

REGIONAL LAKE SEDIMENT AND WATER GEOCHEMICAL DATA, LABRADOR 1985, GSC-OF 1209, NGR 74-1985, NTS 14D AND PARTS OF NTS 14C AND 24A

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*          OPEN FILE    1209        *  
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GEOLOGICAL SURVEY OF CANADA OPEN FILE 1209:NEWFOUNDLAND DEPARTMENT
OF MINES AND ENERGY OPEN FILE LAB (694)
REGIONAL LAKE SEDIMENT AND WATER GEOCHEMICAL RECONNAISSANCE DATA,
NORTHERN LABRADOR, NTS 14D AND PARTS OF 14C AND 24A.

OPEN FILE 1209 IS ONE OF TWO OPEN FILES (1209:PARTS OF 14D, 14C AND 24A;
1210:PARTS OF 14E, 14F, 14L, 24H AND 24I), RELEASED IN 1986 COVERING NORTHERN
LABRADOR.

THE DATA FOR NTS 14D, WITH THE EXCEPTION OF MERCURY, WAS ORIGINALLY
PUBLISHED AS OPEN FILE 559 (RELEASED IN 1979). MERCURY WAS ANALYZED IN 1982,
BUT HAS NOT BEEN PREVIOUSLY RELEASED.
ELEMENTS VANADIUM, CADMIUM, TUNGSTEN AND ANTIMONY WERE NOT DETERMINED FOR
SAMPLES COLLECTED IN 1978 (NTS 14D).
THE RECONNAISSANCE SURVEYS WERE UNDERTAKEN BY THE GEOLOGICAL SURVEY OF CANADA
IN CONJUNCTION WITH THE NEWFOUNDLAND DEPARTMENT OF MINES AND ENERGY UNDER
THE CANADA-NEWFOUNDLAND DEVELOPMENT SUBSIDIARY AGREEMENT (1976-1982), FOR
NTS 14D, AND UNDER THE CANADA-NEWFOUNDLAND MINERAL DEVELOPMENT AGREEMENT
(1984-1989), FOR 14C AND 24A.

E.H.W. HORN BROOK DIRECTED THE SURVEY PROGRAM (1978, 1985)

P.W.B. FRISKE COORDINATED THE OPERATIONAL ACTIVITIES OF THE CONTRACTING
AND GEOLOGICAL SURVEY OF CANADA STAFF THROUGHOUT THE SURVEY (1985)

CONTRACTS LET FOR COLLECTION, SAMPLE PREPARATION AND ANALYSIS WERE THE
RESPONSIBILITY OF, AND WERE SUPERVISED AND/OR MONITORED BY THE STAFF OF
THE RESOURCE GEOCHEMISTRY SUBDIVISION AS FOLLOWS:

COLLECTION: - MARSHALL MACKLIN MONAGHAN LTD., TORONTO, ONTARIO (1978)
- E.H.W. HORN BROOK, Y.T. MAURICE (1978)
- M.P.H. CONSULTING LTD., TORONTO, ONTARIO (1985)
- P.W.B. FRISKE, E.H.W. HORN BROOK (1985)

PREPARATION: - GOLDER ASSOCIATES, OTTAWA, ONTARIO (1978, 1985)
- J.J. LYNCH (1978, 1985)

ANALYSIS: - CHEMEX LABS. LTD., VANCOUVER (1978, 1982)
- ATOMIC ENERGY OF CANADA LTD., OTTAWA (1978)
- BARRINGER MAGENTA LTD., REXDALE, ONTARIO (1978, 1985)
- BARRINGER MAGENTA (ALBERTA) LTD., CALGARY, ALBERTA (1985)
- J.J. LYNCH (1978, 1985)

H.R. SCHMITT AND N.G. LUND COORDINATED OPEN FILE PRODUCTION (1985).
N.G. LUND WAS RESPONSIBLE FOR DATA MANAGEMENT OF THE 1978 DATA.
B.E. ELLIOTT WAS RESPONSIBLE FOR DATA MANAGEMENT OF THE 1985 DATA AND FOR
THE PREPARATION OF THE REGIONAL TREND MARGINAL MAPS UTILIZING A PROGRAM
DEVELOPED BY D.J. ELLWOOD.

