MAR 19770024: OLD FORT RIVER

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U-AF-168(3)
Permits: 6876090002
Same as U-AF-168(2)

A PROSPECTING EVALUATION OF THE OLD FORT RIVER PROPERTY, ALBERTA QUARTZ MINERAL EXPLORATION PERMIT 6876090002

FOR

E. & B. EXPLORATIONS LTD.
CALGARY, ALBERTA
DECEMBER, 1977

BY

TAIGA CONSULTANTS LTD.
#301, 1300 - 8 Street, S.W.
CALGARY, ALBERTA

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INTRODUCTION

The Old Fort River Permit is located on the Alberta-Saskatchewan boundary immediately northeast of the inferred Athabasca Formation - crystalline Shield contact. Little data are available regarding the nature of the underlying basement rocks, thickness of the Athabasca Formation or its composition within this region.

The Amok Limited "Cluff Lake" uranium deposits are located approximately 23 miles to the northeast. This uranium enrichment took place prior to the development of the Carswell domal feature and is closely affiliated with the Athabasca unconformity. The Maurice Point unconformity-related uranium deposit of Uranerz - S.M.D.C. is located 60 miles north of the property.

On the basis of the Athabasca unconformity being present in the Permit area at an inferred "shallow depth" a detailed surface exploration program was conducted during the 1977 field season. The program consisted of:

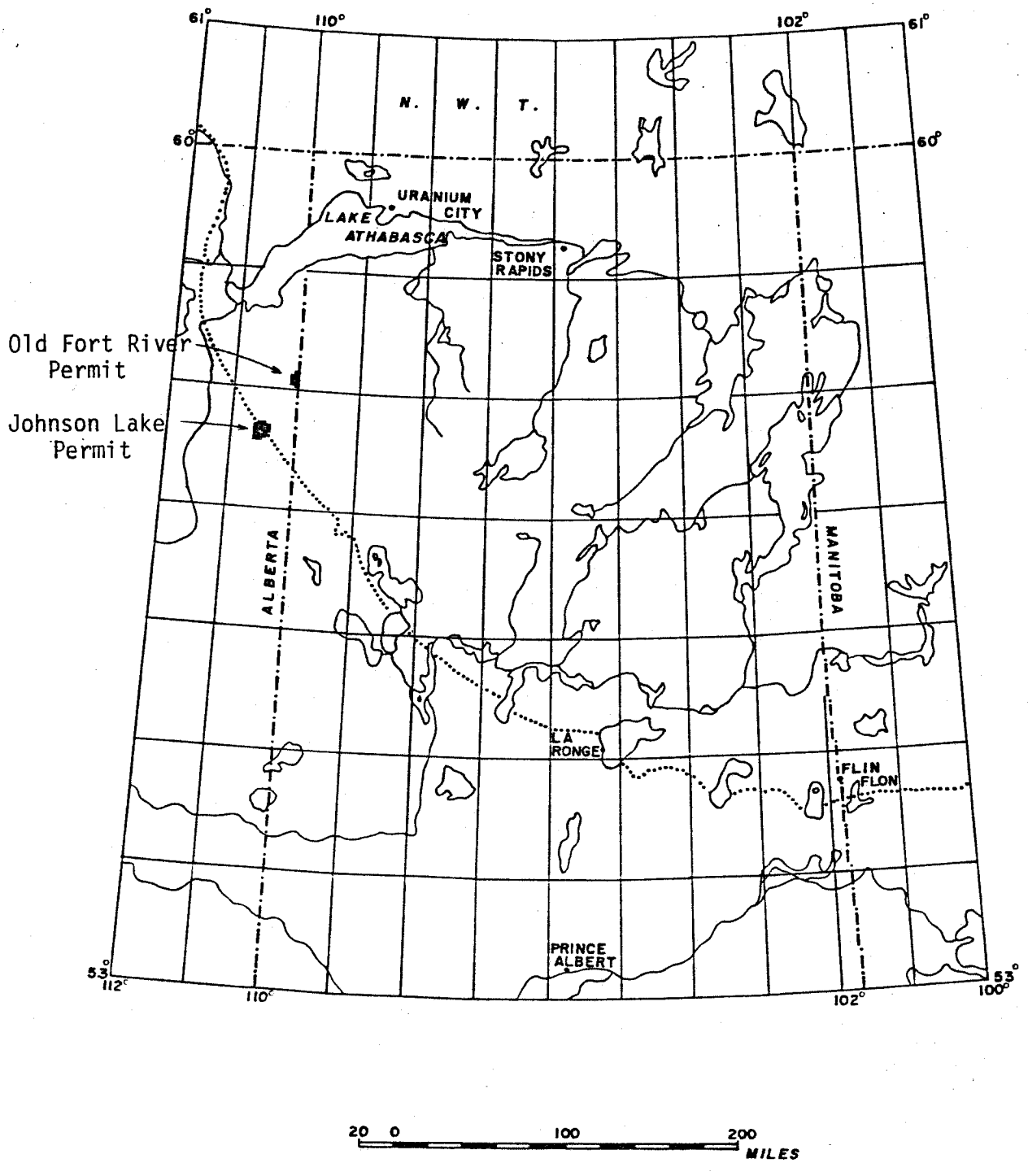
Lake sediment & lake water geochemistry
Surface prospecting & ground scintillometry
Radon soil gas determinations
VLF electromagnetic survey
Office compilation of existing data
Aerial photograph examinations (including Landsat imagery)

LOCATION AND ACCESS

The Old Fort River Property is located on the Alberta-Saskatchewan boundary, approximately 105 miles northeast of Fort McMurray. The area is presently accessible only by float or ski-equipped aircraft.

The nearest future road access will be to Amok's Cluff Lake deposits, approximately 10 miles east of the permit.

LOCATION MAP #1



HISTORY OF EXPLORATION

A review of assessment work filed at the Research Council of Alberta indicates that the majority of the permit area was previously held under disposition as Quartz Mineral Exploration Permits No. 93 & 94 by Anco Exploration Ltd. Both permits were flown by Canadian Aero Surveys Ltd. in October, 1969. Instrumentation included a Canadian Aero MK III IP/OP E. M. system (390 Hz), a magnetometer, and an Exploranium spectrometer (three 6" x 4" crystals.) No electromagnetic or radiometric anomalies were obtained and there is no record of subsequent ground surveys.

Section 1, Twp. 5, R1, W4M was previously held by Canada Southern Petroleum Ltd. as Permit No. 9. A photogeological map and an airborne scintillometer survey were completed by Geophoto Services Ltd. of Calgary.

No bedrock geological mapping has been conducted in the vicinity of the property; however, the area has been mapped on a reconnaissance surficial basis by L. A. Bayrock of the Research Council of Alberta (R.C.A. Map 14, Surficial Geology, Fort Chipewyan.)

G.S.C. Aeromagnetic coverage is available at scales of 1" = 1 mile and 1" = 4 miles as maps 2844 G (Archer Lake, N.T.S. 74-L-1) and 7159 G (Chipewyan, N.T.S. 74-L) respectively.

A reconnaissance refraction seismic survey of the Athabasca Basin was conducted during the period 1962 to 1968 by G. D. Hobson and H. A. McAuley (G.S.C. Paper 69-18 and Map 69-2). Two seismic stations were located within the present permit boundaries (c.f. figures 1 to 3 incl.). Depths to basement were calculated at 108' and 188'.

LAND STATUS

A Quartz Mineral Exploration Permit entitled the "Old Fort River Property" was applied for by Taiga Consultants Ltd. on January 30, 1976, and granted September 29, 1976. The first anniversary date for renewal was September 29/77.

The permit is more particularly described as follows:

Township 104, Range 1, West of the 4th Meridian

Sections 25, 35 and 36

Township 105, Range 1, West of the 4th Meridian

Sections 1 to 3 incl., Sections 10 to 15 incl., Section 24

TOTAL 13 Sections (8,320 acres)

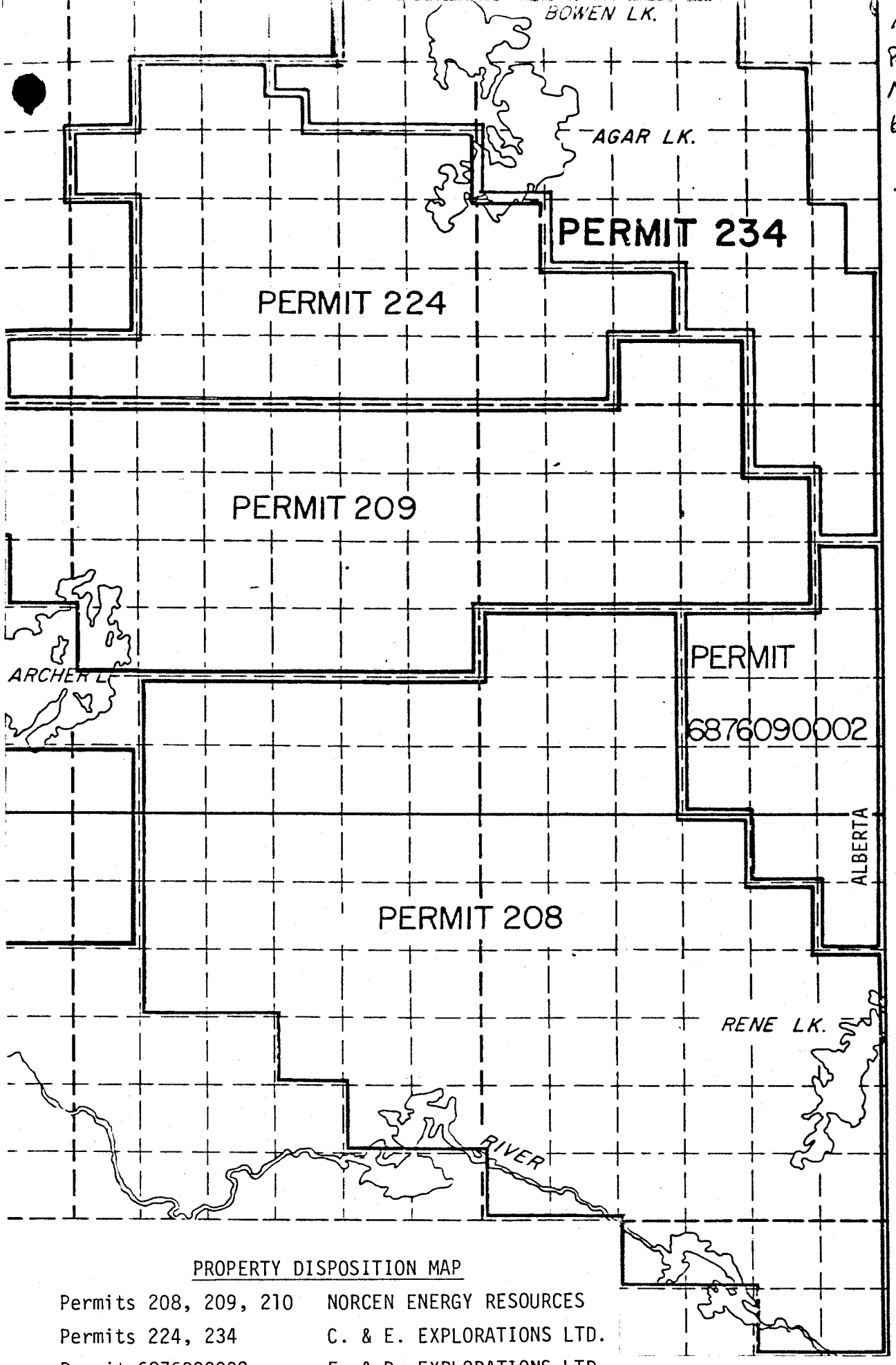
The permit is presently recorded in the name of E. & B. Explorations Ltd.

