Sb, Te, Cs, Ba, La, Ce, Sm, Eu, Tb, Yb, Lu, Hf, Ta, W, Ir, Au, Th, and U. The sample weight is also reported. Data for Zn, Se, Zr, Ag, Cd, Sn, Te, and Ir are not published because of inadequate detection limits and/or precision.

Atomic Absorption Spectroscopy (AAS) and Other Analyses

For the determination of Zn, Cu, Pb, Ni, Co, Ag, Mn, Fe, Cd, and As a 1 g sample is reacted with 6 mL of a mixture of 4M HNO³ and M HCl in a test tube overnight at room temperature. After digestion, the test tube is immersed in a hot water bath at room temperature and brought up to 90° C and held at this temperature for 2 hours with periodic shaking. The sample solution is then diluted to 20 mL with metal-free water and mixed. Zn, Cu, Pb, Ni, Co, Ag, Mn, Fe and Cd are determined by atomic absorption spectroscopy using an air-acetylene flame. Background corrections are made for Pb, Ni, Co, Ag and Cd.

Arsenic is determined by atomic absorption using a hydride evolution method wherein the hydride (AsH₃) is evolved and passed through a heated quartz tube in the light path of an atomic absorption spectrophotometer. The method is described by Aslin (1976). Detection limit = 1 ppm.

Molybdenum and vanadium are determined by atomic absorption spectroscopy using a nitrous oxide acetylene flame. A 0.5 g sample reacts with 2.5 mL concentrated HNO₃ at 90° C for 30 minutes. At this point 0.5 mL concentrated HCl is added and the digestion continues at 90° C for an additional 90 minutes. After cooling, 8 mL of 1250 ppm Al solution are added and the sample solution diluted to 10 mL before aspiration. Detection limit = 2 ppm for Mo and 5 ppm for V.

Mercury is determined by the Hatch and Ott procedure with some modifications. The method is described by Jonasson *et al.* (1973). A 0.5 g sample is reacted with 20 mL concentrated HNO₃ and 1 mL concentrated HCl in a test tube for 10 minutes at room temperature prior to 2 hours of digestion with mixing at 90° C in a hot water bath. After digestion, the sample solutions are cooled and diluted to 100 mL with metal-free water. The Hg present is reduced to the elemental state by the addition of 10 mL 10% w/v SnSO₄ in M H₂SO₄. The Hg vapour is then flushed by a stream of air into an absorption cell mounted in the light path of an atomic absorption spectrophotometer. Absorption measurements are made at 253.7 nm. Detection limit = 10 ppb.

Loss-on-ignition is determined using a 500 mg sample. The sample, weighed into 30 mL beaker, is placed in a cold muffle furnace and brought up to 500° C over a period of 2 -3 hours. The sample remains at this temperature for 4 hours and is then allowed to cool to room temperature for weighing. Detection limit = 1.0%.

Antimony is determined in lake sediments as described by Aslin (1976). A 500 mg sample is placed in a test tube; 3 mL concentrated HNO₃ and 9 mL concentrated HCl are added and the mixture is allowed to stand

overnight at room temperature. The mixture is heated slowly to 90° C and maintained at this temperature for at least 90 minutes. The solution is cooled and diluted to 10 mL. A 400 µL aliquot of this test solution is removed and diluted to 10 mL with 1.8 M HCl. The antimony in an aliquot of this dilute solution is then determined by hydride evolution-atomic absorption spectrometry.

Tungsten is determined as follows: a 0.2 g sample of lake sediment is fused with 1 g K₂S₂O₇ in a rimless test tube at 575° C for 15 minutes in a furnace. The cooled melt is then leached with 10 mL concentrated HCl in a water bath heated to 85° C. After the soluble material has completely dissolved, the insoluble material is allowed to settle and an aliquot of 5 mL transferred to another test tube. 5 mL of 20% SnCl₂ solution are then added to the sample aliquot, mixed and heated for 10 minutes at 85° C in a hot water bath. A 1 mL aliquot of dithiol solution (1% dithiol in iso-amyl acetate) is added to the test solution and the test solution then heated for 4 - 6 hours at 80° to 85° C in a hot water bath. This solution is then removed from the hot water bath, cooled and 2.5 mL of kerosene added to dissolve the globule. The colour intensity of the kerosene solution is measured at 630 nm using a spectrophotometer. The method is described by Quin and Brooks (1972). Detection level = 2 ppm.

