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FINAL REPORT 1977, OTISH MOUNTAINS EAST, PROJECT NO 71-81

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OTISH MOUNTAINS EAST

PROJECT NO. 71-81

(Report No. 7181-29)

FINAL REPORT 1977

Prepared by:

Z. Madon, Montreal Office

SUMMARY

Prospecting of the geochemical anomalies S.E.O.-4 and 5, CON-9, KER-1 and KER-2 has yielded negative results.

Although no new significant discoveries were made in the Helga Lake area (Kerveso claims), the subsequent survey indicate that the potential for significant deposits of uranium still exists. The Kerveso claims are being kept in good standing.

No further work is recommended within the geochemical anomalies S.E.O.-4 and 5, CON-9, KER-1 and KER-2.

At present, no further work is recommended in the Helga Lake area.

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1. INTRODUCTION

The Otish Mountains Uranium Joint Venture was established early in 1974 among the Canadian Nickel Company Ltd. (Canico), James Bay Development Corporation (JBDC), and Uranerz Exploration and Mining Limited (UEM), the latter being the operator of the exploration program.

1.1 AREA OF INVESTIGATION

The 1977 summer program was carried out in the eastern region of the Otish Mountains, approx. 370 km north-east of the town of Chibougamau. The areas of investigation are bounded by the following geographical co-ordinates:

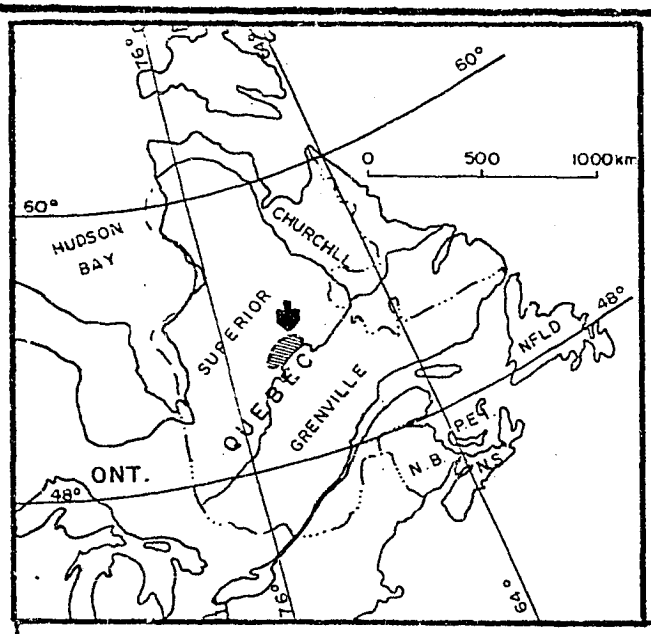
Lat.	Long.
52°00'N	70°20'W
52°30'N	71°00'W

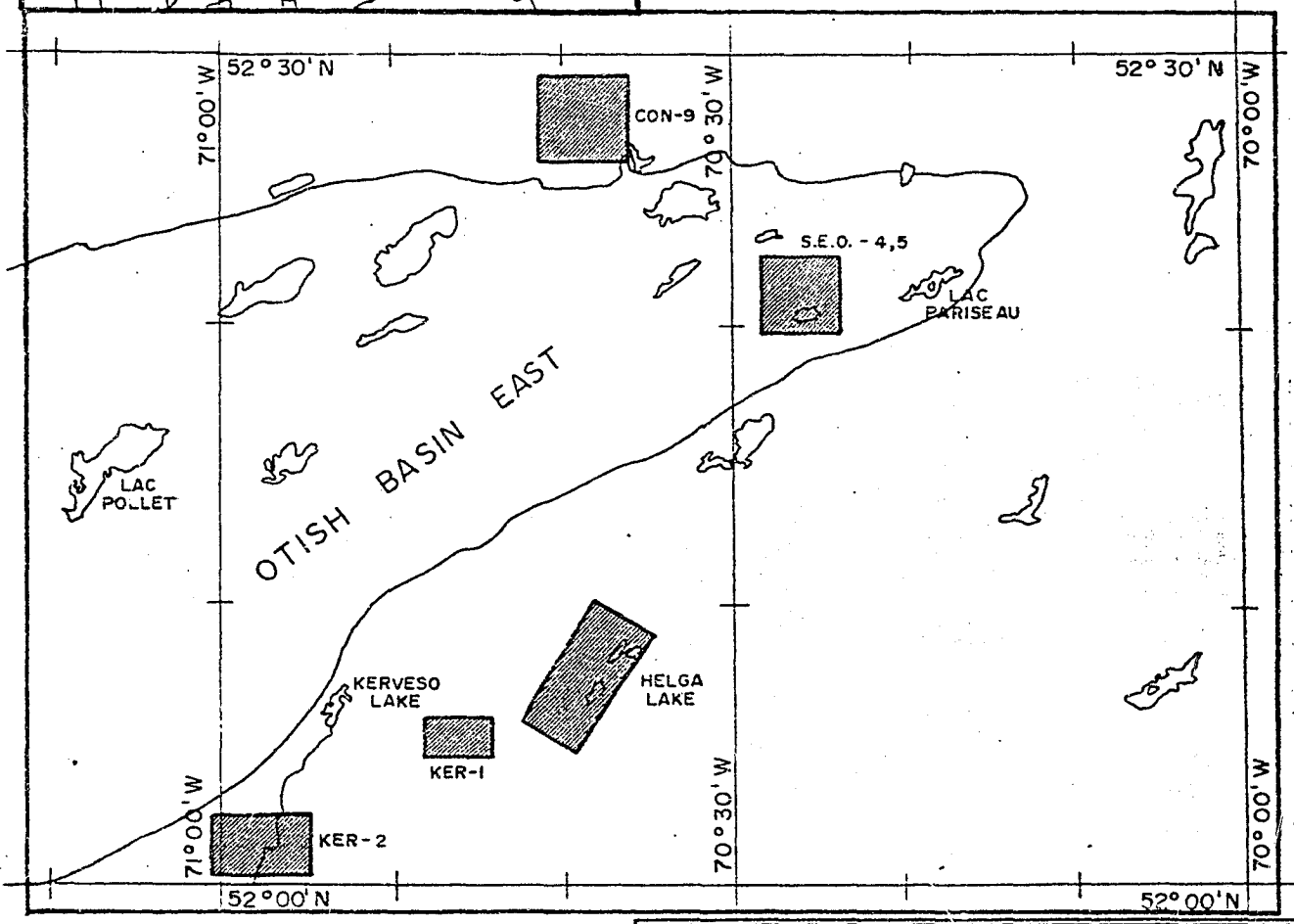
(See outlined areas - map no. 1)

1.2 PURPOSE OF INVESTIGATION

As a result of the 1976 summer field season, 6 anomalous areas have been recommended for more detailed follow-up work:

AREA	ANOMALY
1. S.E.O.-4	High U-values in stream sediment samples near a fault junction.
2. S.E.O.-5	High U-values along a stream valley in stream sediment and water samples.
3. CON-9	Highly anomalous water samples (U-values up to 59 times background).
4. Helga Lake (within Kerveso Grid)	Uraniferous biotite-schist and granitic boulders.
5. KER-1	Lake bottom sediment sample 6PG-500 (213 p.p.m. U).
6. KER-2	Numerous anomalous lake waters and lake bottom sediments within a confined zone.





10 0 10 20 Km

1 : 500 000

URANERZ EXPLORATION AND MINING LIMITED

PROJECT: OTISH MOUNTAINS EAST 71-81

LOCATION MAP

FINAL REPORT 1977

COMP.: Z. M.	DATE: DEC / 77	REP./RAP. No.: 7181-29	MAP/CARTE No.: 1
DRAWN/DESS.: J.B.H	DATE: DEC / 77		REPORT No.:
REVISION:		SCALE/ECH.: 1:500 000	PROJ. No.: 71-81
T.C. TO BONN.	REF.: 23 S.W		FILE/DOSS.: MO1-154

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1.3 TIME OF INVESTIGATION

The winter survey at Helga Lake commenced on March 13, 1977 and ended on March 27, 1977.

The summer program began on June 6, 1977 and carried on through until August 14, 1977.

1.4. PERSONNEL

B. Starke	Exploration Manager
R. Lambert	Senior Geologist

Field personnel - winter survey

Z. Madon	Junior Geologist
C. Jenkins	Geologist
R. Bélair	Junior Geologist
R. Orr	Junior Geologist
H. Greenland	Field Foreman

Field personnel - summer survey

Z. Madon	Junior Geologist
J. Grassby	Senior Assistant
B. Kam	Junior Assistant
R. Lahaye	Junior Assistant
K. Hopewell	Field Foreman

1.5 INSTRUMENTS, VEHICLES USED

1.5.1 Instruments Used

The following instruments were used during the summer and winter surveys:

Number	Type of Instrument	Summer	Winter
2	Saphymo-Stel Scintillomter, SPP-2NF	x	
1	McPhar Scintillometer, TC-33A	x	
15	Alphameter Radon Gas Meters		x
1	Apex Horizontal Loop MAX MIN II EM		x

1.5.1 Instruments Used - Cont'd

Number	Type of Instrument	summer	winter
1	Crone CEM (horizontal shootback) EM		x
1	Scintrex MP-2 Magnetometer		x

1.5.2 Vehicles Used

The following vehicles were used for transportation of personnel, equipment and supplies from Montreal to Chibougamau:

2 GMC Suburbans
2 Ford Econoline Vans - rented for winter survey

During the winter survey, 2 ELAN Skidoos were used for transportation of personnel and equipment from the camp site to the survey area.

1.5.3 Aircraft Used

Float and ski-equipped Beaver and Otter aircraft were used for camp mobilization and logistic support into the accessible lakes. The following is a summary of the 1977 expenditures for the fixed wing aircraft:

TYPE	AMOUNT
Fixed Wing Contract	$ 6,621.00
Logistic Support	$ 4,187.00

During the summer program, a Bell 206-B Jet Ranger used for camp mobilization and logistic support into the less accessible areas. A total of 32.3 hours of flying time was used for this purpose.

2. GENERAL INFORMATION

2.1 LOCALITY

The Kerveso Lake area, S.E. Otish areas and Conflans Lake area are all located within the south-east quadrant of N.T.S. map sheet 23 D (1:250,000). The areas are confined by the following geographical coordinates:

Lat. 52°00'N - Lat. 52°30'N and
Long. 70°20'W - Long. 71°00'W

2.1 LOCALITY - Cont'd

The nearest major town, Chibougamau, is located approx. 370 km to the south-west.

A mobile base camp was arranged in order to move from one anomalous area to the next.

2.2 COMMUNICATIONS AND ACCESS

2.2.1 Communications

A CP-34 single side band radio transceiver was employed during the survey. Communication was maintained with Lac Simon (Project 71-85, Otish Mountains West), Temiscamie and Chibougamau on frequency 4050 kHz.

2.2.2 Access

Chibougamau is accessible by paved road and by regular flights from Montreal. Float or ski-equipped aircraft, based in Chibougamau (Lac Caché), are available throughout most of the year to reach the area of investigation. The nearest airbase is the Temiscamie River airbase, approx. 176 km north-east of Chibougamau. It is accessible by gravel road from Chibougamau during most of the year. The distance between Temiscamie and the area of investigation is approx. 192 km.

2.3 TOPOGRAPHY

The area is typified by gently rolling hills, extensive glacial deposits, and numerous poorly-drained lakes. The E.N.E. Otish Mountain Range stands out abruptly from the surrounding lowlands, attaining elevations of 1150 meters A.S.L. The southern portion of the area is drained by the Peribonca River which flows into the St. Lawrence via the Lac St. Jean-Saguenay River system. The northern portion drains into James Bay via the Lac Naococane - La Grande River system.

2.4 CLIMATE

The area is located within the cold moderate to subarctic climatic zones. Average winter temperatures are in the $-20^{o}C$ range and average summer temperatures are in the $+15^{o}C$ range.

2.5 VEGETATION

Jack Pine and Black Spruce are the dominant tree types with local occurrences of birch and alder. The tree line occurs approx. 820 meters A.S.L., in this region.

2.6 POPULATION AND LAND USE

The area is virtually unpopulated. Commercial land exploitation does not occur within the area of investigation.

2.7 WATER RESOURCES

Freshwater lakes, rivers, swamps and creeks abound in this area.

2.8 MAGNETIC DEVIATION

The magnetic deviation ranges from 24°W at the western limit of the area of investigation to 25°W at the eastern limit.

3. PREVIOUS SURVEYS AND ACTIVITIES

3.1 TOPOGRAPHIC MAPPING

The areas of investigation are covered entirely by the National Topographic Service sheet 23 D (1:250,000) and by the following airphotos:

TABLE 2

Area	Flight Line	Photo Numbers	Scale
S.E.O. 4,5	A12715	37-40	1:36,000
	A12812	419-423	1:36,000
CON-9	A12649	137-141	1:36,000
Helga Lake	A16671	34-37	1:39,000
	A21579	11-14	1:45,000
KER-1	A21579	14-17	1:45,000
	A12494	420-424	1:36,000
KER-2	A16671	9-12	1:39,000
	A12494	409-412	1:36,000

3.2 GEOLOGICAL MAPPING

The following reports discuss the geology of the survey areas:

AREA	REPORT
S.E.O. 4,5	E.H. Chown, 1971. The Geology of the Pariseau Lake Area, Dubuc and Saguenay Counties. Mistassini Territory M.R.N. Public Report No. DP-180 with accompanying map (scale 1:31,680).
Con-9	E.H. Chown, 1969. Interim Report on the Conflans Lake area. Dubuc and Roberval Counties. Mistassini Territory: M.R.N. Public Report No. DP-185 with accompanying map (scale 1:31,680).
Helga Lake KER-1 KER-2	E.H. Chown, 1965. Geology of the East Peribonca River Area. Chicoutimi County. M.R.N. Public Report No. 535 with accompanying map No. 1586 (scale 1:63,360).

3.3 GEOPHYSICAL SURVEY

An aeromagnetic map at a scale of 1:253,440 was surveyed by the Canadian Aero Service Ltd. between October, 1963 and November, 1964 (Map No. 7114G Lac Naococane).

Previous exploration work was done by SOQUEM (Report No. GM-22391, 1967-1969), by Radex Minerals Ltd. (Report No. GM-22432) and by Atlantic Richfield (Report No. GM-25982, 1970). The results of a geochemical sampling survey in the Conflans Lake area are given in a government report (DP-420).

During the 1977 summer season, exploration activities by SOQUEM and Pancontinental in the eastern and central portion of the Otish Basin were observed.

4. TENURE POSSIBLITIES

4.1 MINERAL CLAIMS

For tenure possibilities, reference is made to the "Mining Act of Quebec", Chapter 34. Mineral claims:

a) can only be staked by an individual holding a Prospector's Licence (section 13, 14)

4.1 MINERAL CLAIMS - Cont'd

b) cover an area of 40 acres or 16 hectares (section 33)

c) are valid for 1 year south of the 52nd parallel and two years north of the 52nd parallel (section 46)

d) south of the 52nd parallel require assessment work of $ 2 and $ 4 for the first and each subsequent year and, north of the 52nd parallel, $ 6 for the first and second year (section 76).

e) require a staking fee of $ 2 per claim.

4.1.1 Mineral Claims Staked and Recorded

Details of the mineral claims staked and recorded in the Kerveso Lake area are given below:

Name:	Kerveso Lake Area
No. of Claims:	94
Longitude:	Approx. $70^{o}40'W$
Latitude:	Approx. $52^{o}05'N$
N.T.S.:	23 D/2
Area:	3760 Acres 15.22 km^2
Mining District:	Dubuc
Staked by:	B. Ottereyes
Staked on:	September 13-16, 1975
Date of Transfer:	September 22, 1975
UEM Interest:	33 %
Partners:	J.B.D.C. - 44 2/3% CANICO - 22 1/3%
Operator:	UEM
Assessment Work Required:	1976/77 - $ 22,560 1978 - $ 15,040
Assessment Work Filed:	Oct. 11, 77 - $ 319,973.82
Rent:	1977 - $ 940 1978 - $ 940

Application for Development Licence due on: September 23 each year

Application for Development Licence Made: September 22, 1977

4.1.1 Mineral Claim Staked and Recorded

Claim No.		Township	Staked on
358055	(2)	2240	13-9-75
	(3-4)	2240	14-9-75
	(5)	2241	14-9-75
358056	(1-2)	2241	14-9-75
	(3-4)	2240	14-9-75
	(5)	2240	15-9-75
358057	(1-3)	2240	15-9-75
	(4-5)	2241	15-9-75
358058	(1-5)	2241	14-9-75
358059	(1-2)	2240	14-9-75
	(3-5)	2240	15-9-75
358060	(1)	2240	15-9-75
	(2-3)	2241	15-9-75
	(4-5)	2241	16-9-75
358061	(1-5)	2241	16-9-75
358062	(1-3)	2241	14-9-75
	(4-5)	2240	14-9-75
358063	(1-2)	2240	14-9-75
	(3)	2240	15-9-75
	(4-5)	2241	15-9-75
358064	(1-4)	2241	15-9-75
	(5)	2241	16-9-75
358065	(1-5)	2241	16-9-75
358066	(1-5)	2241	14-9-75
358067	(1-2)	2241	14-9-75
	(3-5)	2241	15-9-75
358068	(1-4)	2241	15-9-75
	(5)	2241	16-9-75
358069	(1-5)	2241	16-9-75
358070	(1-5)	2241	14-9-75
358071	(1-2)	2241	14-9-75
	(3-5	2241	15-9-75
358072	(1-4)	2241	15-9-75
	(5)	2241	16-9-75
358073	(1-5)	2241	16-9-75

4.1.2 Mineral Claims Granted

The mineral rights for all 94 claims were granted on September, 1975. An application for development licences for all 94 claims was made on September 22, 1977. The development licences are valid for a period of 1 year.

4.1.3 Mineral Claims Disputed, Lost, Lapsed

Nothing to report

4.2 LARGER CONCESSIONS

Exploration permits are granted only north of the 52nd parallel (New Quebec). Permit blocks:

a) Cannot be less than 25 square miles (65 km^2)
b) cannot exceed 150 square miles (390 km^2)
c) are valid for 3 years
d) require an annual rental fee of $ 150 per square mile
e) require assessment work of $ 250 per square mile for each year

4.2.1 Concessions Applied For

Nothing to report

4.2.2 Concessions Granted

Nothing to report

5. GENERAL GEOLOGY

5.1 PETROLOGY, LITHOLOGY, STRATIGRAPHY

Stratigraphy and lithology of the rocks in the Otish Mountains area are briefly described in Table 3, page No.11

Proterozoic sedimentary and igneous rocks of the Otish Group unconformably overlie an Archean basement complex of granite, granodiorite, and migmatite.

Deposition of the lower Proterozoic Otish Group sediments commenced with fluviatile coarse arkoses and conglomerates alternating with well sorted subarkoses and orthoquarzites (Indicator Formation).