J. YELLE SUPERVISED MAP PREPARATION.

COMPUTING AND PLOTTING FACILITIES WERE PROVIDED BY THE COMPUTER SCIENCE
CENTER, E.M.R.

OPEN FILE TEXT WAS MANUFACTURED BY K.G.CAMPBELL CORPORATION LASER PRINTING,
OTTAWA

HELICOPTER SUPPORTED SAMPLE COLLECTION WAS CARRIED OUT DURING
SUMMERS OF 1978, 1985.
LAKE SEDIMENT AND WATER SAMPLES WERE COLLECTED AT AN AVERAGE DENSITY OF ONE
SAMPLE PER 13 SQUARE KILOMETERS THROUGHOUT THE 18,000 SQUARE KILOMETERS
OF THE NORTHERN LABRADOR SURVEY AREA .

SAMPLE SITE DUPLICATE SAMPLES WERE ROUTINELY COLLECTED IN EACH
ANALYTICAL BLOCK OF TWENTY SAMPLES.

IN OTTAWA, FIELD DRIED SAMPLES WERE AIR-DRIED, CRUSHED, BALL MILLED AND SIEVED.
THE MINUS 80 MESH (177 MICRONS) 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.

ON RECEIPT, FIELD AND ANALYTICAL DATA WERE PROCESSED WITH THE AID OF
COMPUTERS.
THE FIELD DATA WERE RECORDED BY THE FIELD CONTRACT STAFF 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 1/250,000 SCALE NTS MAPS
IN THE FIELD.
THESE MAPS WERE DIGITIZED AT THE GEOLOGICAL SURVEY IN OTTAWA TO OBTAIN THE
SAMPLE SITE UTM COORDINATES.

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 FIELD CONTRACTORS'S SAMPLE LOCATION MAP WAS THEN OVERLAYED
WITH 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 RGR 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 RESOURCE GEOCHEMISTRY SUBDIVISION AT THE GEOLOGICAL
SURVEY OF CANADA.

NOTE: IN THE FOLLOWING DESCRIPTIONS OF ANALYTICAL METHODOLOGY, THE YEAR IN BRACKETS AFTER THE ELEMENT SERVES, WHERE REQUIRED, TO DISTINGUISH BETWEEN VARIOUS ANALYTICAL TECHNIQUES USED IN 1978 AND 1985.

FOR THE DETERMINATION OF ZN, CU, PB, NI, CO, AG, MN, FE, AS, AND CD(1985) A 1 GRAM SAMPLE WAS 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 WAS IMMERSSED IN A HOT WATER BATH AT ROOM TEMPERATURE AND BROUGHT UP TO 90C AND HELD AT THIS TEMPERATURE FOR 2 HOURS WITH PERIODIC SHAKING. THE SAMPLE SOLUTION WAS THEN DILUTED TO 20 ML WITH METAL FREE WATER AND MIXED. ZN, CU, PB, NI, CO, AG, MN, FE AND CD(1985) WERE DETERMINED BY ATOMIC ABSORPTION SPECTROSCOPY USING AN AIR-ACETYLENE FLAME. BACKGROUND CORRECTIONS WERE MADE FOR PB, NI, CO, AG AND CD. AN ATOMIC ABSORPTION-HYDRIDE EVOLUTION METHOD WAS USED TO DETERMINE AS. THE HYDRIDE (ASH₃) IS EVOLVED, PASSED THROUGH A HEATED QUARTZ TUBE IN THE LIGHT PATH OF AN ATOMIC ABSORPTION SPECTROPHOTOMETER. THE METHOD IS DESCRIBED BY ASLIN (1976).

