

GM 57807

Yearly report 1980, Gayot lake project 71-86

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Québec 

YEARLY REPORT 1980

PROJECT 71-86 - GAYOT LAKE

Report No. 7186-47

December 1980

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January 1981
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MRN-GÉOINFORMATION 2000

GM 57807

SUMMARY

This report covers the exploration carried out with the Gayot Lake Joint Venture during the year of 1980. Included are the diamond drilling and exploration programs at Dieter Lake, Lac Gerzine and Lac Pons as well as the exploration program at Mildred Lake. Also included is a summary of the work done by the Exploration Development Services Group and the Projects Division Group.

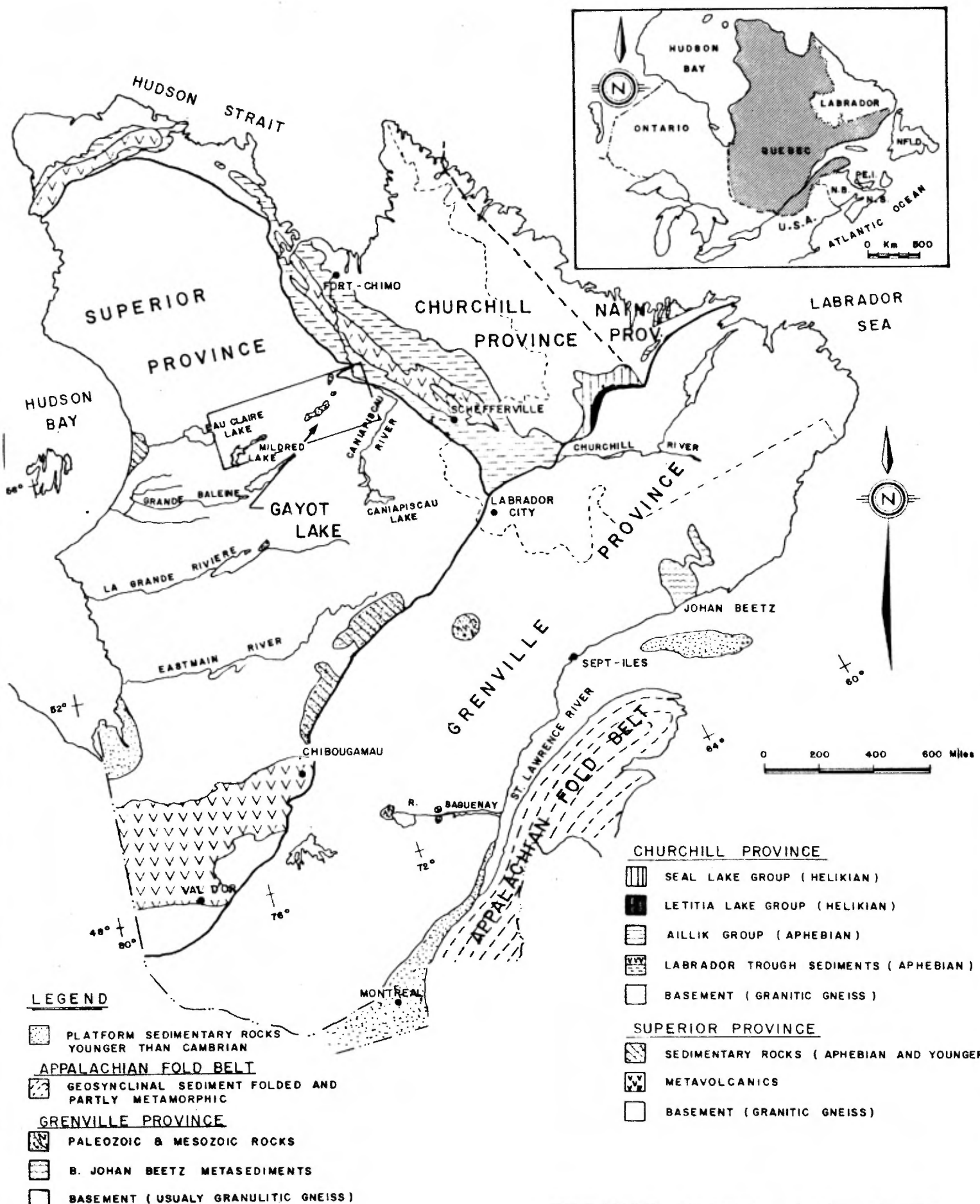
The objective of the 1980 field program was to continue the preliminary evaluation of the uranium-bearing horizon of the lower Sakami Formation at Dieter Lake and to explore the other Sakami Formation outliers using the model developed from Dieter Lake.

A total of 14,367.9 m were drilled on the Gayot Lake project with the bulk of the drilling on the Dieter Lake claim group where three distinct mineralized zones have been outlined. The programs at Lac Gerzine and Mildred Lake have not yielded any promising results however Lac Pons showed weak uranium mineralization and the source of four mineralized wacke boulders has not been found as yet.

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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 (USUALY 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 GAYOT LAKE 71-86
GENERAL LOCATION MAP**

1. INTRODUCTION

1.1 PARTNERS EQUITY

Ownership of the Gayot Lake Joint Venture is as follows:

U.E.M. (operator):	50%
S.D.B.J.	: 50%

1.2 PROJECT LOCATION

The base camp at Dieter Lake is approximately equidistant (270 km) from both Schefferville and Ft. Chimo, and is 1165 km north-northeast of Montreal. The coordinates of Dieter Lake are Lat. 55°58'15"N, Long. 70°36'30"W.

1.3 INFRASTRUCTURE

Access to the area is solely by float-or ski-equipped aircraft, the town of Schefferville serving as logistics base. An all-weather road now exists to within 140 km of the project area, the roadhead being the S.E.B.J. base at Lac Pau-Duplanter. Public use of these facilities is restricted however.