Due to the high relief of the pre-existing land surface, the accumulation of sediments was quite irregular in channel-like NE-SW features and parallel topographic highs. The source of the sedimentation was from the north. The direction of flow was to the south-west.

Overlying the terrestrial sediments of the Indicator Formation are arkoses, dolomites and shales of the Peribonca Formation which signify a predominantly marine facies.

TABLE 3

Cenozoic	Recent and Pleistocene		Muskeg, talus, beach deposits, till, glacio-fluvial outwash deposits
Unconformity			
PRECAMBRIAN	Proterozoic	Ultrabasic intrusions	Pyroxenite and peridotite
		Otish Mountains gabbro	Olivine gabbro, uralitized gabbro granophyre
		Intrusive contact	
		Otish Mountains Group	Peribonca FM.
			Member B: purple and red arkose, conglomerate, argillaceous arkose
			Member A: Pink and grey, dolomite cemented subarkose and arkose, minor pink dolomite
			Indicator lake FM. Upper orthoquartzite member orthoquartzite and subarkose
			Upper subarkose member coarse grey arkose and subarkose, minor conglomerate
			Lower orthoquartzite member white orthoquartzite and subarkose
			Lower subarkose member green-grey pebbly subarkose, arkose, oligomictic conglomerate
	Unconformity		
	Archean	Basement complex	Gneissic to porphyroblastic granite and granodiorite, quartz feldspar biotite gneiss, migmatite minor amphibolite lenses

(EM. Chown, 1969)

5.1 PETROLOGY, LITHOLOGY, STRATIGRAPHY - Cont'd

The Otish Group sedimentary rocks have been intruded by a complex of dykes and sills of gabbro. Pleistocene glacial deposits cover the area extensively.

5.2 STRUCTURE AND TECTONICS

The granitic basement complex is largely massive but in the granite-gneiss terrain foliation trends are predominantly ENE with dips near vertical.

The structural units of the Otish Basin consist of principally a Front Range, Main Range and North Range. The Front Range, exposed along the south-east portion of the basin, is underlain by a tightly folded overturned anticline asymmetric to the north. The Main Range, comprising the principle ridge of the Otish Basin, is a broad, open syncline with a near horizontal axis. The North Range, underlain by the basement complex, outcrops as the northern limb of the main synclinal axis in the Otish Basin.

A conjugate system of faults, striking 000^{o}-020^{o} and 060^{o}-080^{o} cut both the Proterozoic basin and Archean basement into numerous fault blocks. These faults display strike-slip and minor normal movement although this movement is usually not considerable.

5.3 ECONOMIC GEOLOGY

Uranium mineralization in the area occurs in the following environments:

a) Uranium as pitchblende and uranophane along small fractures in medium coarse-grained potassium feldspar granites of the Archean basement (numerous boulders).

b) Uranium associated with biotite schist.

Minor dissemination of chalcopyrite and pyrite are common at or near gabbro contacts.

6. PROSPECTIVE TARGETS AND AREAS

1. S.E. Otish Area: Possible fracture and vug-filling U-mineralization associated with the

6. PROSPECTIVE TARGETS AND AREAS - Cont'd

arkoses and dolomites of the Peribonca Fm. (i.e. similar to the U-mineralized dolomite boulders discovered by SOQUEM) Follow-up of geochemical anomalies.

2. Conflans Lake Area: Possible vein-type U-mineralization in the Archean basement granites or in the basic and ultrabasic/dykes cutting these granites (i.e. similar to the Noranda and Kerr Addisson showings north-west of Conflans Lake). Follow-up of geochemical anomalies.

3. Kerveso Lake Area: Follow-up of the vein-type U-mineralized granite boulders and the U-mineralized biotite schist boulders discovered in previous surveys by UEM.

7. INVESTIGATIONS

7.1 AIRBORNE SURVEY

Nothing to report

7.2 CARBORNE SURVEY

Nothing to report

7.3 GROUND SURVEYS

7.3.1 S.E.O.-4,5

Anomalies S.E.O-4 and 5 are located near the eastern boundary of the Otish Basin, within the Upper Peribonca Formation (Map No. 1). Follow-up of these geochemically anomalous areas consisted of detailed prospecting, stream and soil sampling and mapping.

Ground prospecting was carried out in the anomalous areas in an attempt to locate any mineralization in the bedrock or in the talus boulders on the slopes and lowlands. Pace and compass grid lines were run perpendicular to the geological

7.3.1 S.E.O-4,5

strike (N50°E) and at a spacing of between 10 and 100 meters. Boulder fields in the lowlands were prospected in greater detail. The area immediately surrounding the anomalous lake (S.E.O.-4), sampled in the previous year, was prospected at a 5 meter grid spacing. The scarp surfaces (possible fault lineaments), adjacent to anomaly S.E.O.-4) were prospected along their entire lenths to note any changes in the radioactivity of the rock.

The geochemical surveys in the S.E.O.-4 and 5 areas involved sampling soils, stream sediments and waters. In the S.E.O.-4 area, soil sampling was carried out along a grid parallel to the fault scarp and extending 200 meters east and west of the anomalous lake (Map No. 5). A grid spacing of 25 meters was used in both the east-west and north-south directions. A total of 43 samples were taken with a hand auger where sufficient soil development occurred. However, soil horizons were not well developed since all the samples contained a high proportion of organics. Eleven water samples were taken from the anomalous lake and the streams leading into and out of this lake. Tests for pH and bicarbonate content were performed in the field. A total of 16 streams were sampled along the entire slope from S.E.O-4 to S.E.O-5. 32 stream sediments were collected (Map No. 4).

Geological mapping and prospecting of the area were performed simultaneously.

7.3.2 CON-9

Anomaly CON-9 is situated in the Archean basement north of the Otish Basin, approximately 12 km east of the Lake Conflans. A short follow-up survey of this area consisted of geochemistry, prospecting, and mapping.

A stream sediment and lake margin geochemical survey was undertaken to determine a possible source for the anomalous uranium values in the water samples taken in the previous year. A system of streams flowing down from the mountain range to the south were sampled along the entire anomalous area. Samples were taken every 300 meters along the streams. Lake margins were also sampled within the anomalous area. A total of 28 stream sediment and 21 lake margin sediment samples were assayed for U. Additionally, 17 water samples were field tested for pH and bicarbonate content.

Prospecting and mapping were performed simultaneously. Because of the lack of outcrop in the anomalous area, prospecting was undertaken along pace and compass grid lines that ran approximately perpendicular to the glacial direction (N 20°E). The grid lines were spaced normally between

7.3.2 CON-9 (Cont'd)

300 t0 400 meters apart.

7.3.3 HELGA LAKE

7.3.3.1 Radon Survey

Between March 13, 1977 and March 28, 1977 an alphameter (radon gas meter) survey was undertaken over an area outlined as being the most likely source of the uraniferous boulders-the apex of a boulder fan which occurs to the west of Helga Lake (Map No. 2, page 16). Readings were taken at 25 meter intervals along the E.W. grid lines.

Because of instrument malfunctions, between 5 and 13 Alphameters out of 15 were in use at one time during the survey. A total of 380 readings were taken. 54 stations were rechecked where off-scale values were encountered.

The instruments were taped to a pole and placed into the snow to an average depth of 1.2 meters, or approximately 3/4 of the snow depth. The counting time at each station was normally 3 hours. This was determined to be a sufficient length of time from an orientation survey at Beaver Lake (Project 71-85).

7.3.3.2 Geophysical Survey

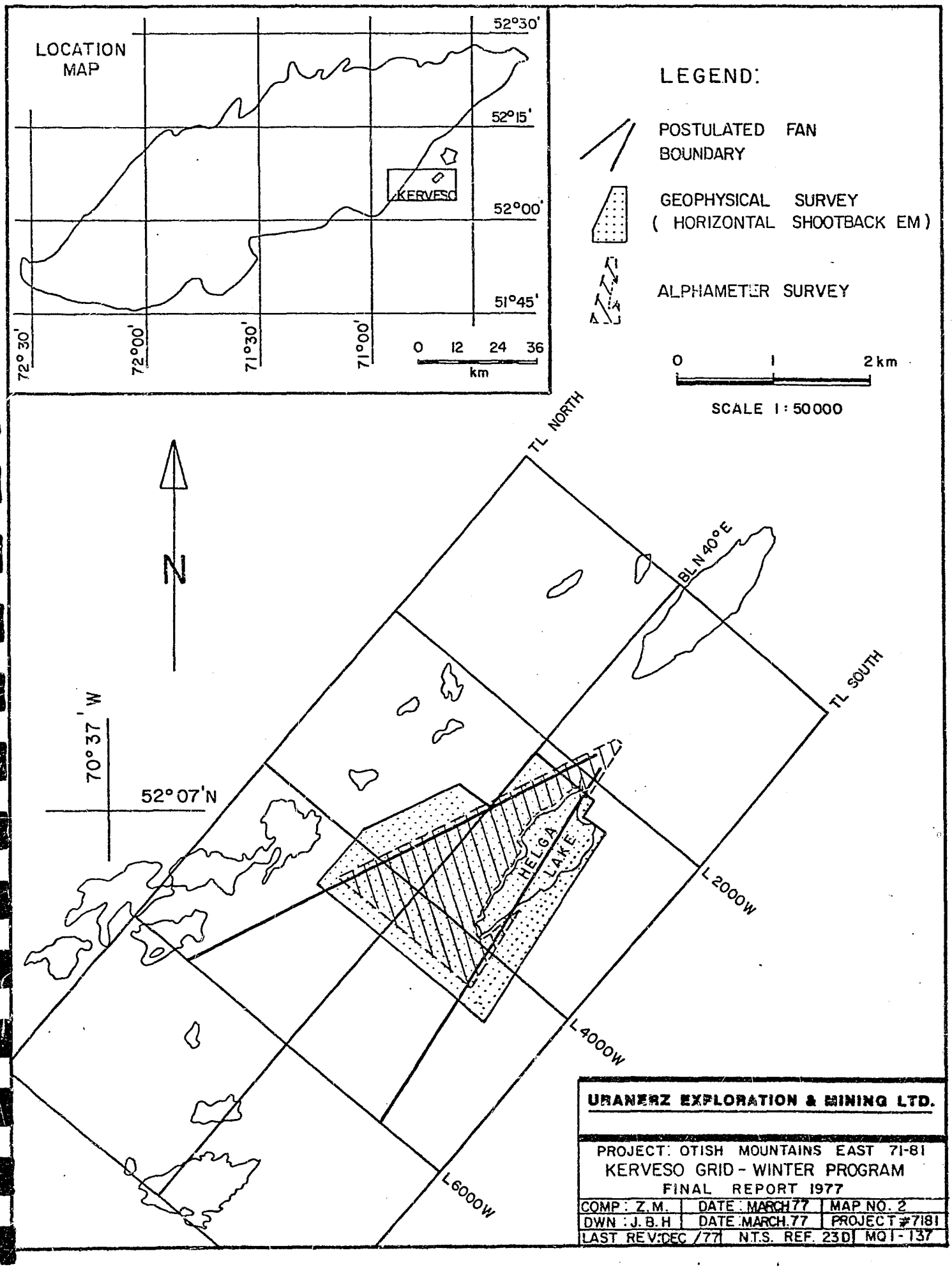
The geophysical survey, undertaken simultaneously with the alphameter survey, employed a Crone CEM electromagnetic instrument. The survey was run across the apex of the boulder fan, perpendicular to the base line of the Kerveso grid (Map No. 2, page 16).

The horizontal shootback EM method was used with a coil separation of 75 meters. The resultant dip angle was measured in both medium (1830 Hz.) and high (5010 Hz.) frequencies every 25 meters.

A total of 1436 readings were taken covering a distance of 36.2 line-km.

7.3.3.3 Mapping and Prospecting

The summer survey in the Helga Lake area consisted primarily of boulder prospecting. Three main areas, in particular,


LOCATION MAP
52°30'
52°15'
52°00'
51°45'
KERVESO
72° 30'
72°00'
71°30'
71°00'
0 12 24 36
km
LEGEND:
POSTULATED FAN BOUNDARY
GEOPHYSICAL SURVEY (HORIZONTAL SHOOTBACK EM)
ALPHAMETER SURVEY
0 1 2 km
SCALE 1:50000
N
TL NORTH
BL N 40° E
TL SOUTH
70° 37' W
52° 07' N
HELGA LAKE
L 2000W
L 4000W
L 6000W
URANERZ EXPLORATION & MINING LTD.
PROJECT: OTISH MOUNTAINS EAST 71-81
KERVESO GRID - WINTER PROGRAM
FINAL REPORT 1977
COMP: Z.M. | DATE: MARCH 77 | MAP NO. 2
DWN: J.B.H | DATE: MARCH 77 | PROJECT #7181
LAST REV: DEC /77 | N.T.S. REF. 23D | MOI - 137

7.3.3.3 Mapping and Prospecting - Cont'd

were prospected during the 3 week survey - (Map No. 10).

1) The northwest section of the Kerveso grid which was not prospected during the 1976 program.

2) The apex of the boulder fan within the Kerveso grid between L4600W and L2400W.

3) A section north of the Kerveso grid, postulated to be the potential source area for the mineralized biotite schist boulders.

Prospecting in areas 1 and 2 was performed perpendicular to the grid lines at a 25 meter spacing. The total distance of these surveys was 130 line-km and 67.2 line-km, respectively. The survey north of the Kerveso grid was performed along pace and compass grid lines perpendicular to the glacial direction (approximately N30^{o}E for the major glacial event).

A total of 30 boulder counts within the apex of the boulder fan (area 2) were performed at 400 meter intervals along the grid lines.

7.3.4 KER-1

A short follow-up survey, consisting of boulder prospecting, mapping and geochemistry, was undertaken in this area. Anomaly KER-1 is located within the Archean basement granites, approximately 10 km south-east of the Otish Basin (Map No.1). This geochemically anomalous area lies near a contact between the Archean basement and a Proterozoic gabbro intrusive.

A total of 34 sediment samples were taken within the area of interest - 17 lake margin samples and 17 stream samples. Because of extensive drift cover in the area, prospecting was performed along pace and compass grid lines normal to the glacial direction (N 30^{o}E). The grid spacing was approx. 50 meters.

7.3.5 KER-2

Anomaly KER-2 is located near the contact between the Archean basement and a sedimentary outlier of the Otish Basin (Map No. 1). The area is defined by a cluster of geochemical anomalies situated entirely within the Archean basement. Follow-up work in this area consisted of boulder prospecting, a detailed geochemical survey and mapping of the Archean-Proterozoic contact in greater detail. A total of 43 stream

7.3.5 KER-2 - Cont'd

sediment and lake margin sediment samples were taken within the anomalous area. A breakdown of the geochemical survey is outlined in Table 4.

Sample Type / Age	Lake Margin Sediment	Stream Sediment
Proterozoic	8	8
Archean	8	19

Additionally, 16 water samples were field tested for pH and bicarbonate.

Prospecting and mapping were performed simultaneously. Because of the scarcity of outcrop in the anomalous area, prospecting was undertaken along pace and compass grid lines that ran approx. E-W. The grid lines were spaced about 100 meters apart.

7.3.6 Sampling

Two rock samples were sent to Bondar-Clegg in Ottawa for U_3O_8 and ThO_2 assays. The rock samples originated from anomalies CON-9 and Helga Lake.

7.4 TRENCHING

Nothing to report

7.5 DRILLING

Nothing to report

7.6 MICROSCOPY

Nothing to report

8. RESULTS

8.1 ANOMALIES DISCOVERED

8.1.1 Geochemical Data Analysis

The statistical data of the geochemical surveys was sub-divided into 3 populations:

1. Soils - Proterozoic Basin (a) S.E.O.-4

2. Stream and Lake Margin Sediments - Proterozoic Basin

   (a) S.E.O.-4,5
   (b) KER-2

3. Stream and Lake Margin Sediments - Archean Basement

   (a) CON-9
   (b) KER-1
   (c) KER-2

Selection of threshold values and the limits of the first, second and third order anomalies was performed statistically, using the arithmetic mean and standard deviation method.

Table 5 defines these limits:

TABLE 5

BACKGROUND —— THRESHOLD ————	Arithmetic Mean
3rd ORDER ANOMALY ————————	Arithmetic Mean & 1 Standard Deviation
2nd ORDER ANOMALY ————————	Arithmetic Mean & 2 Standard Deviations
1st ORDER ANOMALY	

8.1.1 Geochemical Data Analysis - Cont'd

Table 6 outlines the Threshold values and anomalous limits for the different populations.

TABLE 6

LOCATION	SAMPLE TYPE	ppm THRESHOLD	3rd ORDER	2nd ORDER	1st ORDER
Proterozoic Basin	Soils	9.52	9.53-26.69	26.70-43.86	>43.86
	Stream & Lake Margin Sediments	6.42	6.43-16.41	16.42-26.40	>26.40
Archean Basement	Stream & Lake Margin Sediments	9.09	9.10-30.57	30.58-52.05	>52.05

Table 7 outlines the number and percentage of anomalies within each interval of the 3 different populations.

TABLE 7

LOCATION	SAMPLE TYPE	BACKGROUND	3rd ORDER	2nd ORDER	1st ORDER
Proterozoic Basin	Soils	32 (74%)	7 (16%)	2 (5%)	2 (5%)
	Stream & Lake Margin Sediments	33 (82%)	11 (24%)	2 (4%)	1 (2%)
Archean Basement	Stream & Lake Margin Sediments	90 (82%)	12 (10%)	4 (4%)	4 (4%)

The particular results of the geochemical surveys in the 5 anomalous areas are discussed in greater detail in their own sections as no further generalizations can be made here.

Frequency histograms of the 3 different populations are given in Appendix C.

8.1.2 S.E.O.-4,5

Detailed prospecting of the anomalous areas yielded negative results. All the anomalous readings encountered during the survey turned out to be glacially transported rounded to sub-rounded pegmatitic boulders with counts of between 200 cps and 1000 cps.

Anomaly S.E.O.-4 is flanked on both sides by glacial moraine containing numerous pegmatite and granites boulders, with counts averaging 100 cps. to 400 cps. The area immediately surrounding S.E.O.-5 is covered by glacial outwash material and no high count boulders were encountered while prospecting this anomaly.

Background counts throughout the entire area averaged 50 cps. Arkoses and orthoquartzites of the Peribonca Formation ranged from 50 cps. to 75 cps., rarely exceeding 100 cps. The dolomite and dolomitic sandstone beds usually showed a drop of 10 cps - 20 cps, averaging 30-40 cps.

Results of the geochemical surveys (Map Nos. 4 &5) reaffirm the anomalies in the S.E.O.-4 area. These geochemical anomalies might be explained by the numerous pegmatite boulders and by the geochemical environment of the area (i.e. high bicarbonate content of the water and organic rich sediment samples). In the S.E.O.-5 area, the survey indicated only background values of U.

The geology of the S.E.O.-4, and 5 area is dominated by the Peribonca Formation, which can be subdivided into two members. The lower consists of well sorted and well laminated pale pink arkoses and subarkoses, locally reduced in certain areas. Dolomite and dolomite cemented sandstones are common. These beds are characteristically sooty black on weathered surface and display very pronounced differential weathering.