Fluorine is determined in lake sediments as described by Ficklin (1970). A 250 mg sample is sintered with 1 g of a flux consisting of two parts by weight sodium carbonate and one part by weight potassium nitrate. The residue is then leached with water. The sodium carbonate is neutralized with 10 mL 10% (w/v) citric acid and the resulting solution is diluted to 100 mL with water. The pH of the resulting solution is then measured using a fluoride ion electrode. Standard solutions contain sodium carbonate and citric acid in the same quantities as the sample solution. A detection limit of 40 ppm is achieved.

Magnesium in lake sediments is determined by decomposing 0.5 g of sample in a mixture of HF, HNO₃, HClO₄ and HCl. Measurements are made by flame atomic absorption.

Partial chromium in lake sediments is determined by decomposing 1 g of sample with a mixture of concentrated HNO₃ and concentrated HCl. Final measurements are made by flame atomic absorption.

To determine Pt and Pd in lake sediments 10 g of sample with an added silver inquant were fused with fire assay fluxes. After cupelation, the doré, bead was dissolved and analyzed by inductively coupled plasma - mass spectrometry (ICP-MS). This method is no longer available at Acme Analytical Labs.

Water Analyses

Fluoride in lake water samples is determined using a fluoride electrode. Prior to measurement an aliquot of the sample is mixed with an equal volume of TISAB II buffer solution (total ionic strength adjustment buffer). The TISAB II buffer solution is prepared as follows: to 50 mL metal-free water add 57 mL glacial acetic acid, 58 g NaCl and 4 g CDTA (cyclohexylene dinitrilo tetraacetic acid). Stir to dissolve and cool to room temperature. Using a pH meter, adjust the pH between 5.0 and 5.5 by

slowly adding 5 M NaOH solution. Cool and dilute to one liter in a volumetric flask. Detection limit = 20 ppb.

Hydrogen ion activity (pH) is measured with a combination glass-calomel electrode and a pH meter.

Uranium in waters is determined by a laser-induced fluorometric method using a Scintrex UA-3 uranium analyser. A complexing agent, known commercially as Fluran and composed of sodium pyrophosphate and sodium monophosphate (Hall, 1979) is added to produce the uranyl pyrophosphate species which fluoresces when exposed to the laser. Since organic matter in the sample can cause unpredictable behaviour, a standard addition method is used. Further, the reaction of uranium with Fluran can be delayed or sluggish; for this reason an arbitrary 24 hour time delay between the addition of the Fluran and the actual reading is incorporated into this method. In practice, 500 µL of Fluran solution are added to a 5 mL sample and allowed to stand for 24 hours. At the end of this period fluorescence readings are made with the addition of 0.0, 0.2 and 0.4 ppb U. For high samples the additions are 0.0, 2.0 and 4.0 (20 µL aliquots of either 55 or 550 ppb U are used). All readings are taken against a sample blank. Detection limit = .05 ppb.

Alkalinity in waters is determined by titrating a 25 mL aliquot of the sample with 0.02 N H₂SO₄ using a Corning combination 135 pH meter. The end point is pH 4.5. Detection level = 1 ppm.

Table 1 provides a summary of analytical data and methods.

PRESENTATION AND INTERPRETATION OF GOLD DATA

The following discussion reviews the format used to present the Au geochemical data and outlines some important points to consider when interpreting this data. This discussion is included in recognition of the special geochemical behaviour and mode of occurrence of Au in nature and the resultant difficulties in obtaining and analyzing samples which reflect the actual concentration level at a given site.