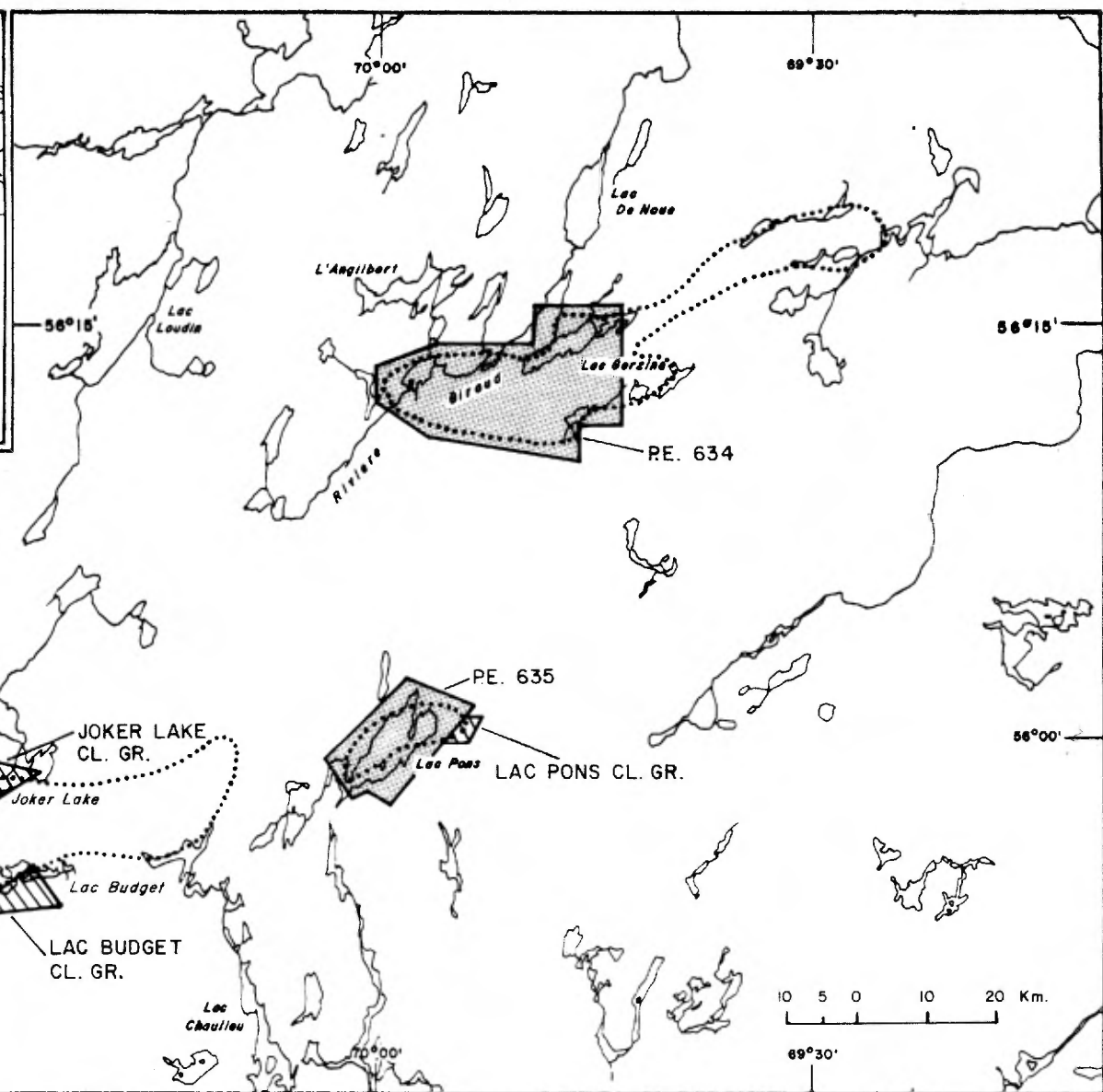
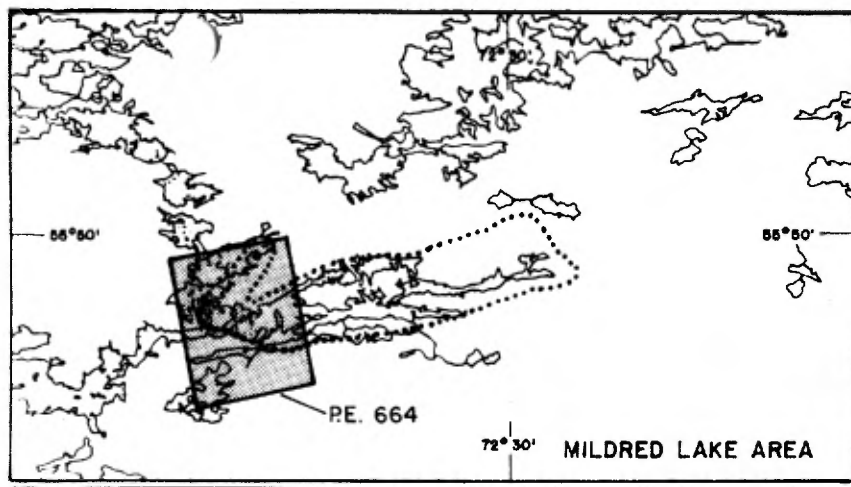
1.4 TENURE

Current land assets consist of five claim groups (335 claims) and three permit areas for a total of 235.5 km² (See Land Status Map).

2. GENERAL GEOLOGY

The sedimentary rocks which comprise the Sakami Formation occur as a series of local outliers, forming two discontinuous belts within the Superior Structural Province of northern Quebec. As such, all of the rocks within the project area are Precambrian in age, the oldest being the Archean volcanics and sediments upon which the Sakami sediments unconformably rest. The basement rocks were folded, faulted, intruded, and metamorphosed (ranging from greenschist to amphibolitic generally and locally to granulite facies) during the Kenoran Orogeny (2480 Ma). The lithologies now seen are granitized volcanics and sediments, para- and orthogneisses, migmatites and massive granites.

The Sakami Formation has been subdivided into lower and upper members (Eade 1966) on the basis of differing environments of deposition. The lower units consist of a series of interbedded shales, siltstones, wackes and arkosic sandstones, with minor conglomeratic beds. These are terrestrial sediments of local provenance which were transported within a fluvial regime and ostensibly deposited within a deltaic environment. The essential criteria for this is the general coarsening upwards of the sediments, and the rapid lateral facies variations, typical of such environments. The differing lithologies usually show gradational contacts,



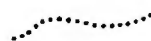


UEM Property	# Claims	Area (Km ²)
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DIETER LAKE CL. GR.	190	30.75
LAC PONS CL. GR.	17	2.72

JOKER LAKE CL. GR.	24	3.84
LAC CASGRAIN CL. GR.	58	9.28
LAC BUDGET CL. GR.	46	7.36

Permits

PE. 634, Lac Gerzine	125
PE. 635, Lac Pons	43
PE. 664, Mildred Lk.	67.5

-  Sakami Outlier
-  Staked Claims
-  Permits

URANERZ EXPLORATION & MINING LTD.

PROJECT NO. 71-86, (Gayot Lake)

Land Status as of December 31, 1980

COMPILED: W.H.	DATE: Jan. 1981	TENEMENT:	MAP No.
DRAWN: BouY	DATE: " "	PLAN No. 241	REPORT No.
LAST REVISION:	SCALE: 1:800000	PROJECT No. 71-86	
TC No. 0000	REF: 25 M-N, 24 C-D, 33 P, 34 A		

and the individual beds tend to be thin, reflecting environmental instability due primarily to synchronous tectonic activity within the sedimentary basin. The basin itself is a graben structure, and the controlling faults remained active in post-depositional times. The upper member consists of a single lithology, namely quartz arenites, which occur as thick (1-2m), massive beds and show well developed crossbedding. These rocks are found throughout each of the outliers with little variety. Measurements made of planar-type crossbedding in the upper Sakami at Dieter Lake indicate a preferred paleocurrent orientation to the south and east, with the sediment source probably being to the north and northwest.

No regional metamorphic effects are noted within the Sakami sediments, and where they have not been disrupted by faulting their attitude is generally east-west, with southerly dips of 10° to 30° . Preliminary age dating on pitchblende derived from the lower Sakami shales showed a Pb-Pb "age" of 1850 Ma, which if as believed, that the uranium was deposited coevally within the sediments, would indicate a late Aphebian age.

No mineral deposits exist within the project area, UEM apparently being the first company to carry out exploration activities within this particular belt of Sakami Formation rocks. A southern belt of these rocks exists within the James Bay territory and in 1974 a discovery, as yet uneconomic, was made by an INCO-SDBJ joint venture.

3. EXPLORATION TARGETS

The control of the uranium mineralization appears to be affected by the following factors:

- 1) Deposition in the proper facies in a deltaic-type environment;
- 2) The presence of an oxidation-reduction inversion boundary;
- 3) Paleotopographic features of the basin floor caused by pre-depositional faulting of the basement.

The proper facies in the delta-type environment is important on a large scale. For instance, the Dieter Lake area with its well developed lower Sakami is a favourable area for uranium mineralization whereas Lac Gerzine, Lac Pons and Mildred Lake where the lower Sakami is not well developed, have not shown significant mineralization to date.