A land map of the adjacent mineral dispositions is included overpage.

SURFICIAL GEOLOGY

The permit is completely mantled by glaciofluvial deposits. Sinuous, ribbed or corrugated ice-retreat morraine deposits, kames, eskers, and crevass fillings give rise to local relief in excess of 150' in the western and southern portions of the property. These corrugations lie perpendicular to the direction of the most recent ice advance, which was from the northeast.

Elsewhere on the permit relief is generally less than 75' and is comprised of gently undulating, drumlinized outwash sand and gravel ridges.



1977-0024
Permit
No.
6876090002

PROPERTY DISPOSITION MAP

Permits 208, 209, 210	NORCEN ENERGY RESOURCES
Permits 224, 234	C. & E. EXPLORATIONS LTD.
Permit 6876090002	E. & B. EXPLORATIONS LTD.

SCALE: 1" = 2 miles

REGIONAL GEOLOGIC SETTING

As previously mentioned, little data are available regarding the nature of the Athabasca Formation or the underlying crystalline basement rocks in this region. G.S.C. Map 16-1961 (Geology of the Firebag River Area; L.P. Tremblay) indicates that the nearest outcrop is an exposure of Athabasca Formation 8 miles southeast of the Permit. Clastic deposition is interpreted as being from the south-southeast (c.f. Fig. 6, appendix).

The nearest exposures of Precambrian basement rocks are at Cluff Lake, Saskatchewan (25 miles northeast of the permit), and along the Maybelle River in the northeast corner of Twp. 102, R-4, W4M, (20 miles southwest of the permit).

The Cluff Lake rocks have been mapped in detail and the following summary is excerpted from the Saskatchewn 1977 Summary of Investigations (C. T. Harper):

> " The central core of the Carswell Dome appears to be formed by interlayered reddish granitoid gneisses, quartzo-feldspathic and pelitic gneisses. These rocks have undergone repeated folding followed by late cataclastic deformation. Metamorphism reaching granulite facies conditions in part if not all of the area was followed by retrogression to amphibolite and possibly even greenschist conditions.
>
> The metamorphic rocks have been subdivided by Amok geologists into the following lithologic units (Anon, 1974: Tapaninen, 1975; and Herring, 1976):
>
> 1. Pelitic Gneisses:
>   (a) garnet-cordierite gneiss
>   (b) garnet-sillimanite gneiss

TABLE OF FORMATIONS FOR NORTHWEST SASKATCHEWAN

(after Sibbald, Munday & Lewry; Sask Geol. Soc., Special Pub. No. 3; Mar., 1977 p. 155).

PLEISTOCENE	
CRETACEOUS	Grand Rapids Formation Clearwater Formation McMurray Formation
DEVONIAN	Methy (Winnipegosis) Formation McLean River Formation La Loche Formation
HELIKIAN	Carswell Formation Athabasca Formation (1350 ± 50 m.y.) Martin Formation (1630 ± 180 m.y.)
HUDSONIAN OROGENY .....(1735 m.y.)	
APHEBIAN	Many Islands Group Thluicho Lake Group Tazin Group (in part ?) Wollaston Group Wollaston, Mudjatik and Virgin River domain granitoid gneisses (in part ?)
KENORAN OROGENY .....(2480 m.y.)	
ARCHEAN	Tazin Group Western granulites Wollaston, Mudjatik and Virgin River domain granitoid gneisses (in part ?)

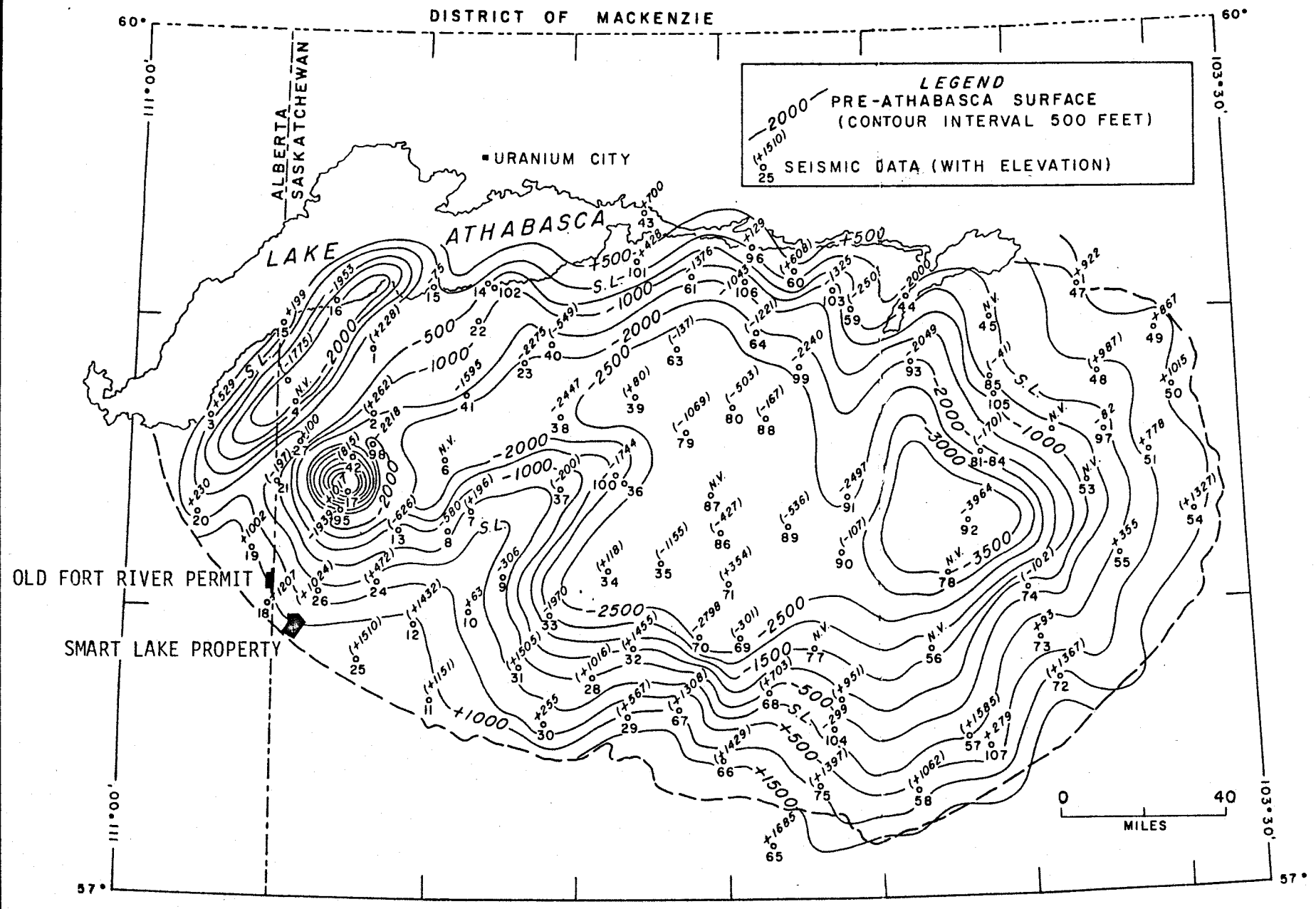


Figure 1. Pre-Athabascan topography, contour interval 500 feet, showing seismic locations and elevation of pre-Athabascan surface relative to sea level. Bracketed values of elevation are minimal values – the pre-Athabascan surface is probably deeper.

A SEISMIC RECONNAISSANCE SURVEY
OF THE ATHABASCA FORMATION, SASKATCHEWAN

G. S. C. PAPER 69-18

MAP 2-1969

19770024

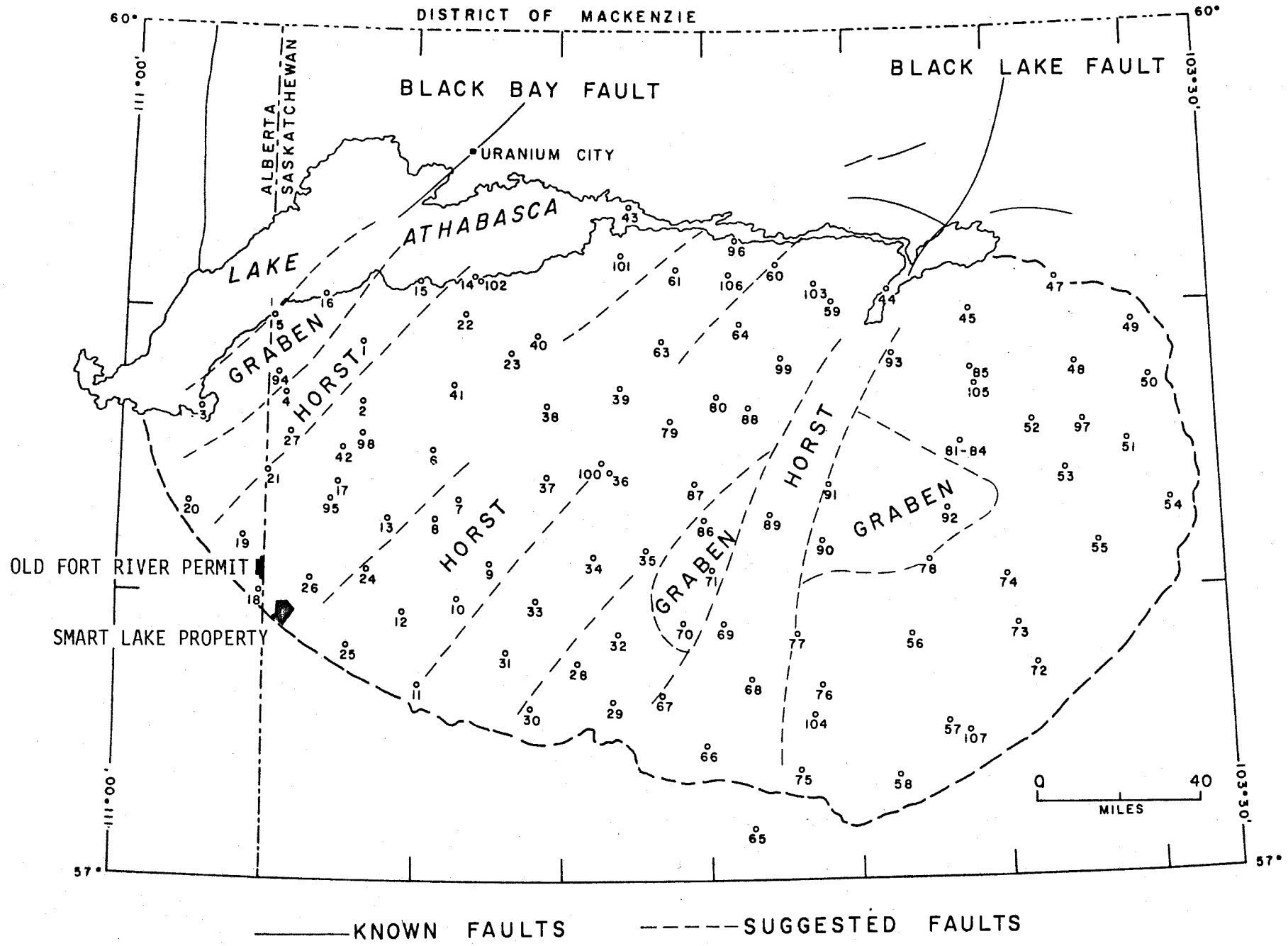


Figure 2. Geological implications of the seismic data, Athabasca Formation area.