MOLYBDENUM AND VANADIUM(1985) WERE DETERMINED BY ATOMIC ABSORPTION SPECTROSCOPY USING A NITROUS OXIDE ACETYLENE FLAME. A 0.5 GRAM SAMPLE WAS REACTED WITH 1.5 ML CONCENTRATED HNO₃ AT 90C FOR 30 MINUTES. AT THIS POINT 0.5 ML CONCENTRATED HCL WAS ADDED AND THE DIGESTION WAS CONTINUED AT 90C FOR AN ADDITIONAL 90 MINUTES. AFTER COOLING, 8 ML OF 1250 PPM AL SOLUTION WERE ADDED AND THE SAMPLE SOLUTION WAS DILUTED TO 10 ML BEFORE ASPIRATION.

MERCURY WAS DETERMINED BY THE HATCH AND OTT PROCEDURE WITH SOME MODIFICATIONS. THE METHOD IS DESCRIBED BY JONASSON ET AL. (1973). A 0.5 GRAM SAMPLE WAS 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 90C IN A HOT WATER BATH. AFTER DIGESTION, THE SAMPLE SOLUTIONS WERE COOLED AND DILUTED TO 100 ML WITH METAL FREE WATER. THE HG PRESENT WAS REDUCED TO THE ELEMENTAL STATE BY THE ADDITION OF 10 ML 10% W/V SNSO₄ IN M H₂SO₄. THE HG VAPOUR WAS THEN FLUSHED BY A STREAM OF AIR INTO AN ABSORPTION CELL MOUNTED IN THE LIGHT PATH OF AN ATOMIC ABSORPTION SPECTROPHOTOMETER. ABSORPTION MEASUREMENTS WERE MADE AT 253.7 NM.

LOSS ON IGNITION WAS DETERMINED USING A 500 MG SAMPLE. THE SAMPLE, WEIGHED INTO 30 ML BEAKER, WAS PLACED IN A COLD MUFFLE FURNACE AND BROUGHT UP TO 500C OVER A PERIOD OF 2-3 HOURS. THE SAMPLE WAS LEFT AT THIS TEMPERATURE FOR 4 HOURS, THEN ALLOWED TO COOL TO ROOM TEMPERATURE FOR WEIGHING.

URANIUM WAS DETERMINED USING A NEUTRON ACTIVATION METHOD WITH DELAYED NEUTRON COUNTING. A DETAILED DESCRIPTION OF THE METHOD IS PROVIDED BY BOULANGER ET AL (1975). IN BRIEF, A 1 GRAM SAMPLE IS WEIGHED INTO A 7 DRAM POLYETHYLENE VIAL, CAPPED AND SEALED. THE IRRADIATION IS PROVIDED BY THE SLOWPOKE REACTOR WITH AN OPERATING FLUX OF 10^{12} NEUTRONS/SQ.CM./SEC. THE SAMPLES ARE PNEUMATICALLY TRANSFERRED FROM AN AUTOMATIC LOADER TO THE REACTOR, WHERE EACH SAMPLE IS IRRADIATED FOR 60 SECONDS. AFTER IRRADIATION, THE SAMPLE IS AGAIN TRANSFERRED PNEUMATICALLY TO THE COUNTING FACILITY WHERE AFTER A 10 SECOND DELAY THE SAMPLE IS COUNTED FOR 60 SECONDS WITH SIX BF₃ DETECTOR TUBES EMBEDDED IN PARAFFIN. FOLLOWING COUNTING, THE SAMPLES ARE AUTOMATICALLY EJECTED INTO A SHIELDED STORAGE CONTAINER. CALIBRATION IS CARRIED OUT TWICE A DAY AS A MINIMUM, USING NATURAL MATERIALS OF KNOWN URANIUM CONCENTRATION.

FLUORINE WAS DETERMINED IN LAKE SEDIMENTS AS DESCRIBED BY FICKLIN (1970). A 250 MG SAMPLE IS SINTERED WITH 1 GRAM OF A FLUX CONSISTING OF TWO PARTS BY WEIGHT SODIUM CARBONATE AND 1 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 SHOULD BE FROM 5.5 TO 6.5. THE FLUORIDE CONTENT OF THE TEST 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.

