URANERZ EXPLORATION & MINING LTD.

YEARLY REPORT 1981

PROJECT 71-85 - BEAVER-ZORAN/OTISH WEST

(Report No. 7185-62)

Prepared by:

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UEM-Montreal
January, 1982

ZM/lk

SUMMARY

Diamond drilling at Camie River has presently defined a continuously mineralized zone 360 m long between L54E and L58E. OM-47 (L58E) intersected the best mineralization to date - two separate zones below the unconformity grading 15.45% U_3O_8 over 0.5 meter and 0.17% U_3O_8 over 4 meters. In addition, concentrations of Zn, Pb and Mo were encountered in the hole (1.03% Zn, 0.41% Pb, and 0.14% Mo over 3.5 meters). Significant uranium mineralization was intersected below the unconformity on L38E as well, grading 0.53% U_3O_8 over 4.7 meters. Elsewhere, sporadic mineralization was found in both the sediments and the underlying volcanics.

Follow-up geochemical and geophysical work on the various grids within the Otish basin has defined numerous areas that reflect a setting similar to the Camie River area - particularly on the Temis River, Temiscamie River, Tichegami River South, and Lac Carmen grids.

Reconnaissance prospecting within the Otish basin has outlined uranium mineralization in sediments and in gabbro intrusives, usually grading around 0.3% U_3O_8. In all cases, tourmalinization is associated with the mineralization.

Diamond drilling at Lac Martin (Papaskwasati) failed to intersect any uranium mineralization. Fundamental differences between Lac Martin and Camie River with respect to rock type, tectonics and alteration are given as the possible causes for the lack of mineralization.

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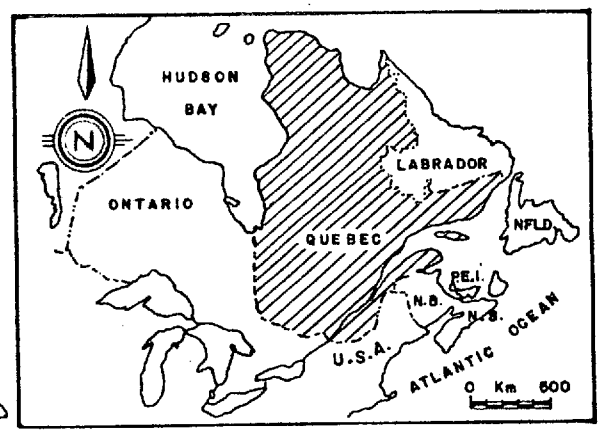


HUDSON STRAIT

SUPERIOR PROVINCE

CHURCHILL PROVINCE

NAIN PROV.

LABRADOR SEA

HUDSON BAY

FORT-CHIMO

SCHEFFERVILLE

EAU CLAIRE LAKE

MILDRED LAKE

GRANDE BALEINE

CANIAPISCAU RIVER

CANIAPISCAU LAKE

CHURCHILL RIVER

LABRADOR CITY

LA GRANDE RIVIERE

EASTMAIN RIVER

BEAVER-ZORAN / OTISH WEST

JOHAN BEETZ

GRENVILLE PROVINCE

SEPT-ILES

Témiscamie

CHIBOUGAMAU

ST. LAWRENCE RIVER

R. SAGUENAY

APPALACHIAN FOLD BELT

VAL D'OR

MONTREAL

56°

52°

72°

76°

80°

60°

64°

0 100 200 300 Km.

LEGEND

PLATFORM SEDIMENTARY ROCKS YOUNGER THAN CAMBRIAN

APPALACHIAN FOLD BELT

GEOSYNCLINAL SEDIMENT FOLDED AND PARTLY METAMORPHIC

GRENVILLE PROVINCE

PALEOZOIC & MESOZOIC ROCKS

B. JOHAN BEETZ METASEDIMENTS

BASEMENT (USUALLY GRANULITIC GNEISS)

CHURCHILL PROVINCE

SEAL LAKE GROUP (HELIKIAN)

LETITIA LAKE GROUP (HELIKIAN)

AILLIK GROUP (APHEBIAN)

LABRADOR TROUGH SEDIMENTS (APHEBIAN)

BASEMENT (GRANITIC GNEISS)

SUPERIOR PROVINCE

SEDIMENTARY ROCKS (APHEBIAN AND YOUNGER)

METAVOLCANICS

BASEMENT (GRANITIC GNEISS)

PROJECT BEAVER-ZORAN / OTISH WEST
71-85
GENERAL LOCATION MAP

Fig. 1

File / Doss No. 1

1. INTRODUCTION

1.1 PARTNER'S EQUITY

As of December 31, 1981 the equity is:

S.D.B.J.	47.36%
U.E.M.	34.99%
CANICO	17.65%

1.2 PROJECT LOCATION

The project area is located approximately 300 km NNE of Chibougamau and 700 km north of Montreal (see Fig. 1).

1.3 INFRASTRUCTURE

An all-weather gravel road exists between Chibougamau and the Temiscamie River airbase which is near the northeast corner of Lac Albanel, approximately 130 km from the project area. Chibougamau is accessible by paved highway, a rail link and regular air transport from major cities in the south.

1.4 TENURE

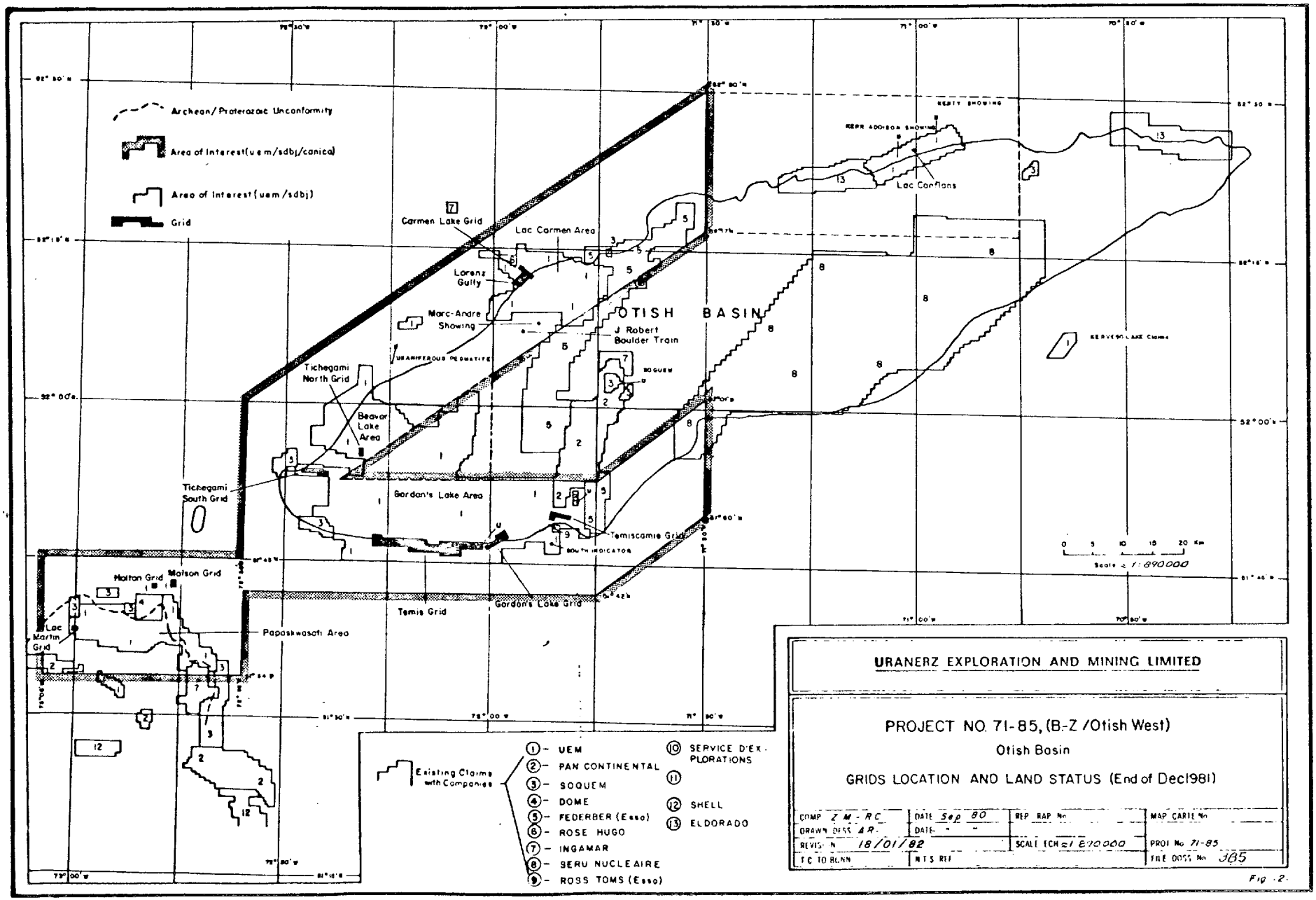
The following table outlines the joint venture land holdings in the Otish area as of December 31, 1981 (see Fig. 2)

Table 1 - Land Status

Claim Block	No. of Claims	Area (km^2)
Gordon's Lake	3447	551.5
Lac Carmen	959	153.4
Beaver Lake	843	134.9
Papaskwasati	686	109.8
Kerveso Lake	48	7.7
Lac Henri	38	6.1
Lac Molson	8	1.3
Lac Holton	6	1.0
Totals	6035	965.7

2. GENERAL GEOLOGY

The Proterozoic Otish and Papaskwasati sediments are situated within the Superior Structural Province near a poorly defined metamorphic front (Grenville Orogenic Front) (see Fig. 3). The Superior basement lithologies consist of (i) gneisses and migmatites (ii) metavolcanic and metasedimentary fold belts and (iii) granites. All these units are thought to be Archean



URANERZ EXPLORATION AND MINING LIMITED

PROJECT NO. 71-85, (B-Z /Otish West)

Otish Basin

GRIDS LOCATION AND LAND STATUS (End of Dec1981)