A SEISMIC RECONNAISSANCE SURVEY
OF THE ATHABASCA FORMATION, SASKATCHEWAN

G. S. C. PAPER 69-18

MAP 2-1969

19770024

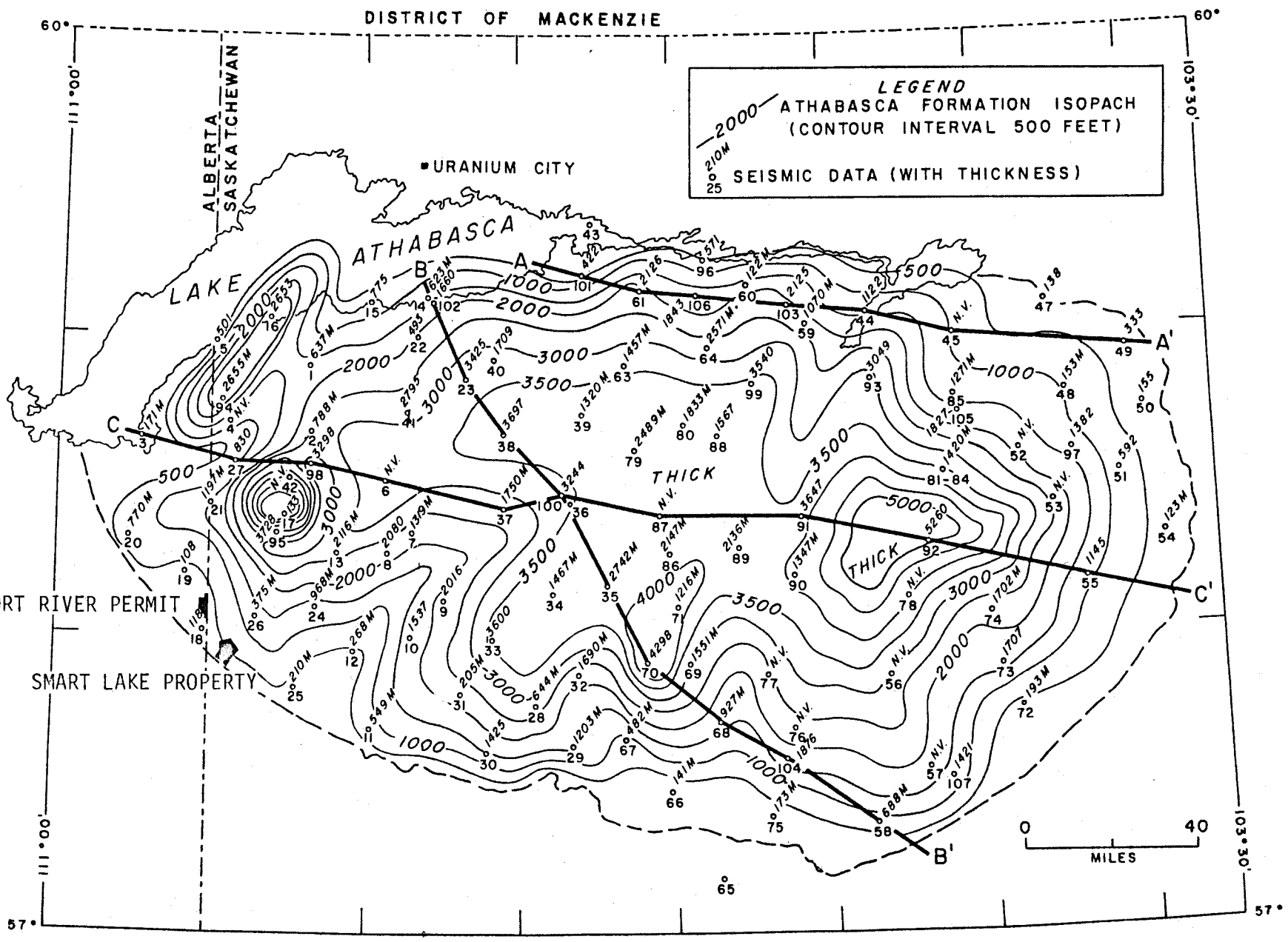


Figure 3. Thickness of Athabasca Formation, contour interval 500 feet, showing seismic locations and thickness of sandstone. M indicates computation of a minimum thickness.

A SEISMIC RECONNAISSANCE SURVEY
OF THE ATHABASCA FORMATION, SASKATCHEWAN
G. S. C. PAPER 69-18
MAP 2-1969

19770024

2. Quartz-feldspathic Gneiss:
   (a) fine-grained quartz-feldspar-biotite gneiss
   (b) porphyblastic grantoid gneiss

3. Mafic Gneiss:
   (a) pyroxene bearing granulite
   (b) amphibolite

All these units have intruded by Cluff Breccia dykes."

On the other hand, Precambrian exposures on the Alberta side have only received the most cursory of examinations. Outcrops along the Maybelle and Marguerite River have been roughly subdivided into 1.) interbanded, grantoid, garnetiferous quartz-feldspar-biotite gneiss and 2.) garnetiferous, red and white granite and pegmatite with minor, bedded quartzite rock (G.S.C. Map 16-1961).

No direct correlation has been evidenced between the Cluff Lake exposures and the Maybelle - Marguerite River outcrops. However, both groups have been included in the Firebag Domain (retrogressed Archean craton) by the Saskatchewan Mineral Resources Division. It has also been suggested by several writers that the Firebag Domain is regionally correlatable with the Beaverlodge / Uranium City crystalline rocks.

Local alteration & metamorphism of the Cluff Lake rocks has been summarized by C. T. Harper as comprising the following sequence of events:

" 1. Prograde regional metamorphism to the granulite facies during the major deformation phase.

2. Retrogressive metamorphism to the upper amphibolite facies probably related to hydration accompanying emplacement of pegmatoids.

3. Retrogression (not defined) associated with mylonitization.
4. Alteration due to weathering of the basement during the pre-Athabasca erosion period.
5. Pale green to white chloritic and argillic alteration of the rocks above and below the sub-Athabasca unconformity by low temperature (200-150^{o}C) hydrothermal activity with associated uranium mineralization.
6. Alteration (chloritic and argillic) associated with the formation of the Carswell structure

Superimposed are shock metamoprhic effects."

Harper has also interpreted the structure of the Cluff Lake basement rocks as follows:

" Three episodes of deformation are recognized, which on the basis of a single K-Ar date of 1973 m.y. (Herring, 1976), are believed to be of Hudsonian age.

The earliest phase produced the regional foliation, presumably axial planar to first generation folds although no folds of this period have been recognized. The second phase deformed the regional foliation into tight overturned folds but did not produce a new well defined foliation. These structures are dominant in the area and probably control the distribution of rock units. The third phase structures refold the first two producing low amplitude warps and open folds in a general northerly direction, on both a minor (outcrop) and major regional scale. It is believed that cataclastic deformation may have accompanied the third deformation, with tectonic breccias and mylonites forming along the major fold axial surfaces. These zones could provide suitable sites for uranium mineralization.

> The regional trend of the foliation has a sweeping S shape from the northwest to the southeast. There is apparent dislocation along two major lineaments, the Carswell-Bridle Lakes lineament and the Cluff Lake lineament, which form part of the radial fault system of the Carswell structure. It is possible that these lineaments represent reactivated mylonitic shear zones of the Hudsonian orogenic period." (1977 Sask. Summ. of Investigations, p. 141).

The most salient point noted above is the possible southwestward extension of the Cluff Lake lineament through the area of the Old Fort River permit. This is tentatively suggested by the 1" = 4 mile aeromagnetic compilation (c.f. figures 4 & 5 this report). There is no identifiable surface expression of this lineament on the property however, and its existence is questionable.

To date, no detailed studies of the western margin of the Athabasca Formation have been published. A reconnaissance seismic survey of the Athabasca Basin indicates a thickness of less than 500' of sandstone overlying the property (a seismic station 3 miles south of the property yeilded a calculated thichness of 118'. A second station 8 miles northwest of the permit yielded a calculated thickness of 108' (c.f. Figures 1 to 3).