To correctly interpret Au geochemical data from regional stream sediment or lake sediment surveys requires an appreciation of the unique chemical and physical characteristics of Au and its mobility in the surficial environment. Key properties of Au that distinguish its geochemical behaviour from most other elements include (Harris, 1982):

- (1) Gold occurs most commonly in the native form which is chemically and physically resistant. A high proportion of the metal is dispersed in micron-sized particulate form, and the high specific gravity of gold results in heterogeneous distribution, especially in stream sediment and clastic-rich (low LOI) lake sediment environments. Gold distribution appears to be more homogeneous in organic-rich fluvial and lake sediments.
- (2) Gold typically occurs at low concentrations in the ppb range. Whereas gold concentrations of only a few ppm may represent economic deposits,

background levels encountered from stream and centre-lake sediments seldom exceed 10 ppb, and commonly are near the detection limit of 2 ppb.

These factors result in a particle sparsity effect wherein very low concentrations of gold are heterogeneously enriched in the surficial environment. Hence, a major problem facing the geochemist is to obtain a representative sample. In general, in areas where concentrations of gold in sediments are low, and/or grain sizes of the gold present relatively high, proportionally larger samples are required to reduce the uncertainty between subsample analytical values and actual values. Conversely, as actual Au concentrations increase or grain size decreases, the number of gold particles to be shared in random subsamples increases and variability of results decreases (Clifton *et al.*, 1969; Harris, 1982). The limited amount of material collected during the rapid, reconnaissance-style regional surveys and the need to analyze for a broad spectrum of elements, precludes the use of a significantly large sample weight for the gold analyses. Therefore, to obtain representative samples, grain size is reduced by sieving and ball milling of the dried sediments. The following control methods are currently employed to evaluate and monitor the sampling and analytical variability which are inherent in the analysis of gold in geochemical media:

- (1) For each block of 20 samples:
 - (a) random insertion of a standard reference sample to control analytical accuracy and long-term precision;
 - (b) collection of a field duplicate (two samples from one site) to control sampling variance;
 - (c) analysis of a second subsample (blind duplicate) from one sample to control short-term precision.

Samples that have gold values that are statistically above approximately the 90th percentile, or those with LOI values below 10%, are normally analysed again in accordance with standard NGR procedures. There will be no repeat data published in Open File 2026 however, as all samples were analysed twice by different methods. Instead, the second set of gold data for each area will be published in an interpretive study to follow this release.

In summary, geochemical follow-up investigations for gold should be based on a careful consideration of all geological and geochemical information, and especially a careful appraisal of gold geochemical data and its variability. In some instances, prospective follow-up areas may be indirectly identified by pathfinder element associations in favourable geology, although a complementary gold response due to natural variability may be lacking. Once an anomalous area has been identified, field investigations should be designed to include detailed geochemical follow-up surveys and collection of large representative samples. Subsequent repeat subsample analyses will increase the reliability of results and permit a better understanding of natural variability which can then be used to improve sampling methods and interpretation.