COMP Z M - R C	DATE Sep 80	REP MAP No	MAP CARTE No
DRAWN DESS A R	DATE - -		
REVISED 18/01/82		SCALE ECH ≈ 1 E/10000	PROJ No 71-85
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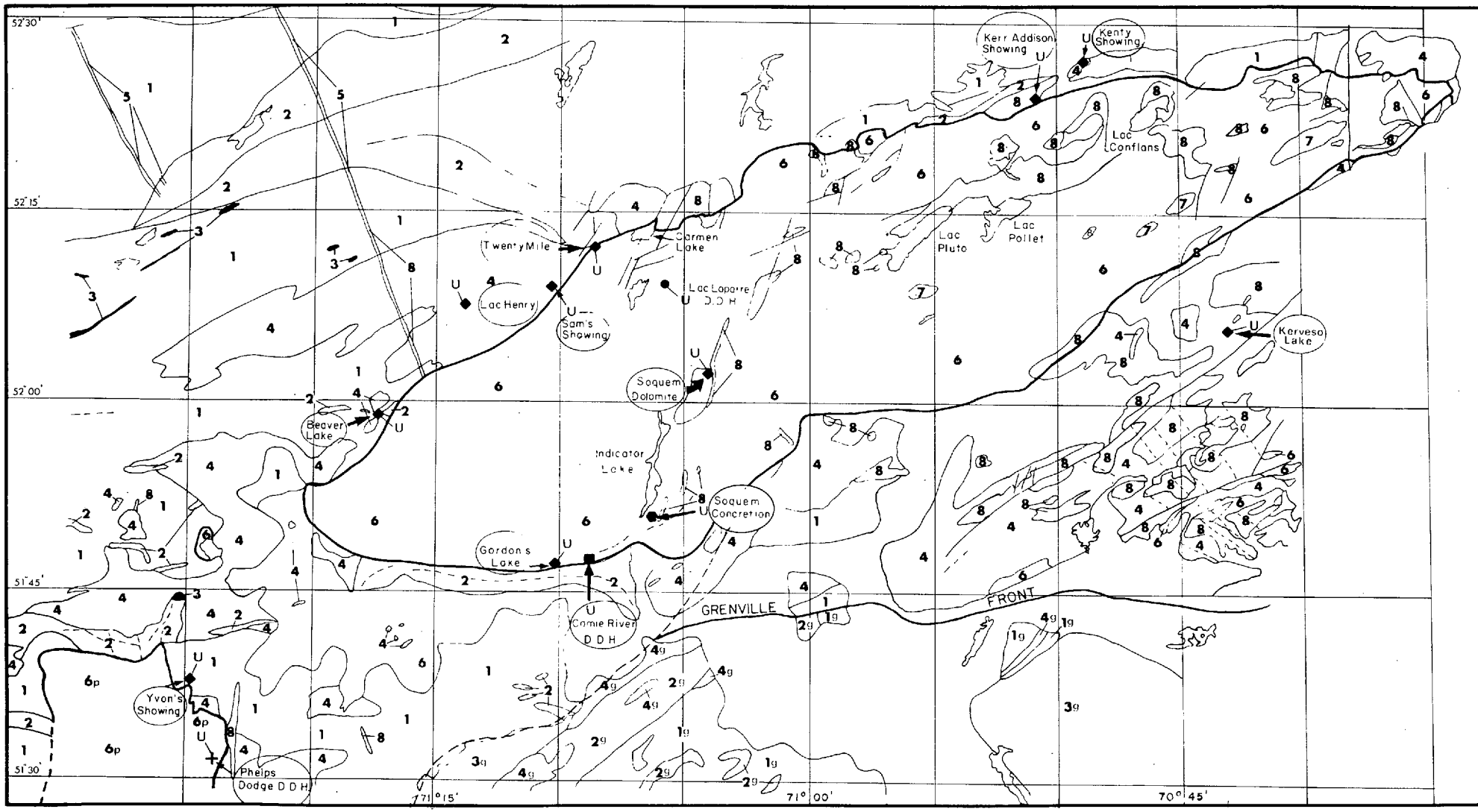
Fig - 2-



LEGEND

QUATERNARY

GLACIAL DEPOSITS

PRECAMBRIAN

SUPERIOR PROVINCE

8 - OTISH MTS. GABBRO

OTISH GROUP

7 - PERIBONCA FM.

6 - INDICATOR FM.

MISTASSINI GROUP

6p - PAPASKWASATI FM.

UNCONFORMITY.

5 - DIABASE DIKES

4 - GRANITE

3 - META-ULTRAMAFIC

2 - METAVOLCANIC-METASEDIMENTARY ROCKS

1 - GNEISS & MIGMATITE

GRENVILLE PROVINCE

4g - GRANITE

3g - ANORTHOSITE

2g - METAVOLCANICS

1g - GNEISS

FAULTS

STRUCTURAL TREND (Foliation, Fold Axis)

D.D.H. DIAMOND DRILL HOLE

U URANIUM OCCURRENCES

EPIGENETIC VEIN-RELATED

EPIGENETIC UNCONFORMITY-VEIN

DIAGENETIC CONCRETION

SYNGENETIC in SEDIMENTS

UNCLASSIFIED

SCALE = 1:800,000

0 10 20 30 40 km

GENERAL GEOLOGY,
U OCCURRENCES

Fig.-3-

File Doc. No. 710

although recent age datings appear to indicate excessively younger periods (usually Hudsonian, 1800 m.y.). These dates, however, might indicate a partial metamorphic overprint on older rocks during the Hudsonian event.

The gneiss and migmatite complex underlies most of the area. It is variable in appearance, ranging from a schistose, layered variety to a nearly massive type. Compositionally, the quartz-biotite feldspar gneiss predominates, although cordierite and garnet are found as well. Alternating light and dark bands are a distinctive feature resulting from variations in mafic content (chiefly biotite).

Metavolcanic and metasedimentary sequences outcrop as narrow east-west trending belts and as small inclusions in granite-gneiss complexes. The unit is composed of metamorphosed acid to basic tuffs, flows and fragmented volcanic rock, interlayered with sandstones, conglomerates, cherty iron formation and chloritic schists. Graphitic schists and narrow sulfide-rich (pyrite-pyrrhotite) horizons were outlined through drilling.

The granitic complex, typically coarse grained, equigranular, with quartz, feldspar and minor mafics is predominant over a large part of the basement. This unit intrudes all the above rock types, usually as concordant sills parallel to the gneissic foliation. Some of the granitic material appears to have been formed from the granitization of gneisses and migmatites. NW-SE trending diabase dikes, in turn, intrude all above units.

The basement complex is unconformably overlain by fluvioterrestrial to marginal marine sediments of the Otish Group (Otish Basin) and of the Mistassini Group (Papaskwasati Basin) - see Table 2. The Otish and lower Mistassini Groups, although separated by a 30 km wide erosional gap, are very easily correlatable. The basal formations consist of a quartz pebble conglomerate or polymictic conglomerate grading up to a massive gritty arkose. This, in turn, grades into well laminated and crossbedded quartzites, arkoses and minor argillites (Indicator and Papaskwasati Formations). Conformably overlying the terrestrial sediments are partly graphitic dolomitic arkoses and sandstones, dolomites and argillaceous sandstones of marginal marine origin (Peribonca, Cheno, Upper and Lower Albanel Formations). True marine sediments (iron formation, chert, graphitic and pelitic shales) are found only south of the Papaskwasati Basin - around Lakes Mistassini and Albanel. Fresh and partly uralitized olivine gabbro dikes and sills intrude both the sedimentary and basement units.

The Grenville Orogeny (900 m.y.) folded both basins into broad gently plunging synclines. Thrust faulting and tight folding of the sediments is evident along the southeastern margin of both basins. Retrograde metamorphism in certain Archean units appears to have resulted from this orogeny as well.

TABLE -2- Table of Formations.

CENOZOIC			RECENT + PLEISTOCENE	*River, lake, swamp deposits Till, sand + gravel.*
UNCONFORMITY				
PRECAMBRIAN	PROTEROZOIC	UPPER APHEBIAN (?)	OTISH MTS. GABBRO	*Dykes and sills of olivine gabbro, partly uralitic*
			INTRUSIVE CONTACT	
			OTISH GP / MISTASSINI GP	
			Temiscamie Fm.	*Iron Fm; chert, shale.*
			CONFORMABLE CONTACT	
			Peribonca Fm / *Albanel Fm* / *Cheno Fm*	*Arg. ss, dolomite, dolomite cemented arkose and sandstone*
			CONFORMABLE CONTACT	
			Indicator Fm / *Papaskwasati Fm*	*Qtz-pebble cong grading up to massive gritty arkoses + well laminated + cross-bedded quartzites + arkoses*
		UNCONFORMITY		
		LOWER APHEBIAN (?)	Diabase dyke	*NW-SE trending swarm, intrusive into all units below.*
			Granitic complex	*Granite + granodiorite, pegmatite intrusive into older rock (usually as sills), some granitization.*
			Metovolcanics and Metasediments	*Intermediate to basic tuffs, flows, fragmented volcanics; ss, cong, cherty iron Fm, pelitic + graphitic schists, massive sulfides.*
	?	?	? — ? — ? — ? — ? — ?	
	ARCHEAN		*Migmatite, Gneiss Complex*	*Migmatite, qtz-feldspar gneiss, qtz-plag. biotite gneiss. cordierite, garnet)*

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With respect to uranium mineralization, the most significant occurrence found to date is at Camie River where thicknesses of up to 13 m were intersected with drilling. The mineralization is similar in many respects to a number of the unconformity vein type deposits found in the Athabasca Basin. Other uranium occurrences in the Otish consist of epigenetic vein type systems in the basement and in the overlying sediments. Uranium is found as well in coarse grained dolomites (Peribonca Formation) and in diagenetic concretions within Indicator Formation sediments, both occurring near gabbro dykes. Syngenetic sedimentary mineralization is believed to occur near the base of a deep diamond drill hole at Lac Laparre and in a small zone within a basal conglomerate of the Papaskwasati Formation (Western Mines property at Papaskwasati). Numerous radioactive pegmatites containing various amounts of U and Th have been located in basement terrain.

3. EXPLORATION TARGETS

Graphitic metapelites within metavolcanic fold belts and underlying sedimentary cover remain the principal target areas for uranium exploration in the Otish. Specifically, the main focus of our exploration activity will be in areas that are geologically, geophysically and geochemically similar to Camie River.

Recently discovered uranium mineralization in sandstone and gabbro boulders that occur well within the sedimentary basin has introduced another important geological environment for further exploration. Aside from the apparent tourmaline association, little is known about this mineralization and therefore specific target areas are, at present, difficult to define.

4. PREVIOUS ACTIVITIES

The Otish area has been explored intermittently since 1967 by numerous companies for its uranium and base metal potential. Companies presently active in the Otish include Seru, Pancontinental, Soquem, Esso, Eldorado and Shell.

A history of the SUC Joint Venture activities in the Otish area is outlined below:

1974: - Regional airborne spectrometer and lake bottom geochemical surveys outlined numerous anomalous areas.

- Small claim block at Gordon's Lake acquired.

1975: - Ground follow-up surveys located uranium in the Kerveso Lake area; 96 claims acquired.

1976: - Continued ground follow-up on a regional basis and, at Kerveso and Gordon's Lake, on a detailed basis.

- Small uranifeous boulder fan outlined at Kerveso.

- A second uraniferous boulder fan and outcrop located at Beaver Lake; 429 claims acquired.

1977: - Detailed ground follow-up at Beaver Lake including 2087 m of drilling; outlined a small lens shaped body of limited depth extent.

- Regional ground follow-up of the northwestern portion of the Otish basin; basement mineralization in the Twenty Mile area (Lorenz Gully) outlined; 60 mineral claims acquired.

1978: - Limited drilling at Beaver Lake (914 m) over various geochemical and geophysical targets proved essentially negative.

- Detailed ground follow-up at Lorenz Gully including 1109 m of drilling; approximately 45 metric tons of U_3O_8 were delineated.