The dolomitic beds were prospected in greater detail to note any textural or diagenetic changes along strike. The differential weathering greatly accentuated the inherent structures of the formation - cross-bedding, parallel and ripply laminations.

The upper member of the Peribonca Formation consists primarily of immature pink to red arkoses and subarkoses with minor polymictic conglomerate beds.

The transition between the upper and lower member is marked by an argillaceous sandstone bed. The Peribonca Formation locally forms part of a broad horizontal syncline whose axis trends approximately N50°E (Map No. 4).

8.1.3 CON-9

Ground prospecting within this area yielded numerous high count boulders, mainly pegmatites and granites. Most of the boulders were found on top of E.-W. trending glacial moraines. In situ scintillometer readings ranged from 500 cps. to 2500 cps. Numerous anomalous boulders contained fractures filled with sulfides and oxides of iron. Other boulders were found to contain a large biotite fraction and/or mafic minerals occurring intergranularly or along fractures.

Immediately north of Lake A (Map No. 6), a pod of graphic granite occurs within the migmatite country rock. The pod is roughly 2 meters in length and 1 meter wide and is cross-cupt by numerous Fe-stained fractures. In situ counts of up to 10,000 cps. were found at the intersections of these fractures. However, a rock assay indicated the source of radiation to be mainly the result of thorium: 255 ppm U_3O_8, 3493 ppm ThO_2. Prospecting of the surrounding area showed this to be a localized source.

No stream sediment or lake margin sediment anomalies were found in this area. The average bicarbonate content of the water samples was 5 ppm, ranging from 1.22 ppm to 10.37 ppm. There is a good positive correlation between U and HCO_3 in the water samples.

The geology of the area was accurately mapped by E.H. Chown in 1969 (Interim Report on the Conflans Lake area; DP-185). The geology outcrops mainly in the highlands to the south where the migmatites and pegmatitic granites of the Archean basement are overlain by the sandstones and quartz-pebble conglomerates of the Indicator Lake Formation. Both have been subsequently intruded by gabbro dykes and sills of Proterozoic age. The foliation direction of the gneissic rock is usually between 60° and 70° but is often very contorted around granitic material. An isolated outcrop of migmatite and another of amphibolite gneiss were found in the lowlands within the anomalous area (Map No. 6).

8.1.4 Helga Lake

8.1.4.1 Radon Anomalies

The results of the radon survey are illustrated on Map No. 8. After normalizing the data and eliminating suspect readings, two main anomalous zones occur - one between L3400 W, 400S and L 4200 W, 150 S and the other between L1800 W, 600 S and L 2400 W, 600 S. Aside from a few isolated radon anomalies, correlation with the outlined fracture system is poor. On the other hand, correlation between the two main anomalous

8.1.4.1 Radon Anomalies - Cont'd

zones and the airborne spectrometer anomalies is fairly good (see Appendix D, Section 2 for more detailed report).

8.1.4.2 Geophysical Anomalies

The results of the horizontal shootback EM-survey are outlined on Map No. 9. Several anomalies of the resultant dip angle occur but no correlation from one line to the next is found. Only one anomaly (L 4400 W, 850 S) correlateswith a postulated fault or fracture zone, running NE-SW. The magnetic high outlined in the 1976 survey (L 3800 W, between 50S and 400S) does not have a corresponding dip angle anomaly. In general, the area of investigation does not seem to have any conductive properties to a depth of approx. 30 meters.

8.1.4.3 Prospecting Results

The results of the prospecting survey are given on Map No. 10. Several high count boulders (500-2500 cps.) were found particularly within the apex of the boulder fan (between L4600 W, L 3600 W on the south side of the base line). The boulders were sampled and locations flagged. No uranium mineralization was observed in any of these boulders.Hematite, magnetite and minor sulfides did occur along fractures (up to 5 mm wide) in the granite boulders.

One interesting boulder was recovered while prospecting the north-west part of the grid. Near L 600 W, 525 N, a sub-angular gabbro boulder ($< 1\ m^3$) with a more mafic pod enclosed within it, registered abnormally high counts (650 cps). A sample of the boulder assayed 867 ppm U_3O_8 and 36 ppm ThO_2.

Near L 200 W, 1200 N, an outcrop of massive gabbro, intruded by a mafic dyke, displayed considerably higher counts then the surrounding rock (250 cps vs. 25 cps).

Prospecting the area north of the Kerveso grid for further mineralized boulders (particularly biotite schist boulders yielded negative results.

The results of the boulder count survey within the apex of the boulder fan are given in Appendix F. They indicate a fairly uniform substratum composed of massive to foliated granites and migmatites with local pods of pegmatitic granites. The sheared granites associated with the mineralization occurred almost exclusively between L 4000 W and L 4600 W, although a few were found north of L 4600 W. The newly discovered sheared granites showed no sign of mineralization.

8.1.5 KER-1

Prospecting in the vicinity of the KER-1 anomaly yielded negative results. The average background reading for the area was between 50 cps and 100 cps. Two biotite-rich granite boulders that registered counts of 750 cps. and 1400 cps. were recovered in the area. Both were subangular and fairly small (1 m^3). A third granite boulder gave counts of up to 450 cps under 8 cm of water. No mineralization was visible.

The geochemical survey reaffirmsthe anomalous values of the survey in 1976. Numerous lake margin sediment samples from the anomalous lake (6PG-500), and stream samples from streams connecting with that lake contained high U-values. Many of the streams and small lakes or ponds are spring-fed and the water movement within the anomalous area is very sluggish. This geochemical phenonena might have accounted, in part, for the anomalous U-values found in the sediments.

The geology of the area, as indicated by a few isolated outcrops, is dominated by the Archean basement granites and migmatites. To the south, two gabbro outcrops, presumably of Proterozoic age, are found. This Archean/Proterozoic contact might have also caused the anomalous geochemical values in the area (Map No. 11).

The Pleistocene geology is dominated by E-W trending ribbed moraine and a NNE trending esker along the western margin of the survey area.

8.1.6 KER-2

The prospecting survey recovered a few high count granite boulders (500 cps. to 1000 cps.) within the anomalous area. Background readings in this area are fairly high (150-250 cps), particularly in the granite terrain. High counts within the sedimentary outlier occurred as well, in both outcrops and in boulder fields (800-900 cps.). However, these hight counts are attributed mainly to thorium as the mineral monazite ((Ca, La, Y, Th) PO_4) has been previously indentified in the basal quartz pebble conglomerate unit of the Indicator Lake Formation.

Sampling the streams and lake margins of the anomalous area confirmed last year's geochemical data and outlined a second anomalous area within the sedimentary outlier (Map No. 12). However, prospecting in this area proved negative. Correlation between the bicarbonate in the water and the uranium in the sediments was poor.

The geology of the KER-2 area is shown on Map No. 12. The Archean basement, composed of granites and amphibolites is

8.1.6 KER-2

overlain by the moderately metamorphosed quartz-pebble conglomerate of the Indicator Formation. The degree of metamorphism (shearing) increases towards the contact. Both the basement complex and the sedimentary units are intruded by sills of gabbro (Proterzoic age). Pleistocene glacial overburden is dominated by hummocky moraine. Two vertical diamond drill holes were found in the Archean basement within the anomalous areas. The lithology of the holes consisted primarily of biotite to felsic granite with a thin horizon of pelitic (?) schist. Tops could not be determined from the core boxes left on site.

8.2 DESCRIPTION OF MINERALIZATION

Nothing to report

8.3 CHEMICAL ANALYSES

Details are given in Appendices A & B.

9. ASSESSMENT

9.1 ASSESSMENT OF POTENTIAL

9.1.1 Uranium Potential

a) S.E.O.-4,5: The results of the surveys indicate little or no potential for U-mineralization in the dolomites and sandstones of the Peribonca Formation within the area.

b) CON-9, KER-1, KER-2: Failure to discover any significant forms of mineralization (i.e. vein-type U-mineralization in the Archean basement granites or along the contacts of the basicand ultrabasic dykes cutting the granites) yields little or no U-potential within these areas.

c) Helga Lake: Although no new significant discoveries were made, the subsequent surveys re-enforce the existance of uranium in this area and potential for significant deposits of uranium still exist.

9.1.2 Potential for Other Minerals

No significant discoveries of base metals or native metals were found within the areas of interest.

10. RECOMMENDATIONS

No further work is recommended in the following anomalous areas:

1) S.E.O.-4 and 5
2) CON-9
3) KER-1
4) KER-2

Presently, no further work is recommended in the Helga Lake area (Kerveso claims) pending the results of more promising uranium occurences in the Otish Mountains West.

The Kerveso claims will be kept in good standing.

APPENDIX A

GEOCHEMISTRY

APPENDIX A

SECTION 1: Geochemical Sample Data: Soils

(S.E.O.-4)

GEOCHEMICAL SAMPLE DATA: SOILS

Project No.: 71-87 Date June, 1977 (S.E.O. -4)

Sample No.	Line	Station	Topographic Position	Vegetation	Horizon	Organic Content	Color	Grain Size	U (ppm)				Comment
7JG-001	L 000	B.L.	Base of Slope	Conifer, Alder	A	High	Black	Silt	6.8				
002	L 000	25S	"	"	A	High	Black	Silt	31.0				
003	L 025E	25S	"	"	A	High	Black	Silt	5.8				
004	L 025E	B.L.	"	"	A	High	Black	Silt	5.2				
005	L 050E	B.L.	"	"	A	High	Black & Grey	Silt	11.9				
006	L 050E	25S	"	"	A	High	Black	Silt	1.6				
007	L 075E	25S	"	"	A	High	Brown	Silt	0.4				
008	L 075E	B.L.	"	"	A	High	Black	Silt	11.4				
009	L 100E	B.L.	"	"	A	High	Brown	Silt	21.0				
010	L 100E	25S	"	"	A	High	Brown	Silt	32.0				
011	L 125E	25S	"	"	A	High	Grey	Silt	0.5				
012	L 125E	B.L.	"	"	A	High	Brown	Silt	100.0				
013	L 150E	B.L.	"	"	A	High	Brown	Sand	2.2				
014	L 150E	25S	"	"	A	High	Grey	Sand/Silt	0.8				
015	L 175E	25S	"	"	"	High	Black	Silt	1.6				
016	L 175E	B.L.	"	"	A	High	Black	Sand/silt	1.3				
017	L 200E	B.L.	"	"	A	High	Black	Sand/Silt	1.8				

GEOCHEMICAL SAMPLE DATA: SOILS

Project No.: 71-87 Date June, 1977 (S.E.O. -4)

Sample No.	Line	Station	Topographic Position	Vegetation	Horizon	Organic Content	Color	Grain Size	U (ppm)				Comment
7JG-018	L 200E	25S	Base	Moss	A	High	Brown	Sand	23.0				
019	L 200E	50S	Base of Slope	Moss	A	High	Brown	Sand	1.9				
020									0.5				Low Standar
021	L 225E	72S	"	Conifer Alder	A	High	Black	Silt	2.0				
023	L 225E	19S	Base	Grass	A	High	Brown	Silt	7.8				
024	L 225E	B.L.	Base of Slope	Conifer Alder	A	High	Brown	Sand/Silt	1.6				
025	L 250E	B.L.	Base of Slope	"	A	High	Black	Sand/Silt	1.0				
026	L 250E	25S	Bog	Grass	A	Very High	Brown	Silt	8.8				
028	L 250E	75S	Base	Conifer Alder	A	High	Black	Sand/Silt	1.6				
029	L 275E	75S	Base of Slope	"	A	High	Brown	Silt/Clay	0.8				
030	L 275E	50S	Bog	"	A	High	Brown	Clay	2.4				
031	L 275E	25S	Bog	Moss	A	Very High	Brown	Silt	3.5				
032	L 275E	B.L.	Base of Slope	Conifer Alder	A	High	Black	Sand/Silt	4.7				
033	L 300E	B.L.	Base of Slope	Conifer	A	High	Black	Silt	47.0				
034	L 300E	25S	Bog	Grass	A	High	Brown	Silt	5.5				
035	L 300E	50S	Base of Slope	Conifer	A	Medium	Black	Sand/Silt	1.2				
036	L 325E	50S	Base of Slope	Conifer	A	High	Brown	Sand	0.5				

GEOCHEMICAL SAMPLE DATA: SOILS

Project No.: 71-87 Date June, 1977 (S.E.O. -4)

Sample No.	Line	Station	Topographic Position	Vegetation	Horizon	Organic Content	Color	Grain Size	U (ppm)				Comments
7JG-037	L 325E	23S	Bog	Grass	A	Very High	Brown	Silt	6.0				
038	L 325E	B.L.	Base of Slope	Conifer	A	High	Black	Sand/silt	9.6				
039	L 3250E	B.L.	Base of Slope	Conifer	A	High	Black	Sand/Silt	7.0				
040									60.0				High Standard
041	L 350E	25S	Bog	Grass	A	Very High	Brown	Silt	3.1				
042	L 375E	50S	Base of Slope	Conifer	A	High	Brown	Sand/Silt	0.8				
043	L 375E	25S	Bog	Grass	A	Very High	Brown	Silt	4.5				
044	L 375E	B.L.	Base of Slope	Conifer	A	High	Black	Sand/Silt	12.3				
045	L 400E	B.L.	Base of Slope	Conifer Alder	A	High	Black	Silt	10.8				
046	L 400E	25S	Bog	Grass	A	Very High	Brown	Silt	4.4				
047	L 400E	50S	Base of Slope	Conifer	A	Very High	Brown	Silt	2.4				

APPENDIX A

SECTION 2: Geochemical Sample Data: Lake or Stream Sediments - S.E.O.-4,5

- CON-9

- KER-1

- KER-2

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 7181 Date: JUNE 1977 (S.E.O. 4,5)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-059	Stream	0.01	Moderate	Clay	10	Dark Brown	9.3				Mineral Rich
060	"	0.10	Slow	Clay/Silt	10	"	11.9				"
061	"	0.07	Moderate	Silt/Fine Sand	20	"	6.1				"
062	"	0.01	"	" "	20	Brown	4.6				"
063	"	0.04	Slow	" "	30	"	4.0				"
064	"	0.05	"	" "	70	"	0.8				Organic Rich
065	"	0.20	"	Silt	20	"	18.2				Mineral Rich
066	"	0.10	"	"	20	"	8.5				"
067	"	0.10	Moderate	"	15	"	15.6				"
068	"	0.05	Slow	Silt/Fine Sand	10	"	6.7				"
069	"	0.01	"	" "	10	"	0.7				"
070	"	0.07	Stagnant	Silt	60	"	0.8				Organic Rich
071	"	0.05	Slow	Silt/Fine Sand	10	"	10.1				Mineral Rich
072	"	"	"	" "	10	"	10.3				"
073	"	"	Fast	" "	10	"	2.9				"
074	"	0.20	"	" "	5	"	9.7				"
075	"	"	"	" "	15	"	4.0				"
076	"	"	"	" "	10	"	5.7				"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 7181 Date: JUNE 1977 (S.E.O. 4,5)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-077	Stream	0.15	Moderate	Fine Sand	10	Brown	5.8				Mineral Rich
078	"	0.10	Slow	Silt	20	"	4.3				"
079	"	0.20	"	Fine Sand	1-5	"	1.3				"
080	"	0.10	Moderate	Silt/Fine Sand	10-15	"	1.1				"
081	"	"	Slow	Silt	"	"	3.4				"
082	"	0.20	Moderate	Silt/Fine Sand	"	"	0.8				"
083	"	0.10	"	"	"	"	1.2				"
084	"	0.05	Slow	Silt	20	"	1.2				"
085	"	0.01	"	"	10	"	2.1				"
086	"	"	Stagnant	"	20	Dark Brown	2.0				"
087	"	0.04	Slow	"	10	Grey	0.1				"
088	"	0.09	Moderate	"	30	Brown	0.1				"
089	"	0.05	"	"	10	"	0.4				"
090	"	0.10	"	Fine Sand	"	"	2.4				"
091							0.4				Low Standard

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: July, 1977 (CON-9)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-092	Lake	2	Slow	Silt/Fine Sand	25	Brown	0.3				Mineral Rich
094	"	1	Slow	"	10	"	0.1				Organic Rich
096	"	1	"	"	10	"	1.2				"
097	"	0.5	"	Clay/Silt	40	"	2.0				"
099	"	0.5	"	Silt/Fine Sand	10	"	0.8				Mineral Rich
101	"	1.3	Moderate	"	15	"	2.2				"
102	"	0.4	Slow	Clay/Silt	10	Brown/D.Brown	1.4				"
105	"	0.2	"	Silt/Fine Sand	15	Brown	0.5				"
106	"	2.0	"	"	20	"	0.9				"
108	"	3.0	"	"	10	"	2.1				"
109	"	10.0	"	"	15	"	7.4				"
110	"	2.0	"	"	40	"	1.0				"
113							48.0				High Standard
114	"	1.0	"	Silt	15	"	2.7				Mineral Rich
116	"	0.5	"	"	15	"	2.0				Organic Rich
118	"	0.3	"	"	15	"	1.0				"
121	"	10.0	"	"	10	"	1.2				Mineral Rich
122	"	0.3	"	Silt/Fine Sand	15	"	1.0				Organic Rich

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: July, 1977 (CON-9)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-123	Stream	0.1	Stagnant	Silt/Fine Sand	25	Brown	1.7				Organic Rich
126	"	0.2	Slow	Fine Sand	20	"	1.1				"
127	"	0.2	"	Silt/Fine Sand	20	"	1.0				"
128	Lake	0.2	"	Organic/Silt	30	"	1.0				Mineral Rich
129	"	0.1	"	Fine Sand	10	Grey	0.4				"
130	Stream	0.2	Moderate	"	25	Brown	1.1				Organic Rich
131	"	0.1	"	Silt/Fine Sand	25	"	0.4				Mineral Rich
132	"	0.2	Slow	Clay/Silt	30	"	0.5				Organic Rich
133	"	0.2	Moderate	Silt/Fine Sand	15	"	1.1				Mineral Rich
134	Lake	0.3	Slow	Fine Sand	10	"	0.7				"
135	"	0.1	"	Silt	15	Dark Brown	0.4				"
136	Stream	0.2	Moderate	Silt/Fine Sand	20	Brown	0.4				"
137	"	0.2	Fast	Organic/Silt	30	Dark Brown	2.0				"
138	"	0.2	Moderate	Silt/Fine Sand	20	Brown	0.3				"
139	"	0.2	Slow	Silt	15	Dark Brown	0.7				"
140	"	0.1	Moderate	Silt/Fine Sand	15	"	0.4				"
141	"	0.1	Slow	Clay/Silt	25	"	0.4				Organic Rich
142	"	0.3	Slow	Clay/Silt	25	"	0.4				"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: July, 1977 (CON-9)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-143	Stream	0.5	Slow	Organic/Silt	20	Dark Brown	0.4				Organic Rich
144	"	0.5	Moderate	Organic/Silt	20	Brown	0.2				Mineral Rich
145							1.0				Low Standard
7ZM-001	"	1.0	Stagnant	Silty Clay	30	Brown	1.0				Organic Rich
002	"	0.5	Fast	Silty Sand	30	Light Brown	1.0				"
003	"	0.2	Moderate	Silty Clay (Some Sand)	50	Brown	0.4				"
004	"	< 0.1	Slow	Silty Clay	60	Dark Brown	1.1				Partially Submerged
005	"	0.1	Moderate	Silty Sand	10	Light Brown	1.0				"
006	"	0.2	"	Sand	10	"	1.1				Continuous
007	"	1.0	Fast	"	10	"	0.8				"
008	"	0.6	Moderate	Silty Sand	25	Brown	1.0				"
009	"	0.3	Fast	Sand (Some Silt)	25	"	1.0				Mineral Rich
010	"	< 0.1	Fast	Sand	5	Light Brown	1.0				"
011	"	0.2	Stagnant	Sand (Some Silt)	60	Brown	0.4				"
012	"	0.2	"	Silty/Sand	60	Brown/Black	1.0				"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: July, 1977 (KER-1) Page No.1 of