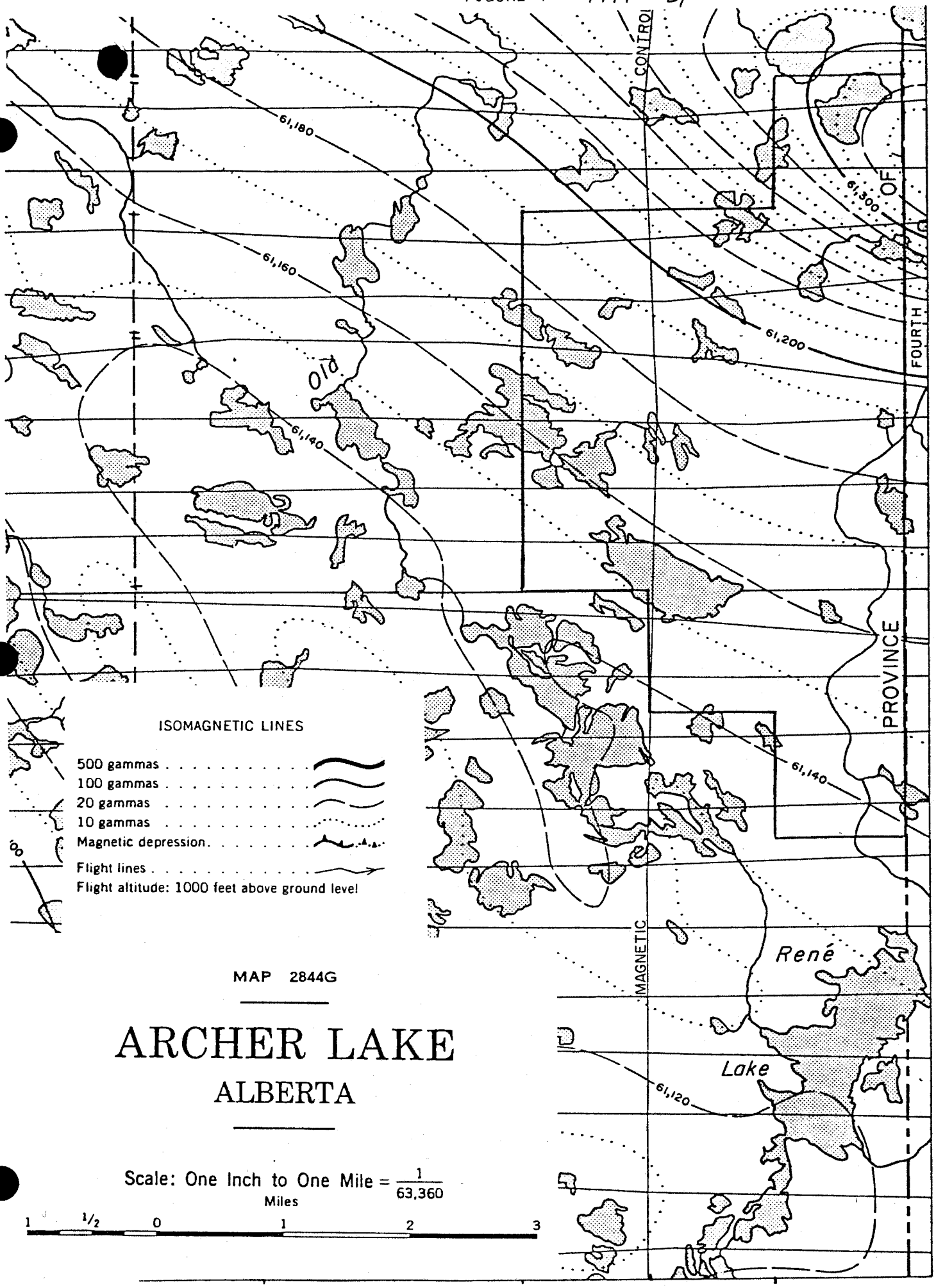
EXPLORATION RESULTS

LAKE WATER SEDIMENT & WATER GEOCHEMISTRY

A helicopter-supported lake sediment and lake water geochemical sampling program was conducted on June 7, 1977. A total of 49 lakes were sampled during this survey and duplicates were collected from two of these sites.

The lake bottom, organic-rich sediment samples were collected with a 1976 model Hornbrook sampler (c.f. photo in appendix). Surface lake water samples were collected in polyethylene bottles at depths of 6 to 12" at the same sites.

FIGURE 4 19770024



MAP 2844G

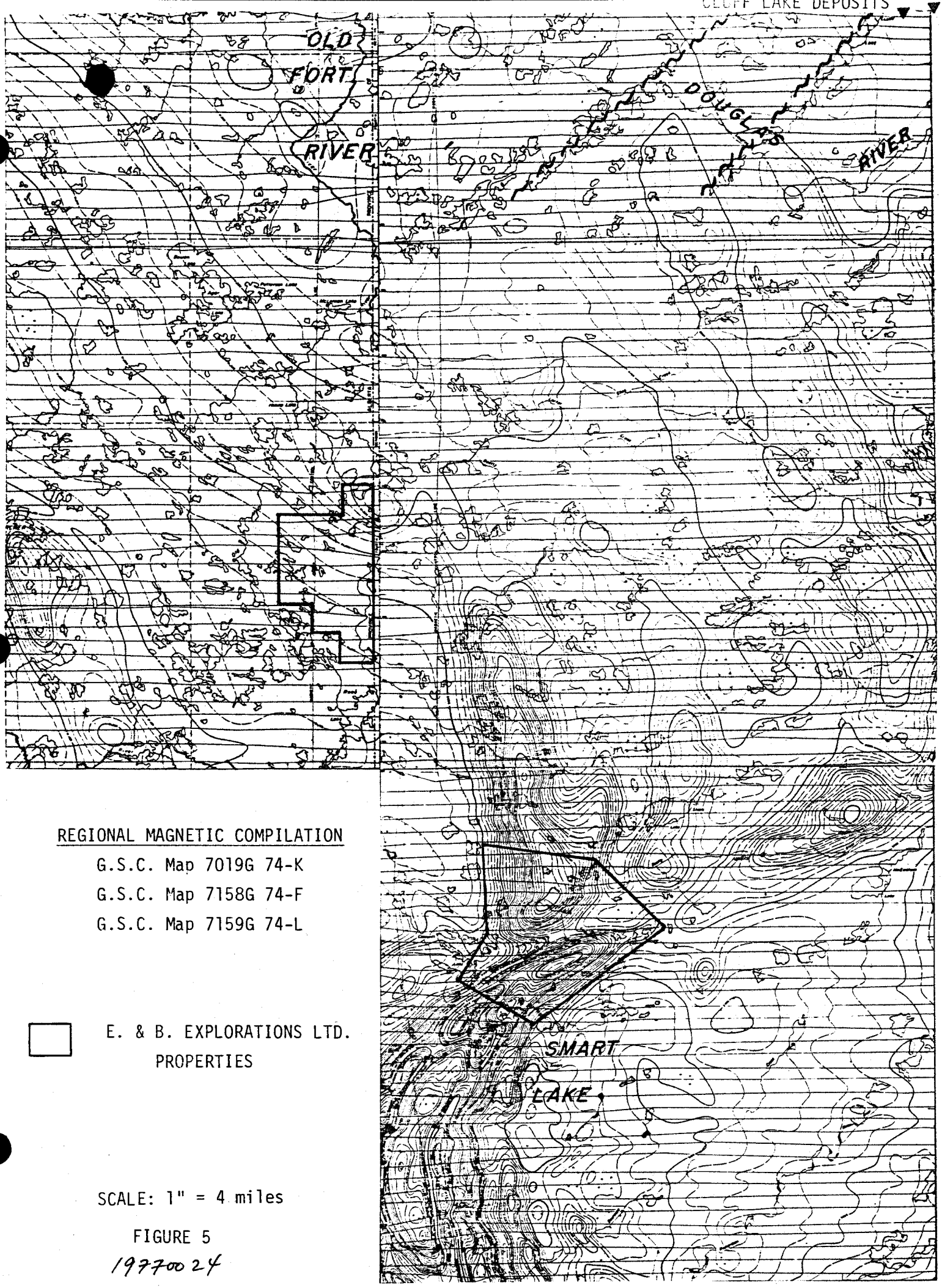
ARCHER LAKE

ALBERTA

Scale: One Inch to One Mile = $\frac{1}{63,360}$

Miles

1 1/2 0 1 2 3



REGIONAL MAGNETIC COMPILATION

G.S.C. Map 7019G 74-K

G.S.C. Map 7158G 74-F

G.S.C. Map 7159G 74-L

E. & B. EXPLORATIONS LTD. PROPERTIES

SCALE: 1" = 4 miles

FIGURE 5

19770024

The sediment samples were analyzed by fluorometric technique by Loring Laboratories Ltd., Calgary and the water samples were analyzed by fission track technique by Bondar-Clegg & Company, Ottawa.

The geochemical analysis for uranium in water and U, Cu, Pb, Zn, Ni, Co, and Mo in lake sediments are included in the appendix. Sample locations and geochemical results are plotted on enclosed maps A-76-2-3 and A-76-2-4.

A comparison of the duplicate samples, with analysis reported in parts per million, is tabulated below:

Sample No.	U_3O_8	U	Cu	Pb	Zn	Ni	Co	Mo
EBO-21S	0.6		6	7	54	8	8	NSS*
EBO-22S		0.9	9	13	94	13	4	1
EBO-41S	0.8		7	9	66	8	6	NSS
EBO-42S		0.5	9	10	105	11	4	1

* NSS Insufficient sample material

The duplicate analysis yeilded repeatable results within statistical limitations, with the insignificant exception of the zinc values.

The mean and standard deviation of the uranium values is presented below in comparison with a regional survey, conducted by the Saskatchewan D.M.R.* of 200 samples over the Athabasca Formation in the Wollaston area.

	OLD FORT RIVER		SASK. D.M.R. SURVEY WOLLASTON AREA	
	MEAN	1 S. DEV.	MEAN	1 S. DEV.
Uranium (ppm)	1.39	1.09	2.5	2.0

* Personal Communication, C. Dunn

Sample EBO-11S, collected from a small lake on the eastern property boundary, returned the single anomalous uranium value (7.4 ppm). The highest Cu and Pb values (25ppm and 26 ppm respectively) were also obtained from this sample site. This lake possibly correlates with an east-west trending band of slightly higher uranium content in lake sediments.

Variations in other metal values display no readily discernable patterns and little significance can be attributed to the metal distribution at this time.

The Zn results display the greatest fluctuations in values. The highest Zn analysis (210 ppm) was obtained from sample EBO-12S. This was from a clay-rich sample which suggests that the Zn values may be related in part to the clay content of the samples.

In summary, the low geochemical values obtained are consistent with an area of Athabasca subcrop. Basement lithologies are either not present within the permit area, or, if present, contain extremely low uranium and heavy metal values. No anamalous results warranting investigation were detected.

PROSPECTING TRAVERSES (Map A-76-2-5)

A four-man field party under the direction of A. Bak, geologist, prospected the permit area in detail. No outcrops or mineralization of significance were noted.

Till deposits are composed dominantly of Athabasca sandstone. Sparse granitic boulders, generally well rounded, were noted throughout the permit area.

Instrumentation used for the prospecting traverses consisted of 3 STRAT SPP2 scintillometers, 1 Scintrex BGS 1SL scintillometer, and a McPhar TV-1A differential spectrometer. Background radioactivity was relatively constant in the order of 20 to 25 counts per second. Numerous granite boulders yeilded 50 to 75 c.p.s. The highest radioactivity detected was 100cps in several well hematized sub-angular to sub-rounded Athabasca sandstone (quartz arenite) boulders.

VLF ELECTROMAGENTIC SURVEY (Map A-76-2-1)

A chain & compass flagged grid of approximately 27.5 line miles was established over the majority of the permit. Cross lines, at an irregular spacing (generally in the order of 1,500'), were oriented NW-SE.