TUNGSTEN (1985) WAS DETERMINED AS FOLLOWS: A 0.2 GRAM SAMPLE OF LAKE SEDIMENT WAS FUSED WITH 1 GRAM K₂S₂O₇ IN A RIMLESS TEST TUBE AT 575C FOR 15 MINUTES IN A FURNACE. THE COOLED MELT WAS THEN LEACHED WITH 10 ML CONCENTRATED HCL IN A WATER BATH HEATED TO 85C. AFTER THE SOLUBLE MATERIAL WAS COMPLETELY DISSOLVED, THE INSOLUABLE MATERIAL WAS ALLOWED TO SETTLE AND AN ALIQUOT OF 5 ML WAS TRANSFERRED TO ANOTHER TEST TUBE. 5 ML OF 20% SNCL₂ SOLUTION WAS THEN ADDED TO THE SAMPLE ALIQUOT, MIXED AND HEATED FOR 10 MINUTES AT 85C IN A HOT WATER BATH. A 1 ML ALIQUOT OF DITHIOL SOLUTION (1% DITHIOL IN ISO-AMYL ACETATE) WAS ADDED TO THE TEST SOLUTION AND THE TEST SOLUTION WAS THEN HEATED FOR 4-6 HOURS AT 80-85C IN A HOT WATER BATH. THE TEST SOLUTION WAS 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 WAS MEASURED AT 630 NM USING A SPECTROPHOTOMETER. A DETAILED DESCRIPTION OF THE METHOD IS GIVEN BY QUIN AND BROOKS (1972)

ANTIMONY (1985) WAS 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 90C AND MAINTAINED AT THIS TEMPERATURE FOR AT LEAST 90 MINUTES. THE SOLUTION IS COOLED AND DILUTED TO 10 ML. A 400 MICRO L ALIQUOT OF THIS TEST SOLUTION IS REMOVED AND DILUTED TO 10 ML WITH 1.8M HCL. THE ANTIMONY IN AN ALIQUOT OF THIS DILUTE SOLUTION IS THEN DETERMINED BY HYDRIDE EVOLUTION-ATOMIC ABSORPTION SPECTROMETRY .

FLUORIDE (1978) IN LAKE WATER SAMPLES WAS DETERMINED USING AN ORION FLUORIDE ELECTRODE AND A MODEL 401 ORION SPECIFIC ION METER. PRIOR TO MEASUREMENT AN ALIQUOT OF THE SAMPLE WAS MIXED WITH AN EQUAL VOLUME OF A MODIFIED TISAB SOLUTION (TOTAL IONIC STRENGTH ADJUSTMENT BUFFER). THE MODIFICATION CONSISTED OF ADDING 60 ML 8M KOH SOLUTION TO THE BUFFER. THIS PERMITTED THE RE-ANALYSIS OF FLUORIDE IN ACIDIFIED WATER SAMPLES WHEN REQUIRED. WHEN THIS ANALYSIS WAS REQUIRED, ACIDIFIED STANDARD SOLUTIONS WERE USED FOR CALIBRATION.

FLUORIDE (1985) IN LAKE WATER SAMPLES WAS DETERMINED USING A FLUORIDE ELECTRODE. PRIOR TO MEASUREMENT AN ALIQUOT OF THE SAMPLE WAS MIXED WITH AN EQUAL VOLUME OF TISAB II SOLUTION (TOTAL IONIC STRENGTH ADJUSTMENT BUFFER). THE TISAB II BUFFER SOLUTION WAS PREPARED AS FOLLOWS: TO 50 ML METAL FREE WATER ADD 57 ML GLACIAL ACETIC ACID, 58 GM NaCl AND 4 GM CDTA (CYCLOHEXYLENE DINITRILE 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.

HYDROGEN ION ACTIVITY, PH (1978) WAS MEASURED WITH A BECKMAN COMBINATION ELECTRODE AND A MODEL 401 ORION SPECIFIC ION METER.

HYDROGEN ION ACTIVITY, PH (1985) WAS MEASURED WITH A COMBINATION GLASS-CALOMEL ELECTRODE AND A PH METER.