The presence of an oxidation-reduction inversion boundary is necessary to reduce the U^{+6} species to the U^{+4} species and thus precipitate UO_2 (uraninite or pitchblende) out of solution. The position of the oxidation-reduction boundary is affected by the depth of the water and the relative energy of the body of water in the depositional basin.

Paleotopographic features of the basin floor caused by pre-depositional faulting of the basement rocks also appear to affect the thickness and grade of the mineralized horizon. The best mineralization appears to be located on the slope of basement highs.

Therefore, the target involved is a stratabound uranium-bearing horizon found in the shale-wackes of the lower Sakami Formation. In certain areas, the uranium mineralization is concentrated due to the factors listed above. These areas of enriched uranium mineralization should be the preferred exploration targets.

4. PREVIOUS ACTIVITIES

1976:

Project 71-86 was conceived in 1976 by UEM, and work was begun during the year's field season. A short (two week) reconnaissance program was undertaken to begin a preliminary assessment of the area's uranium potential. Initial surveys consisted of centre-lake sediment and water sampling, ground traversing across the unconformity and airborne mapping of the outlier. An airborne spectrometer survey was undertaken of the Gayot Lake outlier after radioactivity was encountered in outcrop (Fearless I) north of Dieter Lake. Uranium anomalies were also obtained from both lake bottom sediments and waters in the same area, as well as in the vicinity of Mildred Lake (P.E. 658). As a result, a group of one hundred and ninety contiguous claims were staked along the unconformity at Dieter Lake.

1977:

In 1977 a full exploration program was mounted, emphasis being placed on detailed work at Dieter Lake, but also with a wide-ranging reconnaissance survey throughout the area of interest. Results of this work were the finding of three additional showings (Matoush, Lake Vivian and Bert's Lake) on the Dieter Lake property, and the discovery of two previously unmapped Sakami outliers to the east and northeast of Dieter Lake (Lac Pons and Lac Gerzine). Exploration permits were obtained for these two new areas (P.E. 634, 635), as were three others (P.E. 626, 627, 628) for portions of the known outliers at Gayot and Mildred Lakes.

1978:

1978 saw the completion of surface exploration on the Dieter Lake property, with the result that no new findings of an economic nature were made. Work carried out included mapping at 1:10,000; completion of the boulder prospecting, EM-16 and magnetometer surveys begun in 1977; and some geochemical testing.

Diamond drilling was begun during this year, and saw some 3686.6 m drilled on the four showings which had been located in 1977. A stratigraphic examination of the drill profiles led to recognition of the fact that the good mineralization of hole no. 23 at Lake Vivian has developed in a stratigraphic position where a change from quiet sedimentation (green shale) to a type of higher energy environment sedimentation (wacke) took place. This mineralization was first encountered at the Matoush area, west of Lake Vivian and some indications are still present at Bert's Lake to the east. It thus seemed possible

and even probable that in between Matoush and Bert's Lake, this mineralization could have developed and that grades similar to that of Lake Vivian should be present here.

Results of the work carried out in other areas are summarized as follows:

Lac Gerzine Area: preliminary mapping/prospecting of selected areas within the permit indicates the presence of similar lower Sakami lithologies to those known for Dieter Lake. Four radioactive outcrops were found in these rocks. Strong geochemical anomalies were spatially associated with the unconformity.

Lac Pons Area: mapping/prospecting, airborne spectrometer surveying and geochemical sampling of the entire area resulted in the finding of a single uranium occurrence, located within fractures in the granite adjacent to the northern unconformity. Positive geochemical correlation exists within this area.

1979:

In 1979, 47 holes (7193.8 m) were drilled between Dieter Lake in the west and Bert's Lake in the east. This drilling showed that the mineralization was rather continuous with grades comparable to those encountered at the Matoush and Lake Vivian showings the year before.

A limited I.P. survey was conducted over a fracture zone in the Lake Vivian area thought to bear MoS_2 mineralization, however the results were inconclusive.

Geological mapping at Lac Gerzine indicated lower Sakami similar to that of Dieter Lake, however, outcropping was sparse. Prospecting indicated several low anomalous outcrops and six mineralized lower Sakami boulders. Results were inconclusive for the lake margin sampling and magnetometer surveys, however the VLF-EM showed good correlation with known geological information.

At Lac Pons, prospecting revealed four mineralized wacke-type boulders (0.007-0.277% U_3O_8) and two uranium-bearing fractures within the basement rocks close to the unconformity. Soil sampling carried out across an enlarged grid showed an anomaly near one of the mineralized fractures. Short magnetometer and VLF-EM surveys were attempted across the same grid on which the soil sampling was done. The aim was to delineate the contact between the sediments and granites and a proposed contact was drawn using primarily data from the VLF survey.

Work in the Mildred Lake area included an airborne spectrometer survey. Thirteen anomalies were indicated, all of which could be attributed to granites or topographic effects. Helicopter mapping of the northern contact saw all the sedimentary outcrops encountered to be upper Sakami.

5. EXPLORATION PROGRAM

5.1 LAC PONS (PE 635)

Diamond drilling - 1766.2 m (14 holes) BQ size

5.2 LAC GERZINE (PE 634,650)

Diamond drilling - 1979.6 m (16 holes) BQ size

5.3 MILDRED LAKE (PE 658)

Geological mapping - scale 1:50,000

Prospecting - semi-detailed boulder and outcrop.

5.4 DIETER LAKE CLAIM GROUP

Diamond drilling - 10622.1 m (55 holes) BQ size

IP Survey - 124 readings over Mo-bearing fault structure beneath Lake Vivian.

Electrical depth sounding (resistivity) - 147 readings over 1.2 km in the Lake Vivian area.

Trench (bulk sample) - approximately 2000 kg of sample material removed from Lake Vivian Showing for metallurgical tests.

5.5 EXPLORATION DEVELOPMENT SERVICES GROUP

The following activities have been reported in 1980:

- 1) Gayot Lake data entered into the computer
- 2) Variograms constructed e.g. $GT^2 = 0.02\% U_{38}$ over 2 meters.
- 3) Isopachs (1:2500) top of wackes to basement and thickness of wackes.
- 4) Study of multi-element aspect i.e. correlation, trends, etc.
- 5) Cross sections for projects division.
- 6) Correlation of U_{38} and eU_{38} values.
- 7) Compilation and estimation of a 2D insitu resource.

5.6 PROJECTS DIVISION GROUP

The following activities have been reported:

- 1) Testing of a Quebec uranium financial analysis computer program.

- 2) Crushing and screening of bulk sample material (2000 kg) by Lakefield Research Canada Ltd.
- 3) Radiometric sorting tests on bulk sample by Ore Sorters Canada Ltd.
- 4) Metallurgical testing of sorted sample by UEB, Bonn, Germany

6. RESULTS

6.1 LAC PONS (PE 635)

The aim of the winter drilling program was to determine the stratigraphy of this outlier and investigate it for uraniumiferous lower Sakami sediments, evidence of which was given by the discovery in 1979 of four wacke-type boulders. This primary goal was successful only in part, as only weakly mineralized zones were encountered within poorly developed lower Sakami units. These rocks were found only in those holes located within the northeastern part of the outlier (LP 6, 11) and are described as being thinly bedded (20 cm), dark green, reworked wackes and shaley wackes, which are usually sandy and conglomeratic. These green wackes were found to be spatially associated with the basin margins, as holes drilled deeper within the basin in an attempt to follow them, found only the red unmineralized variety.