- Additional 151 claims acquired in the Twenty Mile area.

- 418 and 306 mineral claims acquired in the Papaskwasati and Gordon's Lake areas, respectively.

1979: - Drilling in the Twenty Mile area (1508 m) and in the Beaver Lake area (609 m) failed to encounter additional economic mineralization.

- Discovery of additional mineralization (Monday Boulder Train and Coon Showing) and a long EM conductor within the Gordon's Lake grid initiated a reevaluation of this area.

- Weak uranium mineralization within the basement outlined at Papaskwasati.

1980: - Detailed ground follow-up including 1845 m of drilling at Gordon's Lake resulted in the discovery of significant uranium mineralization in two drill sections 70 meters apart - (OM-4, 7.5 m of 0.52% U_3O_8; OM-11, 4 m of 0.41% U_3O_8).

- Approximately 4300 claims staked to protect favorable target areas.

- Limited ground follow-up at Papaskwasati outlined another EM conductor at Lac Martin; no surface mineralization found.

5. EXPLORATION PROGRAM

Table 3 - Summary of 1981 Exploration Activities

Area	Type of Survey	Total	Contract	In House
GORDON'S LAKE	General			
	Airborne Input EM	2053 line km	Questor	
	Regional Mapping	29 man-days	Winterbourne Expl. Ltd.	x
	Regional Scintillometer Survey (@ 1.5 km^2/man-day)	104 km^2		x
	Claim Checking	6 man-days		x
	Drill Camp Mob.-Camie River to Lac-des-Deux Iles	16 man-days		x

Table 3 (contd.)

Area	Type of Survey	Total	Contract	In House
GORDON'S LAKE (contd.)	Gordon's Lake Grid			
	Diamond Drilling	17,950 feet (5471.2 m)	Bradley Bros.	
	Drill Support (Geologist, Technician, etc.)	605 man-days		x
	TURAM	35 line km		x
	HEM	15 line km		x
	VEM (L64E, L66E, L67E)	1.5 line km	S. Gélinas & Assoc.	
	Down-hole EM test (OM-30, 31, 32, 42, 43, 45)	6 holes (3 sections)		x
	Geochemistry:			
	He (drill hole water)	9 samples		x
	He (soil)	22 samples		x
	U (soil)	22 samples		x
	Surveying (L38E to L66E)	69 man-days		x
	Temis River Grid			
	Linecutting	300 line km	S. Gélinas & Assoc.	
	Mag.	221 line km	"	
	VLF (EM-16)	174 line km	"	
	VEM	134 line km	"	
	I.P.	39 line km	E. Gaucher	
	Geochemistry:			
	Rn (Track Etch)	334 samples		x
	He (soil)	191 samples		x
	U (soil)	525 samples		x
	Detailed Mapping	44 man-days		x
	Scintillometer Survey (@ 1.2 km^2/man-day)	31 km^2		x

Table 3 (contd.)

Area	Type of Survey	Total	Contract	In House
GORDON'S LAKE (contd.)	Tichegami River South Grid			
	Linecutting	110 line km	S. Gélinas & Assoc.	
	Mag.	98 line km	"	
	VLF	81 line km	"	
	VEM	33.3 line km	"	
	Geochemistry:			
	Rn (Track Etch)	237 samples		x
	U (soil)	239 samples		x
	Mapping	17 man-days		x
	Staking	74 claims	S. Gélinas & Assoc.	
	Temiscamie River Grid			
	Linecutting	93 line km	S. Gélinas & Assoc.	
	Mag.	90 line km	"	
	VLF (EM-16)	74 line km	"	
	VEM	30 line km	"	
	Geochemistry:			
	Rn (Track Etch)	38 samples		x
	He (soil)	35 samples		x
	U (soil	73 samples		x
LAC CARMEN	General			
	Airborne Input EM	456 line km	Questor	
	Regional Scintillometer Survey (@1.5 km^2/man-day)	52 km^2		x
	Regional Mapping	23 man-days		x
	Surficial Mapping	3 man-days		x
	Down-hole Logging - Lac Laparre	2012 feet		x
	Staking	285 claims	R. Dupras	
	Claim Checking	6 man-days		x

Table 3 (contd.)

Area	Type of Survey	Total	Contract	In House
LAC CARMEN (contd.)	Lac Carmen Grid			
	Linecutting	30.2 line km	S. Gélinas & Assoc.	
	Mag.	30.2 line km	"	
	VLF (EM-16)	23.8 line km	"	
	VEM	22.7 line km	"	
	Geochemistry:			
	Rn (Track Etch)	57 samples		x
	U (soil)	58 samples		x
	Detailed Scintillometer Survey (@ 0.5 km^2/man-day)	3 km^2		x
	Mapping	2 man-days	Winterbourne Expl. Ltd.	x
	Lorenz Gully Grid			
	Blasting and bulk sampling (Rb/Sr age dating) of 10 sample sites	8 man-days	A. Tremblay	x
BEAVER LAKE	General			
	Airborne Input EM	388 line km	Questor	
	Regional Scintillometer Survey (@ 1.5 km^2/man-day)	22 km^2		x
	Regional Mapping	6 man-days		x
	Claim Checking	2 man-days		x
	Tichegami River North Grid			
	Linecutting	25 line km	S. Gélinas & Assoc.	
	Mag.	23.6 line km	"	
	VLF (EM-16)	20 line km	"	
	VEM	7.2 line km	"	
	Mapping	2 man-days		x
	Staking	9 claims	S. Gélinas & Assoc.	

Table 3 (contd.)

Area	Type of Survey	Total	Contract	In House
PAPASKWASATI	General			
	Airborne Input EM	599 line km	Questor	
	Regional Mapping	4 man-days		x
	Regional Scintillometer Survey (@ 1.5 km^2/man-day)	4.5 km^2		x
	Lac Martin Grid			
	Diamond Drilling	2059 feet (627.6 m)	Bradley Bros.	
	Drill Support	67 man-days		x
	HEM (L6W, L18W)	2 line km		x
	Magnetotelluric Test	14 man-days	F.Deschamps (research student)	
	Line Preparation	2 man-days		x
MOLSON LAKE	Linecutting	9.6 line km	S. Gélinas & Assoc.	
	Mag.	9.6 line km	"	
	VLF (EM-16)	8.0 line km	"	
	VEM	3.6 line km	"	
	Geochemistry:			
	Rn (Track Etch)	10 samples		x
	U (soil)	10 samples		x
	Staking	8 claims	S. Gélinas & Assoc.	
HOLTON LAKE	Linecutting	7.6 line km	S. Gélinas & Assoc.	
	Mag.	7.6 line km	"	
	VLF (EM-16)	6.0 line km	"	
	VEM	3.0 line km	"	
	Staking	6 claims	"	
GENERAL	Camp Mob.-Demob.	72 man-days		x
	Camp Services (including travel)	342 man-days		x
	Reporting, Administrative	156 man-days		x

6. RESULTS

6.1 GORDON'S LAKE AREA

6.1.1 Diamond Drilling

During 1980, drilling around Camie River resulted in the discovery of uranium mineralization on L54+50E and L56+00E (Fig. 4) The mineralization had the following general characteristics:

(1) It occurred in both basement rocks and overlying sediments at the position of the unconformity.

(2) It appeared to be associated with a 7 km long E-W conductive horizon within the basement volcanics, the conductor consisting of an acidic exhalative sequence (graphitic, pyritic cherty volcano-sediments) within a predominantly basic to intermediate volcanic pile.

(3) The ore mineralogy consisted of brannerite-uraninite-(pitchblende)-pyrite-molybdenite with pyrochlore and niobium rutile.

(4) The predominant alterations associated with the mineralization included chloritization and albitization as well as carbonatization and silicification.

These characteristics provided a guideline for the 1981 drill program. The main objective was to systematically test the interface between the E-W basement conductor and the overlying sediments within the Gordon's Lake grid.

The first holes were drilled immediately west of the Camie River occurrence, on L54+00E. Uranium mineralization with minor amounts of Cu, Pb, and Zn was intersected in two holes (Fig. 5). The best grade-thicknesses on this profile were found in OM-17 (6 m of .05% U_3O_8 and 6.5 m of 0.1% U_3O_8) and in OM-15 (5 m of .08% U_3O_8). The majority of the mineralization occurs in the basal sediments with only small amounts in the basement volcanics. Alteration consists predominantly of chlorite and pyrite with minor albite, hematite and limonite.

Subsequent drill holes were located in the westernmost extremity of the Gordon's Lake grid, on L12+00E, L16+00E, L24+00E and L28+00E. The results from these holes were rather negative. Even though the basement conductor was intersected on each profile, the only significant mineralization found was on section L28+00E where a 0.5 meter interval assayed 0.11% U_3O_8.

Drilling progressed eastwards, with profiles on L38+30E, L40+00E, L44+00E and L48+00E. Significant mineralization was encountered on L38+30E (OM-35), occurring entirely within the basement, 5 meters below the unconformity. The mineralization is confined to a brecciated graphite unit and grades 0.53% U_3O_8 over 4.7 meters[1] (Fig. 6). It differs from the mineralization at Camie River in a number of ways:

(1) It is situated well below the unconformity with no uranium present in the overlying sediments.