URANIUM (1978) IN WATERS WAS DETERMINED AS FOLLOWS: APPROX, 225ML WATER WAS ACIDIFIED WITH 3 ML CONCENTRATED HNO₃. TWO WEEKS AFTER ACIDIFICATION, A 5 MICROLITRE ALIQUOT OF THE SAMPLE WAS REMOVED FOR THE DETERMINATION OF URANIUM BY FISSION TRACK ANALYSES. THE TWO WEEK WAITING PERIOD WAS TO INSURE THAT ANY PRECIPITATED URANIUM REDISSOLVED. TO DETERMINE URANIUM, SAMPLE ALIQUOTS WERE PLACED ON A POLYCARBONATE TAPE AND DRIED. THE TAPE WAS THEN IRRADIATED IN A NUCLEAR REACTOR AT MCMASTER UNIVERSITY FOR 1 HOUR IN A FLUX OF 10^{13} NEUTRONS/SQ.CM./SEC. THE TAPE WAS SUBSEQUENTLY ETCHED WITH 25% NaOH SOLUTION AND THE FISSION TRACKS WERE COUNTED WITH AN OPTICAL COUNTER FITTED TO A MICROSCOPE. THE NUMBER OF TRACKS WAS PROPORTIONAL TO THE URANIUM CONCENTRATION. EACH TAPE CONTAINED ITS OWN CALIBRATION STANDARDS, BLANKS AND SAMPLE DUPLICATES.

URANIUM(1985) IN WATERS WAS DETERMINED BY A LASER-INDUCED FLUOROMETRIC METHOD USING A SCINTREX UA-3 URANIUM ANALYSER.

A COMPLEXING AGENT, KNOWN COMMERCIALY AS FLURAN AND COMPOSED OF SODIUM PYROPHOSPHATE AND SODIUM MONOPHOSPHATE, (HALL, G.E.M., 1979) IS ADDED TO PRODUCE THE URANYL PYROPHOSATE SPECIES WHICH FLUORESCES WHEN EXPOSED TO THE LASER.

SINCE ORGANIC MATTER IN THE SAMPLE CAN CAUSE UNPREDICTABLE BEHAVIOUR, A STANDARD ADDITION METHOD WAS USED.

FURTHER, THERE HAVE BEEN INSTANCES AT THE G.S.C. WHERE THE REACTION OF URANIUM WITH FLURAN IS EITHER DELAYED OR SLUGGISH; FOR THIS REASON AN ARBITRARY 24 HOUR TIME DELAY BETWEEN THE ADDITION OF THE FLURAN AND THE ACTUAL READING WAS INCORPORATED INTO THIS METHOD.

IN PRACTICE, 500 UL OF FLURAN SOLUTION WERE ADDED TO A 5 ML SAMPLE AND ALLOWED TO STAND FOR 24 HOURS. AT THE END OF THIS PERIOD FLUORESCENCE READINGS WERE MADE WITH THE ADDITION OF 0.0, 0.2 AND 0.4 PPB U.

FOR HIGH SAMPLES THE ADDITIONS WERE 0.0, 2.0 AND 4.0 (20 UL ALIQUOTS OF EITHER 55 OR 550 PPB U WERE USED).

ALL READINGS WERE TAKEN AGAINST A SAMPLE BLANK.

REGIONAL LAKE SEDIMENT AND WATER GEOCHEMICAL DATA, LABRADOR 1985, GSC-OF 1209, NGR 74-1985, NTS 14D AND PARTS OF NTS 14C AND 24A

THE FOLLOWING TABLES DISPLAY THE DATA RECORD FORMAT SPECIFICATIONS.
 THE DETECTION LIMITS OF THE ANALYTICAL METHODS ARE GIVEN.
 THE SECOND FIGURE UNDER THE DETECTION LIMIT HEADING IS USED
 ARBITRARILY TO DENOTE VALUES BELOW THE DETECTION LIMIT (USUALLY
 1/2 DETECTION LIMIT).