The mineralization found within holes LP6 and LP11 occurred in the green wackes, but in different forms. In LP6 it occurred as very thin veinlets or fractures. Analyses returned values averaging to 0.11% U_3O_8 over 1 m (with a peak over 0.2 m of 0.49%), with associated weak anomalous values in lead (209 ppm) and molybdenum (110 ppm). In hole LP11 the mineralization occurred as two thin beds of 20 cm each and secondary uranium oxides were associated with hematite, limonite, and manganese. Here analyses returned two average values for U_3O_8 over 1 m of 0.03% and another of 0.045%. Hole LP5 was also weakly uraniumiferous, but in a red wacke. Here again the mineralization was in a thin layer of about 0.7 m thick. Analyses obtained gave an average over 1m of 0.015% U_3O_8 .

Holes drilled in an attempt to find the source for the boulders were unsuccessful. Hole LP4 was spotted too far to the north and failed to intersect the sediments, while hole LP14 apparently was drilled into a downfaulted block within the sediments and was stopped at 321 m, not having yet encountered the lower units.

6.2 LAC GERZINE (PE 634,650)

A diamond drilling program was undertaken here with the view of exploring the outlier for possible lower Sakami units, in an attempt to apply the exploration model developed at Dieter Lake. The program was to drill along the northern margin of the basin where the sediments could be expected to be thinnest, at a spacing on the order of 1 km. Several holes were also planned for the southern part of the basement inlier, southeast of Fenster Lake. Overall results of this drilling campaign were negative as neither representative lower Sakami units nor strongly radioactive zones were encountered.

The VLF-EM survey carried out on the Rivière Giraud Grid was successful in delineating a contact, between high resistivity rocks in the north and low resistivity rocks in the south, believed to be the Archean/Proterozoic unconformity. Several north-south running faults appear to have displaced the contact.

The magnetometer survey detected no anomalies, however between lines 22W and 34W the Archean/Proterozoic unconformity could be outlined.

6.3 MILDRED LAKE (PE 658)

The geological mapping program at Mildred Lake revealed a sequence of Sakami-type sediments of probable Archean age resting on basement granites and gneisses of probable Archean age. Very few outcrops of lower Sakami-type rocks were encountered. However, a large gap (100-200 m thick) exists in the sedimentary pile which could not be mapped due to a lack of outcrop exposure. Based on ground work, geochemical results of Eldorado and the airborne spectrometer, the concentration of uranium in the sediments of this area appears to be quite low.

6.4 DIETER LAKE CLAIM GROUP

The results of the 1980 drill program may be seen in chart #1 where the holes which intersected sediments have been grouped according to their % U_3O_8 averaged over a 1.0 m thickness. Chart #2 shows the same holes grouped according to their % U_3O_8 averaged over a 2.0 m thickness.

The definition drilling at Lake Vivian showed that the uranium mineralization here was not as uniform and continuous as previously thought. In most cases, holes with the best intersections of U_3O_8 have nearly barren holes right next to them. One positive point is that the grade of the Lake Vivian zone was increased. The average grade for the Lake Vivian zone was found to be about 0.2% (1 m thickness) with a 0.05% cutoff and 0.3% (1 m thickness) with a 0.1% cutoff.

Five holes were drilled in the Lake Vivian area on a tectonic structure delineated by the IP survey conducted this winter. Of these, Hole #115 intersected Mo mineralization over 11.0 meters with an average of 0.05% Mo. The Mo mineralization appears to be associated with a tectonized granite gneiss and a biotite schist. Veinlets filled with specular hematite are predominant.

Ten holes were drilled on the Nancy Zone southwest of Ranger Lake. This zone is formed by two mineralized areas separated by a narrow barren area corresponding to a basement high. Both zones are still open to the south. The average grade for this area appears to be between 0.10 and 0.15% U_3O_8 averaged over a 1.0 meter thickness.

CHART # 1

Holes grouped according to % U_3O_8 averaged
over 1.0 meter thickness.

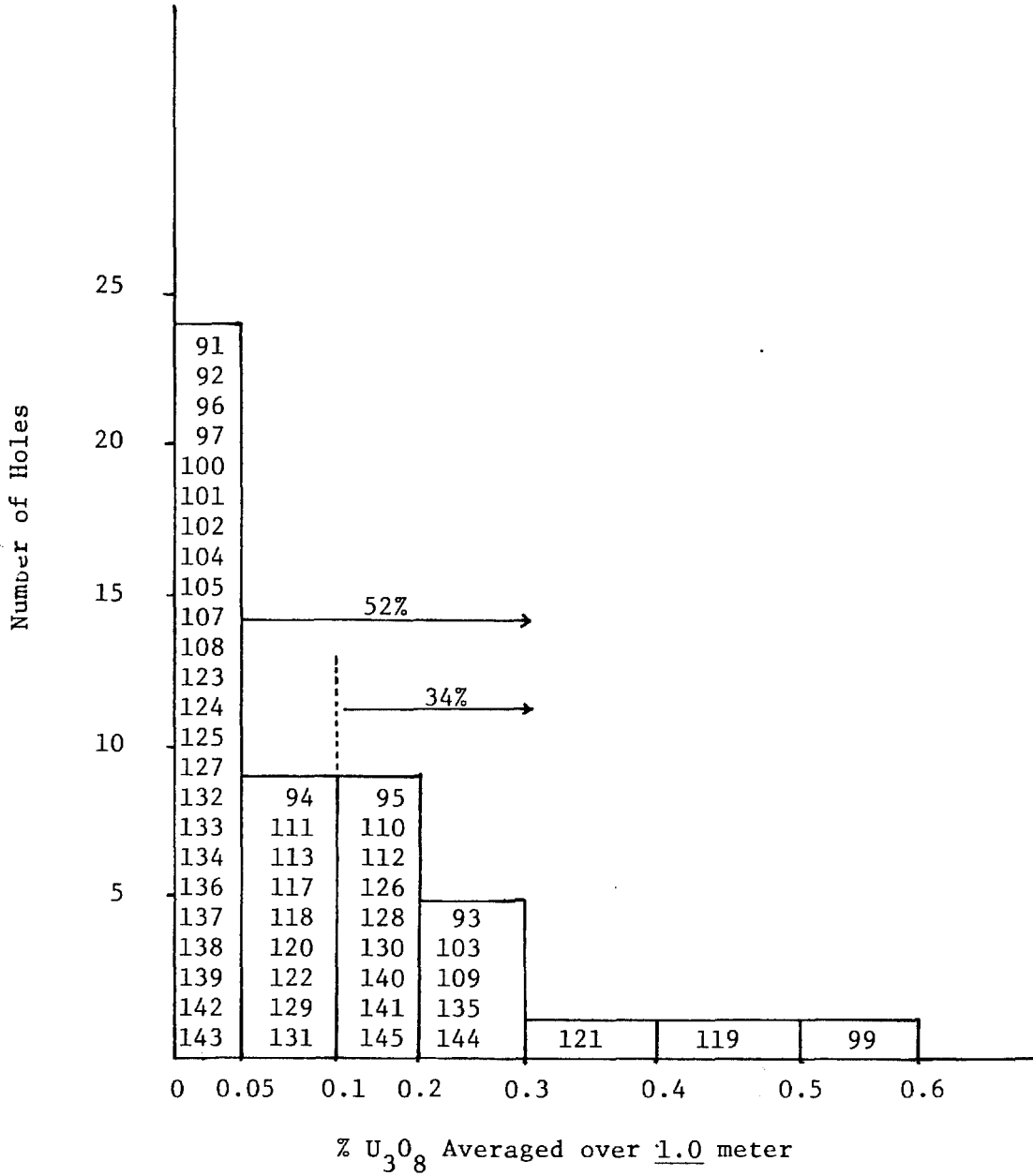
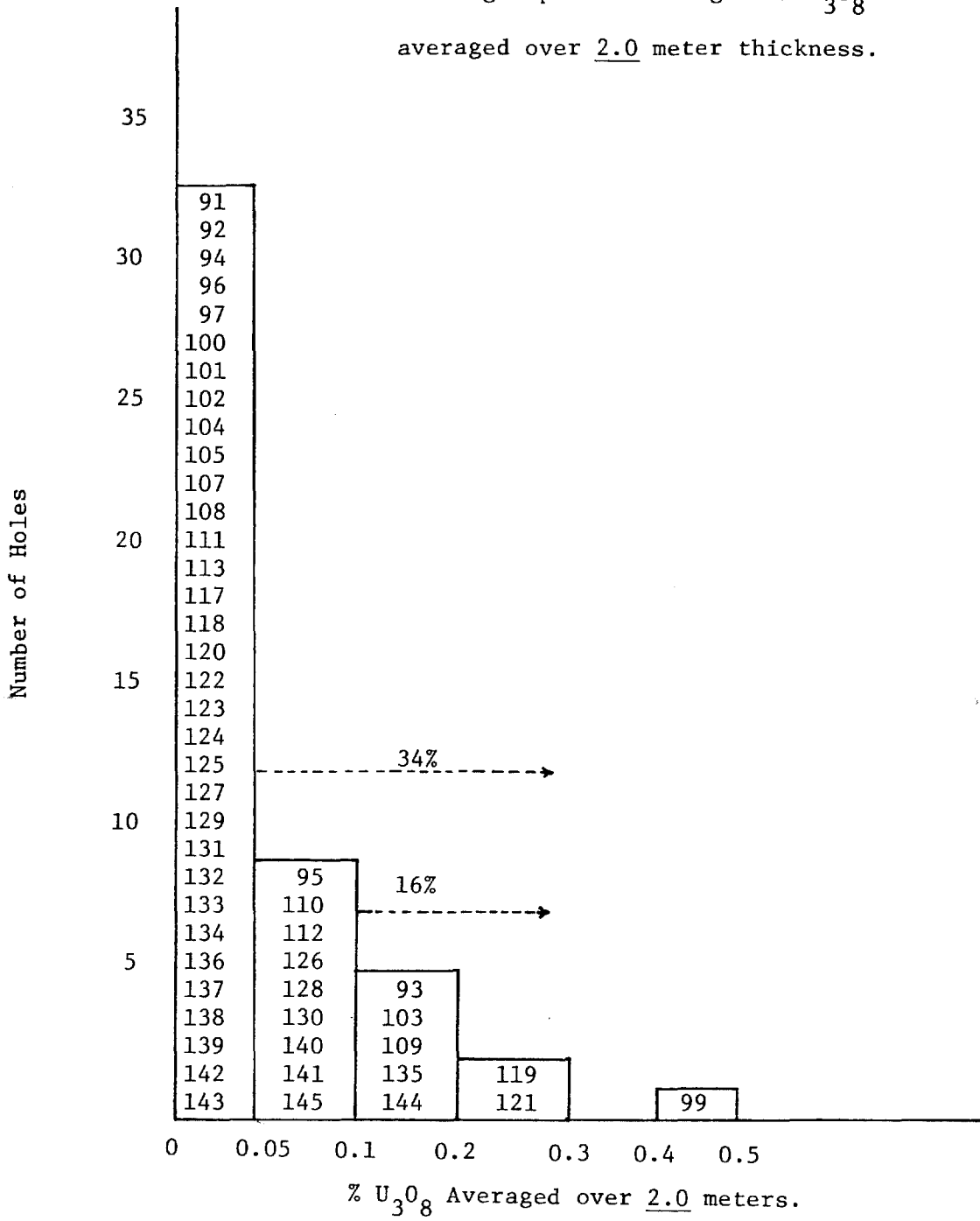