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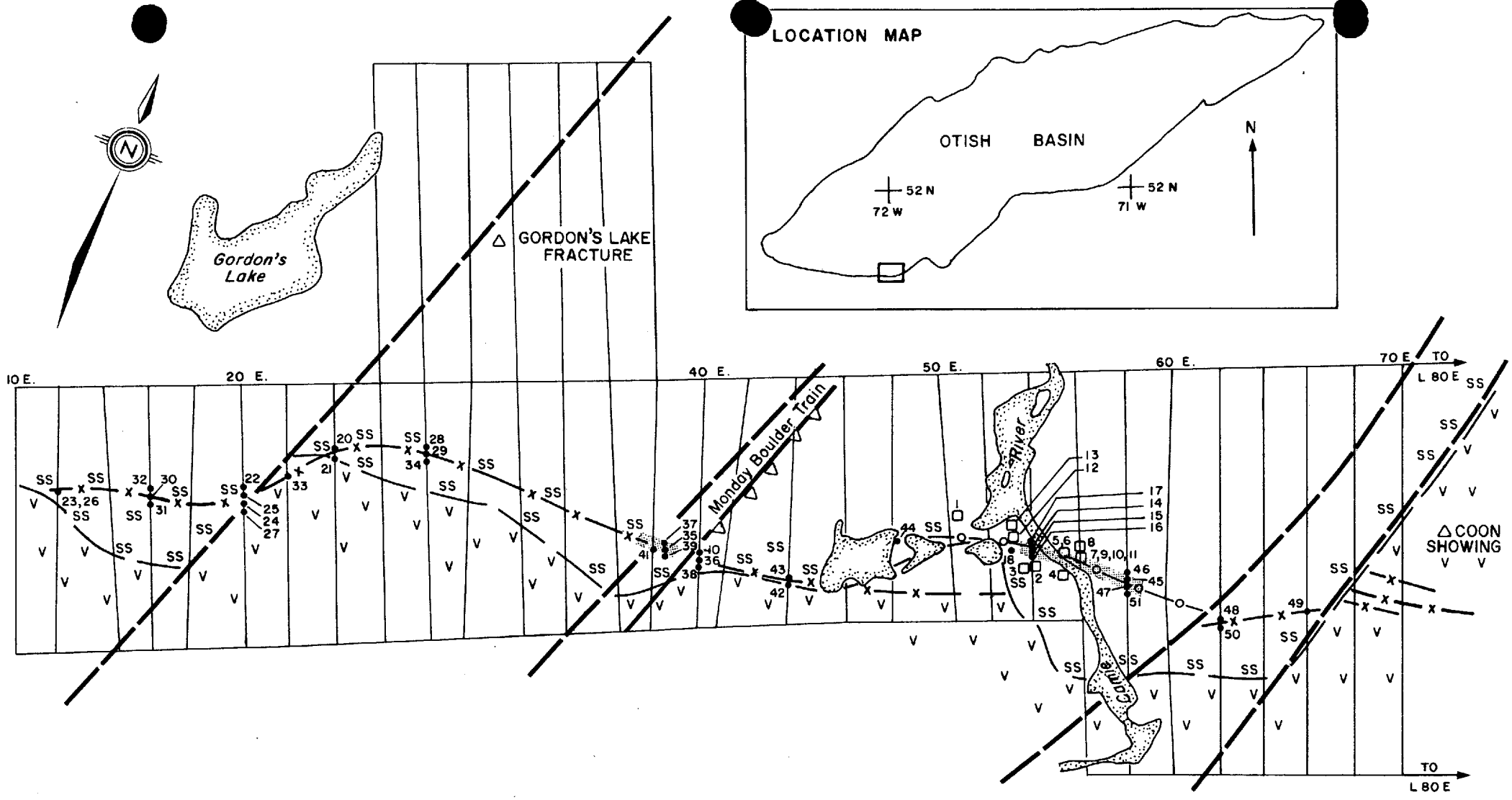
1. OM-35 was abandoned while still in mineralization because of drilling difficulties.



LEGEND

- SS SS — INDICATOR Fm. (ss)
- UNCONFORMITY
- V V V — METAVOLCANICS
- —o—o— EM CONDUCTOR (Turam)
- —x—x— EM CONDUCTOR (HEM, VEM)
- 4 □ 1980 DRILL PROGRAM (With Hole Number)
- 47 ● 1981 DRILL PROGRAM (With Hole Number)
- △ SURFACE URANIUM MINERALIZATION
- ZONE OF MINERALIZED CONDUCTOR

metres 0 200 400 600 800 1000 metres

PROJECT BEAVER-ZORAN / Otish West

71-85

Gordon's Lake Area

GORDON'S LAKE GRID

DRILL PLAN & SURVEY RESULTS

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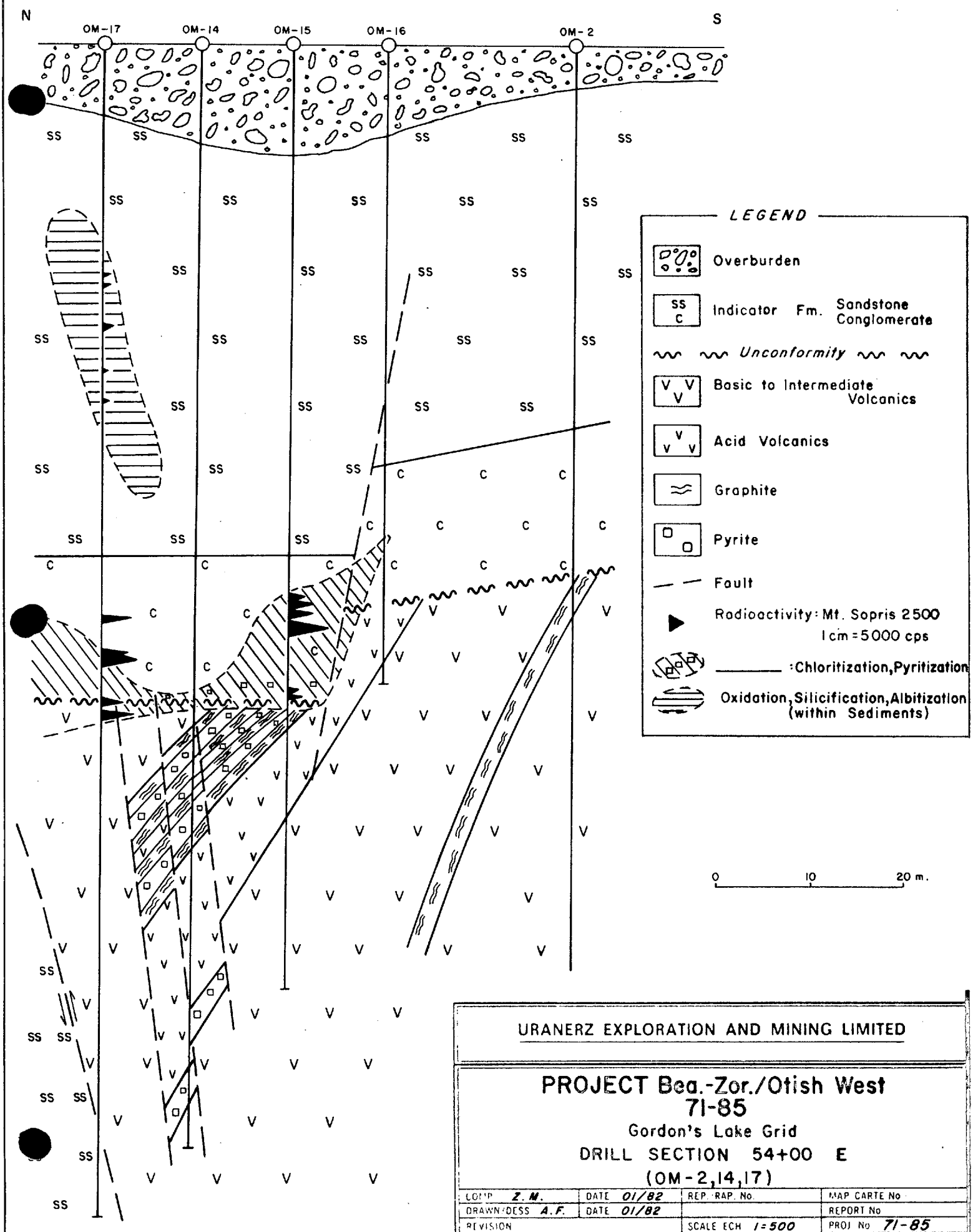
Fig. 4



URANERZ EXPLORATION AND MINING LIMITED

PROJECT Bea.-Zor./Otish West 71-85

Gordon's Lake Grid

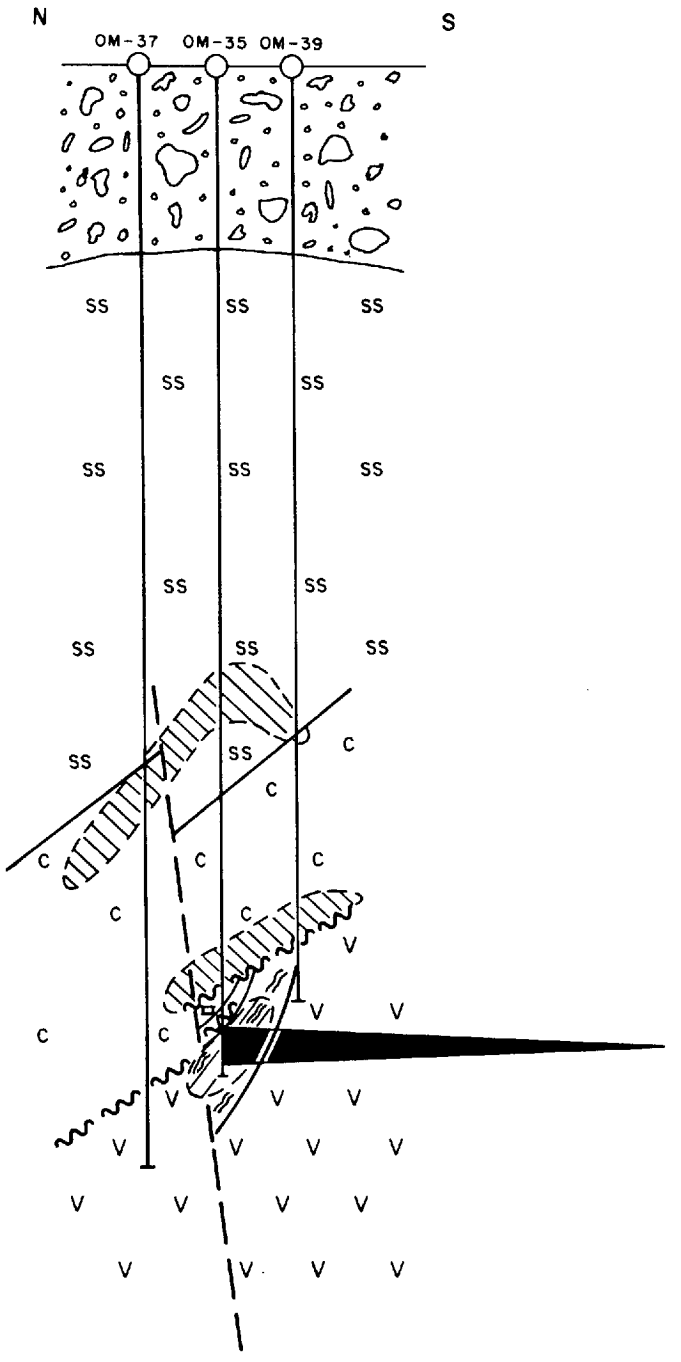
DRILL SECTION 54+00 E

(OM-2,14,17)

COMP. Z.M.	DATE 01/82	REP. RAP. No.	MAP CARTE No.
DRAWN/DESS A.F.	DATE 01/82		REPORT No.
REVISION		SCALE ECH 1:500	PROJ. No. 71-85
T.C. TO BONN	REF.		FILE DOSS.

File/Doss. No. 673

Fig. 5



LEGEND

- Overburden
- SS / C — Indicator Fm. Sandstone / Conglomerate
- Unconformity
- V V / V — Basic to Intermediate Volcanics
- Banded Chert
- Graphite
- Hematite
- Fault
- Radioactivity: Mt. Sopris 2500 1 cm = 5000 cps
- Chloritization
- Carbonatization

0 20 40 m.

URANERZ EXPLORATION AND MINING LIMITED

PROJECT Bea.-Zor./Otish West 71-85

Gordon's Lake Grid

DRILL SECTION 38+00 E

(OM-35,37,39)

M.C.	DATE 01/82	REP RAP No	MAP CARTE No
DRAWN ESS A.F.	DATE 01/82		REPORT No
REVISION		SCALE FCH 1:1000	PROJ No 71-85
	REF		FILE DOSS 672

Fig. 6

(2) The ore mineralogy is simpler, consisting primarily of pitchblende with no sulfide association.