FIELD	ELEMENT	CARD	COLUMNS
	MAP	1	01-06
	ID	1	07-12
	UTM ZONE	1	13-14
	UTM EAST (METER)	1	15-20
	UTM NORTH (METER)	1	21-27
	ROCK TYPE	1	28-31
	LAKE AREA	1	32-35
	SAMPLE DEPTH (METER)	1	36-38
	REPLICATE STATUS	1	39-40
	RELIEF	1	41-43
	CONTAMINATION	1	48-51
	SAMPLE COLOUR	1	52-57
	SUSPENDED MATTER	1	58-59

THE ANALYTICAL DATA WERE RECORDED AS FOLLOWS:

	ELEMENT	UNITS	CARD	COLUMNS	DETECTION LIMIT	
SEDIMENT	ZN	PPM	2	21-25	2	1
	CU	PPM	2	26-30	2	1
	PB	PPM	2	31-35	2	1
	NI	PPM	2	36-40	2	1
	CO	PPM	2	41-45	2	1
	AG	PPM	2	46-50	0.2	0.1
	MN	PPM	2	51-55	5	2
	AS	PPM	2	56-60	1	0.5
	MO	PPM	2	61-65	2	1
	FE	PCT	2	66-70	0.02	0.01
	HG	PPB	2	71-75	10	5
	LOI	PCT	2	76-80	1.0	0.5
	U	PPM	3	21-25	0.5	0.2 (1985)
					0.2	0.1 (1978)
	F	PPM	3	26-30	40	20
	V	PPM	3	31-35	5	2
	CD	PPM	3	36-40	0.2	0.1
	W	PPM	3	46-50	2	1
	SB	PPM	3	56-60	0.2	0.1
WATER	U	PPB	4	21-25	0.01	0.005 (1978)
	F	PPB	4	26-30	20	10
	PH		4	31-35		
	U	PPB	4	36-40	0.05	0.02 (1985)

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- QUIN, B.F. AND BROOKS, R.R. (1972) THE RAPID DETERMINATION OF TUNGSTEN IN SOILS, STREAM SEDIMENTS, ROCKS AND VEGETATION. ANAL. CHIM. ACTA. 58 PP 301-309.

DATA LIST LEGEND

MAP- NATIONAL TOPOGRAPHIC SYSTEM(NTS)- LETTERED QUADRANGLE
(SCALE 1:250000). PART OF SAMPLE NUMBER

ID- REMAINDER OF SAMPLE NUMBER- YEAR(2), FIELD CREW(1),
SAMPLE SEQUENCE NUMBER(3)

UTM COORDINATS- UNIVERSAL TRANSVERSE MERCATOR(UTM) COORDINATE
SYSTEM- SAMPLE COORDINATES

ZN- ZONE

EAST- EASTING (METERS)

NORTH- NORTHING (METERS)

ROCK TYPE- MAJOR ROCK TYPE OF LAKE CATCHMENT AREA

LAKE AREA- AREA OF LAKE SAMPLED

SMP DTH- SAMPLE DEPTH MEASURED TO THE NEAREST METER

RP ST- REPLICATE STATUS- RELATIONSHIP OF SAMPLE WITH
RESPECT TO OTHERS WITHIN THE SURVEY

REL F- RELIEF OF THE SURROUNDING LAKE CATCHMENT BASIN

CONT- CONTAMINATION- HUMAN OR NATURAL (WORK-DRILL/TRENCH,
CAMP, FUEL OR GOSSAN)

SMPL COLOR- SEDIMENT COLOUR

SUSP- SUSPENDED MATTER

ZN- ZINC BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

CU- COPPER BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

PB- LEAD BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

NI- NICKEL BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

CO- COBALT BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

AG- SILVER BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

MN- MANGANESE BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

AS- ARSENIC BY COLOURIMETRY (PPM)

MO- MOLYBDENUM BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

FE- IRON BY ATOMIC ABSORPTION SPECTROSCOPY (%)

HG- MERCURY BY FLAMELESS SPECTROSCOPY (PPB)

LOI- LOSS ON IGNITION BY WEIGHT DIFFERENCE (%)

U- URANIUM BY DELAYED NEUTRON ACTIVATION (PPM)

F- FLUORINE BY SPECIFIC ION ELECTRODE (PPM)

(1985) V- VANADIUM BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

(1985) CD- CADMIUM BY ATOMIC ABSORPTION SPECTROSCOPY (PPM)