CHART #2

Holes grouped according to % U_3O_8
averaged over 2.0 meter thickness.



Eleven holes were drilled in the area of a new mineralized zone called the Bert's₂ zone. This new zone south of Bert's Lake has an area of about 1 km² and an average grade of about 0.1% averaged over 1 m thickness. The Bert's zone appears to be similar to the Nancy zone in grade and continuity and still remains open to the south (see Diamond Drill Location Plan).

The overall average grade calculated using a 0.02% cutoff and averaged over a 2.0 meter thickness is 0.065% U₃O₈.

The mineralized zones in the Dieter Lake area correspond to lows in the basement paleotopography formed by predepositional faulting. Following are two possible explanations for this:

- 1) The mineralized horizon was present on both the basement lows and highs, however subsequent slumpage and turbidite flows removed the mineralized material from the highs and deposited it in the lows.
- 2) Reducing conditions favourable to the precipitation of uranium existed in the basement lows and not on the basement highs.

The IP survey conducted on the ice of Lake Vivian detected a chargeability anomaly along the north shore of Lake Vivian striking northeast. The anomaly indicates a shallow target probably dipping to the south at an angle of less than 45°. The anomaly appears to be caused by hematite within a fault zone at the sediment/granite contact.

The resistivity method was not successful in mapping the basement topography due to the screening effect of a shale unit of high electrical conductivity.

In March and April 1980, two attempts were made at obtaining a bulk sample from the mineralized horizon at Dieter Lake. The first attempt north of Hole #82 was unsuccessful due to the depth of the overburden. In April, a second attempt was made with success. Eight 45-gallon drums were filled with selected samples from a trench dug in the area of the Lake Vivian showing. The bulk sample was sent to Lakefield Research of Canada Ltd., for preparation.

6.5 EXPLORATION DEVELOPMENT SERVICES GROUP

At the time of writing the results were not submitted pending approval.

6.6 PROJECTS DIVISION GROUP

The test results from Ore Sorters Canada Ltd., showed that a good separation of ore and waste could be achieved with the Gayot Lake bulk sample. Nearly 50% of the sample by weight could be rejected while maintaining an overall uranium recovery of 97%. The overall feed grade for the sample was nearly doubled from 0.189 to 0.362% U₃O₈.

UEB progress reports regarding the metallurgical testing of the bulk sample indicated that the very fine uranium distribution required long reaction times in alkaline leaching. The acid leaching also required long retention times with a high acid consumption, however extraction rates are higher than for the alkaline leach process.

The solubility of uranium was tested for longer retention times (168 hrs.), however the difference was negligible.

7. CONCLUSIONS AND ASSESSMENT OF POTENTIAL

The potential of the Lac Pons area is still unknown although two of the holes drilled this year yielded weak uranium mineralization (max. 0.11% U_3O_8 /1 m) in the green wackes. The source of the four mineralized green wacke boulders has not been found as yet.

The Lac Gerzine and Mildred Lake areas appear to have a very poor economic potential.

To date in the Dieter Lake area we have three zones with a total mineralized area of about 2.5 km², and a thickness of about 1 meter and an overall average grade of about 0.10% to 0.15% U_3O_8 /1 m.

All three zones are to a certain extent open to the south. However, increasing depths are becoming prohibitive, especially in the case of the Nancy and Bert's zones. The possibility of additional mineralized zones east of the Bert's zone exists, however, unless there is some offset, at least part of the zone will lie outside the southern boundary of the Dieter Lake claim group.