(3) The alteration is predominantly carbonatization and chloritization.

On L40+00E, a narrow graphitic zone, grading 0.17% U_3O_8 over 0.5 meter, was intersected whereas, further east on sections L44+00E and L48+00E, neither conductive rock nor uranium mineralization were encountered.

The drilling program shifted to the east side of Camie River, where profiles on L58+00E, L62+00E and L66+00E were completed. OM-47, on L58+00E, outlined the best mineralization to date with two separate zones grading 2.24% U_3O_8[1], 1.47% Zn and 0.14% Mo over 3.5 meters and 0.17% U_3O_8 over 4.0 meters (Fig. 7). The mineralization is again quite different from the original occurrence at Camie River but is similar in many respects to that found in OM-35 (Fig. 6):

(1) It occurs mainly within the basement; the lowermost zone being 30 meters below the unconformity.

(2) It consists primarily of pitchblende and associated molybdenum with an adjacent high grade zinc zone.

(3) Carbonate and chlorite alterations are limited to the mineralized zones while albite alteration forms a broad halo above the mineralization.

Sections L62+00E and L66+00E encountered only minor uranium mineralization within the sediments which became progressively thicker going east. The sulfide portion of the conductor was intersected on L62+00E.

A whole rock lithogeochemical study of selected mineralized and non-mineralized profiles indicates a significant enrichment of Na_2O (albitization) near zones of U mineralization. In Section L58+00E (Fig. 7), the sodium halo is discernible for at least 100 meters above the mineralization. The results for MgO (chloritization), CaO, CO_2 (carbonatization) and K_2O (sericitization) do not show any apparent large scale relationship with the uranium mineralization.

A detailed stratigraphic section of the volcanic units outlined with drilling is presented on Figure 8. From this figure it is apparent that the uranium mineralization is associated with an exhalite overlying acid to intermediate tuffs. The exhalite marks the end of one eruptive event and includes, in our section, the acid volcanics, sulfides, graphite and chert. It displays a large degree of variability along strike in both thickness and relative composition. The uranium mineralization appears to be more significant where the exhalite is thickest. This unit is subsequently overlain by intermediate to basic flows that mark the start of a new eruptive event[2].

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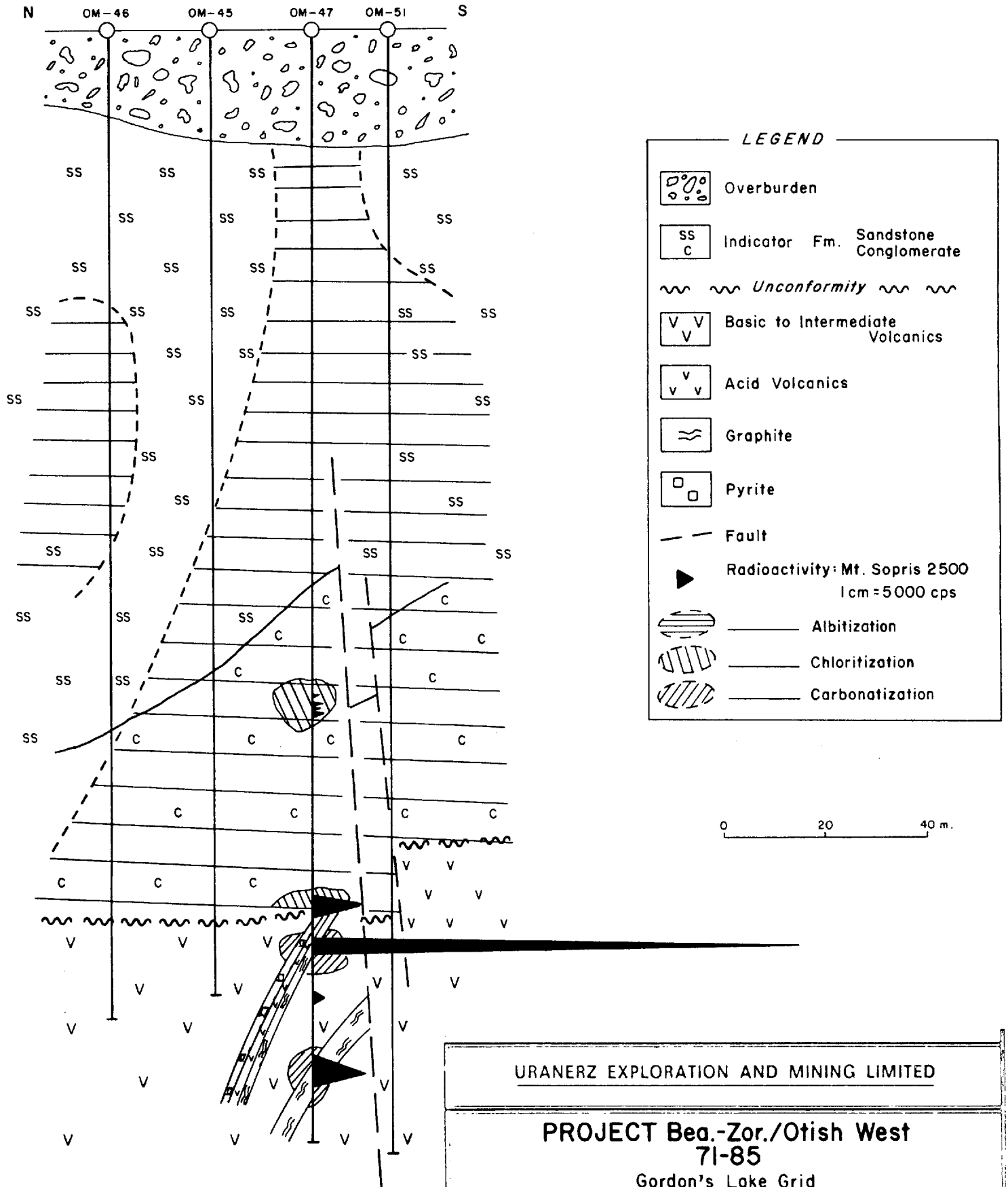
1. The bulk of the mineralization occurs over 0.5 meter and grades 15.45% U_3O_8.

2. It should be emphasized that the drilling to date has been limited to a very narrow strip of the entire volcanic sequence.



URANERZ EXPLORATION AND MINING LIMITED

PROJECT Bea.-Zor./Otish West 71-85

Gordon's Lake Grid

DRILL SECTION 58+00 E

(OM-45,46,47,51)

COMP. M.C.	DATE 01/82	REP. MAP No	MAP CARTE No
DRAWN/DESS. A.F.	DATE 01/82		REPORT No
REVISION		SCALE ECH 1=1000	PROJ No 71-85
T.C. TO BONN	REF		FILE DOSS 671

Fig. 7

6.1.2 Geophysical and Geochemical Surveys

The entire Gordon's Lake area was flown with the Input system from Questor and the most promising areas were subsequently followed up with various ground geophysical and geochemical surveys. These areas include (i) the Temis River grid, (ii) the Temiscamie River grid and, (iii) the Tichegami River South grid.

The highlights of the above surveys are illustrated in Figures 9 through 11 and are summarized below:

Temis River Grid (Fig. 9)

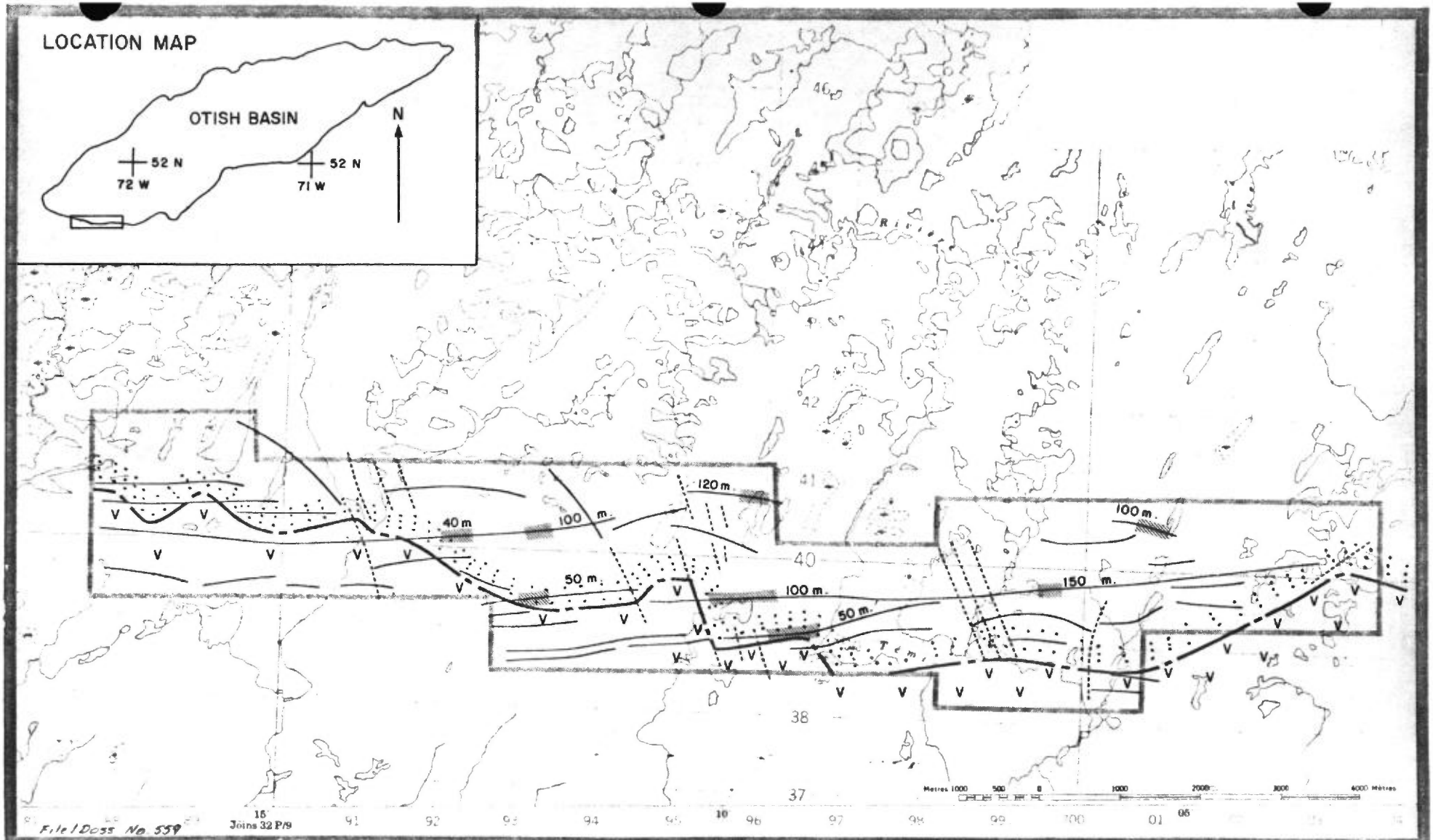
- 36 km of conductive material is overlain by Otish sediments.
- The conductors typically display a magnetic association.
- Numerous N-S faults are found displacing conductor axes as well as the unconformity.
- The unconformity appears to be more gradual here as opposed to the often fault-bounded contact on the Gordon's Lake grid.
- I.P. outlined only a few low resistivity zones, frequently associated with N-S faults. This is in contrast with the Gordon's Lake grid where an I.P. low resistivity zone is almost continuously associated with the main EM conductor.
- Eight geochemically anomalous clusters are found over six different conductor axes.