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-146	Lake	1.5	Stagnant	Clay	15	Black/Grey	1.8				Organic Rich
147	"	0.5	"	Silt	15	Dark Brown	0.5				"
148	"	1.0	"	Organic-silt	25	Brown	6.2				"
149	"	0.5	"	Clay	20	Grey	7.2				"
150	"	1.5	"	Silt	20	"	3.3				"
151	"	1.0	"	Clay	30	Dark Brown	1.0				"
152	"	1.5	"	Silt	30	"	1.5				"
153	"	1.0	"	Silt/Fine Sand	15	Grey	0.3				Mineral Rich
154	"	3.0	"	Clay/Silt	10	"	0.7				"
155	"	0.5	Slow	Silt/Fine Sand	15	Brown	13.5				Organic Rich
156	"	1.0	Stagnant	Organic /Silt	20	Dark Brown	0.4				"
157	"	2.0	"	Silt	25	"	0.5				"
158	"	1.5	"	Organic	50	Black	20.0				"
159	"	1.5	"	Organic/Silt	15	Grey	0.5				"
160	"	1.5	Slow	Organic	80	Brown	13.5				"
161	"	1.5	"	Silt/Fine Sand	20	"	1.7				"
162	Stream	0.2	"	Silt/Coarse Sand	20	"	128.0				Mineral Rich
163	"	0.1	"	Organic/Clay	50	"	19.1				Organic Rich

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: July, 1977 (KER-1)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7JG-164	Stream	0.1	Slow	Fine Sand	10	Brown	6.2				Mineral Rich
165	"	0.2	Moderate	Coarse Sand	5	"	11.3				"
166							0.5				Low Standard
167	"	0.05	Slow	Clay/Silt	20	Dark Brown	3.2				Organic Rich
168	"	0.05	"	Silt/Fine Sand	15	Brown	1.5				Mineral Rich
169	"	0.10	Stagnant	Organic/Fine Sand	40	Brown Dark Brown	6.4				Organic Rich
170	"	0.09	Stagnant-Slow	Silt/Fine Sand	25	"	1.8				"
171	"	0.05	"	"	20	"	0.7				"
172	"	0.10	"	"	25	"	3.2				"
173	"	0.20	"	"	25	"	1.8				"
174	"	0.20	Slow	Silt	20	Dark Brown	4.8				"
175	"	0.20	"	Clay/Fine Sand	20	"	3.4				"
176	"	0.10	"	Silt-Fine Sand	25	Brown	1.8				"
177	"	0.20	"	Fine Sand	30	"	16.0				Mineral Rich
178	"	0.15	"	Organic/Silt	30	Dark Brown	8.2				"
179	"	0.15	Stagnant	Organic /Clay	75	"	44.0				Organic Rich
180	"	0.15	"	"	60	"	110.0				"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: August, 1977 (KER-2) Page No 1 of 1

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7RL-013	Stream	0.3	Moderate	Silt	25	Brown	3.9				Mineral Rich
014	"	0.2	Fast	"	20	"	7.9				"
015	"	1.5	Moderate	"	1	"	5.5				"
016	"	0.1	Slow	"	30	Dark Brown	3.9				Organic Rich
017	"	1.2	"	"	20	Brown	7.5				Mineral Rich
018	"	0.1	Moderate	"	30	"	4.3				Organic Rich
019	"	0.1	Fast	"	25	"	3.9				"
020	"	0.1	"	Silt/Fine Sand	10	"	1.7				Mineral Rich
021	"	0.1	"	Silt	20	Dark Brown	3.3				Organic Rich
022	Lake	1.5	Stagnant	"	60	Brown	18.5				"
024	"	1.0	"	Clay	40	Grey	34.0				"
026	"	0.5	"	"	60	"	42.0				"
028	Stream	0.1	Slow	Clay/Silt	25	Black	28.0				"
029	"	0.1	"	Silt	50	Dark Brown	30.0				"
030	"	0.1	Moderate	"	40	Black	15.5				"
032	Lake		Stagnant	"	40	"	6.4				"
034	"	1.0	"	"	50	Brown	31.0				"
036	"	0.2	Slow	Organic/ Coarse Sand	18	Brown/D. Brown	3.4				Mineral Rich

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: August, 1977 (KER-2)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7RL-038	Lake	0.3	Stagnant	Organic	80	Dark Brown	56.0				Mineral Rich
040	"	0.3	Slow	"	70	Brown	127.0				Minerals:50% Organics:50%
042	"	0.2	Stagnant	"	90	"	26.0				Mineral Rich
043							48.0				High Standard
044	Stream	0.1	Moderate	Silt	35	Dark Brown	7.1				Organic Rich
045	"	0.1	Slow	"	25	"	Not received				"
046	"	0.1	"	"	25	"	5.9				"
047	Lake	2.0	Stagnant	Clay	5	Grey	3.5				Mineral Rich
048	"	0.7	"	"	40	Dark Brown	66.0				Organic Rich
049	Stream	0.15	Slow	Silt	10	"	2.7				"
050	"	0.15	"	"	35	"	1.0				"
051	Lake	0.4	Stagnant	"	60	"	1.0				"
052	"	0.1	"	"	50	Black	4.7				"
053	"	0.1	"	Silt/ Fine Sand	20	Brown	1.7				"
054	Stream	0.4	"	Clay	35	"	17.7				"
055	Lake	2.0	"	"	25	"	11.4				"
056	"	0.5	"	Silt	35	Dark Brown	3.3				"
057	Stream	0.2	"	"	30	Brown	9.7				"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM SEDIMENTS

Project No.: 71-81 Date: August, 1977 (KER-2)

Sample No.	Type	Size or Depth (m^2,m)	Flow Rate	Grain Size	Organic Content (%)	Color	U (ppm)				Comments
7RL-058	Lake	0.1	Slow	Silt	35	Dark Brown	3.7				Organic Rich
059	"	1.5	Stagnant	"	35	Brown	6.1				"
060							0.4				Low Standard
068	Stream	0.1	Fast	"	30	"	7.7				Organic Rich
069	"	0.08	"	Clay	50	"	2.1				"
070	"	0.1	"	Clay-Silt	65	Dark Brown	2.2				"
071	"	0.2	Moderate	"	30	"	23.0				Mineral Rich
072	"	0.16	Fast	Clay/Fine Sand	15	Brown	6.4				"
073	"	0.16	Moderate	Clay/Silt	10	"	2.0				"

APPENDIX A

Section 3 : Geochemical Sample Data : Lake or Stream

Waters
- S.E.O.-4
- CON-9
- KER-2

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM WATERS

Project No.: 7181 Date: JUNE 1977 (S.E.O. 4)

Sample No.	Type	Size (m)	Flow Rate	pH	HCO_3 (ppm)	U (ppb)					Comments
7JG-048	Stream	small (0.10)	fast	5.0	N.D.						
049	"	partially buried	slow	5.6	51.9						
050	"	small (0.10)	fast	5.3	43.9						
051	"	wide (1.00)	slow	"	24.4						
052	Pond	150	"	"	36.6						
053	"	"	"	"	19.5						
054	Stream	0.75 x 0.15	"	5.0	"						
055	"	1.25 x 0.15	"	5.3	12.2						
056	"	1.50 x 0.20	"	"	9.7						
057	"	0.30 x 0.30	"	"	12.2						
058	"	0.70 x 0.30	"	"	24.4						

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM WATERS

Project No.: 71-81 Date: July, 1977 (CON-9)

Sample No.	Type	Size (m)	Flow Rate	pH	HCO_3 (ppm)	U (ppb)					Comments
7JG-093	Lake	3	Slow	4.7	5.5						Mineral Rich
095	"	2	"	5.0	3.1						"
098	"	3	"	5.0	1.8						"
100	"	2	Moderate	5.0	1.9						"
103	"	2	"	5.0	1.2						"
104	"	2	Slow	5.0	6.1						"
107	"	3	Slow	5.0	20.1						"
111	"	2-3	"	5.0	3.1						"
112	"	2	"	5.0	6.1						"
115	"	1	"	5.0	10.4						"
117	"	1	"	5.0	3.1						"
119	"	3	"	5.0	3.1						"
120	"	3	"	5.0	1.8						"
124	"	0.2	Stagnant	5.0	18.9						Organic Rich
125	"	0.2	Slow	5.0	15.9						"
7ZM-020	Stream	3x1	"	4.7	4.9						"
021	"	1x0.5	Stagnant	4.7	4.3						"

GEOCHEMICAL SAMPLE DATA: LAKE OR STREAM WATERS

Project No.: 71-81 Date: August, 1977 (KER-2) Page No 1 of 1

Sample No.	Type	Size (m)	Flow Rate	pH	HCO_3 (ppm)	U (ppb)					Comments
7RL-023	Lake	2	Stagnant	5.0	7.3						Mineral Rich
025	"	3	"	5.0	7.9						"
027	"	2	"	4.7	5.5						"
031	"	1	"	4.7	3.4						"
033	"	2	"	4.7	3.4						"
035	"	2	Slow		5.8						"
037	"	1	Stagnant		6.7						"
039	"	3	Slow		4.9						"
041	"	2	Stagnant		1.2						"
061	"	3	"	4.7	5.5						"
062	"	3	"	5.0	2.4						"
063	"	2	"	5.0	3.1						"
064	"	3	"	5.0	4.3						"
065	"	3	"	5.0	6.1						"
066	"	2	"	5.0	3.1						"
067	"	3	"	5.0	4.3						"

APPENDIX B

CHEMICAL ANALYSIS (BONDAR-CLEGG & COMPANY LTD.)

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

Geochemical Lab Report

Extraction U-HNO_3 Report No. 861-7

Method Fluorimetric From Uranerz Exploration & Mining Limited Project # 7181

Fraction Used -80 soils Date July 20, 19 77

SAMPLE NO.		U ppm			SAMPLE NO.		U ppm		
7JG-001		6.8			7JG-034		5.5		
002		31.0			035		1.2		
003		5.8			036		0.5		
004		5.2			037		6.0		
005		11.9			038		9.6		
006		1.6			039		7.0		
007		0.4			040		60.0		
008		11.4			041		3.1		
009		21.0			042		0.8		
010		32.0			043		4.5		
011		0.5			044		12.3		
012		100.0			045		10.8		
013		2.2			046		4.4		
014		0.8			047		2.4		
015		1.6			059		9.3		
016		1.3			060		11.9		
017		1.8			061		6.1		
018		23.0			062		4.6		
019		1.9			063		4.0		
020		0.5			064		0.8		
021		2.0			065		18.2		
023		7.8			066		8.5		
024		1.6			067		15.6		
025		1.0			068		6.7		
026		8.8			069		0.7		
028		1.6			070		0.8		
029		0.8			071		10.1		
030		2.4			072		10.3		
031		3.5			073		2.9		
032		4.7			074		9.7		
033		47.0			075		4.0		

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 861-7 Page No. 2

SAMPLE NO.		U ppm			SAMPLE NO.		U ppm		
7 JG-076		5.7			7JG-127		1.0		
077		5.8			128		1.0		
078		4.3			129		0.4		
079		1.3			130		1.1		
080		1.1			131		0.4		
081		3.4			132		0.5		
082		0.8			133		1.1		
033		1.2			134		0.7		
084		1.2			135		0.4		
085		2.1			136		0.4		
086		2.0			137		2.0		
087		0.1			138		0.3		
088		0.1			139		0.7		
089		0.4			140		0.4		
090		2.4			141		0.4		
091		0.4			142		0.4		
092		0.3			143		0.4		
094		0.1			144		0.2		
096		1.2			145		1.0		
097		2.0			7-ZM-001		1.0		
099		0.8			002		1.0		
101		2.2			003		0.4		
102		1.4			004		1.1		
105		0.5			005		1.0		
106		0.9			006		1.1		
108		2.1			007		0.8		
109		7.4			008		1.0		
110		1.0			009		1.0		
113		48.0			010		1.0		
114		2.7			011		0.4		
116		2.0			012		1.0		
118		1.0							
121		1.2							
122		1.0							
123		1.7							

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

Geochemical Lab Report

Extraction $U\text{-}HNO_3$ Report No. 1238-7

Method Fluorimetric From Uranerz Exploration & Mining Limited

Project # 7181

Fraction Used -80 soils Date August 22, 19 77

SAMPLE NO.		U ppm			SAMPLE NO.		U ppm		
7-JG- 146		1.8			7-JG- 177		16.0		
147		0.5			178		8.2		
148		6.2			179		44.0		
149		7.2			180		110.0		
150		3.3							
151		1.0							
152		1.5							
153		0.3							
154		0.7							
155		13.5							
156		0.4							
157		0.6							
158		20.0							
159		0.5							
160		13.5							
161		1.7							
162		28.0							
163		19.1							
164		6.2							
165		11.3							
166		0.5							
[illegible]		3.2							
168		1.5							
169		6.4							
170		1.8							
171		0.7							
172		3.2							
173		1.8							
174		4.8							
175		3.4							
176		1.8							

BONDAR-CLEGG & COMPANY LTD.
764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

Geochemical Lab Report

Extraction U - HNO_3 Report No. 1317-7

Method Fluorimetric From Uranerz Exploration & Mining Limited
Project: 7161 (KER-2)

Fraction Used -80 soils. Date August 25, 1977

SAMPLE NO.		U ppm			SAMPLE NO.		U ppm		
7-RL - 013		3.9			7-RL - 053		1.7		
14		7.9			54		17.7		
15		5.5			55		11.4		
16		3.9			56		3.3		
17		7.5			57		9.7		
18		4.3			58		3.7		
19		3.9			59		6.1		
20		1.7			60		0.4		
21		3.3			68		7.7		
22		18.5			69		2.1		
24		34.0			70		2.2		
26		42.0			71		23.0		
28		28.0			72		6.4		
29		30.0			73		2.0		
30		15.5							
32		6.4							
34		31.0							
36		3.4							
38		56.0							
40		127.0							
42		26.0							
43		48.0							
44		7.1							
45		NOT RECEIVED							
46		5.9							
47		3.5							
48		66.0							
49		2.7							
50		1.0							
51		1.0							
52		4.7							

BONDAR-CLEGG & COMPANY LTD.

764 BELFAST ROAD, OTTAWA, ONTARIO, K1G 0Z5 PHONE: 237-3110

Geochemical Lab Report

File 71-81

Extraction U_3O_8, ThO_2 Au-HNO_3-HCl Report No. 3817-7

Method XRF FA-AA From Uranerz Exploration & Mining Limited
Project # 71-81

Fraction Used -100 rocks Date November 1, 19 77

SAMPLE NO.		U_3O_8 ppm	ThO_2 ppm	Au ppb				REMARKS
7 ZM 052		255	3493					
081		867	35					

APPENDIX C

FREQUENCY HISTOGRAMS (U) - GEOCHEMICAL DATA

FIG. I

FREQUENCY HISTOGRAM (U) - SOIL SAMPELS

(PROTEROZOIC BASIN)