A VLF electromagnetic survey was conducted utilizing a Geonics EM-16 unit and Seattle, Washington as the transmitter station. Readings were taken at 100' station intervals.

Five isolated, very weakly conductive responses were obtained. Tentatively, these have been ascribed to a combination of overburden and topographic orientation effects. None warrant follow-up at this time.

RADON SOIL GAS DETERMINATIONS (Map A-76-2-2)

Radon soil-gas measurements were taken at 200' sample intervals over those portions of the grid not covered by boulder till or muskeg. An E.D.A. Electronics model RD-200 emanometer was used for the survey.

Results plotted on map A-76-2-2 are in total counts per minute (radon plus thoron) for a one minute sample time. Because of the low values encountered, no attempt was made to calculate net radon counts.

Background varied from 5 to 9 counts per minute. Five readings in excess of 13 cpm (best value was 19 cpm) were obtained at the west end of lines 153N and 185N. However, these are not considered significant at this reconnaissance level and may, in fact, be related to varying soil dampness or weather conditions.

CONCLUSIONS

1.) The lake sediment and lake water geochemical survey, although indicating a weak east-west trend of higher uranium values, did not locate any areas warranting detailed investigations.

2.) Regional mapping, surface prospecting, and the low geochemical values obtained suggest that subcrop in the permit area consists of Athabasca Formation rocks.

3.) The results of both the VLF-EM and the radon soil gas surveys are inconclusive. A probable considerable thickness of surficial deposits and Athabasca Formation makes it unlikely that either technique could delineate unconformity or basement-type targets. However, this data should be reviewed in conjunction with other exploration methods applied in the future as subtle anomalies may assist in priority selection of targets.

The possible presence of the Paleo-Helikian / Athabasca Formation unconformity at shallow depths (i.e. less than 500') within the permit area still requires further evaluation. Exploration programs during the past two years in Saskatchewan have revealed that basement electromagnetic conductors

at the unconformity form the principle setting for high-grade uranium mineralization within the Athabasca Basin. Secondary targets may also be outlined by high resolution magnetics.

RECOMMENDATIONS

Exploration results from Saskatchewan properties with similar geological environments, in conjunction with observed surficial conditions present within the Permit, has shown the need for a different exploration approach than initially proposed. Surface radon determinations and geochemical analysis do not appear to have the ability to penetrate thick surficial deposits as well as an indeterminate thickness of Athabasca Formation. If such geochemical responses do exist, they form subtle anomalies that in themselves are not drill targets.

During the past two years the value of electromagnetic and magnetic coverage in locating potential drill targets within the Athabasca margin has become increasingly evident. The selection of either an airborne or ground approach is based on a consideration of the costs, comparative depth capabilities, degree of sensitivity & resolution, environmental impact, and field season timing.

The following program is herein recommended:

1.) An airborne electromagentic and proton magnetometer survey should be completed over the permit at 1/8 mile flight-line spacing with an east-west orientation. At least 6 north-south oriented survey lines should be undertaken to check for possible cross structures.

The Questor INPUT system is suggested for this program in view of its proven track record in similar environments, and its competitive cost.

2.) Electromagnetic conductors, if present, should be detailed by ground surveys.

3.) Ground delineated conductors should be tested by drilling.

4.) The magnetic survey results may yield secondary targets warranting ground geophysical coverage and/or drilling.

PROPOSED WORK PROGRAM & BUDGET ESTIMATION - 1978 SEASON

1.)	Pre-field and office	$ 1,200.00
2.)	Airborne electromagnetic and magnetic survey: 140 line miles, est. @ $35.00 per mile	4,900.00
3.)	Provision for an as yet undefined ground geophysical program, estimate of $500.00 per line mile for 15 miles	7,500.00
	SUB-TOTAL	$ 13,600.00
4.)	Provision for percussion, rotary or diamond drilling program	50,000.00
	TOTAL	$ 63,600.00

NOTE: The property may not be at the drill stage until the third year of the permit, as drill targets may not be outlined until the spring of 1978. Testing of these targets will probably require a winter program that would commence in late fall, 1978.

J. R. Allan, P. Geol.
December 8, 1977

CERTIFICATE

I, the undersigned, J. R. Allan, of the City of Calgary, in the Province of Alberta, do hereby certify:

1. that I am a Professional Geologist with an office mailing address at #301, 1300 - 8 Street, S.W.

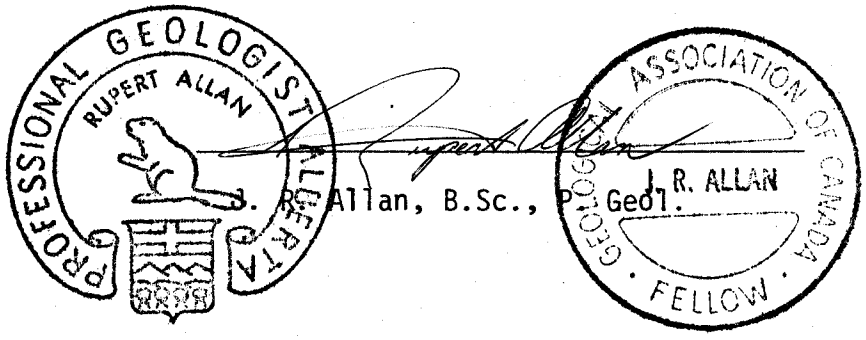
2. that I graduated from the University of Alberta, Edmonton with a Bachelor of Science degree in 1969.

3. that I am a registered Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

4. that I am a Fellow of the Geological Association of Canada.

5. that I have been practicing my profession as a geologist for eight years.

DATED AT CALGARY, ALBERTA, this 8 day of DECEMBER, 197Z.



J. R. Allan, B.Sc., P.Geol.

APPENDIX

PERSONNEL, 1977

	Man days
J.R. Allan, P.Geol. (Project supervisor); Calgary, Alberta Sept. 2 - ½ day, Sept. 5 - ½ day, Sept. 6, Sept. 7 - ½ day Sept. 8 - ½ day, Sept. 10 - ½ day, Sept. 16 - 22 Supervision & prospecting - 10.5 days Post-field data compilation, drafting & final report - 9 days	19.5
R.K. Netolitzky, P.Geol. (Project supervisor); Calgary, Alberta Pre-field data compilation & evaluation report, May-3 days Interim report, Sept. - 1 day	4.0
A. Bak, B. Sc. (field geologist); Calgary, Alberta Sept. 2 - ½ day, Sept. 3 - ½ day, Sept. 4 - 22	20.0
W. Salo, (Senior prospector); Yellowknife, N.W.T. Sept. 2 - ½ day, Sept. 3 - ½ day, Sept. 6 - 22	18.0
P. Dunlop (Senior prospector); The Pas, Manitoba Sept. 7 - 30	24.0
S. Mirasty, (Junior prospector); LaRonge, Sask. Sept. 3 - ¼ day, Sept. 4 - 30	27.25
TOTAL	112.75

1977 PROJECT EXPENDITURES (Unaudited)

1.	Pre-field data compilation & evaluation report	$ 600.00
2.	Transportation (fixed wing & helicopter)	4,106.89
3.	Field camp maintenance (camp equipment rental, food, fuel, disposable supplies).	2,345.50
4.	Field support (geophysical & equipment rentals, communications, travel expenses, expediting services, maps, reports & photocopying)	3,486.50
5.	Non-technical field personnel	8,580.00
6.	Lake sediment & lake water geochemical survey	3,315.00
7.	Supervision, post-field data compilation, drafting & final report	4,100.00
	Invoiced expenditures by Taiga Consultants Ltd.,SUB-TOTAL	26,533.89
8.	E.& B. Explorations Ltd., Head Office Administration @ 10% of project expenditures	2,653.39
	TOTAL	$ 29,187.28

To: TAIGA CONSULTANTS LTD.,
Suite 205, Fina Oil Building,
736 - 8th Avenue S. W.,
CALGARY, Alberta T2P 1H4

ATTN: R.K. Netolitzky

cc: LaRonge
Lynn Lake

File No. 13591
Date July 18, 1977
Samples Lake Bottom Sediment

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	PPM U308	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM Co	PPM Mo
EBO-1S	1.6	3	5	45	5	4	4
EBO-2S	1.4	1	5	44	4	4	2
EBO-3S	1.6	10	17	105	20	24	2
EBO-4S	.8	4	7	139	8	6	3
EBO-5S	2.0	5	5	47	11	4	4

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]

Licensed Assayer of British Columbia

To: TAIGA [redacted] NSULTANTS LTD.,
Suite 205, Fina Oil Building,
736 - 8th Avenue S.W.,
CALGARY, Alberta T2P 1H4

ATTN: R.K. Netolitzky

cc: LaRonge
Lynn Lake

File No. 13591
Date July 18, 1977
Samples Lake Bottom Sediments

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	PPM U308	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM Co	PPM Mo
EBO-6S	.4	5	4	41	11	4	3
EBO-7S	.8	10	17	50	20	28	5
EBO-8S	.6	5	17	93	17	24	3
EBO-9S	2.2	9	7	45	14	8	3
EBO-10S	1.8	6	17	68	20	30	5
EBO-11S	7.4	25	26	30	23	4	2
EBO-12S	1.6	8	7	210	20	8	NSS
EBO-13S	1.2	11	7	60	11	8	NSS
EBO-14S	1.2	13	7	69	17	8	2
EBO-15S	2.8	12	10	94	11	8	NSS
EBO-16S	1.2	9	7	34	11	8	2
EBO-17S	2.2	13	10	39	17	8	2
EBO-18S	2.6	11	10	100	11	8	NSS
EBO-19S	1.2	10	7	55	11	4	NSS
EBO-20S	1.6	5	10	46	8	4	NSS
EBO-21S	.6	6	7	54	8	8	NSS
EBO-22S* 235 ✓	.8	9	10	120	12	8	2
EBO-24S	.4	7	10	124	8	8	NSS
EBO-26S	.6	7	7	87	10	8	NSS
EBO-27S	.2	5	7	95	5	6	3
EBO-28S	2.0	11	14	86	17	15	3
EBO-29S	.8	7	10	97	8	8	NSS
EBO-30S	.8	5	7	63	7	8	2
EBO-31S	1.4	11	17	96	20	24	5
EBO-32S	2.6	6	5	26	8	8	3
EBO-33S	1.2	3	4	44	4	4	2
EBO-34S	.8	4	7	53	8	8	3
EBO-35S	.6	5	4	72	7	8	NSS
EBO-36S	1.4	3	7	40	8	6	2
EBO-37S	1.2	6	9	48	8	6	2
EBO-38S	.6	2	7	123	7	8	NSS

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]

Licensed Assayer of British Columbia

To: TAIGA [redacted] ONSULTANTS LTD.,
Suite 205, Fina Oil Building,
[redacted] 736 - 8th Avenue S.W.,
CALGARY, Alberta T2P 1H4

ATTN: R.K. Netolitzky

cc: LaRonge
Lynn Lake

File No. 13591
Date July 18, 1977
Samples Lake Bottom Sediments

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	PPM U308	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM Co	PPM Mo
EBO-39S	.6	4	9	65	5	6	NSS
EBO-40S*	-	-	-	-	-	-	-
EBO-41S	.8	7	9	66	8	6	NSS
EBO-44S	1.0	4	7	89	5	6	2
EBO-46S	1.0	4	7	26	2	6	2
EBO-47S	1.8	4	10	45	11	10	2
EBO-48S	1.6	4	17	47	11	15	2
EBO-49S	1.4	7	7	112	8	8	3
EBO-50S	.6	4	7	119	8	6	3
EBO-51S	1.6	1	7	47	5	8	3
EBO-52S	1.8	8	15	61	11	15	2
EBO-53S	1.0	5	10	91	8	8	2

* NO SAMPLE

I Hereby Certify THAT THE ABOVE RESULTS ARE THOSE ASSAYS MADE BY ME UPON THE HEREIN DESCRIBED SAMPLES . . . .