Temiscamie River Grid (Fig. 10)

- One main EM conductor, 3.4 km in length, occurs beneath the Otish cover.
- In the western end of the grid, a major strike-slip fault displaces the conductor 3000 meters to the south.
- Going east, the conductor becomes progressively deeper first, then shallower as it veers to the southeast (average depth is 100 meters).
- A good magnetic association exists with the conductor.
- An anomalous geochemical response is outlined over 1200 meters.

Tichegami River South Grid (Fig. 11)

- Seven separate conductor axes are outlined beneath the Otish cover for a total length of 13 km.
- A magnetic correlation occurs with some of the EM conductors.
- Magnetics also outline shallow dyke-like feature - Otish gabbro (?).
- Three geochemically anomalous zones are found in the central portion of the grid.



LEGEND

- BASEMENT/SEDIMENT CONTACT
- 100 m. EM CONDUCTOR AXIS (with DEPTH ESTIMATE)
- GEOCHEMICALLY ANOMALOUS AREA
- FAULT LINEAMENT

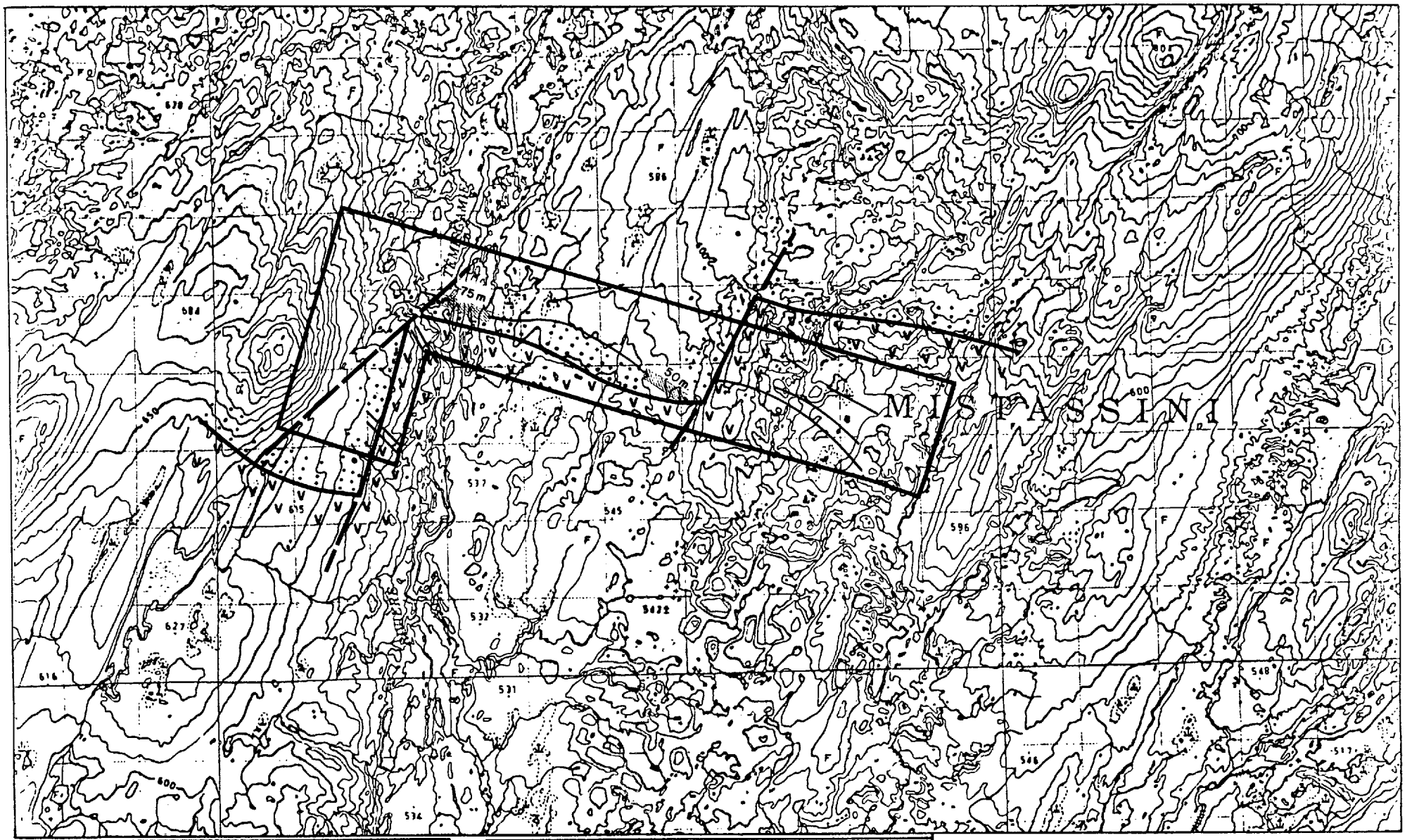
File / Doss. 674

PROJECT Bea-Zor / Otish West

71-85

Gordon's Lake Area
TEMIS RIVER GRID
SURVEY RESULTS

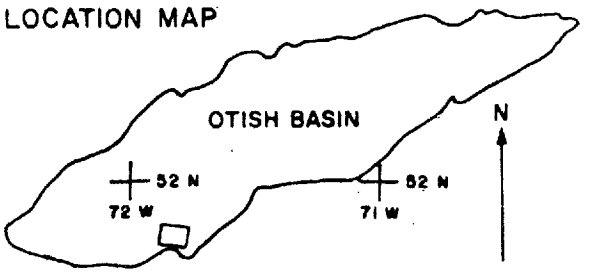
Fig. 9



LEGEND

- BASEMENT/SEDIMENT CONTACT
- 75 m — EM CONDUCTOR AXIS (with DEPTH ESTIMATE)
- GEOCHEMICALLY ANOMALOUS AREA
- FAULT LINEAMENT

LOCATION MAP



PROJECT Bea-Zor/ Otish West

71-85

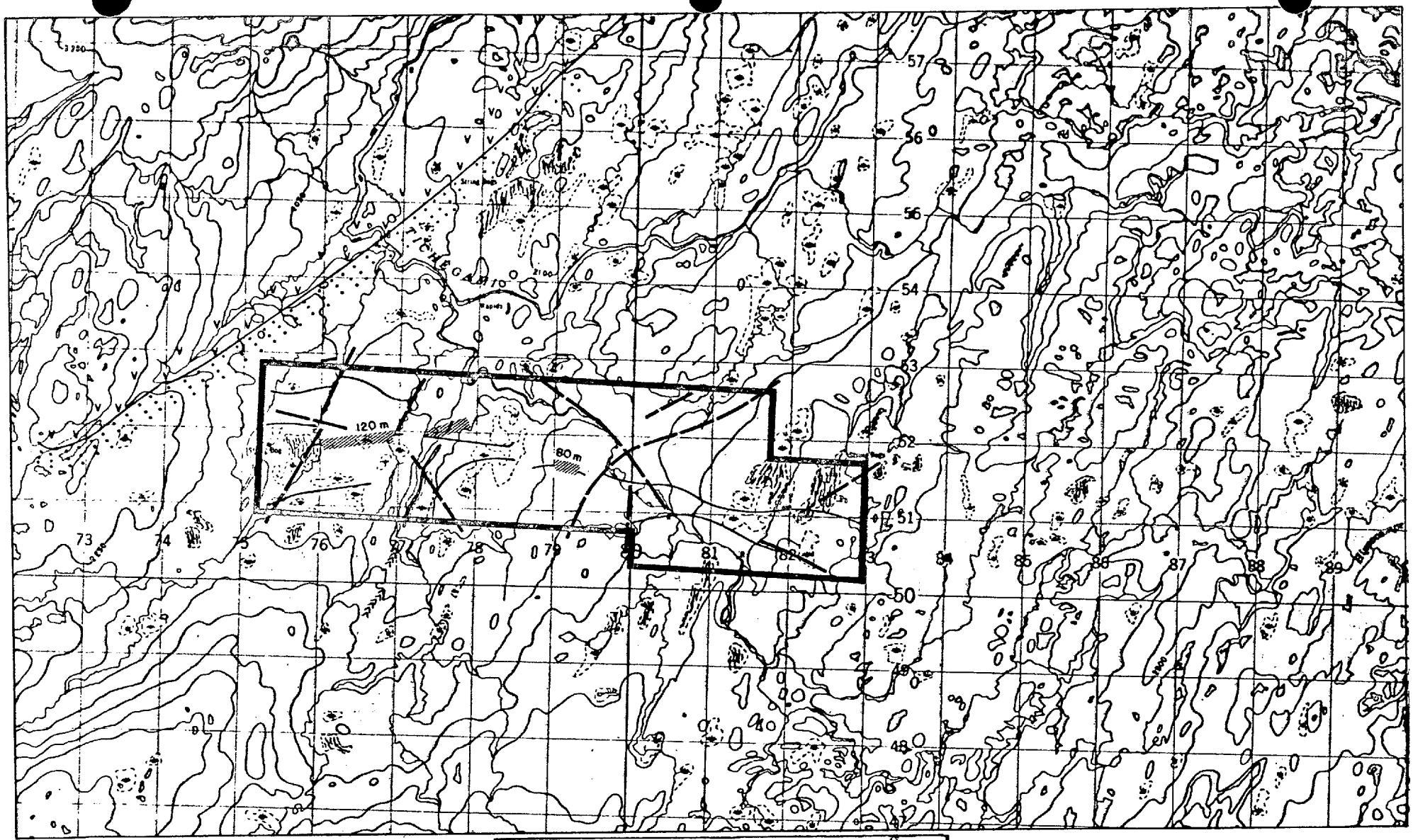
Gordon's Lake Area

TEMISCAMIE RIVER GRID

SURVEY RESULTS

Fig. 10

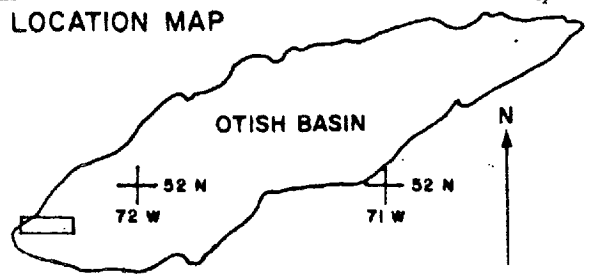
File / Dossier No. 6616



LEGEND

- BASEMENT/SEDIMENT CONTACT
- 120 m. EM CONDUCTOR AXIS (with DEPTH ESTIMATE)
- GEOCHEMICALLY ANOMALOUS AREA
- FAULT LINEAMENT

LOCATION MAP



PROJECT Bea-Zor/ Otish West

71-85

Gordon's Lake Area

TICHEGAMI R. SOUTH GRID

SURVEY RESULTS

File / Doss. No. 667

Fig. 11

In addition to the surveys, a few tests were performed on the Gordon's Lake grid. They are listed below along with a summary of the results:

(i) TURAM: failed to outline any conductor directly beneath the Gordon's Lake Fracture.