43 SAMPLE POPULATION

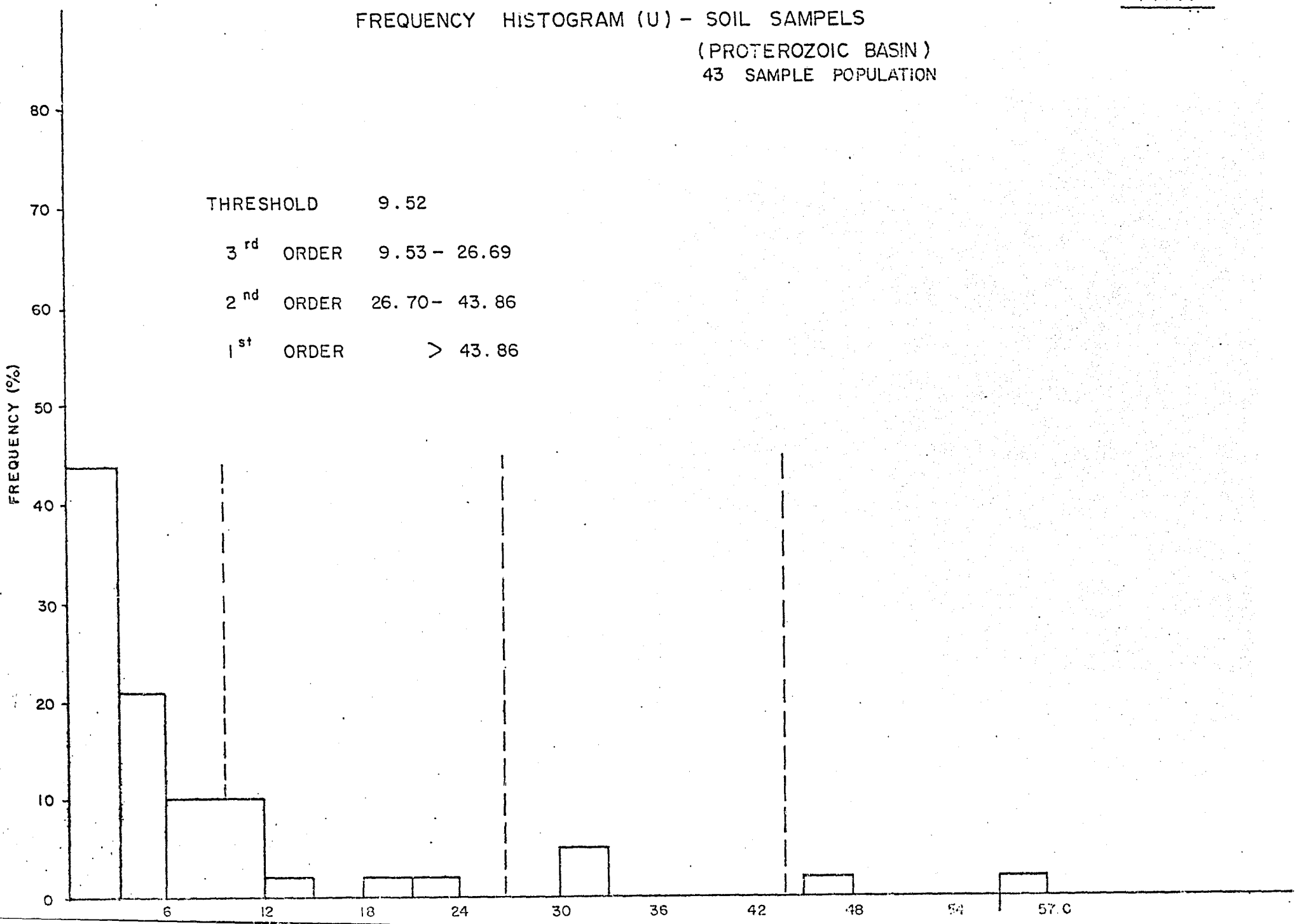


FIG. 2

FREQUENCY HISTOGRAM (U) - STREAM AND LAKE MARGIN SEDIMENT
(PROTEROZOIC BASIN)
47 SAMPLE POPULATION

THRESHOLD: 6.42

3rd ORDER 6.43 – 16.41

2nd ORDER 16.42 – 26.40

1st ORDER > 26.40

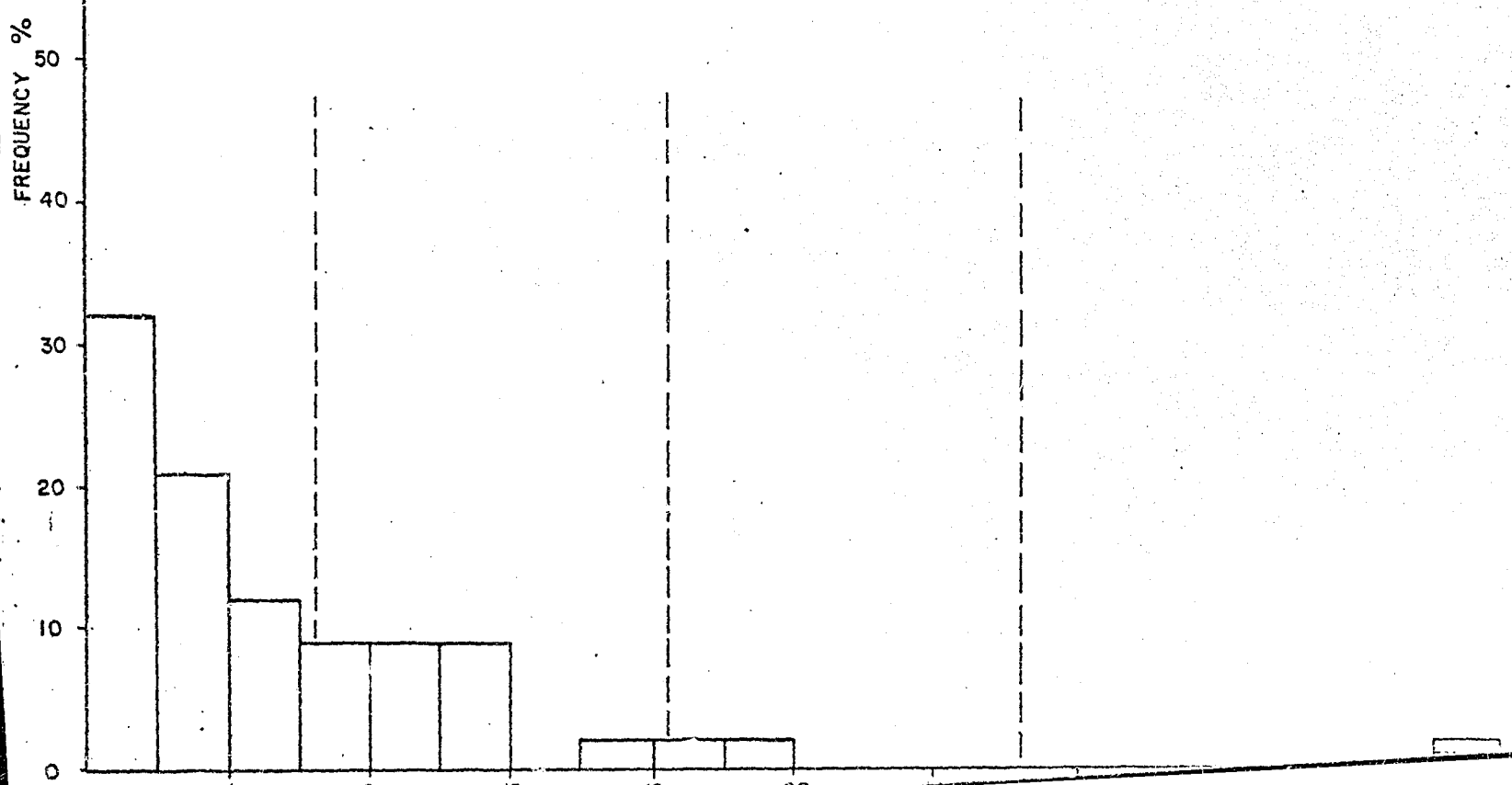
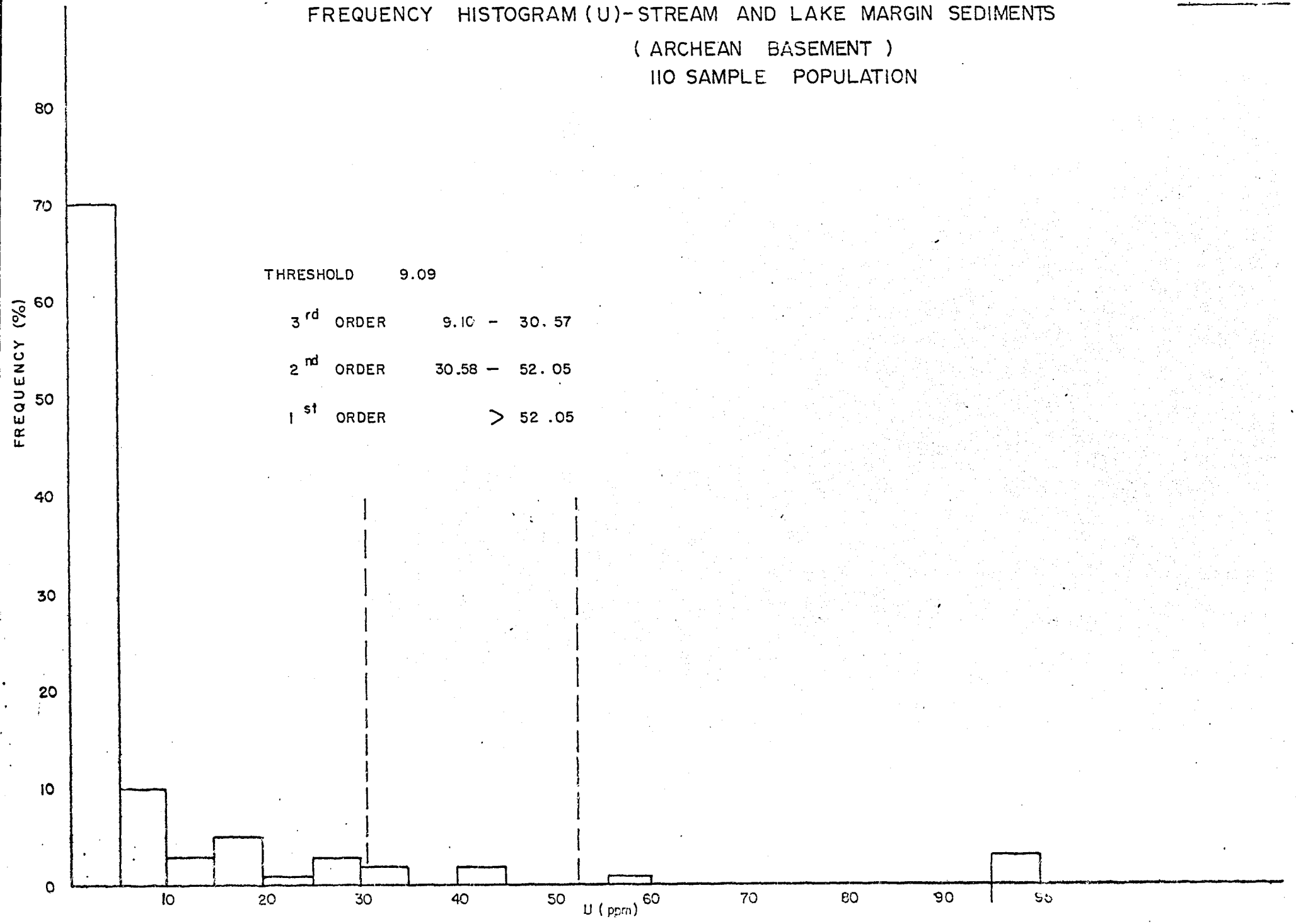


FIG. 3

FREQUENCY HISTOGRAM (U) - STREAM AND LAKE MARGIN SEDIMENTS

(ARCHEAN BASEMENT)

110 SAMPLE POPULATION



APPENDIX D

ALPHAMETER SURVEY - HELGA LAKE (KERVESO GRID)

APPENDIX D

SECTION 1: ALPHAMETER SURVEY - RAW DATA

ALPHAMETER SURVEY - RAW DATA

Line: 1800 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
650 S	268	27/03/77	130	2.04	3960	97	1
625 S	273	27/03/77	110	2.05	54	52	2
600 S	272	27/03/77	140	2.05	1165	568	
575 S	262	27/03/77	130	2.05	2921	1425	
550 S	269	27/03/77	140	2.03	759	374	
525 S	270	27/03/77	140	2.03	399	985	3

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 2000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
650 S	269	26/03/77	110	13.41	4956	370	
625 S	270	26/03/77	150	13.43	60	20	3
600 S	262	26/03/77	140	13.45	1390	103	
575 S	266	26/03/77	120	13.44	1346	100	
550 S	272	26/03/77	140	13.47	1995	148	
525 S	264	26/03/77	160	13.41	1409	105	
500 S	273	26/03/77	150	13.44	642	96	2
475 S	268	26/03/77	130	13.43	26335	98	1
450 S	266	27/03/77	100	2.07	219	106	
425 S	264	27/03/77	160	2.06	1195	580	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 2200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
675 S	270	26/03/77	100	2.24	24	55	3
650 S	272	26/03/77	100	2.24	1283	573	
625 S	264	26/03/77	80	2.22	241	109	
600 S	262	26/03/77	60	2.25	463	206	
575 S	273	26/03/77	140	2.21	176	160	2
550 S	268	26/03/77	130	2.19	4158	95	1
525 S	264	26/03/77	130	2.10	1808	861	
500 S	262	26/03/77	140	2.10	221	105	
475 S	272	26/03/77	150	2.09	212	101	
450 S	268	26/03/77	110	2.07	4309	104	1
425 S	270	26/03/77	120	2.07	35	85	3
400 S	273	26/03/77	140	2.07	83	80	2
375 S	266	26/03/77	140	2.06	206	100	
350 S	269	26/03/77	100	2.05	221	108	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 2400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
625 S	269	26/03/77	100	2.21	1664	753	
600 S	273	26/03/77	120	2.16	84	78	2
575 S	264	26/03/77	120	2.13	292	137	
550 S	266	26/03/77	170	2.13	213	100	
525 S	272	26/03/77	150	2.13	229	108	
500 S	268	26/03/77	140	2.11	4418	105	1
475 S	264	26/03/77	160	2.22	412	186	
450 S	266	26/03/77	160	2.22	222	100	
425 S	268	26/03/77	120	2.21	3833	87	1
400 S	272	26/03/77	120	2.22	451	203	
375 S	273	26/03/77	110	2.21	42	38	2
350 S	262	26/03/77	130	2.20	700	318	
325 S	269	26/03/77	90	2.20	596	271	
300 S	270	26/03/77	150	2.20	29	65	3
275 S	266	26/03/77	150	2.27	229	101	
250 S	269	26/03/77	140	2.25	254	113	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 2600 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
600 S	270	25/03/77	170	1.70	10	30	3
575 S	273	25/03/77	130	1.68	20	24	2
550 S	264	25/03/77	140	1.66	1713	1032	
525 S	266	25/03/77	120	1.65	176	107	
500 S	262	25/03/77	140	1.65	194	118	
475 S	269	25/03/77	150	1.63	246	151	
450 S	272	25/03/77	150	1.62	377	233	
425 S	268	25/03/77	150	1.60	3945	123	1
400 S	268	25/03/77	170	12.88	27666	107	1
375 S	266	25/03/77	150	12.91	1292	100	
350 S	273	25/03/77	110	5.68	0.0000	17605	*
350 S	269	28/03/77	100	12.23	1281	105	ch
325 S	269	25/03/77	150	12.86	1322	103	
300 S	262	25/03/77	120	12.95	1307	101	
275 S	264	25/03/77	140	12.87	1525	118	
250 S	272	25/03/77	120	12.93	1350	104	
225 S	270	25/03/77	130	12.95	92	35	3
200 S	262	26/03/77	150	2.30	276	120	
175 S	270	26/03/77	150	2.26	7	15	3

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 2800 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
475 S	269	25/03/77	130	2.37	357	151	
450 S	272	25/03/77	110	2,18	713	327	
425 S	269	25/03/77	120	2.18	2334	1071	
400 S	262	25/03/77	130	2.20	2128	967	
375 S	264	25/03/77	150	2.25	581	258	
350 S	270	25/03/77	150	2.29	93	205	3
325 S	263	25/03/77	140	1.16	0.0000	86206	*
325 S	262	28/03/77	120	12.25	1282	105	ch
300 S	268	25/03/77	120	12.96	10020	169	1
275 S	273	25/03/77	140	2.90	85	58	2
250 S	262	25/03/77	200	2.85	310	109	
225 S	264	25/03/77	140	2.79	459	165	
200 S	269	25/03/77	130	2.78	842	303	
175 S	272	25/03/77	150	2.79	411	147	
150 S	270	25/03/77	100	2.76	1873	3395	3
125 S	269	25/03/77	140	2.81	543	193	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α-counts	Counts per hour	Remarks
550 S	262	15/03/77	50	4.19	444	106	
500 S	266	15/03/77	80	4.15	422	102	
475 S	272	15/03/77	100	4.16	426	102	
450 S	267	15/03/77	100	3.84	0	0	*
450 S	270	28/03/77	120	1.02	5	25	ch,3
425 S	275	15/03/77	120	3.92	458	117	
400 S	264	15/03/77	120	3.72	396	106	
375 S	268	15/03/77	130	3.69	1531	21	1
350 S	265	15/03/77	120	3.61	391	108	
325 S	270	15/03/77	100	3.52	10	15	3
300 S	271	15/03/77	120	3.41	27326	8013	*
275 S	263	15/03/77	120	3.33	122	37	
250 S	273	15/03/77	120	3.19	65	20	*
250 S	269	28/03/77	120	16.85	1782	106	ch
225 S	263	15/03/77	120	X	X	X	X
225 S	272	28/03/77	120	12.25	1243	101	ch
200 S	271	15/03/77	120	9.26	0.0000	10799	*
200 S	273	28/03/77	120	12,24	11	2	ch,2
175 S	270	15/03/77	120	16.86	124	35	3
150 S	267	15/03/77	100	16.98	0	0	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
150 S	264	28/03/77	160	12.24	1268	104	ch
125 S	265	15/03/77	150	17.10	2559	150	
100 S	273	15/03/77	120	17.14	132	16	2
75 S	264	15/03/77	130	17.01	1763	104	
50 S	266	15/03/77	100	17.12	1769	103	
25 S	268	15/03/77	80	17.03	6180	18	1
B.L.(3000W)	262	15/03/77	70	17.05	1802	106	
25 N	272	15/03/77	70	17.06	1801	106	
50 N	275	15/03/77	70	17.04	1783	105	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
125 N	265	16/03/77	100	2.75	552	201	
100 N	266	16/03/77	70	2.90	442	152	
75 N	268	16/03/77	100	3.01	18083	300	1
50 N	264	16/03/77	100	3.13	395	126	
25 N	263	16/03/77	100	3.24	14	4	
B.L.(3200W)	272	16/03/77	80	3.41	382	112	
25 S	273	13/03/77	80	3.03	138	92	2
50 S	269	16/03/77	120	3.05	537	176	
75 S	275	16/03/77	100	3.08	412	134	
100 S	270	16/03/77	100	3.08	15	25	3
125 S	262	16/03/77	100	3.00	373	124	
150 S	262	16/03/77	100	3.20	372	116	
175 S	273	16/03/77	100	3.29	1046	318	*
200 S	270	16/03/77	150	3.28	12	20	3
225 S	264	16/03/77	150	3.25	370	114	
250 S	269	16/03/77	150	3.24	455	140	
275 S	263	16/03/77	140	3.25	429	132	
300 S	275	16/03/77	130	3.27	34619	10587	*
325 S	266	16/03/77	130	3.28	560	171	
350 S	268	16/03/77	130	3.29	8511	129	4