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Pulps Retained one month unless specific arrangements made in advance.

[redacted]
Licensed Assayer of British Columbia

BONDAR-CLEGG & COMPANY LTD.

Geochemical Lab Report

Report No. 713-7 Page No. 3

SAMPLE NO.	U ppb	SAMPLE NO.	U ppb
EBO 03	0.10	EBO 41	0.05
04	0.14	43	0.07
05	0.02	44	0.13
06	0.08	46-	0.11
07	0.19	47	0.07
08	ND	48	0.14
09	0.02	49	0.10
10	0.07	50	0.05
11	0.07	51	0.07
12	0.12	52	0.15
13	0.02	53	0.01
14	0.02	33	0.13
15W	0.15	34	0.08
16	0.15	35	0.01
17	0.17	36	0.09
18	0.12	37	0.07
19	0.11	38	0.11
20	0.07	39	0.06
21	0.11	40	0.06
23	0.10		
24	0.09		
26	ND		
27	0.11		
28	0.07		
29	0.12		
30	0.06		
31	0.11		
32	0.11		

(1)

(1A)

(2)

(2A)

(3)

(3A)

153N

Base line

185N

96N

115N

69N

56N

45N

121N

96N

31N

63(69)N

0N

16N

56N

Camp

Base line

31N

23N

LEGEND

INSTRUMENT: GEONICS E.M. - 16

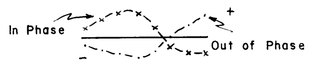
STATION: SEATLE, WASH., NPG.

FREQUENCY: 18.6 KHZ

OPERATOR: P. DUNLOP

SCALE: 1" = 20%

CONVENTION: OPERATOR FACING EAST



SURVEY CONDUCTED FOR:
E. & B. EXPLORATIONS LTD.

SURVEY TYPE:
VLF ELECTROMAGNETIC

LOCATION: TWPS. 104-105, R1, W4M, ALTA

AREA REFERENCE: N.T.S. 74-L-1

PROPERTY: OLD FORT RIVER
PERMIT NO. 6876090002

DATE: SEPT. 30/77

PROJECT NO.: A-76-2

MAP SHEET: 1 of 1

MAP NO.: A-76-2-1

SCALE
778 0 778 1556 feet
Scale: 1" - 778'

SURVEY CONDUCTED BY:
TAIGA CONSULTANTS LTD.

1770024

(1)

(1A)

(2)

(2A)

(3)

(3A)

153N

Base line

185N

96N

115N

69N

56N

45N

121N

96N

31N

63(69)N

56N

0N

16N

Camp

Base line

31N

23N

LEGEND

INSTRUMENT: E.D.A. ELECTRONICS MODEL RD 200 EMANOMETER

OPERATOR: S. MIRASTY

7 4 3

Sample location, reading in counts per minute, one minute counting interval, uncorected for thoron contribution.

SURVEY CONDUCTED FOR: E. & B. EXPLORATIONS LTD.	
SURVEY TYPE: SOIL RADON	
LOCATION: TWPS, 104-105, R1, W4M, ALTA	AREA REFERENCE: N.T.S. 74-L-1
PROPERTY: OLD FORT RIVER PERMIT NO. 6876090002	DATE: SEPT. 30/77
PROJECT NO.: A-76-2	MAP SHEET: 1 OF 1
	MAP NO.: A-76-2-2
SCALE: 778 0 778 1556 feet — Scale: 1" - 778'	
SURVEY CONDUCTED BY: TAIGA CONSULTANTS LTD.	

19780024

LEGEND

x 18 SAMPLE SITE & SAMPLE NO.

10/11/100/8 Zn | Ni / Co | Mo analyses in parts per million

SWAMP

NOTE: BASEMAP COMPILED FROM UNCONTROLLED PHOTOMOSAIC

NS, NO, NSS No sample, Not detectable, Insufficient sample for analysis

MAP A-76-2-4

E. & B. EXPLORATIONS LTD.

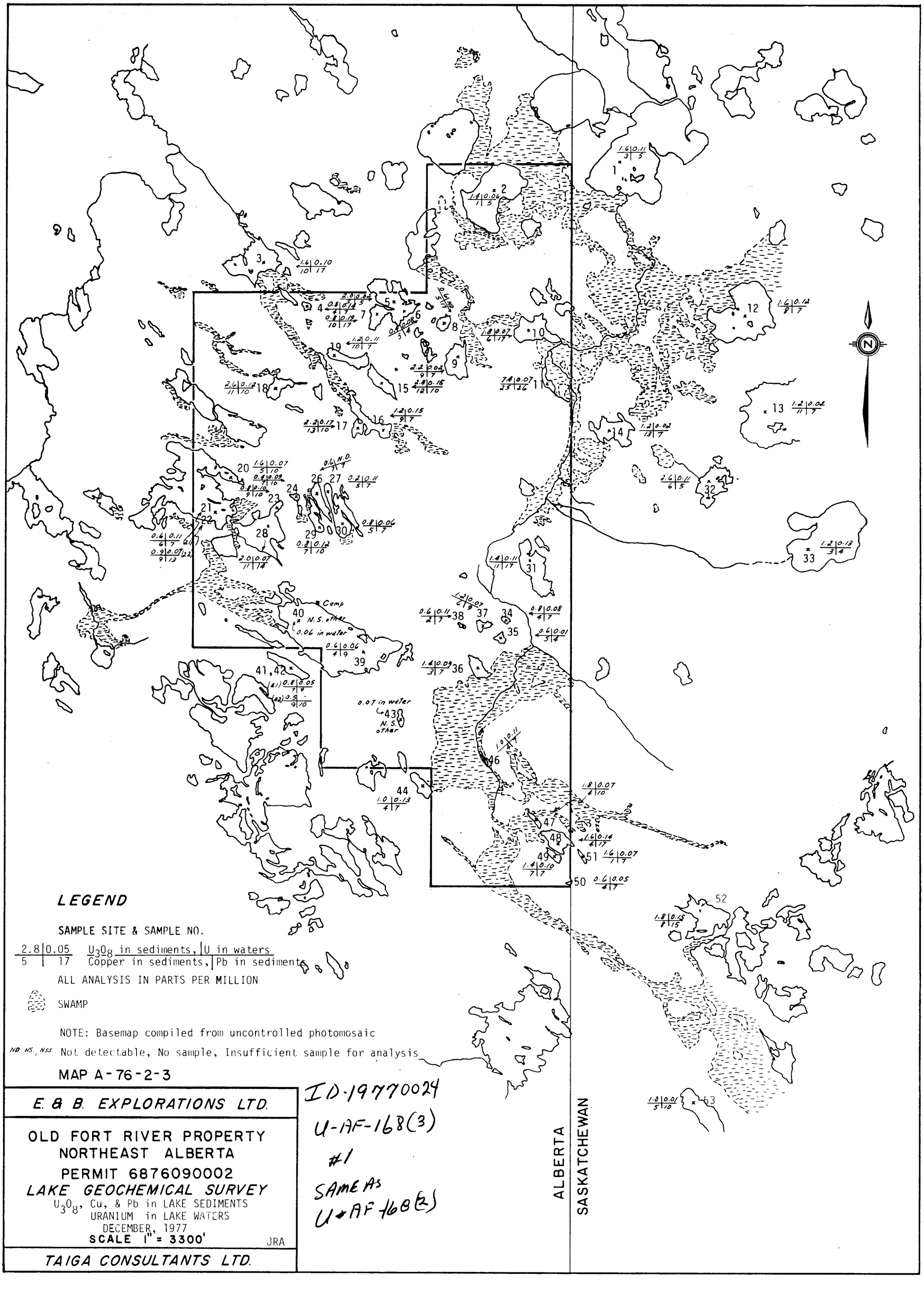
OLD FORT RIVER PROPERTY
NORTHEAST ALBERTA
PERMIT 6876090002
LAKE GEOCHEMICAL SURVEY
Zn, Ni, Co, & Mo in SEDIMENTS
DECEMBER, 1977
SCALE 1" = 3300' JRA

TAIGA CONSULTANTS LTD.

ALBERTA

SASKATCHEWAN

1977-0024



LEGEND

SAMPLE SITE & SAMPLE NO.

2.8|0.05 — U_3O_8 in sediments, | U in waters
5 | 17 — Copper in sediments, | Pb in sediments