(ii) Downhole EM:

- Indicated that a conductor less than 30 m from the probed hole would be detected.

- Results with the present system are difficult to interpret quickly.

(iii) He in Drill Holes: outlined highly anomalous He values (up to 24,900 ml He/l H_2O) in OM-13 indicating good potential for nearby uranium mineralization.

(iv) Soil Profile Over Known Mineralization at Depth (OM-47):

- Anomalous He directly over mineralization.

- Sharp increase in background values down groundwater direction from the conductor.

- Confirms importance of He as an exploration tool.

6.1.3 Other Surveys

Mapping:

A geological evaluation of the metavolcanic belt along the southwestern rim of the Otish basin was emphasized during this survey. The highlights are outlined below (Fig. 12):

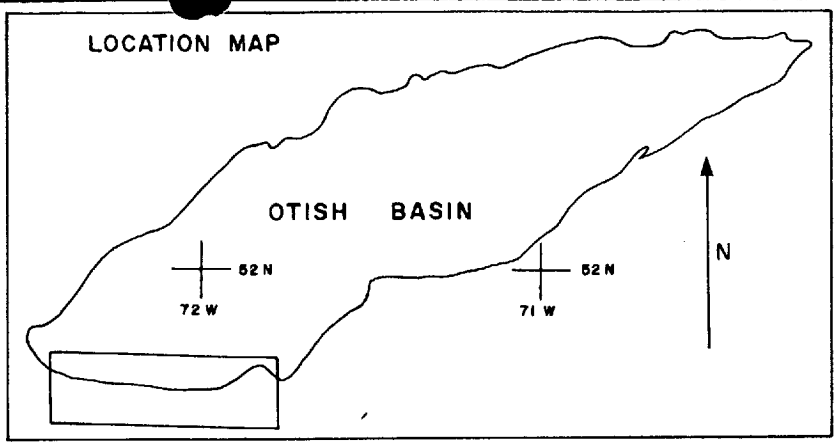
(1) Metabasalt flows are the predominant rock type in the west while in the east pyroclastics of basaltic to acidic composition are found in greater proportions.

(2) The cherty iron formation (C.I.F.) represents a period of volcanic quiescence and traverses the entire belt.

(3) The volcanic units have been correlated using the C.I.F. as a marker horizon (Fig. 13).

(4) The metabasalt flows in the west appear to come from a source in that general direction, possibly a shield volcano, while the pyroclastics in the east are considered to come from a second source, possibly associated with the NNE trending fault zone of the Temiscamie River.

(5) Except for the fold closure in the western extremity, all top determinations from pillowed basalt flows indicate that the exposed volcanics form one limb of an anticline whose axis lies beneath the Otish sediments.



Trace of anticlinal axial plane

Kapaquatche R.

Southern limit exposure of metavolcanics

Temis R.

Camie R.

EM

Temiscamie R.

Approximate eastern limit metavolcanic belt

SECTION #1 #2 #3 #4 #5

LEGEND

- Otish Basin Sediments
- Unconformity
- Granite and Migmatite
- Metavolcanics
- Unconformity
- Interpreted Fault
- Trace of Fold Axial Plane
- Southern Magnetic Anomaly Cherty Iron Formation-Marker Horizon
- Northern Magnetic Anomaly
- EM Zone of EM Anomalies

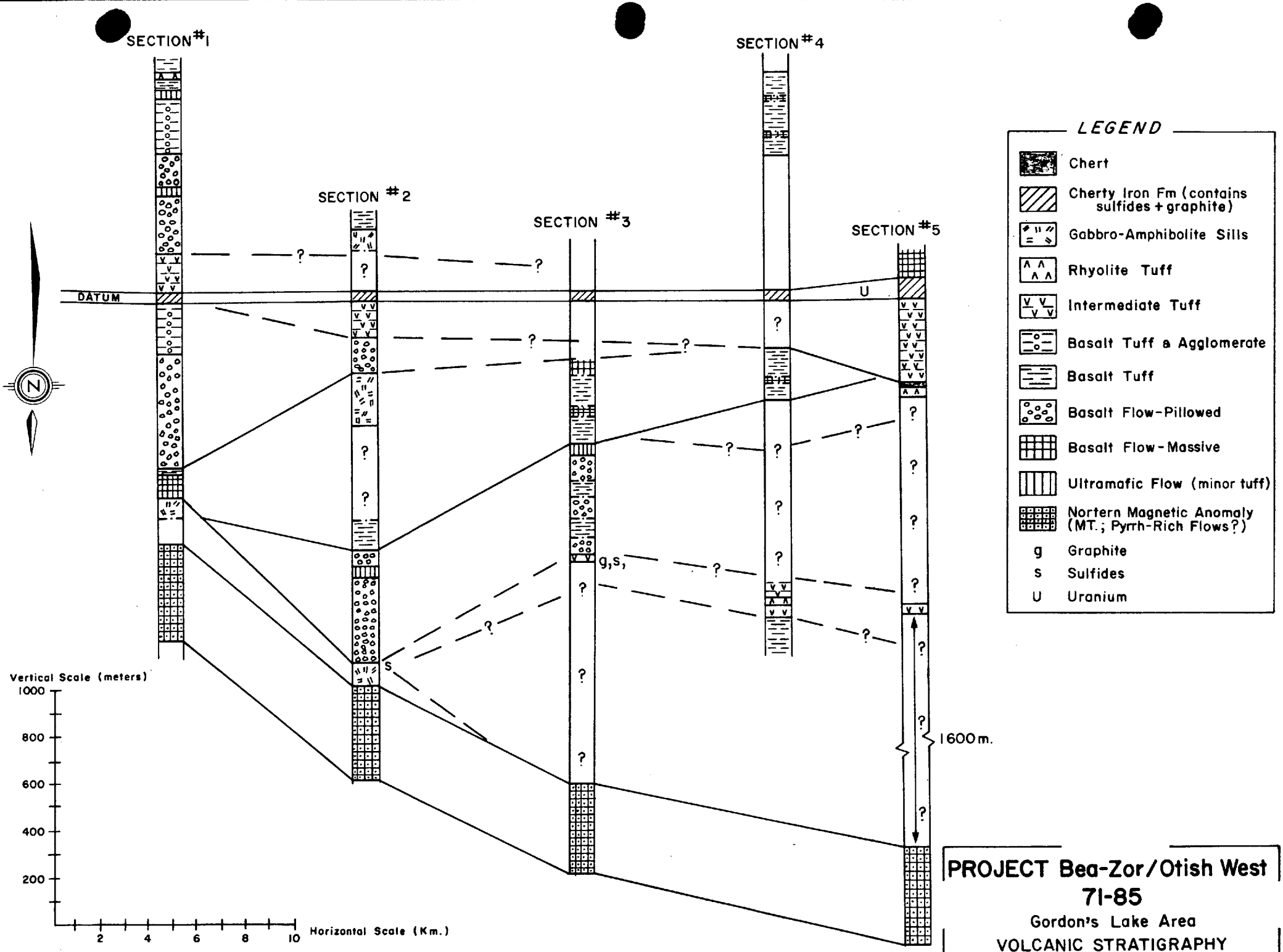
Scale 1:200 000

0 2 4 6 8 10

PROJECT BEAVER-ZORAN/Otish West
71-85
Gordon's Lake Area
GEOLOGICAL INTERPRETATION
OF THE METAVOLCANIC BELT

File/Docs. No. 652

Fig : 12



PROJECT Bea-Zor/Otish West

71-85

Gordon's Lake Area

VOLCANIC STRATIGRAPHY

File/Doss. No. 668

Fig. 13

(6) The N-S faults display a fan-shaped pattern typical of a down-faulted graben.

With respect to uranium mineralization, one possible explanation for its occurrence at Camie River is that the uranium was leached from uranium-enriched acidic pyroclastics and redeposited in chemical and structural traps formed by the C.I.F. Scattered base metal (Zn, Cu, Pb) and precious metal (Au, Ag) concentrations at Camie River are considered typical of stratabound volcanogenic massive sulfide mineralization at the end of a volcanic cycle.

Prospecting:

One significant uraniferous arkose boulder was located 4 km east of Lac Hippocampe. The rounded boulder assayed 0.3% U_3O_8 and was extensively altered, containing abundant limonite, chlorite, some tourmaline and trace pyrite. Its source was eventually located 10 km up ice.

6.2 LAC CARMEN AREA

Geophysics and Geochemistry:

The airborne Input survey outlined one prominent conductor about 1000 meters northeast of Lorenz Gully. It has a minimum length of 1.6 km, increases in depth towards the southeast, dipping steeply to the northeast. A magnetic association was found along this conductor as well. Two geochemically anomalous areas were identified - the first at the unconformity and the second at the extreme southeast end of the conductor. The significance of the second anomaly is questionable and is, at present, interpreted to originate from a near surface point source (Fig. 14).