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
375 S	265	16/03/77	120	3.28	1565	477	*
400 S	272	16/03/77	120	3.31	429	130	
425 S	476	16/03/77	120	0.18	0.0000	555550	*
425 S	272	16/03/77	120	14.45	1570	109	ch
425 S	273	28/03/77	120	1.02	39	38	ch,*
450 S	270	16/03/77	120	14.44	50	15	3
475 S	273	16/03/77	120	14.41	29868	2073	*
500 S	275	16/03/77	120	14.45	14512	1004	*
525 S	265	16/03/77	100	14.37	1563	109	
550 S	263	16/03/77	150	14.39	17135	119	4
575 S	268	16/03/77	140	14.39	4695	16	1
600 S	269	16/03/77	130	14.37	1497	104	
625 S	264	16/03/77	130	14.36	1476	103	
650 S	266	16/03/77	110	14.48	1655	114	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3400W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α-counts	Counts per hour	Remarks
625 S	262	17/03/77	100	X	X	X	X
625 S	262	28/03/77	130	0.75	268	357	ch,*
600 S	273	17/03/77	120	2.95	2797	948	*
575 S	264	17/03/77	100	2.92	326	112	
550 S	266	17/03/77	110	2.92	554	190	
525 S	269	17/03/77	100	2.88	6984	2425	*
500 S	263	17/03/77	110	2.90	25965	8953	*
475 S	262	17/03/77	120	X	X	X	X
475 S	264	28/03/77	110	1.11	206	186	ch
450 S	275	17/03/77	130	X	X	X	X
450 S	269	28/03/77	100	1.11	122	110	ch
425 S	268	17/03/77	140	2.89	46359	802	1
400 S	265	17/03/77	130	2.82	1182	419	*
375 S	272	17/03/77	100	2.82	375	133	
350 S	272	17/03/77	80	3.61	504	140	
325 S	262	17/03/77	120	3.60	370	103	
300 S	27[illegible]	17/03/77	130	3.59	1709	476	*
275 S	273	17/03/77	100	3.55	13730	3868	*
250 S	263	17/03/77	150	3.56	17583	4939	*
225 S	265	17/03/77	120	3.55	540	152	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
200 S	269	17/03/77	130	0.27	0.0000	370367	*
200 S	262	28/03/77	180	1.05	110	105	ch
175 S	266	17/03/77	120	3.58	390	109	
150 S	264	17/03/77	180	3.58	364	102	
125 S	268	17/03/77	110	3.58	5638	79	1
100 S	264	17/03/77	150	15.84	1658	105	
75 S	268	17/03/77	180	15.90	8989	28	1
50 S	273	17/03/77	150	15.88	3274	206	*
25 S	269	17/03/77	110	1.58	0.0000	63291	*
25 S	266	28/03/77	130	1.07	106	99	ch
B.L.(3400W)	263	17/03/77	130	0.02	0.0000	4999950	*
B.L.(3400W)	272	28/03/77	130	1.08	1009	934	ch,*
25 N	266	17/03/77	180	15.98	1720	108	
50 N	275	17/03/77	80	15.97	2023	127	
75 N	262	17/03/77	130	15.95	1642	103	
100 N	265	17/03/77	110	15.92	45542	2861	*
125 N	272	17/03/77	80	15.97	1848	116	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3600 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
200 N	272	18/03/77	90	2.78	503	181	
175 N	265	18/03/77	110	2.86	30027	10499	*
150 N	275	18/03/77	110	2.97	726	244	
125 N	268	18/03/77	140	3.06	6561	107	1
100 N	263	18/03/77	150	3.15	3239	1028	*
75 N	262	18/03/7	130	3.25	338	104	
50 N	264	18/03/77	160	3.39	346	102	
25 N	273	18/03/77	140	3.49	518	296	2
B.L.(3600W)	266	18/03/77	80	3.61	492	136	
25 S	273	18/03/77	120	4.02	718	179	*
50 S	266	18/03/77	120	3.99	709	178	
75 S	262	18/03/77	100	4.00	411	103	
100 S	264	18/03/77	110	3.97	414	104	
125 S	263	18/03/77	140	3.97	4154	105	4
150 S	268	18/03/77	120	3.98	8696	109	1
175 S	275	18/03/77	150	4.00	1349	337	*
200 S	272	18/03/77	170	4.00	465	116	
225 S	265	18/03/77	90	3.04	0.0000	32894	*
225 S	272	28/03/77	100	0.78	738	946	ch,*
250 S	275	18/03/77	150	5.86	0.0000	17065	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3600 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
250 S	270	28/03/77	150	0.78	7	45	ch
275 S	262	18/03/77	100	14.75	1489	101	
300 S	264	18/03/77	110	14.56	1584	109	
325 S	263	18/03/77	100	0.78	0.0000	128204	*
325 S	264	28/03/77	160	0.78	1120	1436	ch
350 S	268	18/03/77	120	X	X	X	X
350 S	266	28/03/77	130	0.77	77	100	ch
375 S	273	18/03/77	120	14.63	226	30	2
400 S	266	18/03/77	120	14.68	29626	2018	*
425 S	265	18/03/77	80	14.64	6287	429	*
450 S	272	18/03/77	80	14.70	1679	114	
475 S	273	19/03/77	150	3.24	4	2	2
500 S	272	19/03/77	70	X	X	X	X
500 S	269	28/03/77	110	0.77	1276	1657	ch
525 S	265	19/03/77	80	3.25	7563	2327	*
550 S	266	19/03/77	130	3.25	3076	946	*
575 S	275	19/03/77	50	3.29	459	140	
600 S	268	19/03/77	70	3.26	16436	252	1
625 S	264	19/03/77	150	3.25	328	101	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

Line: 3800 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
675 S	263	19/03/77	100	3.23	881	273	
650 S	262	19/03/77	120	X	X	X	X
650 S	266	28/03/77	150	0.99	98	99	ch
625 S	263	19/03/77	80	3.29	621	189	
600 S	264	19/03/77	130	3.29	677	206	
575 S	268	19/03/77	130	X	X	X	X
575 S	273	28/03/77	160	0.98	43	88	ch,2
550 S	273	19/03/77	140	3.28	155	94	2
525 S	275	19/03/77	110	3.03	0.0000	33003	*
525 S	262	28/03/77	90	1.00	569	569	ch,*
500 S	262	19/03/77	120	3.25	338	104	
475 S	266	19/03/77	120	3.26	26409	8101	*
450 S	272	19/03/77	160	3.27	580	177	
425 S	265	19/03/77	120	3.25	3719	1144	*
400 S	274	19/03/77	120	2.84	284	100	
375 S	476	19/03/77	120	2.75	316	115	
350 S	274	19/03/77	120	7.60	0.0000	13158	*
350 S	264	28/03/77	120	0.94	821	873	ch
325 S	275	19/03/77	140	15.82	3127	198	
300 S	273	19/03/77	140	15.79	133	16	2

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3800 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
275 S	476	19/03/77	110	X	X	X	X
275 S	272	28/03/77	130	0.95	597	628	ch,*
250 S	264	19/03/77	170	15.79	1615	102	
225 S	263	19/03/77	120	0.39	0.0000	256408	*
225 S	270	28/03/77	130	0.87	269	1545	ch,3
200 S	266	19/03/77	110	15.88	27639	1740	*
175 S	262	19/03/77	180	15.90	19024	1196	
150 S	272	19/03/77	130	15.92	2392	150	
125 S	265	19/03/77	100	15.87	2257	142	
100 S	268	19/03/77	150	15.92	34605	109	1
75 S	262	20/03/77	140	3.05	309	101	
50 S	266	20/03/77	150	3.01	13810	4588	*
25 S	275	20/03/77	130	3.01	1401	46[illegible]	*
B.L.(3800W)	476	20/03/77	100	0.0	0.0000	1111100	*
B.L.(3800W)	269	28/03/77	130	0.85	89	105	ch
25 N	273	20/03/77	150	2.98	115	78	2
50 N	263	20/03/77	130	2.97	2840	956	*
75 N	264	20/03/77	180	X	X	X	X
75 N	273	28/03/77	140	0.85	4	10	ch,2
100 N	274	20/03/77	100	2.97	45348	15269	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 3800 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
125 N	268	20/03/77	130	2.96	2964	50	1
150 N	265	20/03/77	120	2.95	3752	1272	*
175 N	272	20/03/77	70	2.97	585	197	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
250 N	265	20/03/77	40	3.12	7268	2329	*
225 N	274	20/03/77	140	3.23	45984	14237	*
200 N	272	20/03/77	110	3.30	647	196	
175 N	268	20/03/77	130	3.39	8708	128	1
150 N	476	20/03/77	150	3.49	36	10	
125 N	264	20/03/77	100	3.56	431	121	
100 N	275	20/03/77	110	3.66	5346	1461	*
75 N	263	20/03/77	100	3.75	5835	1556	*
50 N	262	20/03/77	110	3.85	771	200	
25 N	266	20/03/77	130	3.99	10364	2597	*
B.L.(4000W)	273	20/03/77	180	4.12	298	144	2
25 S	263	20/03/77	130	14.82	4755	321	*
50 S	273	20/03/77	120	14.84	597	80	2
75 S	275	20/03/77	120	9.41	0.0000	10627	*
75 S	266	28/03/77	150	0.86	86	100	ch
100 S	262	20/03/77	120	14.85	1510	102	
125 S	476	20/03/77	130	8.86	0.0000	11287	*
125 S	273	28/03/77	140	0.84	63	150	ch,2
150 S	274	20/03/77	110	11.51	0.0000	8688	*
150 S	269	28/03/77	130	0.83	247	298	ch

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

Line: 4000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
175 S	272	20/03/77	100	14.88	1623	109	
200 S	264	20/03/77	140	14.83	1528	103	
225 S	268	20/03/77	130	0.08	0.0000	1249988	*
225 S	264	28/03/77	110	0.94	703	748	ch
250 S	266	20/03/77	150	14.91	0.0000	6707	*
250 S	269	28/03/77	140	0.94	116	123	ch
275 S	265	20/03/77	120	14.90	1932	130	
300 S	266	20/03/77	160	0.01	0.0000	9999900	*
300 S	273	28/03/77	170	0.95	230	484	ch,2
325 S	265	21/03/77	130	3.38	2309	683	*
350 S	264	21/03/77	160	3.38	1068	316	
375 S	272	21/03/77	130	3.39	489	144	
400 S	476	21/03/77	110	0.01	0.0000	9999900	*
400 S	266	28/03/77	100	0.95	95	100	ch
425 S	268	21/03/77	90	1.02	0.0000	98038	*
425 S	270	28/03/77	110	0.94	10	55	ch,3
450 S	263	21/03/77	100	3.40	2660	78	4
475 S	273	21/03/77	130	3.39	129	38	
500 S	262	21/03/77	120	3.40	348	102	
525 S	274	21/03/77	90	3.40	1585	466	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4000 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
550 S	275	21/03/77	130	3.39	29893	8818	*
575 S	262	21/03/77	120	4.45	1216	273	
600 S	274	21/03/77	110	3.93	0.0000	25445	*
600 S	262	28/03/77	100	0.95	614	646	ch
625 S	275	21/03/77	130	4.46	449	101	
650 S	264	21/03/77	120	4.41	468	106	
675 S	263	21/03/77	100	X	X	X	X
675 S	272	28/03/77	160	0.94	1254	1334	ch,*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
975 S	271	21/03/77	100	4.14	413	100	
950	269	21/03/77	120	4.20	698	166	
925 S	272	21/03/77	130	4.29	578	135	
900 S	273	21/03/77	130	4.31	114	52	2
875 S	265	21/03/77	100	4.33	2354	544	*
850 S	268	21/03/77	120	4.34	11714	135	1
825 S	271	21/03/77	120	2.07	0.0000	48309	*
825 S	266	28/03/77	170	0.91	90	99	ch
800 S	272	21/03/77	100	14.49	2024	140	
775 S	269	21/03/77	110	14.41	2971	206	
750 S	273	21/03/77	100	14.41	1627	226	2
725 S	263	21/03/77	130	14.41	3375	234	
700 S	264	21/03/77	130	14.40	1477	103	
675 S	275	21/03/77	150	14.47	1334	92	
650 S	262	21/03/77	150	X	X	X	X
650 S	269	28/03/77	160	0.92	364	396	ch
625 S	268	21/03/77	90	14.44	74040	256	1
600 S	265	21/03/77	90	0.02	0.0000	4999950	*
600 S	262	28/03/77	140	0.90	446	496	ch,*
575 S	274	21/03/77	50	0.04	0.0000	2499975	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	∝ -counts	Counts per hour	Remarks
575 S	272	28/03/77	150	0.90	206	229	ch
550 S	262	22/03/77	120	3.80	392	103	
525 S	274	22/03/77	110	0.00	0.0000	-	*
525 S	270	28/03/77	100	0.90	253	1405	ch,3
500 S	265	22/03/77	120	3.79	46540	12280	*
475 S	268	22/03/77	130	0.28	0.0000	357139	*
475 S	272	28/03/77	90	0.90	662	736	ch,*
450 S	275	22/03/77	120	3.79	1434	375	*
425 S	263	22/03/77	110	3.71	94	25	
400 S	273	22/03/77	130	3.71	18	10	2
375 S	264	22/03/77	150	3.71	901	243	
350 S	272	22/03/77	130	3.70	522	141	
325 S	269	22/03/77	160	3.69	886	240	
300 S	271	22/03/77	130	0.29	0.0000	344824	*
300 S	262	28/03/77	100	0.90	851	946	ch,*
275 S	269	22/03/77	160	3.66	1017	278	
250 S	272	22/03/77	140	3.67	501	137	
225 S	264	22/03/77	130	3.65	439	120	
200 S	275	22/03/77	140	3.66	556	152	
175 S	268	22/03/77	150	0.67	0.0000	149252	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4200 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
175 S	264	28/03/77	130	0.88	2251	2558	ch
150 S	273	22/03/77	120	3.65	10	6	2
125 S	262	22/03/77	170	3.65	1886	517	
100 S	263	22/03/77	120	3.66	57	16	
75 S	265	22/03/77	140	3.66	9081	2481	*
50 S	270	22/03/77	130	3.62	290	400	3
25 S	262	22/03/77	120	14.85	1515	102	
B.L.(4200W)	270	22/03/77	120	14.85	43	15	3
25 N	263	22/03/77	160	14.83	477	32	
50 N	265	22/03/77	100	14.83	2023	136	
75 N	273	22/03/77	170	14.78	174	24	2
100N	264	22/03/77	120	14.74	1682	114	
125 N	275	22/03/77	150	14.81	1552	105	
150 N	269	22/03/77	130	14.74	2692	183	
175 N	272	22/03/77	120	14.83	1627	110	
200 N	273	23/03/77	130	3.39	561	165	*
225 N	272	23/03/77	80	3.42	485	142	
250 N	275	23/03/77	180	3.42	566	165	
275 N	269	23/03/77	120	3.39	1088	321	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
425 N	273	23/03/77	110	3.81	717	188	*
400 N	272	22/03/77	110	3.96	484	122	
375 N	275	23/03/77	120	4.05	392	97	
350 N	269	23/03/77	130	4.12	650	158	
325 N	263	23/03/77	140	4.21	498	118	
300 N	270	23/03/77	100	4.31	15	15	3
275 N	262	23/03/77	80	4.40	851	193	
250 N	265	23/03/77	120	4.47	4070	911	*
225 N	264	23/03/77	100	4.54	838	185	
200 N	265	23/03/77	170	2.67	17923	6713	*
175 N	270	23/03/77	100	3.32	8	10	3
150 N	264	23/03/77	170	3.33	511	153	
125 N	262	23/03/77	140	3.35	376	112	
100 N	263	23/03/77	140	3.32	101	30	
75 N	264	23/03/77	130	14.91	1513	101	
50 N	263	23/03/77	150	13.57	0.0000	7369	*
50 N	272	28/03/77	130	0.93	344	370	ch,*
25 N	265	23/03/77	130	0.63	0.0000	158729	*
25 N	262	28/03/77	120	1.00	835	835	ch,*
B.L. (4400W)	275	23/03/77	170	15.01	1855	124	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
25 S	269	23/03/77	120	14.83	1822	123	
50 S	273	23/03/77	140	15.00	11671	778	*
75 S	272	23/03/77	150	14.85	1745	118	
100 S	262	23/03/77	160	14.95	1514	101	
125 S	270	23/03/77	70	14.99	28	10	3
150 S	263	24/03/77	90	3.58	13870	3874	*
175 S	269	24/03/77	110	3.61	458	127	
200 S	264	24/03/77	90	3.60	588	163	
225 S	270	24/03/77	120	3.61	76	105	3
250 S	272	24/03/77	120	3.59	688	192	
275 S	265	24/03/77	120	3.57	69644	19508	*
300 S	275	24/03/77	80	0.06	0.0000	1666650	*
300 S	269	28/03/77	80	0.93	142	153	ch
325 S	262	24/03/77	150	3.55	361	102	
350 S	273	24/03/77	150	3.56	212	120	2
375 S	275	24/03/77	150	0.05	0.0000	1999980	*
375 S	273	28/03/77	140	0.93	14	30	ch,2
400 S	273	24/03/77	140	4.37	3662	838	*
425 S	264	24/03/77	130	4.33	1074	248	
450 S	263	24/03/77	150	3.55	0.0000	28169	*

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
450 S	266	28/03/77	90	0.92	98	107	ch
475 S	262	24/03/77	170	4.30	445	103	
500 S	270	24/03/77	130	4.29	13	15	3
525 S	272	24/03/77	120	4.27	460	108	
550 S	269	24/03/77	160	4.24	434	102	
575 S	265	24/03/77	150	2.80	0.0000	35714	*
575 S	270	28/03/77	150	0.92	10	55	ch,3
600 S	262	24/03/77	130	14.55	1481	102	
625 S	263	24/03/77	170	1.58	0.0000	63291	*
625 S	264	28/03/77	120	0.91	148	163	ch
650 S	264	24/03/77	140	14.53	1502	103	
675 S	269	24/03/77	110	14.53	1765	121	
700 S	275	24/03/77	160	0.07	0.0000	1428557	*
700 S	273	28/03/77	100	0.95	122	256	ch,2
725 S	270	24/03/77	140	14.62	37	15	3
750 S	272	24/03/77	140	14.66	1530	104	
775 S	265	25/03/77	150	0.13	0.0000	769223	*
775 S	264	28/03/77	90	0.94	275	293	ch
800 S	273	25/03/77	140	0.21	0.0000	476186	*
800 S	270	28/03/77	90	0.94	222	1180	ch,3

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

ALPHAMETER SURVEY - RAW DATA

Line: 4400 W

Station	Alpha-meter (serial no.)	Date	Snow dept (cm.)	Time (hours)	α -counts	Counts per hour	Remarks
825 S	270	25/03/77	150	2.45	11	20	3
850 S	264	25/03/77	140	2.43	605	249	
875 S	269	25/03/77	130	2.42	410	169	
900 S	262	25/03/77	120	2.40	272	113	

* :Instrument malfunction
0.0000 :Instrument overflow
X :Count lost due to incorrectly positioned magnet
ch :Check

CORRECTION ON RAW DATA

1. Divided by 20
2. Multiplied by 2
3. Multiplied by 5
4. Divided by 10

APPENDIX D

SECTION 2 : Geophysical Report

URANERZ EXPLORATION & MINING LTD.

OTISH MOUNTAINS EAST

PROJECT NO. 71-81

KERVESO LAKE AREA

GEOPHYSICAL REPORT 1977

ALPHAMETER SURVEY

Prepared by:

Dr. M. Leppin, UEM Montreal

1. ALPHAMETER SURVEY

During March 1977 an alphameter (radon gas meter) survey was carried out at Kerveso Lake in the area between lines 4400 W and 1800 W from 1000 S to 400 N respectively from 600 S to 500 S (see Map 2).

This triangular area was postulated to be the potential source area for the uranium-mineralized granite boulders. 15 alphameters (Alpha Nuclear) were employed for the survey (station interval = 25 m, integration time = 3 hours). However, due to malfunctions (i.e. moisture on the cup's walls), the number of alphameters being used varied from 5 to 13. A total of 380 readings were taken, 54 stations were rechecked on March 28, due to possible instrument malfunctions. The raw-data (counts per hour) is shown in Map 8. The mean value of the readings is about 100 counts per hour. Scattered in the area west of line 3000 W, there are several high readings (>10 000 counts per hour), however, most of these anomalies seem to be caused by instrument malfunctions. For example, three high values on line 4400 W (250 N, 200 N, 275 S) are measured by the same instrument, Ser. No. 265. In general, between March 15 and March 24, the instruments Ser. No. 265,273, 275, 266, 274, 263 frequently show values higher than the average. On March 28, the instruments Ser. No. 262, 272 show rather high readings. For that reason, readings higher than 300 counts per hour from these instruments are not taken into account. The remaining data is shown in Map 3. Readings in the range beween 300 and 1000 counts per hour and those higher than 1000 counts per hour are indicated by hachured areas. Most of the radon gas anomalies are located in two areas, west of line 3400 W and east of line 2800 W. West of line 3400 W a continuous anomalous zone stretches from WSW to ENE (from line 4200 W, 100 S to line 3400 W, 400 S). The highest reading is 2558 counts per hour (4200 W, 175 S). The axis of the anomaly correlates with the axis of the airborne spectrometer anomaly U1 (U-channel, 18-24 c/sec; see Map 8.). The direction of the zone corresponds to the direction of the main geological fractures. East of line 2800 W, more or less isolated, there are several anomalies. The highest reading is 3395 counts per hour (2800 W, 150 S). The anomalies on line 2400 W, 625 S and on line 2200 W, 525 S are correlated with the airborne spectrometer anomaly U2 (U-channel, 18-24 c/sec:, see Map 8).