ALL ANALYSIS IN PARTS PER MILLION

SWAMP

NOTE: Basemap compiled from uncontrolled photomosaic

ND, NS, NSS Not detectable, No sample, Insufficient sample for analysis

MAP A-76-2-3

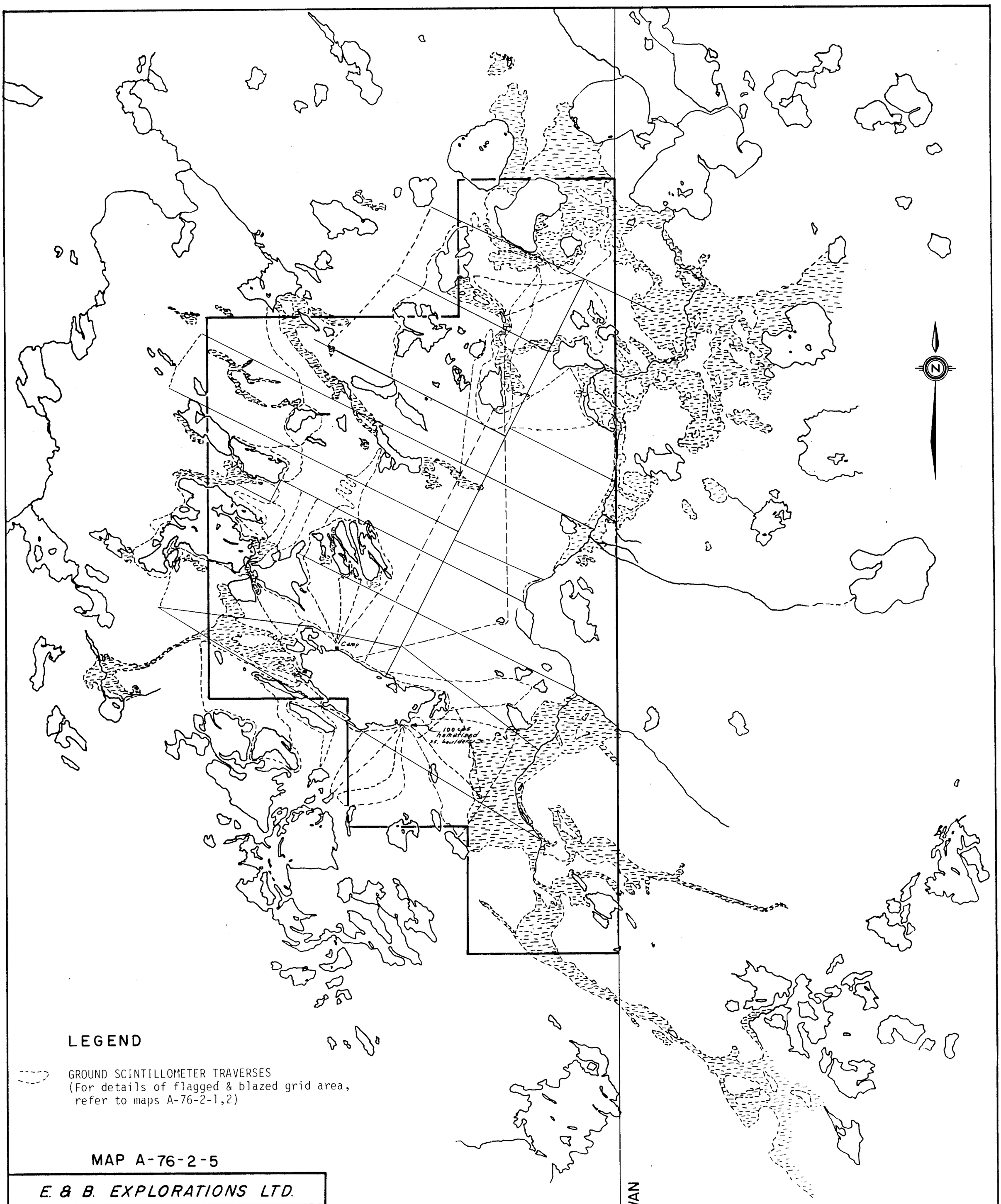
E. & B. EXPLORATIONS LTD.

OLD FORT RIVER PROPERTY
NORTHEAST ALBERTA
PERMIT 6876090002
LAKE GEOCHEMICAL SURVEY

U_3O_8, Cu, & Pb in LAKE SEDIMENTS
URANIUM in LAKE WATERS
DECEMBER, 1977
SCALE 1" = 3300' JRA

TAIGA CONSULTANTS LTD.

ID-19770024
U-AF-168(3)
#1
SAME AS
U-AF-168(2)



LEGEND

GROUND SCINTILLOMETER TRAVERSES
(For details of flagged & blazed grid area, refer to maps A-76-2-1,2)

MAP A-76-2-5

E. & B. EXPLORATIONS LTD.
OLD FORT RIVER PROPERTY NORTHEAST ALBERTA PERMIT 6876090002 *PROSPECTING TRAVERSES* MAP A-76-2-5 DECEMBER, 1977 SCALE 1" = 3300' JRA
TAIGA CONSULTANTS LTD.

19770024

Map #1

19770024

(1)

(2)

SURFICIAL GEOLOGY
FORT CHIPEWYAN
NTS74L

RECENT

EROSIONAL FEATURES

17 Slump: *mixed glacial and bedrock materials; unstable slope*

16 Gully, creek valley: *thin colluvial cover on valley slopes; thin alluvial materials along streams*

ALLUVIAL DEPOSITS

15 Alluvial fan: *bedded silt, sand and clay; variable thickness, overlying glacial deposits*

14 Stream alluvium: *mainly sand along Athabasca River; sand and silty sand along other streams*

13 Athabasca River delta: *alluvial sand, silt and clay, calcareous*

12 Peace River delta: *alluvial silt, sand and clay, calcareous*

11 Small stream delta: *sand, silt and clay*

10 Early Athabasca River sediments and terraces: *medium- to coarse-grained sand, overlying thin gravel and lag gravel*

AEOLIAN DEPOSITS

9 Aeolian sand, dunes: *medium-grained quartzitic sand in sheet and dune form; thick in dunes, 2 to 10 feet in sheet sand*

PLEISTOCENE

GLACIOLACUSTRINE DEPOSITS

8 Sand: *thin, over glacial outwash sand and gravel*

7 Sand: *thick, medium- to fine-grained sand with scattered silt and clay beds*

GLACIOFLUVIAL DEPOSITS

6 Meltwater channel sediment: *medium- to coarse-grained sand, overlying thin gravel and lag gravel*

5 Outwash sand: *medium- to coarse-grained sand with pebbles and small gravel lenses; surface level to gently undulating*

4 Outwash sand and gravel: *medium- to coarse-grained sand and gravel, with many large boulders; generally thin with some outcrops of Athabasca sandstone; topography undulating to rolling*

3 Outwash sand and gravel overriden by glacier: *fluted and drumlinized outwash of sand and gravel to gravel, with many large boulders; generally thick to very thick; topography undulating to rolling*

2 Ice-contact deposits: *sand and gravel to gravel, numerous very large boulders; rolling topography, individual hills reach heights of several hundred feet; includes kame moraine, eskers, moulin kames, crevasse fillings, and other related ice-contact glaciofluvial deposits; form end moraines of glacier advances*

PRECAMBRIAN

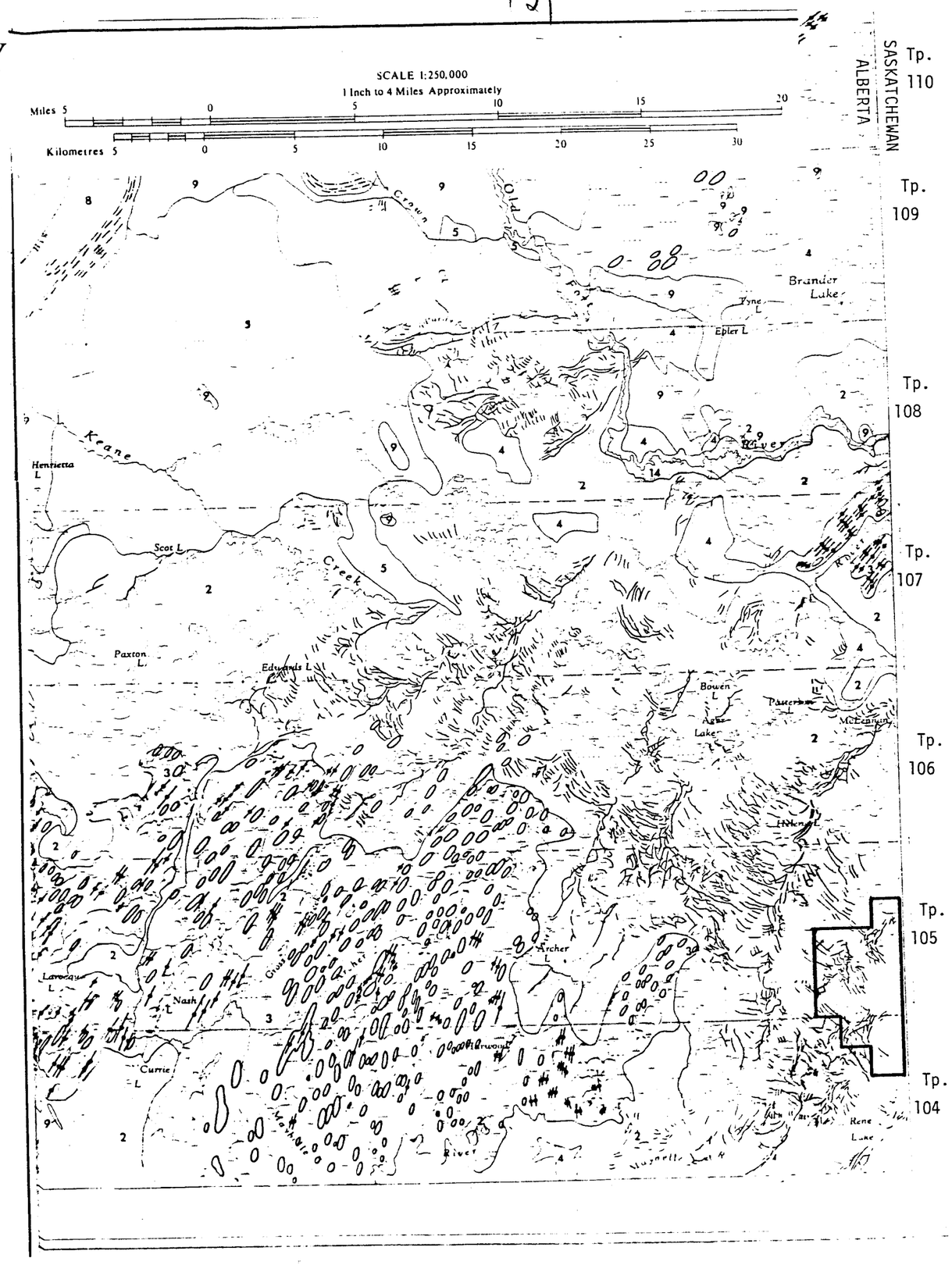
1 Granite, gneiss and metasedimentary rocks: *outcrops form hills and knolls; generally bare, locally covered with thin drift*

Geological boundary; defined, approximate, assumed .....

Abandoned beach .....

Channel scarp (ticks indicate downslope side) .....

Athabasca sandstone outcrop .....



PRELIMINARY REPORT

PROJECT A-76-2

OLD FORT RIVER PROPERTY, ALBERTA

PERMIT # 6876090002

September 26, 1977

INTRODUCTION:

The initial field evaluation of the permit has been completed. However, data compilation and preparation of final reports will not be completed until the end of October. Final cost of the program will be available as soon as all invoices are received and processed.

Exploration conducted on the property during the first term of the Permit consists of:

- Lake sediment geochemistry
- Lake water geochemistry
- Surface prospecting
- Surface geological evaluation
- Radon soil gas and/or water determinations
- VLF -EM test surveys
- Office compilation of existing data
- Aerial photograph examinations (including Landsat imagery)

The exploration results from Saskatchewan properties in similar geological environments, in conjunction with observed surficial conditions present within the Permit has shown the need for a different exploration approach, than initially proposed. Surface radon determinations in conjunction with geochemical analyses do not appear to have the ability to penetrate thick surficial deposits as well as an indeterminate thickness of Athabasca Formation. If such geochemical responses do exist they form subtle anomalies that in themselves are not drill targets.