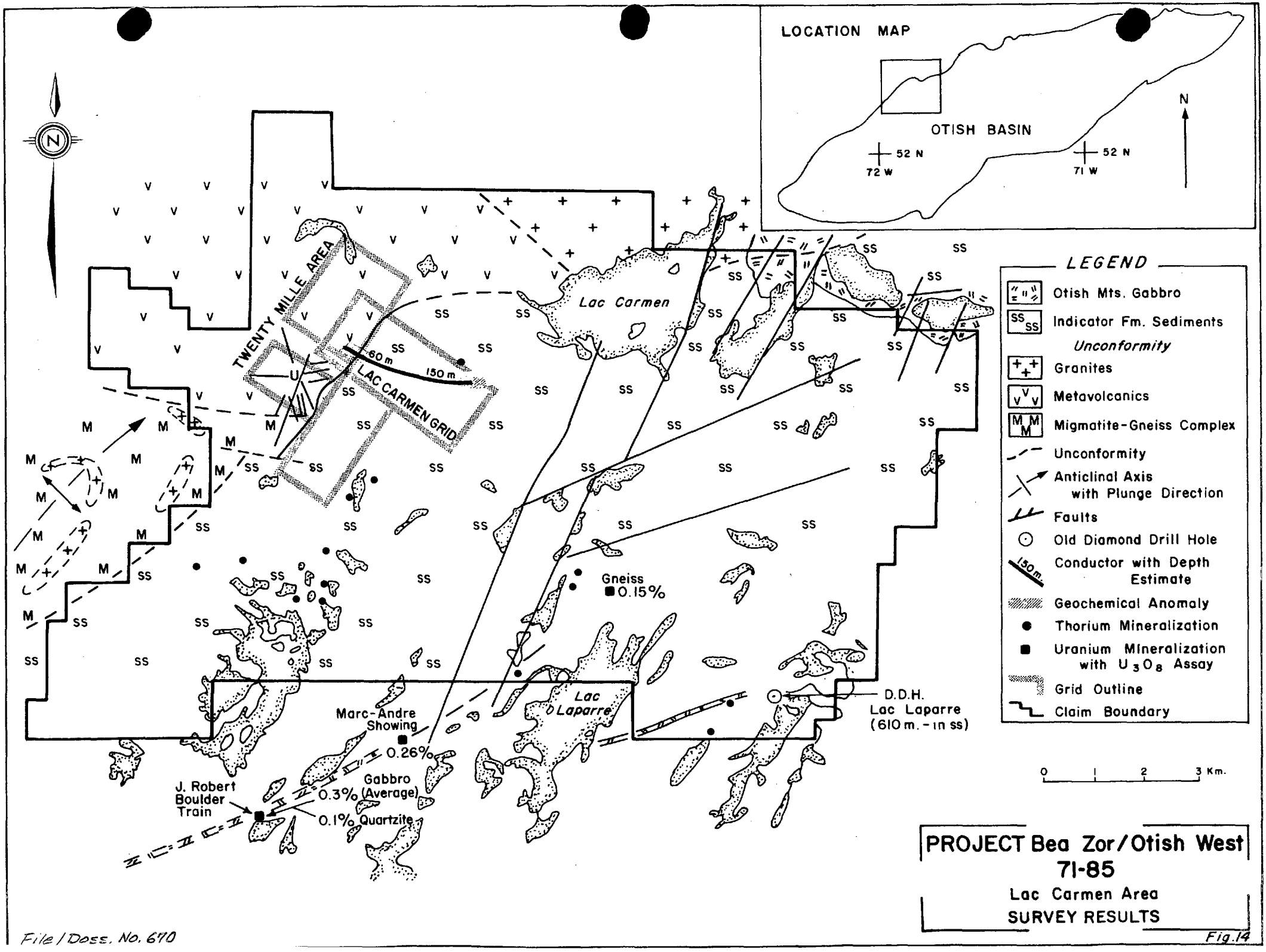
Prospecting and Mapping:

The two main showings, outlined in this area through prospecting and mapping, are found along the same ENE structural lineament, easily distinguishable on both airphotos and regional aeromagnetic maps. They are (i) the J. Robert Boulder Train and (ii) the Marc-André showing. The first consists of 62 mineralized boulders of predominantly gabbro origin (a few of the radioactive boulders are altered quartzites). The average assay is 0.3% U_3O_8 for the gabbro and 0.1% U_3O_8 for the quartzite. The boulders display weak shearing and contain abundant tourmaline (5%-7%), suggesting strong hydrothermal activity in the area. The second occurrence is a small isolated showing in a bleached gabbro intruding adjacent flat-lying sediments. One selective sample assayed 0.26% U_3O_8 and was found to contain tourmaline as well, although in lesser amounts.

Down-hole Logging:

The Lac Laparre drill hole was completed in the mid-sixties to a depth of 613 m and is believed to end at least 150 m above the unconformity. The down-hole gamma log outlined two radioactive zones near the bottom of the hole which are summarized below:

From-To (m)	Width (m)	Average (cps)	Maximum (cps)
577-594	17	300-400	1200
606-610	4	200	350



File / Doss. No. 670

It is not certain whether these results represent thorium mineralization, uranium mineralization or both.

6.3 BEAVER LAKE AREA

No significant EM conductors were outlined here during the reconnaissance airborne EM survey. A short grid was cut over a few weak anomalies in the southwest corner of the claim block. Subsequent ground geophysical surveys failed to indicate any appreciable metallic conductor at depth.

Limited prospecting within the Otish sediments resulted in the discovery of two mineralized granite boulders assaying 0.4% U_3O_8 and 0.14% U_3O_8. The boulders were cut by numerous hematized barite-rich fractures and are believed to originate from the postulated Beaver Lake tectonic zone - an E-W fault zone going through Beaver Lake and intersecting the unconformity at an oblique angle.

6.4 PAPASKWASATI AREA

6.4.1 Diamond Drilling

The Lac Martin area exhibited geological, geophysical and geochemical parameters similar to Camie River and was, therefore, seen as a likely area for uranium mineralization. The Papaskwasati Fm. sediments, consisting of arkosic quartz pebble conglomerate and arkosic sandstone, are similar to the Indicator Formation sediments. Diamond drill information obtained from the Lac Martin area proved the existence of volcanic rock in the area and an in-house HEM survey identified a conductor within the basement volcanics. Finally, numerous geochemical anomalies occur in the vicinity of the buried basement conductor. However, as drilling commenced, it became apparent that there are significant differences between the Lac Martin and Camie River areas. The differences outlined below, appear to explain the lack of uranium mineralization at Lac Martin:

(1) Predominance of mafic to intermediate volcanics with no well-developed acidic exhalative horizons (lack of protore?).

(2) Tectonism is limited to the basement rocks; the overlying sediments being relatively unbroken (post-sedimentary faulting at Camie is common).

(3) Papaskwasati Formation sediments are more or less unaltered when compared to the Indicator Formation sediments at Camie.

(4) The intrusion of granitic sills into the volcanic sequence might have disrupted any existing mineralization.

(5) The volcanic belt (lens?) is relatively small, reducing the potential source and host rock area.

6.4.2 Geophysical Surveys

The airborne Input survey outlined one large band of EM conductors almost entirely within the basement and paralleling the northern edge of the Papaskwasati embayment. A few anomalies were found within the basin although, with the exception of the Lac Martin conductor, most are of questionable significance.

7. CONCLUSIONS AND ASSESSMENT OF POTENTIAL

Diamond drilling at Camie River has presently defined a continuously mineralized zone of at least 360 m length (L54E to L58E). The best mineralization to date is found in OM-47 (L58E) and occurs in two zones well below the unconformity, one grading 15.45% U_3O_8 over 0.5 meter and the other grading 0.17% U_3O_8 over 4 meters. The drilling outside this zone outlined mainly low grade sporadic mineralization within fractured portions of the Otish sediments and the underlying volcanics. Nevertheless, because of the wide spacing between drill profiles and the limited drilling on certain profiles, the conductor within the Gordon's Lake grid has not yet been completely evaluated. The area between L28E and L38E remains untested although significant mineralization was encountered on L38E and minor mineralization on L28E, both associated with graphitic horizons. Also, between L38E and L54E and between L58E and L66E, the graphitic portion of the conductor was not located with the drilling done to date. Both unexpected structural complexities and excessively thick sandstone cover hindered the proper appraisal of these areas. Finally, extremely anomalous values of He in water taken from a drill hole on L53E indicate excellent potential for uranium mineralization even though only massive sulfides were intersected there.

Preliminary lithogeochemical studies of certain mineralized and unmineralized sections have indicated the following:

(1) Albitization appears to form a large halo of at least 100 m around the mineralization; particularly within the overlying sediments.

(2) Chloritization appears to be more restricted to the actual mineralized portion and is found in both the sediments and the volcanics.

(3) Carbonatization is usually restricted to the fractured high grade zones within the basement.

(4) Hematization and limonitization occur predominantly within the sediments but are not consistently associated with uranium mineralization. Limonitization appears to be, however, a little more correlatable.

The short drill program at Lac Martin failed to intersect any uranium mineralization. Significant differences in the rock types, structures, and alterations between Lac Martin and Camie River appear to explain the lack of uranium mineralization.

The airborne Input EM survey and subsequent ground follow-up surveys have outlined four significant areas with potential for Camie River type mineralization:

(1) Temis River grid with 36 km of metallic conductors underlying Otish sediments.

(2) Temiscamie River grid with one major metallic conductor 3 km long of which over one third is geochemically anomalous.

(3) Tichegami River South grid with approximately 13 km of metallic conductors and two major geochemically anomalous zones.

(4) Lac Carmen grid with at least 1.6 km of conductive material underlying Otish sediments.

Reconnaissance prospecting within the Otish basin has outlined uranium mineralization, grading around 0.3% U_3O_8, in both the sediments and the gabbro intrusives. Tourmalinization appears to be a common alteration feature of these mineralizing events indicating hydrothermal activity within the basin during late diagenesis or after compaction and cementation of the sediments. Tourmaline appears to be spatially related to the mineralization although it is uncertain whether the mineralizing solutions were the same ones that introduced the tourmaline. Nevertheless, attempts will be made to use this association in finding similar mineralization within the basin.

Mapping of the Gordon's Lake metavolcanic belt suggests that the pyroclastic units, particularly those of acid to intermediate composition, were the source of the uranium that was subsequently precipitated in the structural and chemical traps of the graphite and sulfide units. Another possibility is that certain graphitic horizons within the exhalite sequence were in fact the protore that underwent endogeneous enrichment during metamorphism. The following observations appear to substantiate this model:

(1) Most of the high grade zones occur within the basement graphitic horizons well below the unconformity.

(2) In profiles where only the massive sulfides were intersected, uranium is almost always absent.

8. EXPLORATION PROGRAM, 1982

Preparation, Research

- Mineralogical Studies
- Age dating
- Airphoto, Landsat Studies
- Literature search (including assessment reports)

Diamond Drilling

Temis Grid: 7,000 feet
Temiscamie Grid: 3,000 feet

Total: 10,000 feet

Geochemical Surveys (He in soil)

Tichegami River South Grid: 50 samples

Lac Carmen Grid: 25 samples

Geophysical Surveys

Airborne Spectrometer Survey

(line spacing of 400 m)
1250 line km - within claims

HEM Survey

Temis Grid: 40 line km - contract

Temiscamie Grid: 8 line km

Downhole EM Survey

Temis and Temiscamie drill holes

Other Surveys

Mapping and Lithogeochemistry

(i) Regional mapping and systematic sampling for whole rock multi-element analysis to evaluate regional variations of U and associations of U with other elements (e.g. Boron).

(ii) Detailed mapping if required.

Ground Follow-up of Airborne Spectrometer Anomalies

Including stream and lake margin sediment sampling - detailed if required.

Prospecting

(@ 1.5 km^2/man-day; detailed if required)

2 prospectors: 2 x 2.5 months

Surficial Studies

If required.

Camp Mob.-Demob.

Winter: 3 men @ 2 weeks
Summer: 6 men @ 2 weeks

Evaluation of Results, Reporting

- Evaluation of completed surveys.

- Data compilation and manipulation (computer)
  1 junior geophysicist - 4 months (including statistical evaluation of geochemical and lithogeochemical results).

- Geophysical modelling (down-hole EM results).

- Reporting - internal and assessment reports.

Zoran Madon

Z. Madon

ZM/lk