2. CONCLUSIONS

Most of the radon gas anomalies are concentrated in two areas, west of line 3400 W and east of line 2800 W. The main anomaly, west of line 3400 W, stretching WSW - ENE, correlates with the airborne spectrometer anomaly and with the direction of the main

geological fractures. However, due to malfunctions the data is questionable. If further geophysical work is proposed, an alphameter survey should be carried out during summertime (less instrument malfunctions) in the rectangular area between line 2800 W and line 1800 W from 0 to 700 S. This survey would help to get detail information on the airborne spectrometer anomaly U2.

APPENDIX E

GEOPHYSICAL SURVEY- HELGA LAKE (KERVESO GRID)

HORIZONTAL SHOOTBACK EM - RAW DATA

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2400W B.L. (2400N)						
25S	4	-4	0	3	-2	1
50S	-2	0	-2	0	0	0
75S	3	-3	0	2	-2	0
100S	8	-8	0	9	-8	1
125S	8	-7	1	12	-8	4
150S	7	-5	2	7	-7	0
175S	5	-3	2	4	-4	0
200S	4	-3	1	4	-3	1
225S	6	-3	3	8	-5	3
250S	10	-6	4	9	-8	1
275S	7	-7	0	8	-7	1
300S	11	-8	3	10	-7	3
325S	10	-8	2	9	-8	1
350S	10	-9	1	12	-10	2
375S	9	-9	0	9	-9	0
400S	8	-8	0	11	-8	3
425S	6	-6	0	6	-5	1
450S	4	-1	3	4	-3	1
475S	5	-3	0	5	-4	1
500S	6	-4	2	5	-5	0
525S	3	-3	0	4	-4	0
550S	-2	2	0	-2	3	1
575S	-4	5	1	-5	4	-1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2400W						
600S	-4	2	-2	-2	2	0
625S	-4	6	2	-4	4	0
650S	-4	4	0	-4	4	0
675S	-4	4	0	-3	4	1
700S	0	0	0	0	1	1
725S	0	-2	-2	3	-2	1
750S	2	2	4	4	0	4
775	-2	2	0	-2	1	-1
800S	-4	3	-1	-6	3	-3
825	-1	4	3	-3	2	-1
850S	-2	2	0	-2	3	1
875S	-2	2	0	-2	0	-2
900S	0	3	3	-3	5	2
925S	-1	1	0	-1	0	-1
950S	-2	3	1	-1	2	1
975S	-3	3	0	-2	5	3
1000S	-2	3	1	-3	3	0
1025S	-1	3	2	-1	2	1
LINE 2600W						
B.L.(2600W)	8	-6	2	9	-6	3
25S	12	-12	0	12	-12	0
50S	10	-10	0	10	-9	1
75S	4	-4	0	5	-5	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2600W						
B.L. (2600W)						
100S	5	-4	1	5	-3	2
125S	0	1	1	1	0	1
150S	-4	5	1	-6	6	0
175S	-9	11	2	-7	12	5
200S	-7	9	2	-6	10	4
225S	-8	10	2	-7	10	3
250S	-10	13	3	-11	13	2
275S	-12	13	1	-11	12	1
300S	-2	5	3	-2	3	1
325S	0	3	3	0	3	3
350S	0	0	0	1	-2	-1
375S	-6	9	3	-8	9	1
400S	-7	8	1	-6	8	2
425S	-8	9	1	-6	7	1
450S	-6	7	1	-6	6	0
475S	-4	5	1	-3	5	2
500S						
525S	6	-1	5	5	-2	3
550S	6	-4	2	6	-4	2
575S	5	-8	-3	5	-7	-2
600S	6	-6	0	5	-5	0
625S	1	-2	-1	5	-5	0
650S						

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2600						
675S	1	-1	0	-1	0	-1
700S	-3	3	0	-6	3	-3
725S	-2	3	1	-1	2	1
750S	-1	1	0	-2	3	1
775S	-1	2	1	-1	3	2
800S	-2	2	0	0	2	2
825S	-1	2	1	-1	3	2
850S	0	2	2	-1	3	2
875S	-1	3	2	-1	4	3
900S	-3	3	0	0	2	2
925S	-3	2	-1	-1	3	2
950S	-1	4	3	-1	3	2
975S	-3	3	0	-2	3	1
1000S	-3	3	0	-1	2	1
1025S	-2	3	1	-2	2	0
1050S	0	3	3	-2	3	1
1075S	-4	4	0	-4	4	0
1100S	-4	6	2	-4	6	2
1125S	-5	5	0	-5	5	0
1150S	-3	3	0	-3	3	0
LINE 2800W						
B.L. (2800W)	0	0	0	0	0	0
25S	1	0	1	2	0	2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2800W						
50S	9	-5	4	9	-6	3
75S	6	-5	1	6	-4	2
100S	3	0	3	3	-1	2
125S	6	-4	2	7	-6	1
150S	7	-7	0	10	-7	3
175S	10	-10	0	10	-8	2
200S	10	-9	1	10	-9	1
225S	12	-11	1	11	-11	0
250S	12	-12	0	10	-11	-1
275S	12	-12	0	14	-12	2
300S	10	-6	4	10	-6	4
325S	11	-10	1	11	-10	1
350S	7	-6	1	7	-6	1
375S	13	-11	2	13	-10	3
400S	10	-10	0	13	-12	1
425S	13	-12	1	12	-12	0
450S	8	-8	0	9	-9	0
475S	6	-6	0	11	-10	1
500S	0	2	2	-1	0	-1
525S	1	0	1	0	2	2
550S	0	1	1	-1	0	-1
575S	-1	0	-1	-1	0	-1
600S	0	0	0	0	0	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 2800W						
625S	-1	0	-1	0	0	0
650S	0	0	0	0	0	0
675S	0	0	0	0	0	0
700S	0	0	0	0	0	0
725S	0	0	0	0	0	0
750S	0	0	0	0	0	0
775S	-2	-2	-4	-2	0	-2
800S	-2	0	-2	-2	0	-2
825S	-3	0	-3	-2	0	-2
850S	-2	0	-2	0	1	1
875S	0	0	0	-2	-2	-4
900S	-2	2	0	-2	0	-2
925S	0	-2	-2	0	-1	-1
950S	0	-1	-1	-2	0	-2
975S	-1	0	-1	-1	0	-1
1000S	-3	2	-1	-3	0	-3
1025S	-2	0	-2	-1	1	0
1050S	-1	0	-1	0	2	2
1075S	-1	-2	-3	0	0	0
1100S	0	0	0	0	0	0
1125S	0	-2	-2	1	-2	-1
1150S						

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3000W						
B.L.(3000W)	0	4	4	-4	4	0
25S	0	2	2	0	2	2
50S	4	-2	2	2	-2	0
75S	7	-6	1	6	-4	2
100S	6	-7	-1	5	-4	1
125S	9	-8	1	9	-8	1
150S	9	-13	-4	9	-10	-1
175S	11	-10	1	11	-10	1
200S	5	-6	-1	7	-6	1
225S	3	-4	-1	4	-3	1
250S	7	-3	4	3	-1	2
275S	10	-8	2	8	-9	-1
300S	9	-7	2	9	-8	1
325S	7	-6	1	9	-6	3
350S	3	-1	2	5	-2	3
375S	10	-8	2	8	-7	1
400S	12	-11	1	11	-10	1
425S	12	-11	1	12	-10	2
450S	12	-10	2	11	-9	2
475S	6	-9	-3	9	-9	0
500S	3	0	3	7	-2	5
525S	-1	2	1	0	2	2
550S	-1	2	1	-1	2	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 3000W						
600S	1	2	3	-2	0	-2
625S	-1	3	2	-1	2	1
650S	-2	3	1	-2	1	-1
675S	-2	2	0	-1	1	0
700S	-2	1	-1	-2	0	-2
725S	-3	0	-3	-1	2	1
750S	0	1	1	-2	3	1
775S	0	4	4	-2	2	0
800S	-2	2	0	-2	2	0
825S	-2	2	0	0	1	1
850S	-3	4	1	-2	2	0
875S	-4	4	0	-3	3	0
900S	-2	2	0	-2	1	-1
925S	-2	2	0	-3	1	-2
950S	-3	5	2	-4	3	-1
975S	-3	4	1	-3	4	1
1000S	-3	4	1	-3	4	1
1025S	-2	3	1	-2	3	1
1050S	-1	1	0	-1	2	1
1075S	-2	0	-2	-2	2	0
1100S						
LINE 3200W						
B.L.(3200W)	-11	10	-1	-11	14	3
25S	-6	10	4	-3	8	5

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 3200W						
50S	-5	9	4	-3	7	4
75S	-6	8	2	-6	8	2
100S	-8	10	2	-8	10	2
125S	-10	10	0	-10	11	1
150S	-10	10	0	-10	10	0
175S	-13	15	2	-14	15	1
200S	-13	14	1	-14	14	0
225S	-8	8	0	-8	7	-1
250S	-6	8	2	-8	8	0
275S	-5	6	1	-6	6	0
300S	-7	8	1	-7	8	1
325S	-9	9	0	-10	10	0
350S	-6	8	2	-8	8	0
375S	-3	12	4	-11	11	0
400S	-5	6	1	-5	6	1
425S	-7	6	-1	-7	7	0
450S	-2	5	3	-2	4	2
475S	-3	6	3	-3	4	1
500S	-4	8	4	-4	8	4
525S	-6	8	2	-6	7	1
550S	-7	8	1	-5	8	3
575S	0	1	1	3	0	3
600S	0	3	3	4	1	5

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3200W						
625S	-4	5	1	-5	5	0
650S	-8	10	2	-7	8	1
675S	-7	8	1	-5	5	0
700S	-6	6	0	-5	4	-1
725S	-3	3	0	-3	3	0
750S	-3	4	1	-3	2	-1
775S	-4	5	1	0	3	3
800S	-1	2	1	-2	3	1
825S	-2	2	0	-3	3	0
850S	-3	3	0	-3	2	-1
875S	-4	3	-1	-3	4	1
900S	-3	3	0	-3	2	-1
925S	0	2	2	-2	3	1
950S	-1	4	3	-2	2	0
975S	-1	3	2	-2	3	1
1000S	-4	2	-2	-2	4	2
1025S	-2	3	1	-2	2	0
1050S	-3	0	-3	-2	1	-1
1075S						
LINE 3400W						
1025S	-2	3	1	-4	4	0
1000S	-2	6	4	-4	8	4
975S	-2	4	2	-4	5	1
950S	0	2	2	-2	3	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3400W						
925S	-2	2	0	-4	2	-2
900S	-2	4	2	-2	2	0
875S	0	3	3	-4	4	0
850S	0	0	0	-2	2	0
825S	0	0	0	-2	2	0
800S	0	0	0	0	0	0
775S	0	3	3	0	2	2
750S	2	0	2	0	0	0
725S	0	1	1	-1	1	0
700S	-1	4	3	0	4	4
675S	0	0	0	2	-1	1
650S	4	-3	1	5	-5	0
625S	6	-8	-2	5	-5	0
600S	2	-4	-2	0	-2	-2
575S	0	0	0	0	0	0
550S	-2	3	1	-2	3	1
525S	-1	2	1	-3	3	0
500S	-2	6	4	-4	6	2
475S	0	2	2	-2	2	0
450S	0	-2	-2	2	-2	0
425S	4	-8	-4	6	-8	-2
400S	12	-12	0	10	-12	-2
375S	10	-8	2	10	-10	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3400W						
350S	10	-8	2	10	-9	1
325S	10	-10	0	9	-10	-1
300S	8	-8	0	10	-10	0
275S	12	-12	0	11	-14	-3
250S	6	-5	1	6	-5	1
225S	10	-8	2	11	-12	-1
200S	3	-4	-1	5	-4	1
175S	12	-11	1	11	-10	1
150S	2	-2	0	2	-3	-1
125S	10	-4	6	5	-5	0
100S	5	-7	-2	8	-7	1
75S	12	-13	-1	13	-14	-1
50S	12	-14	-2	12	-13	-1
25S	8	-8	0	7	-7	0
B.L.(3400W)	2	-3	-1	2	-2	0
25N	0	0	0	-2	3	1
50N	6	-7	-1	7	-7	0
75N	10	-8	2	10	-8	2
100N	6	-6	0	7	-7	0
125N	0	0	0	-2	2	0
150N	1	-1	0	0	-1	-1
175N	10	-10	0	12	-10	2
200N	8	-9	-1	9	-8	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3400W						
225N	12	-10	2	12	-11	1
250N	8	-8	0	7	-7	0
275N	6	-6	0	6	-5	1
300N	0	5	5	-4	6	2
325N	-6	12	6	-9	12	3
350N	-12	12	0	-14	12	-2
375N	-12	12	0	-10	11	1
400N	-10	8	-2	-8	8	0
425N	4	-3	1	4	-5	-1
450N	12	-12	0	12	-12	0
475N	4	-3	1	3	-3	0
500N	4	-1	3	5	-5	0
525N						
LINE 3600W						
625N	3	-3	0	4	-4	0
600N	0	0	0	0	0	0
575N	-2	3	1	-3	3	0
550N	0	1	1	0	0	0
525N	5	-3	2	1	-3	-2
500N	4	-4	0	5	-5	0
475N	12	-12	0	12	-15	-3
450N	16	-16	0	15	-16	-1
425N	14	-13	1	14	-15	-1
400N	2	-3	-1	4	-3	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 3600W						
37 5N	-2	4	2	-2	3	1
35 0N	-2	0	-2	0	4	4
32 5N	2	-1	1	0	0	0
30 0N	4	-5	-1	4	-3	1
27 5N	4	-4	0	6	-3	3
25 0N	0	-2	-2	3	-3	0
22 5N	-4	3	-1	0	6	6
20 0N	-3	3	0	0	3	3
17 5N	-6	6	0	-6	10	4
15 0N	-10	13	3	-12	13	1
12 5N	-9	13	4	-12	13	1
10 0N	-9	6	-3	-5	8	3
25N	-14	13	-1	-10	12	2
50N	-11	10	-1	-10	11	1
25N	-9	10	1	-8	10	2
B.L. (3600W)	-1	1	0	-1	1	0
25S	-9	8	-1	-6	8	2
50S	-6	8	2	-5	8	3
75S	-5	6	1	-8	7	-1
100S	-4	4	0	-2	4	2
125S	-7	9	2	-6	6	0
150S	-15	16	1	-16	17	1
175S	-16	16	0	-17	17	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3600W						
200S	-16	19	3	-15	18	3
225S	-10	9	-1	-9	9	0
250S	-10	9	-1	-12	10	-2
275S	-8	10	2	-8	10	2
300S	-10	11	1	-9	11	2
325S	-7	8	1	-4	7	3
350S	-2	1	-1	-2	0	-2
375S	-4	6	2	-4	5	1
400S	-6	6	0	-5	6	1
425S	-4	4	0	-4	4	0
450S	-3	6	3	-3	4	1
475S	-1	2	1	0	3	3
500S	-4	4	0	-4	4	0
525S	-8	10	2	-7	8	1
550S	-5	7	2	-6	6	0
575S	-5	6	1	-5	6	1
600S	-2	4	2	-3	4	1
625S	-3	2	-1	-2	3	1
650S	-2	2	0	-2	2	0
675S	2	0	2	0	0	0
700S	-2	4	2	-2	6	4
725S	-5	6	1	-4	6	2
750S	-5	8	3	-4	6	2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 3600W						
775S	0	2	2	0	3	3
800S	-2	2	0	1	2	3
825S	-3	2	-1	0	1	1
850S	0	0	0	0	2	2
875S	0	1	1	0	0	0
900S						
925S	0	1	1	1	-1	0
950S	0	-2	-2	4	-5	-1
975S	5	-5	0	4	-6	-2
1000S	2	-4	-2	0	-4	-4
1025S	-1	-3	-4	-1	0	-1
1050S	-1	0	-1	0	0	0
1075S						
LINE 3800W						
1075S	-1	-3	-4	-1	-3	-4
1050S	0	-2	-2	1	-2	-1
1025S	-4	0	-4	-5	1	-4
1000S	-4	4	0	-4	4	0
975S	-2	1	-1	-3	3	0
950S	-5	5	0	-3	5	2
925S	-6	6	0	-6	5	-1
900S	-6	6	0	-6	6	0
875S	-8	6	-2	-5	7	2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3800W						
850S	-2	3	1	-1	4	3
825S	-2	0	-2	-1	1	0
800S	-3	0	-3	0	4	4
775S	-2	1	-1	0	0	0
750S	0	0	0	-2	0	-2
725S	0	-1	-1	0	0	0
700S	2	-4	-2	6	-5	1
675S	5	-7	-2	3	-4	-1
650S	4	-5	-1	4	-6	-2
625S	0	0	0	-4	3	-1
600S	-4	4	0	-6	7	1
575S	-5	4	-1	-8	6	-2
550S	-3	4	1	-3	3	0
525S	-1	1	0	0	1	1
500S	2	2	4	2	0	2
475S	4	-4	0	3	-4	-1
450S	4	-5	-1	6	-6	0
425S	3	-3	0	5	-4	1
400S	2	-3	-1	4	-4	0
375S	5	-4	1	2	-4	-2
350S	2	-6	-4	3	-7	-4
325S	10	-10	0	8	-10	-2
300S	12	-12	0	11	-11	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3800W						
275S	11	-10	1	10	-9	1
250S	11	-11	0	12	-12	0
225S	9	-10	-1	10	-10	0
200S	11	-10	1	13	-12	1
175S	6	-6	0	7	-6	1
150S	2	-2	0	4	-2	2
125S	6	-7	-1	9	-8	1
100S	5	-4	1	4	-4	0
75S	2	-3	-1	6	-5	1
50S	4	-7	-3	9	-9	0
25S	2	-2	0	2	-3	-1
B.L. (3800W)	4	-4	0	5	-5	0
25N	0	0	0	2	-1	1
50N	5	-6	-1	6	-6	0
75N	9	-10	-1	10	-5	5
100N	10	-12	-2	14	-12	2
125N	10	-11	-1	11	-10	1
150N	10	-10	0	11	-10	1
175N	10	-9	1	9	-9	0
200N	5	-4	1	8	-6	2
225N	8	-9	-1	7	-9	-2
250N	7	-7	0	8	-8	0
275N	5	-6	-1	6	-6	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 3800W						
300N	1	-1	0	3	-3	0
325N	-3	4	1	-6	5	-1
350N	-2	7	5	-2	6	4
375N	1	-3	-2	2	-1	1
400N	3	-6	-3	2	-6	-4
425N	2	-2	0	1	-5	-4
450N	0	0	0	1	0	1
475N	4	-4	0	4	-4	0
500N	-10	6	-4	-8	8	0
525N	-10	12	2	-8	10	2
550N	-12	14	2	-10	12	2
575N	3	-6	-3	7	-6	1
600N	10	-10	0	10	-10	0
625N	4	-4	0	6	-5	1
650N	4	-2	2	5	-4	1
675N	-4	4	0	-3	5	2
700N	-2	2	0	-2	3	1
725N						
LINE 4000W						
725N	-8	8	0	-7	7	0
700N	-10	12	2	-8	11	3
675N	0	4	4	0	2	2
650N	-9	8	-1	-8	8	0
625N	-5	8	3	-6	8	2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4000W						
600N	-9	12	3	-10	13	3
575N	-6	3	-3	-3	3	0
550N	0	-1	-1	0	0	0
525N	0	-1	-1	2	-4	-2
500N	5	-9	-4	4	-10	-6
475N	14	-14	0	14	-14	0
450N	-5	-8	-13	6	-10	-4
425N	-1	-5	-6	6	-5	1
400N	6	-6	0	-5	6	1
375N	-7	6	-1	-6	7	1
350N	-4	2	-2	-3	3	0
325N	-4	2	-2	-4	4	0
300N	-3	2	-1	-2	3	1
275N	-2	0	-2	-2	0	2
250N	11	-12	-1	10	-10	0
225N	13	-15	-2	14	-15	-1
200N	9	-10	-1	9	-10	-1
175N	-3	0	-3	-3	0	-3
150N	-6	6	0	-5	9	4
125N	-2	2	0	0	0	0
100N	0	-3	-3	3	-4	-1
75N	-5	6	1	-7	9	2
50N	-14	15	1	-15	15	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 4000W						
25N	-18	18	0	-18	18	0
B.L. (4000W)	-14	14	0	-11	10	-1
25S	-12	14	2	-11	12	1
50S	-10	10	0	-10	11	1
75S	-1	1	0	0	4	4
100S	-3	4	1	-1	3	2
125S	-1	0	-1	0	-3	-3
150S	-14	15	1	-13	14	1
175S	-7	8	1	-7	6	-1
200S	-8	10	2	-8	10	2
225S	-6	7	1	-5	7	2
250S	-10	12	2	-10	11	1
275S	-12	12	0	-10	9	-1
300S	-10	12	2	-11	13	2
325S	-10	14	4	-11	13	2
350S	-7	10	3	-7	11	4
375S	0	2	2	-3	3	0
400S	12	-11	1	11	-11	0
425S	7	-8	0	8	-8	0
450S	5	- 7	-2	9	-9	0
475S	0	5	5	-3	5	2
500S	6	-6	0	6	-5	1
525S	10	-10	0	8	-8	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4000W						
550 S	3	-2	1	2	-1	1
575 S	0	0	0	0	4	4
600 S	-9	10	1	-7	10	3
625 S	-11	8	-3	-9	10	1
650 S	-12	12	0	-12	14	2
675 S	-9	11	2	-10	12	2
700 S	-4	6	2	-4	6	2
725 S	-2	0	-2	-2	5	3
750 S	0	0	0	-1	1	0
775 S	-1	2	1	-1	1	0
800 S	-2	2	0	0	2	2
825 S	2	0	2	4	-3	1
850 S	8	-3	5	8	-4	4
875 S	8	-7	1	9	-9	0
900 S	9	-5	4	10	-6	4
925 S	7	-7	0	9	-6	3
950 S	5	0	5	6	1	7
975 S	5	0	5	4	1	5
1000 S	4	0	4	1	0	1
1025 S	1	0	1	1	0	1
1050 S	5	0	5	4	0	4
1075 S	0	0	0	-3	0	-3
1100 S						