8. EXPLORATION PROGRAM 1981

1. LAC PONS PE 635

2.1 Diamond drilling (1067 m) 01/03-15/04
1 geologist (6 months)

2. DIETER LAKE CLAIM GROUP

1.1 Diamond drill hole location survey
1.2 Linecutting (20 km) extension of grid to east limit of claims.

3. JOKER LAKE CLAIM GROUP

3.1 Linecutting (22.5 km) at 200 m spacings
3.2 MAG-VLF survey of grid

4. LAC CASGRAIN CLAIM GROUP

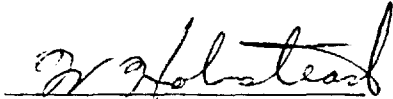
4.1 Linecutting (19.75 km) at 400 m spacings

4.2 MAG-VLF survey of grid

5. LAC BUDGET CLAIM GROUP

5.1 Linecutting (18.25 km) at 400 m spacings

5.2 MAG-VLF survey of grid

A handwritten signature in cursive script, appearing to read "W. Holmstead", is written over a horizontal line.

Wayne Holmstead

YEARLY REPORT 1980

PROJECT 71-86 - GAYOT LAKE

Report No. 7186-47

December 1980

Prepared by:

Dr. Wolf Gehrisch
UEM-Montreal
March 16, 1981
WG/yn

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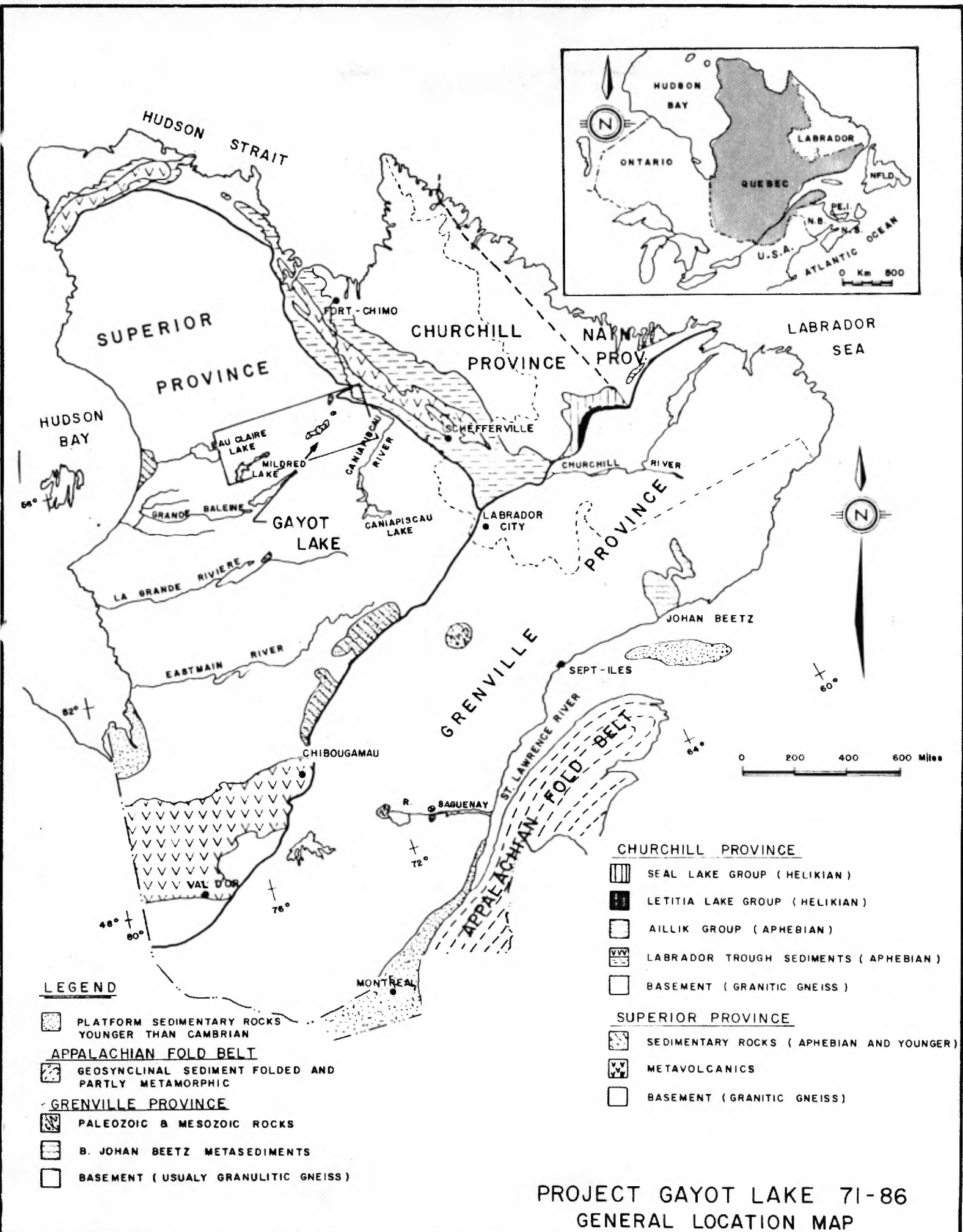
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1. INTRODUCTION

1.1 PARTNERS EQUITY

Ownership of the Gayot Lake Joint Venture is as follows:

U.E.M. (operator):	50%
S.D.B.J.	: 50%

1.2 PROJECT LOCATION

The base camp at Dieter Lake is approximately equidistant (270 km) from both Schefferville and Ft. Chimo, and is 1165 km north-northeast of Montréal. The coordinates of Dieter Lake are Lat. 55° 58'15"N, Long. 70° 36'30"W.

1.3 INFRASTRUCTURE

Access to the area is solely by float-or-ski-equipped aircraft, the town of Schefferville serving as logistics base. An all-weather road now exists to within 140 km of the project area, the roadhead being the S.E.B.J. base at Lac Pau-Duplanter. Public use of these facilities is restricted however.

1.4 TENURE

Current land assets consist of five claim groups (335 claims) and three permit areas for a total of 235.5 km² (See Land Status Map).