TABLE 1. Summary of Analytical Data and Methods

ELEMENT	DETECTION LEVEL	METHOD
<u>SEDIMENTS:</u>		
Zn Zinc	2 ppm	AAS
Cu Copper	2 ppm	AAS
Pb Lead	2 ppm	AAS
Ni Nickel	2 ppm	AAS
Co Cobalt	2 ppm	AAS
Ag Silver	0.2 ppm	AAS
Mn Manganese	5 ppm	AAS
As Arsenic	1 ppm	HY-AAS
Mo Molybdenum	2 ppm	AAS
Fe Iron	0.02 pct	AAS
Hg Mercury	10 ppb	CV-AAS
F Fluorine	20 ppm	AAS
V Vanadium	5 ppm	AAS
Cd Cadmium	0.2 ppm	AAS
Sb Antimony	0.2 ppm	HY-AAS
LOI Loss-on-ignition	1 pct	GRAV
W Tungsten	2 ppm	COL
Mg-T Magnesium (total)	1 ppm	AAS
Cr-T Chromium (total)	1 ppm	AAS
Na Sodium	0.02 pct	INAA
Sc Scandium	0.2 ppm	INAA
Cr Chromium	20 ppm	INAA
Fe Iron	0.2 pct	INAA
Co Cobalt	5 ppm	INAA
Ni Nickel	10 ppm	INAA
As Arsenic	0.5 ppm	INAA
Br Bromine	0.5 ppm	INAA
Rb Rubidium	5 ppm	INAA
Mo Molybdenum	1 ppm	INAA
Sb Antimony	0.1 ppm	INAA
Cs Cesium	0.5 ppm	INAA
Cs Barium	50 ppm	INAA
La Lanthanum	2 ppm	INAA
Ce Cerium	5 ppm	INAA
Sm Samarium	0.10 ppm	INAA
Eu Europium	1 ppm	INAA
Tb Terbium	0.5 ppm	INAA
Yb Ytterbium	2 ppm	INAA
Lu Lutetium	0.2 ppm	INAA
Hf Hafnium	1 ppm	INAA
Ta Tantalum	0.5 ppm	INAA
W Tungsten	1 ppm	INAA
Th Thorium	0.2 ppm	INAA
U Uranium	0.2 ppm	INAA
Wt Weight	0.01 g	-
Au Gold	2 ppb	INAA
Pt Platinum	2 ppb	FAICP
Pd Palladium	2 ppb	FAICP
<u>WATERS:</u>		
F Fluoride	20 ppb	ISE
pH Hydrogen ion activity	- -	GCM
U Uranium	0.05 ppb	LIF
Alk Alkalinity	1 ppm	TIT

AAS - atomic absorption spectrometry
 COL -colorimetry using dithiol
 GCM - glass Calomel electrode and pH meter
 GRAV -gravimetry
 FAICP - fire assay – inductively coupled plasma/mass spectrometry
 ISE - ion selective electrode
 LIF -laser-induced fluorescence
 HY-AAS -atomic absorption using hydride evolution
 CV-AAS -cold vapour (flameless) atomic absorption

REFERENCES

- Aslin, G.E.M.** (1976) The determination of arsenic and antimony in geological materials by flameless atomic absorption spectrophotometer; *Journal of Geochemical Exploration*, Vol. 6, pp. 321-330.
- Boulanger, A., Evans, D.J.R. and Raby, B.F.** (1975) Uranium analysis by neutron activation delayed neutron counting; *Proceedings of the 7th Annual Symposium of Canadian Mineral Analysts*, Thunder Bay, Ontario, September 22-23, 1975.
- Clifton, H.E., Hunter, R.E., Swanson, F.J. and Phillips, R.L.** (1969) Sample size and meaningful gold analysis; U.S. Geological Survey Professional Paper 625-C.
- Garrett, R.G.** (1974) Field data acquisition methods for applied geochemical surveys at the Geological Survey of Canada; *Geol. Surv. Can. Paper* 74-52.
- Hall, G.E.M.** (1979) A study of the stability of uranium in waters collected from various geological environments in Canada; in *Current Research, Part A*, *Geol. Surv. Can. Paper* 79-1A, pp. 361-365.
- Harris, J.F.** (1982) Sampling and analytical requirements for effective use of geochemistry in exploration for gold; *In* Levinson, A.A., Editor, *Precious Metals in the Northern Cordillera*, proceedings of a symposium sponsored by the Association of Exploration Geochemists and the Cordilleran Section of the Geological Association of Canada, pp. 53-67.
- Jonasson, I.R., Lynch, J.J. and Trip, L.J.** (1973) Field and laboratory methods used by the Geological Survey of Canada in geochemical surveys; No. 12, *Mercury in Ores, Rocks, Soils, Sediments and Water*, *Geol. Surv. Can. Paper* 73-21.
- Quin, B.F., and Brooks, R.R.** (1972) The rapid determination of tungsten in soils, stream sediments, rocks and vegetation; *Analytica Chimica Acta*, Vol. 58, pp. 301-309.