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4200 W						
1150 S	0	-3	-3	2	-4	-2
1125 S	5	-1	4	4	-2	2
1100 S	3	-1	2	3	0	3
1075 S	3	-1	2	4	-2	2
1050 S	5	-2	3	5	-2	3
1025 S	6	-1	5	5	-3	2
1000 S	1	-1	0	2	-1	1
975 S	1	0	1	0	0	0
950 S	-1	1	0	-2	2	0
925 S	-3	2	-1	-2	2	0
900 S	-4	4	0	-6	5	-1
875 S	-10	12	2	-11	10	-1
850 S	-9	8	-1	-9	8	-1
825 S	-1	2	1	-1	2	1
800 S	1	0	1	0	0	0
775 S	4	-6	-2	6	-6	0
750 S	10	-8	2	9	-7	2
725 S	7	-5	2	5	-4	1
700 S	6	-7	-1	8	-8	0
675 S	7	-5	2	5	-5	0
650 S	5	-5	0	6	-4	2
625 S	1	-2	-1	3	-1	2
600 S	3	0	3	3	0	3

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4200 W						
575 S	1	0	1	2	0	2
550 S	-1	4	3	-1	5	4
525 S	-7	8	1	-7	10	3
500 S	0	1	1	2	0	2
475 S	5	-2	3	4	-3	1
450 S	8	-7	1	4	-5	-1
425 S	4	-4	0	7	-4	3
400 S	12	-10	2	12	-10	2
375 S	15	-15	0	14	-15	-1
350 S	9	-8	1	8	-6	2
325 S	3	-1	2	6	0	6
300 S	-4	2	-2	-5	6	1
275 S	0	-2	-2	0	-4	-4
250 S	4	-3	1	4	-2	2
225 S	7	-4	3	7	-6	1
200 S	8	-8	0	9	-9	0
175 S	6	-6	0	5	-7	-2
150 S	8	-8	0	6	-7	-1
125 S	7	-6	1	7	-7	0
100 S	8	-8	0	8	-9	-1
75 S	10	-8	2	12	-10	2
50 S	10	-10	0	12	-10	2
25 S	3	-5	-2	5	-4	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4200 W B.L.(4200W)						
25 N	7	-5	2	8	-8	0
50 N	7	-6	1	6	-5	1
75 N	13	-12	1	11	-11	0
100 N	4	-2	2	6	-4	2
125 N	4	-2	2	4	0	4
150 N	0	4	4	-2	5	3
175 N	2	-2	0	2	-2	0
200 N	0	2	2	0	4	4
225 N	0	4	4	-2	4	2
250 N	-2	2	0	0	0	0
275 N	4	-6	-2	4	-7	-3
300 N	5	-6	-1	6	-6	0
325 N	9	-4	5	6	-7	-1
350 N	7	-3	4	6	-4	2
375 N	16	-14	2	16	-15	1
400 N	12	-12	0	13	-13	0
425 N	8	-6	2	8	-7	1
450 N	-2	2	0	-3	3	0
475 N	0	4	4	0	5	5
500 N	-3	3	0	-2	4	2
525 N	-7	8	1	-9	8	-1
550 N	-5	5	0	-3	5	2
	0	-2	-2	0	0	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz) L	Med. (1830 Hz) C	Med. (1830 Hz) R	High (5010 Hz) L	High (5010 Hz) C	High (5010 Hz) R
LINE 4200 W						
575 N	8	-10	-2	10	-8	2
600 N	11	-10	1	12	-10	2
625 N	9	-10	-1	10	-11	-1
650 N	9	-7	2	9	-8	1
675 N	8	-10	-2	6	-8	-2
700 N	8	-8	0	7	-8	-1
725 N	15	-15	0	16	-16	0
750 N						
LINE 4400 W						
1150 S	1	-1	0	0	-2	-2
1125 S	2	-2	0	0	-2	-2
1100 S	2	-3	-1	2	-5	-3
1075 S	1	-2	-1	2	-2	0
1050 S	0	-3	-3	2	-1	1
1025 S	0	-4	-4	1	-1	0
1000 S	-2	0	-2	0	0	0
975 S	-1	-1	-2	0	-3	-3
950 S	-1	-2	-3	2	-1	1
925 S	-3	0	-3	-2	0	-2
900 S	-8	6	-2	-7	9	2
875 S	-9	13	4	-10	13	3
850 S	-8	10	2	-7	10	3
825 S	0	4	4	0	3	3
800 S	2	1	3	3	-3	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE 4400 W						
775 S	3	-6	-3	4	-6	-2
750 S	2	-6	-4	4	-6	-2
725 S	6	-6	0	6	-6	0
700 S	6	-6	0	6	-6	0
675 S	2	-3	-1	1	-2	-1
650 S	1	0	1	1	3	4
625 S	-2	3	1	-2	3	1
600 S						
575 S	0	-2	-2	0	-2	-2
550 S	-2	4	2	-3	4	1
525 S	-2	3	1	0	2	2
500 S	2	-1	1	5	-5	0
475 S	18	-18	0	20	-19	1
450 S	7	-6	1	7	-6	1
425 S	-3	2	-1	-1	3	2
400 S	-8	11	3	-9	11	2
375 S	4	-6	-2	6	-8	-2
350 S	6	-7	-1	8	-8	0
325 S	3	-1	2	5	-3	2
300 S	1	-4	-3	2	-3	-1
275 S	12	-12	0	13	-11	2
250 S	9	-9	0	10	-10	0
225 S	4	-4	0	6	-5	1

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE; 4400 W						
200 S	2	0	2	2	-2	0
175 S	1	-2	-1	0	-2	-2
150 S	6	-8	-2	7	-8	-1
125 S	8	-8	0	8	-8	0
100 S	8	-10	-2	12	-10	2
75 S	6	-6	0	5	-4	1
50 S	5	-4	1	3	-3	0
25 S	0	0	0	-2	0	-2
B.L.(4400W)	0	0	0	-2	0	-2
25 N	0	-1	-1	2	-2	0
50 N	2	-2	0	3	-3	0
75 N	0	0	0	1	-1	0
100 N	2	-2	0	3	-1	2
125 N	4	-6	-2	10	-8	2
150 N	15	-14	1	15	-13	2
175 N	14	-13	1	15	-13	2
200 N	4	-5	-1	5	-4	1
225 N	-3	4	1	-5	5	0
250 N	-7	10	3	-6	8	2
275 N	2	-3	-1	2	-2	0
300 N	8	-8	0	9	-9	0
325 N	12	-9	3	12	-10	2
350 N	5	-5	0	5	-5	0

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE: 4400 W						
375 N	-5	4	-1	-6	7	1
400 N	-5	3	-2	-3	3	0
425 N	4	-4	0	7	-4	3
450 N	9	-8	1	8	-8	0
475 N	0	0	0	0	0	0
500 N	-6	6	0	-6	6	0
525 N	2	-2	0	3	-3	0
550 N	16	-15	1	17	-15	2
575 N	23	-20	3	22	-20	2
600 N	16	-17	-1	18	-17	1
625 N	10	-3	7	10	-5	5
650 N	8	-8	0	10	-8	2
675 N	14	-11	3	14	-11	3
700 N	15	-15	0	16	-16	0
725 N						
LINE: 4600 W						
750 N	-3	6	3	-3	6	3
725 N	-7	10	3	-8	8	0
700 N	-11	12	1	-10	11	1
675 N	-10	12	2	-12	11	-1
650 N	-10	10	0	-9	11	2
625 N	-13	12	-1	-11	14	3
600 N	-16	16	0	-16	14	-2
575 N	-9	10	1	-8	11	3

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE: 4600 W						
550 N	-6	8	2	-5	6	1
525 N	0	0	0	3	0	3
500 N	17	-13	4	16	-12	4
475 N	18	-18	0	18	-18	0
450 N	15	-14	1	15	-15	0
425 N	-5	0	-5	-2	4	2
400 N	-8	11	3	-10	10	0
375 N	-6	8	2	-6	8	2
350 N	-6	6	0	-4	4	0
325 N	-6	6	0	-5	8	3
300 N	-6	6	0	-6	6	0
275 N	-11	10	-1	-10	10	0
250 N	-4	5	1	-6	6	0
225 N	-8	10	2	-10	11	1
200 N	-4	6	2	-5	6	1
175 N	-3	6	3	-5	7	2
150 N	-3	5	2	-3	4	1
125 N	-1	0	-1	0	0	0
100 N	1	2	3	4	2	6
75 N	-1	5	4	-3	6	3
50 N	-7	8	1	-5	6	1
25 N						
B.L. (4600 W)	-6	5	-1	-7	5	-2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE: 4600 W						
25 S	-3	4	1	-4	4	0
50 S	0	1	1	0	0	0
75 S	4	-2	2	4	-1	3
100 S	0	2	2	4	4	0
125 S	-4	6	2	-4	6	2
150 S	-1	2	1	0	2	2
175 S	4	0	4	7	-4	3
200 S	0	3	3	-3	3	0
225 S	-13	13	0	-13	14	1
250 S	-13	15	2	-15	15	0
275 S	-5	6	1	-6	6	0
300 S	1	0	1	2	-3	-1
325 S	4	-6	-2	9	-6	3
350 S	-2	8	6	-6	6	0
375 S	-8	8	0	-6	8	2
400 S	-12	14	2	-12	12	0
425 S	-1	4	3	-2	4	2
450 S	0	-1	-1	0	-1	-1
475 S	0	0	0	5	0	5
500 S	5	0	5	1	0	1
525 S	1	0	1	0	0	0
550 S	0	2	2	-2	2	0
575 S	-5	5	0	-7	5	-2

CRONE HORIZONTAL SHOOTBACK EM - DATA

STATIONS	Med. (1830 Hz)			High (5010 Hz)		
	L	C	R	L	C	R
LINE: 4600 W						
600 S	-9	10	1	-8	8	0
625 S	-11	12	1	-11	11	0
650 S	0	-2	-2	-1	-3	-4
675 S	0	-2	-2	2	-2	0
700 S	5	-1	4	1	-1	0
725 S	-5	8	3	-5	5	0
750 S	-4	4	0	-5	4	-1
775 S	4	-5	-1	5	-7	-2
800 S	10	-10	0	12	-12	0
825 S	12	-12	0	12	-12	0
850 S	8	-6	2	8	-6	2
875 S	3	-4	-1	3	-5	-2
900 S	5	-5	0	5	-5	0
925 S	3	-2	1	3	-2	1
950 S	1	-1	0	1	0	1
975 S	1	0	1	0	0	0
1000 S	5	0	5	2	0	2
1025 S	0	0	0	0	2	2
1050 S	1	0	1	1	0	1
1075 S	-2	2	0	0	1	1
1100 S	-1	3	2	-1	1	0
1125 S	0	0	0	0	2	2
1150 S						

APPENDIX F

BOULDER COUNTS - HELGA LAKE (KERVESO GRID)

LITHOLOGICAL SUBDIVISIONS OF BOULDERS

Granite (Massive):

- usually a quartz-rich granite containing 5%-20% biotite which can be foliated to give the granite a gneissic appearance →→ (granite-foliated).
- boulders are usually the most abundant, the largest (up to $25m^3$) and most angular, therefore indicating local origin.

Pegmatitic Granite:

- subangular to subrounded; up to 8 m^3.
- containing quartz and K-feldspar (orthoclase-microcline) with coarse-grained pegmatitic pods in places and little or no biotite.
- feldspars are pink or white on a weathered surface and often hypidiomorphic.

Pegmatite:

- usually < 0.5 m^3; subrounded
- coarse-grained feldspars (often pink) and quartz.

Sheared Granite

- small yet often angular and fractured.
- certain surfaces display shearing; shearing not evident in whole rock (main mass of the rock, apart from shear surfaces, resembles the predominant granite of the area.
- sheared surfaces are composed of light green chloritic material with slippery smooth slickenside surfaces (these surfaces are characteristically wavy) and are <1 mm up to 2 cm thick.

Sedimentary Rock:

- Sandstones, argillites, quartzites, siltstones and conglomerates (parallel-laminated or massive).
- usually rounded but a few were found to be subangular (L 4200W-100S) and large (up to 10 m^3).
- some of the large boulders displayed differential weathering.

Gabbro:

- usually small and subrounded ($< 1\ m^3$)
- characteristically rusty on weathered surface (often resembles a locally derived gneiss on the weathered surface).
- massive texture with veins or pods of ultramafics (pyroxenites, amphibolites) in certain cases.

Gneiss:

(similar lithologically to the mineralized biotite-schist boulders)

- subangular-subrounded; up to $4\ m^3$ in size.
- rusty on a weathered surface.
- 50%-80% biotite with good foliation always present.

Migmatite:

- large angular boulders in most cases (up to $30\ m^3$)
- composite of the gneiss and the massive or foliated granite and possibly the pegmatitic granite.

Granodiorite:

- intermediate in composition; light-green amphibole predominates.
- subrounded and usually $0.4\ m^3$.

Number	Location	Gr. (Massive)	Gr. (Fol.)	Gr. (Peg.)	Gr. (Sheared)	Gabbro	Gneiss	Migmatite	Diorite	Sed.	Comme...
7JG-A	4400W/400N	60		14	2	19				5	B
B	4600W/400N	54		20		15				11	B
C	4600W/200N	80		7	3	5				5	B
D	4400W/200N	75		18		4				3	B
E	4400W/B.L.	56		5	1	17				21	B
F	4600W/B.L.	60		3	2	17				18	A
G	4600W/200S	78		8	6	4				4	B
H	4400W/200S	72		5	3	13				7	
ZM-088	4400W/800S	14	45	25	2		4	1		9	A
089	4400W/600S	23	32	28	1*		6			10	A
090	4600W 700S	37	26	24	3	1	2	3		4	B
091	4600W/500S	58	6	17			5	1	1*	12	
092	4200W/500S	75	1	8	1*	1	5		1	8	B
093	4200W/100S	61		13	2**		3			21	B
100	4000W/100N	57	1	14	1	3	1	3		20	B
101	4200W/300N	20		56		3				21	B
104	4000W/300S	65		18		1	4	1		11	A
105	4000W/675S	64		18		2	2	1		13	A by Lake Shore
106	3800W/500S	78		10	1	1		2		8	A

Number	Location	Gr. (Massive)	Gr. (Fol.)	Gr. (Peg.)	Gr. (Sheared)	Gabbro	Gneiss	Migmatite	Diorite	Sed.	Comments
M-112	3800W/125S	84		5		5				6	B
118	3600W/300S	83		14			1	1		1	B
119	3400W/475S	46		33		5	3	2	2	9	A
120	3200W/325S	51	1	30		1	2			15	B
121	3400W/125S	97				1				2	B
123	2400W/400S	87				1	1			11	A
124	2600W/600S	53		29	1*	2	3	3	2*	7	A
125	2600W/100S	69	1	13		5	1	4		7	B
126	2800W/425S	70	1	12		4	4	1		8	A
127	3000W/475S	72	1	11		1		2		13	A
128	3000W/100S	87		9		1				3	B

*) Means rock has been sampled and given number equal to boulder count number.

Comments

A) Lodgement till: normally boulder fields composed of large (up to 10 m^3) angular boulder of proximal origin.

B) Hummocky till: lodgement till of hummocky nature; normally moss-covered partly forested area where smaller boulders usually not visible for boulder counts.