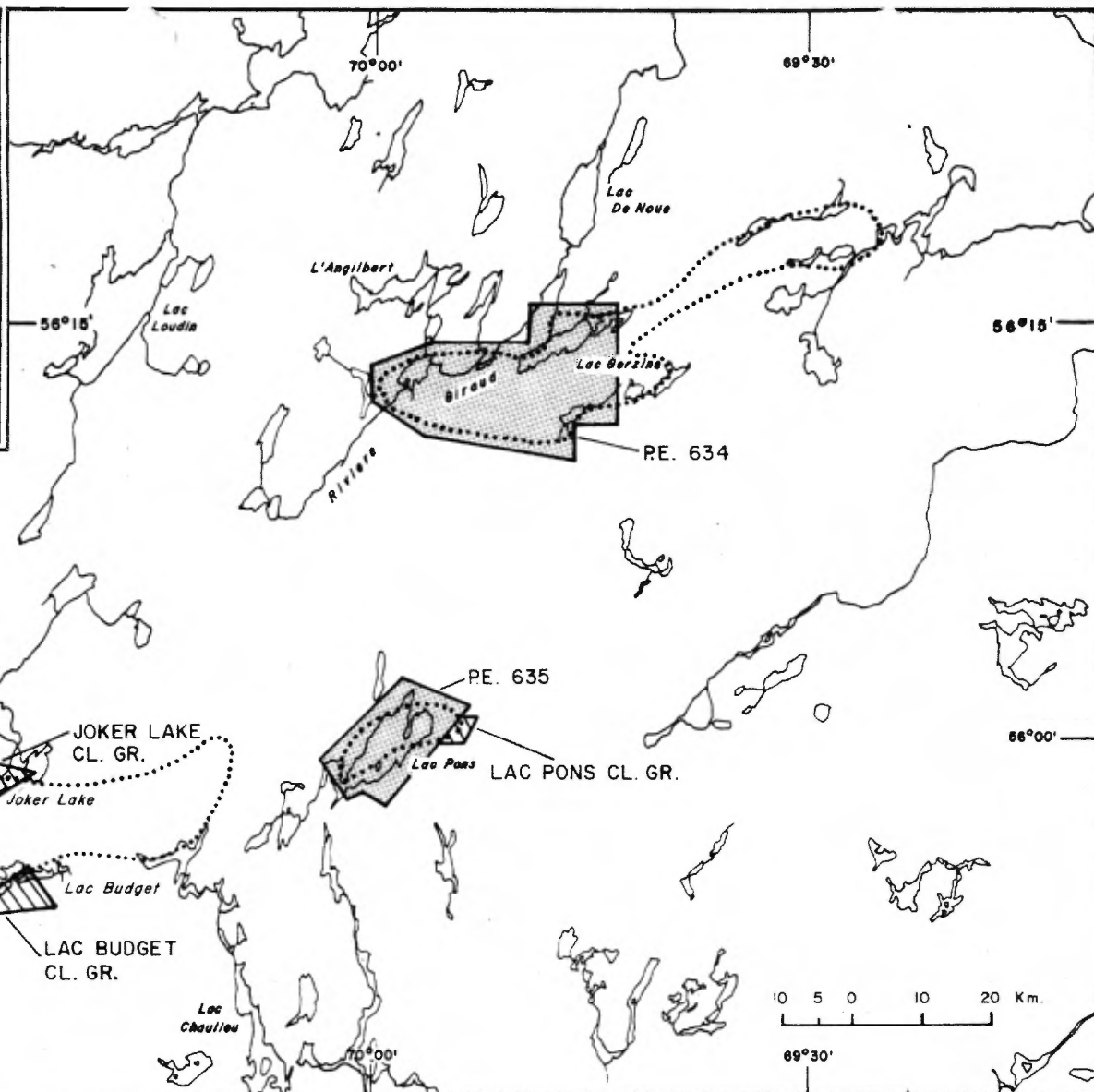
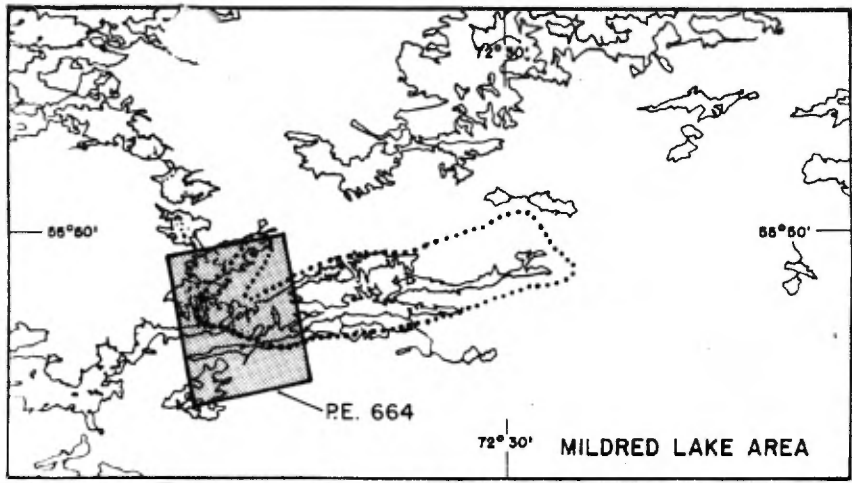
2. GENERAL GEOLOGY

Unconformably overlying the Archean Superior Structural Province (metavolcanics and granite gneisses) Aphebian sedimentary Sakami Formation occurs as local outliers in northern Quebec, forming two roughly ENE-WSW trending discontinuous semi-belts.

The Kenoran Orogeny (2480 Ma) resulted in folding, faulting and metamorphosing of the Archean basement rocks. Anatexis and plutonism is widespread.

The Hudsonian Orogeny (1735 Ma) did not affect the Superior Structural Province to any appreciable extent except for faulting and perhaps some diabase dikes of uncertain age. Thus, the Aphebian Sakami Formation is not metamorphic.

The Sakami Formation has been subdivided into lower and upper members (Eade 1966) on the basis of differing environments of deposition. The lower units consist of a series of interbedded shales, siltstones, wackes and arkosic sandstones, with a discontinuous basal conglomerate and minor intraformational conglomerates. These are terrestrial sediments deposited at the edge of a transgressing deltaic environment as supported by general coarsening






UEM Property	# Claims	Area (Km. ²)
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DIETER LAKE CL. GR.	190	30.75
LAC PONS CL. GR.	17	2.72
JOKER LAKE CL. GR.	24	3.84
LAC CASGRAIN CL. GR.	58	9.28
LAC BUDGET CL. GR.	46	7.36

Permits

PE. 634, Lac Gerzine	125
PE. 635, Lac Pons	43
PE. 664, Mildred Lk.	67.5

-  Sakami Outlier
-  Staked Claims
-  Permits

URANERZ EXPLORATION & MINING LTD.

PROJECT NO. 71-86, (Gayot Lake)

Land Status as of December 31, 1980

COMPILED: W.H.	DATE: Jan. 1981	TENEMENT:	MAP No.
DRAWN: BouY	DATE: " "	PLAN No. 241	REPORT No.
LAST REVISION:		SCALE 1:500000	PROJECT No. 71-86
T.C. TO 80001	REF: 23 N-N, 24 C-D, 33 P, 34 A		

upwards of the sediments and lateral facies variations, typical of such environments. Successive sedimentary beds usually show gradational contacts. At Dieter Lake, the lower Sakami contains a uraniferous horizon. Within the four Sakami outliers of the northern semi-belt (Project area) the lower Sakami tends to show common features, though in detail, in each outlier, significant differences exist, as for example thickness of individual units, ratio of fine to coarse material, pebble content etc., indicating an independent evolution for each outlier. The basins themselves are graben structures and the controlling faults remained active in post-depositional times.

At Dieter Lake the lower and upper Sakami Formations are separated by a 200 m thick transitional zone, where the upper and lower thirds are argillites to siltstones, separated by quartz arenite. We arbitrarily include this sedimentary pile with the lower Sakami Formation.

The upper member of the Sakami Formation consists mainly of quartz arenites which occur as thick (1-2 m), massive beds and show well developed crossbedding with no major difference in all of the outliers of the project area (except for the Mildred Lake outlier) and is considered as an epicontinental sandstone deposit. Measurements made of planar-type crossbedding in the upper Sakami within the Dieter Lake claim block indicate a preferred paleocurrent orientation to the south and east, whereas such measurements, made in the remaining parts of the sedimentary basin, held by Eldorado Nuclear Limited indicate a general SW orientation, with the sediment source probably being to the NE.

The general strike of the sediments is east-west with local deviation and southerly dips of 10° to 30° except for the Lac Pons outlier, where strike is centroclinal. The tectonic style is block faulting with the oldest faults trending E-W, and the younger faults striking NE. Preliminary age dating of pitchblende derived from the lower Sakami shales showed a Pb-Pb "age" of 1850 Ma, which if as believed, that the uranium was deposited coevally with the sediments, would indicate a late Apebian age.

No mineral deposits exist within the project area, UEM apparently being the first company to carry out exploration activities within this particular semi-belt of Sakami Formation. Within the southern semi-belt, which is located within the James Bay territory, in 1974, an Elliot Lake-type U-discovery, as yet uneconomic, was made by an INCO-SDBJ joint venture within basement rocks close to a Sakami outlier.

3.

EXPLORATION TARGETS

The exploration targets in all of the four Sakami outliers within the project area are stratabound syngenetic U-mineralizations within the lower Sakami Formation.