Within recent months the value of detailed airborne electromagnetic and magnetic coverage in locating potential drill targets within the Athabasca margin, has become evident.

GENERAL DISCUSSION:

The lake water and sediment results are included as a separate preliminary report. Delays in receiving the laboratory analytical results, in conjunction with an unusually wet field season were responsible for the late commencement of the field aspects of the program.

The geochemical results did not return any good target areas within the Permit, for surface exploration to concentrate on.

No bedrock outcrop areas were observed during the geochemical sampling program. The vast majority of boulders present consist of Athabasca Formation.

The low geochemical values obtained are consistent with an area of Athabasca subcrop. Basement lithologies are either not present within the Permit area or if present contain exremely low uranium and other metal values.

Regional mapping data suggests that subcrop in the permit area consists of an unknown thickness of Athabasca Formation.

A probable considerable thickness of surficial deposits and Athabasca Formation makes it unlikely that radon methods will define target areas which in themselves will warrant further exploration. Subtle anomalies in conjunction with other methods may help in priority selection of target areas.

The possible presence of the Paleo-Helikian Athabasca unconformity at shallow depths within the permit area still requires further evaluation. Depths of up to 600 feet are capable to be explored by electromagnetic techniques: Exploration programs conducted primarily within the Saskatchewan side within recent months has shown that basement electromagnetic conductors at the Athabasca unconformity forms the principle setting for high-grade uranium mineralization within the Athabasca Formation. Secondary targets may also be outlined by high resolution magnetic coverage.

Two alternate approaches are available to explore the property. Electromagnetic and magentic surveys may either be conducted by ground or by airborne methods. A consideration of the cost involved, depth penetration available and environmental aspects, suggests that airborne coverage is the most practical approach. If an airborne survey obtains favorable results, detailed ground coverage will be required to detail anomalies.

Upon reviewing the available airborne methods the Questor 'INPUT' system appears to be the best presently available with regard to reliability, depth penetration and cost. An attempt to obtain "INPUT' coverage of the Permit during its first year was not possible due to equipment unavailability.

PROGRAM RESULTS:

The lake geochemical results, although indicating a weak east-west trend of higher uranium values did not locate any areas warranting detailed surface examination.

The surface prospecting program also did not locate any significant target areas. The surface examinations did confirm the probable presence of an unknown thickness of Athabasca Formation on the property. Published regional data suggests a relatively thin Athabasca cover of less than 1000 feet and possibly less than 600 feet. The proven importance of the Athabasca Paleo-Helikian unconformity as the site of high grade uranium deposits makes it imperative that further effort be expended to locate target areas within the Permit. In the most part, ore bodies discovered to date are associated with electromagnetic conductors.

CONCLUSIONS:

1. Surface methods have not located definite target for further exploration.

2. Seismic methods, although potentially useful in determining depths to Pre-Athabasca basement do not have the ability to directly define drill targets.

3. Airborne electromagnetic systems have the capability of outlining conductors to a maximum depth of approximately 600 feet.

4. High resolution magnetic coverage has the potential to outline favorable areas that may warrant drill evaluation.

RECOMMENDATIONS:

1. An airborne 'INPUT' electromagnetic survey, in conjunction with proton magnetometer coverage should be completed over the Permit at 1/8th mile spacing on east-west lines. Some north-south lines should also be completed at the same time.

2. Electromagnetic conductors, if present, should be detailed by ground surveys.

3. Electromagnetic conductors, detailed by ground surveys should be tested by drilling.

4. If no electromagnetic conductors are present magnetic results may lead to drill targets.

5. If no targets are obtained by the geophysical surveys, seismic methods may be considered.

6. A drilling program should be planned for testing geophysical anomalies. Dependent upon timing, drill targets may not be ready until the third year of the Permit.

PROPOSED WORK PROGRAM: 1977-1978 SEASON

1. Pre-field and office	$1200.00
2. Airborne electromagnetic and magnetic survey 140 line miles, est. @ $35.00 per mile	$4900.00
3. Provision for ground geophysical program estimate of $500.00 per line mile for 15 miles	$7500.00
	13,600
4. Provision for drilling	$50,000.00

NOTE:

The property may not be at the drill stage until the third year, as drill targets may not be outlined until the spring of 1978, which will probably require a winter program that could commence in the fall fo 1978.

Est Cost. 14.9 acre

PROJECT A-76-2

PERMIT # 6876090002

Estimate of program expenditures. First year of Permit.

Prefield and office support	3,000.00
Lake geochemical survey	3,315.00
Surface exploration	15,000.00
Compilation of final report and office	3,000.00
TOTAL ESTIMATE	$ 24,315.00

September 1, 1977

PROJECT A-76-2
OLD FORT RIVER PROGRAM
GEOCHEMICAL RESULTS

INTRODUCTION:

A lake water and lake sediment sampling program was conducted on the Old Fort River Permit on June 7, 1977. Unfortunately, the analytical results were not received until August.

A total of 49 sites were sampled during the survey. Duplicate samples were collected from two of these sites. Sediment samples were sent to Loring Laboratories in Calgary and the water samples and duplicates to Bondar-Clegg and Company, Ottawa.

SURVEY RESULTS:

The geochemical analyses for 'U' in water and U, Cu, Pb, Zn, Ni, Co and Mo in lake sediments are included within the appendix. Sample locations and the results for U in waters and U_3O_8, Pb and Zn in sediments are plotted on enclosed maps.

A comparison of the duplicate samples is tabulated below:

(In PPM)	U_3O_8	U	Cu	Pb	Zn	Ni	Co	Mo
EBO-21S	0.6	0.9	6	7	54	8	8	NSS*
EBO-22S			9	13	94	13	4	1
EBO-41S	0.8		7	9	66	8	6	NSS
EBO-42S		0.5	9	10	105	11	4	1

*NSS Insufficient sample material

Except for Zn values, duplicate analysis yielded similar results for all of the metals.

Sample EBO-11S returned the best 'U' value. This sample was collected from a small lake on the Alberta-Saskatchewan boundary (property boundary). The highest Cu and Pb values were also obtained from this sample site.

This lake possibly correlates with an east-west trending band of higher 'U' content in lake sediments.

Variations in other metal values display no readily discernable patterns and little significance can be attributed to the metal distribution at this time.

The Zn results display the greatest fluctuations in values. The highest Zn value (210 ppm) was obtained from sample no. EBO-12S. This was from a clay-rich sample which suggests that the Zn values in part may be related to the clay content of the samples.

RECOMMENDATIONS

1. The prospecting program should still be conducted on the property, but possibly for a shorter time interval than initially proposed.

2. Radon degassing of muskeg waters and soil gas profiles should be conducted across the east-west trending area of higher 'U' values in lake sediments.

3. An airborne E.M. and magnetometer survey should be conducted over the property.

4. Airborne results in conjunction with geochemical and surface prospecting results should enable selection of follow-up targets.

EBO SAMPLE SERIES - Lake Sediment Samples

Sample No.	U_3O_8	Cu	Pb	Zn	Ni	Co
EBO-1	1.6	3	5	45	5	4
EBO-2	1.4	1	5	44	4	4
EBO-3	1.6	10	17	105	20	24
EBO-4	0.8	4	7	139	8	6
EBO-5	2.0	5	5	47	11	4

To: TA[redacted] CONSULTANTS LTD.,
Suite 205, Fina Oil Building,
736 - 8th Avenue S.W.,
CALGARY, Alberta T2P 1H4

ATTN: R.K. Netolitzky

cc: LaRonge
Lynn Lake

File No. 13591
Date July 18, 1977
Samples Lake Bottom Sediments

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	PPM U308	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM Co	PPM Mo
EBO-6S	.4	5	4	41	11	4	3
EBO-7S	.8	10	17	50	20	28	5
EBO-8S	.6	5	17	93	17	24	3
EBO-9S	2.2	9	7	45	14	8	3
EBO-10S	1.8	6	17	68	20	30	5
EBO-11S	1.4	25	26	30	23	4	2
EBO-12S	1.6	8	7	210	20	8	NSS
EBO-13S	1.2	11	7	60	11	8	NSS
EBO-14S	1.2	13	7	69	17	8	2
EBO-15S	2.8	12	10	94	11	8	NSS
EBO-16S	1.2	9	7	34	11	8	2
EBO-17S	2.2	13	10	39	17	8	2
EBO-18S	2.6	11	10	100	11	8	NSS
EBO-19S	1.2	10	7	55	11	4	NSS
EBO-20S	1.6	5	10	46	8	4	NSS
EBO-21S	.6	6	7	54	8	8	NSS
EBO-22S	.8	9	10	120	12	8	2
EBO-24S	.4	7	10	124	8	8	NSS
EBO-26S	.6	7	7	87	10	8	NSS
EBO-27S	.2	5	7	95	5	6	3
EBO-28S	2.0	11	14	86	17	15	3
EBO-29S	.8	7	10	97	8	8	NSS
EBO-30S	.8	5	7	63	7	8	2
EBO-31S	1.4	11	17	96	20	24	5
EBO-32S	2.6	6	5	26	8	8	3
EBO-33S	1.2	3	4	44	4	4	2
EBO-34S	.8	4	7	53	8	8	3
EBO-35S	.6	5	4	72	7	8	NSS
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EBO-37S	1.2	6	9	48	8	6	2
EBO-38S	.6	2	7	123	7	8	NSS

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Pulps Retained one month unless specific arrangements made in advance.

[redacted]
Licensed Assayer of British Columbia

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Date July 18, 1977
Samples Lake Bottom Sediments

Certificate of ASSAY

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SAMPLE No.	PPM U308	PPM Cu	PPM Pb	PPM Zn	PPM Ni	PPM Co	PPM Mo
EBO-39S	.6	4	9	65	5	6	NSS
EBO-40S*	-	-	-	-	-	-	-
EBO-41S	.8	7	9	66	8	6	NSS
EBO-44S	1.0	4	7	89	5	6	2
EBO-46S	1.0	4	7	26	2	6	2
EBO-47S	1.8	4	10	45	11	10	2
EBO-48S	1.6	4	17	47	11	15	2
EBO-49S	1.4	7	7	112	8	8	3
EBO-50S	.6	4	7	119	8	6	3
EBO-51S	1.6	1	7	47	5	8	3
EBO-52S	1.8	8	15	61	11	15	2
EBO-53S	1.0	5	10	91	8	8	2

* NO SAMPLE

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[redacted]

Licensed Assayer of British Columbia

E. & B. EXPLORATIONS LTD.
OLD FORT RIVER PERMIT
ALBERTA

LAKE SEDIMENT & LAKE WATER GEOCHEMICAL SURVEY

SAMPLE LOCATION MAP

JUNE, 1977

SCALE: APPROX 1" = 3,000'

SAMPLE SERIES E.F.O