(1985) W- TUNGSTEN BY COLORIMETRY USING DITHIOL (PPM)

(1985) SB- ANTIMONY BY HYDRIDE EVOLUTION-ATOMIC
ABSORPTION SPECTROMETRY (PPM)

F-W- FLUORIDE IN WATERS BY SPECIFIC ION ELECTRODE (PPB)

PH- PH BY COMBINATION GLASS-CALOMEL ELECTRODE

(1978) U-W- URANIUM IN WATERS BY FISSION TRACK (PPB)

(1985) U-W- URANIUM IN WATERS BY SCINTREX (PPB)

REGIONAL LAKE SEDIMENT AND WATER GEOCHEMICAL DATA, LABRADOR 1985, GSC-OF 1209, NGR 74-1985, NTS 14D AND PARTS OF NTS 14C AND 24A

ROCK TYPE:

APHEBIAN AND EARLIER

AUWR - GRANULITE, PYROXENE GNEISS, CHARNOKITE; MINOR GRANITIC GNEISS, MYLONITIC GNEISS, AMPHIBOLITE, ULTRABASIC INTRUSIONS.

AUWY - GARNET-QUARTZ-FELDSPAR GNEISS, CHIEFLY MYLONITIZED, LOCALLY GRANITIC. INCLUDES SOME GRANULITE.

AUWG - GRANITIC GNEISS, GRANODIORITIC GNEISS, MIGMATITE, AGMATITE, AMPHIBOLITE.

AUWP - PARAGNEISS: INCLUDES BIOTITE-QUARTZ FELDSPAR GNEISS, GARNET-BIOTITE-QUARTZ-FELDSPAR GNEISS, HORNBLende-GNEISS, AUGEN GNEISS, GRAPHITIC GNEISS, MINOR QUARTZITE AND AMPHIBOLITE.

ARCHEAN

AREG - GRANITIC AND GRANODIORITIC GNEISS, MIGMATITE, GRANULITE, AMPHIBOLITE; MINOR PARAGNEISS AND METASEDIMENTARY ROCKS. SMALL ULTRABASIC INTRUSIONS AND DIABASE DYKES.

PALEOHELIKIAN

PH13 - ADAMELLITE SUITE: ADAMELLITE, MONZONITE, SYENITE, GRANODIORITE, GRANITE AND THEIR HYPERSTHENE-BEARING EQUIVALENTS. ALSO MINOR GABBRO, NORITE, ANORTHOSITIC GABBRO AND ANORTHOSITE.

PH12 - KIGLAPAIT LAYERED INTRUSION. MAINLY TROCTOLITE, GABBRO AND OLIVINE GABBRO; MINOR ANORTHOSITE, PYROXENITE, FERROSYENITE.

PH11 - ANORTHOSITE SUITE: ANORTHOSITE, ANORTHOSITIC GABBRO, LEUCOTROCTOLITE; MINOR GABBRO, MONZONITE, GRANODIORITE, FERROSYENITE.

PALEOHELIKIAN AND EARLIER

PHL9 - GRANITE TO GRANODIORITE, MASSIVE TO POORLY FOLIATED, WITH INCLUSIONS OF GRANITIC GNEISS. GENERALLY IN GRADATIONAL CONTACT WITH SURROUNDING ROCKS.

LAKE AREA:

POND- POND

LT 1- 1/4 TO 1 SQ KM

1-5- 1 TO 5 SQ KM

GT 5- GREATER THAN 5 SQ KM

RP ST:

00- ROUTINE REGIONAL SAMPLE

10- FIRST OF FIELD DUPLICATE

20- SECOND OF FIELD DUPLICATE

70- CELL DUPLICATE SITE SAMPLE

RELF:

L- LOW

M- MEDIUM

H- HIGH

CONT:

BLANK- NONE

1- PRESENT

SMPL COLOR:

TN- TAN

YL- YELLOW

GN- GREEN

GY- GREY

BR- BROWN

BK- BLACK

SUSP:

BLANK- NONE

L- LIGHT

H- HEAVY