TABLE 2. Field Observations Legend

FIELD RECORD	DEFINITION	TEXT CODE
MAP SHEET	National topographic system (NTS): lettered quadrangle (1:50,000 scale) Part of sample number.	042D, 042D 052A, 052B or 052H
SAMPLE ID	Remainder of sample number: Year..... Field crew..... Sample sequence number.....	87 1 or 3 001-999
REP STAT	Replicate status; the relationship of the sample to others within the analytical block of 20: Routine regional sample..... First of field duplicate..... Second of field duplicate.....	00 10 20
UTM	Universal Transverse Mercator (UTM) Coordinate System; digitized sample location coordinates.	
ZN	Zone (7 to 22)	
EASTING	UTM Easting in metres	
NORTHING	UTM Northing in metres	
ROCK UNIT	Major rock type of catchment area: <u>MARATHON REGION (42D)</u> Middle to Late Precambrian augite-biotite nepheline syenite lamprophyric alkaline gabbro augite-amphibole syenite..... Eastern gabbro red barkevikite syenite quartz syenite and syenodiorite heterogeneous granitoid rocks..... Middle to Late or Early Precambrian diabase dykes granitoid rocks Early Precambrian (Archean) greywacke, slate, iron formation, conglomerate, tuff felsic volcanics and metavolcanics... basic to intermediate volcanics and metavolcanics <u>BEARDMORE-GERALTON REGION (42E)</u> Middle to Late Precambrian diabase dykes and sills..... Early Precambrian (Archean) felsic to intermediate intrusives metamorphosed felsic to intermediate intrusives metamorphosed mafic to intermediate intrusives clastic metasediments chemical metasediments felsic to intermediate metavolcanics mafic and intermediate metavolcanics	PNS PAG PAAS PEG PBS PQS PGRA PDI PGR PGS PFV PBIV PMI PUFI PMFI PMMI PCLM PIF PFMV PMMV

FIELD RECORD	DEFINITION	TEXT CODE
	<p><u>LAC DES ILES REGION (52A, 52H)</u> Middle Proterozoic diabase dykes and sills</p> <p>Archean late felsic plutonic rocks</p> <p>ultramafic rocks</p> <p>gabbroic rocks</p> <p>dioritic rocks</p> <p>early felsic plutonic rocks</p> <p>supracrustal metasediments</p> <p>chert magnetite ironstone</p> <p>supracrustal mafic metavolcanics</p> <p><u>CROOKED PINE LAKE REGION (52B)</u> Middle to Late Precambrian diabase</p> <p>Early Precambrian (Archean) diabase</p> <p>red hornblende syenite</p> <p>massive granitic rocks</p> <p>foliated and gneissic batholithic rocks</p> <p>metamorphosed felsic intrusive rocks . metasedimentary migmatite</p> <p>metamorphosed mafic to ultramafic intrusive rocks</p> <p>metamorphosed intermediate and ultramafic rocks</p> <p>metasediments</p> <p>mafic to felsic metavolcanic rocks ...</p>	PDD PLFP PU PG PD PEFP PMSR PIF PMMV PPDI PADI PSY PMG PFGB PMFI PMSM PMUI PIUI PMS PMV
ROCK AGE	Stratigraphic age of dominant rock type in catchment basin: Proterozoic	04
	Archean	02
	Precambrian	01
LAKE AREA	The area of the water body sampled: Pond	pond
	¼ to 1 square kilometre25-1
	1 to 5 square kilometres	1-5
	greater than 5 square kilometres	>5
LAKE DEPTH	Distance in metres from the surface of the lake to the bottom	0 - 99
TERRAIN RELIEF	Relief of lake catchment basin: Low	Lo
	Medium	Med
	High	Hi
SAMPLE CONT.	Contamination; human or natural: None	-
	Work	Wo
	Camp	Ca
	Fuel	Fu
	Gossan	Go
SAMPLE COLOUR	Sediment sample colour; up to two colours may be selected: Tan	Tn
	Yellow	Yl
	Green	Gn
	Grey	Gy
	Brown	Br
	Black	Bk

FIELD RECORD	DEFINITION	TEXT CODE
SUSP MATL	Suspended matter in water: None Heavy..... Light.....	- Hvy Lgt
Miscellaneous	Refers to missing data in any field.....	*