The genetic model developed for the Dieter Lake area will be described briefly:

An intracratonic east-west trending elongated basin (graben) was created by tectonic activity. NE trending cross faults more or less parallel to the gneissosity of the Archean basement layed the ground to topographic irregularities within the graben. Weathering and erosion in Aphebian times smoothed these irregularities to a certain extent and filled the NE-trending troughs with conglomeratic material. At a late stage, the graben was host to a large and deep lake and was partly filled with pelitic sediments (shale) mostly under reducing conditions (sapropelites). At the end of this sedimentary cycle, the lake became rather shallow and sedimentation slowed down. At this stage tectonic activity within the area surrounding the lake, probably exposed fresh basement rock to weathering and groundwaters circulating within the fault systems of the basement and charged with U, were released to ultimately find their way into the lake. As the lake was rather shallow at this time, the oxi-redox boundary within the water bottom was quite close to the water/sediment interface. This is considered to be the ideal environment for U, which at that time was readily available to be entrapped within the lake bottom sediments. Irregularities within the lake bottom topography, predetermined by the irregularities of the Archean basement beneath the sediments, controlled the position of the oxi-redox boundary with respect to the lake bottom and thus indirectly controlled the ability of the lake bottom sediments to entrap U. Later on, coarser sediments of a prograding delta were deposited on top of the U-enriched horizon and protected it from erosion.

4.

PREVIOUS ACTIVITIES

1976:

Project 71-86 was conceived in 1976 by UEM, and work was begun during the year's field season. A short (two week) reconnaissance program was undertaken to begin a preliminary assessment of the area's uranium potential. Initial surveys consisted of centre-lake sediment and water sampling, ground traversing across the unconformity and airborne mapping of the outlier. An airborne spectrometer survey was undertaken of the Gayot Lake outlier after radioactivity was encountered in outcrop (Fearless I) north of Dieter Lake. Uranium anomalies were also obtained from both lake bottom sediments and waters in the same area, as well as in the vicinity of Mildred Lake (P.E. 658). As a result, a group of one hundred and ninety contiguous claims were staked along the unconformity at Dieter Lake.

1977:

In 1977 a full exploration program was mounted, emphasis being placed on detailed work at Dieter Lake, but also with a wide-ranging reconnaissance survey throughout the area of interest. Results of this work were the finding of three additional showings (Matoush, Lake Vivian and Bert's Lake) on the Dieter Lake property, and the discovery of two previously unmapped Sakami outliers to the east and northeast of Dieter Lake (Lac Pons and Lac Gerzine). Exploration permits were obtained for these two new areas (P.E. 634, 635), as were three others (P.E. 626, 627, 628) for portions of the known outliers at Gayot and Mildred Lakes.

1978:

1978 saw the completion of surface exploration on the Dieter Lake property, with the result that no new findings of an economic nature were made. Work carried out included mapping at 1:10,000: completion of the boulder prospecting, EM-16 and magnetometer surveys begun in 1977; and some geochemical testing.

Diamond drilling was begun during this year, and saw some 3686.6 m drilled on the four showings which had been located in 1977. A stratigraphic examination of the drill profiles led to recognition of the fact that the good mineralization of hole no. 23 at Lake Vivian has developed in a stratigraphic position where a change from quiet sedimentation (green shale) to a type of higher energy environment sedimentation (wacke) took place. This mineralization was first encountered at the Matoush area, west of Lake Vivian and some indications are still present at Bert's Lake to the east. It thus seemed possible and even probable that in between Matoush and Bert's Lake, this mineralization could have developed and that grades similar to that of Lake Vivian should be present here.

Results of the work carried out in other areas are summarized as follows:

Lac Gerzine Area: preliminary mapping/prospecting of selected areas within the permit indicates the presence of similar lower Sakami lithologies to those known for Dieter Lake. Four radioactive outcrops were found in these rocks. Strong geochemical anomalies were spatially associated with the unconformity.

Lac Pons Area: mapping/prospecting, airborne spectrometer surveying and geochemical sampling of the entire area resulted in the finding of a single uranium occurrence, located within fractures in the granite adjacent to the northern unconformity. Positive geochemical correlation exists within this area.

1979:

In 1979, 47 holes (7193.8 m) were drilled between Dieter Lake in the west and Bert's Lake in the east. This drilling showed that the mineralization was rather continuous with grades comparable to those encountered at the Matoush and Lake Vivian showings the year before.

A limited I.P. survey was conducted over a fracture zone in the Lake Vivian area thought to bear MoS_2 mineralization, however the results were inconclusive.

Geological mapping at Lac Gerzine indicated lower Sakami similar to that of Dieter Lake, however, outcropping was sparse. Prospecting indicated several low anomalous outcrops and six mineralized lower Sakami boulders. Results were inconclusive for the lake margin sampling and magnetometer surveys, however the VLF-EM showed good correlation with known geological information.

At lac Pons, prospecting revealed four mineralized wacke-type boulders (0.007-0.277% U₃O₈) and two uranium-bearing fractures within the basement rocks close to the unconformity. Soil sampling carried out across an enlarged grid showed an anomaly near one of the mineralized fractures. Short magnetometer and VLF-EM surveys were attempted across the same grid on which the soil sampling was done. The aim was to delineate the contact between the sediments and granites and a proposed contact was drawn using primarily data from the VLF survey.

Work in the Mildred Lake area included an airborne spectrometer survey. Thirteen anomalies were indicated, all of which could be attributed to granites or topographic effects. Helicopter mapping of the northern contact saw all the sedimentary outcrops encountered to be upper Sakami.

5. EXPLORATION PROGRAM

5.1 LAC PONS (PE 635)

Diamond drilling 1766.2 m (14 holes) BQ size, to test for stratabound mineralization.

5.2 LAC GERZINE (PE 634,650)

Diamond drilling - 1979.6 m (16 holes) BQ size, to test for lower Sakami stratigraphy and stratabound mineralization.

5.3 MILDRED LAKE (PE 658)

Geological mapping - scale 1:50,000

Prospecting -semi-detailed boulder and outcrop.

5.4 DIETER LAKE CLAIM GROUP

A diamond drilling program of 10622.1 m (55 holes) BQ size was conceived.

1) to define the depositional control of the main U-bearing sedimentary horizon with more confidence and to produce a detailed map of ore distribution (grade and thickness) in the Vivian Zone with the hope of being able to apply the results to the remaining zones of the Dieter Lake Claim Block. At the same time data for more accurate reserve calculations should be supplied from the Vivian Zone (detailed drilling program).

2) to increase the overall reserves by drilling the extensions of already known zones of U mineralization and to add new zones in hitherto untested areas of the Dieter Lake Claim Block.

IP Survey - 124 readings over Mo-bearing fault structure beneath Lake Vivian.

Electrical depth sounding (resistivity) - 147 readings over 1.2 km in the Lake Vivian area.

Trench (bulk sample) - approximately 2000 kg of sample material removed from Lake Vivian Showing for metallurgical tests.

5.5 EXPLORATION DEVELOPMENT SERVICES GROUP

The following activities have been reported in 1980:

- 1) Gayot Lake data entered into the computer.
- 2) Variograms constructed e.g. $GT^2 = 0.02\% U_3O_8$ over 2 meters.
- 3) Isopachs (1:2500) top of wackes to basement and thickness of wackes.
- 4) Study of multi-element aspect i.e. correlation, trends, etc
- 5) Cross sections for projects division.
- 6) Correlation of U_3O_8 and eU_3O_8 values.
- 7) Compilation and estimation of a 2D insitu resource.

5.6 PROJECTS DIVISION GROUP

The following activities have been reported:

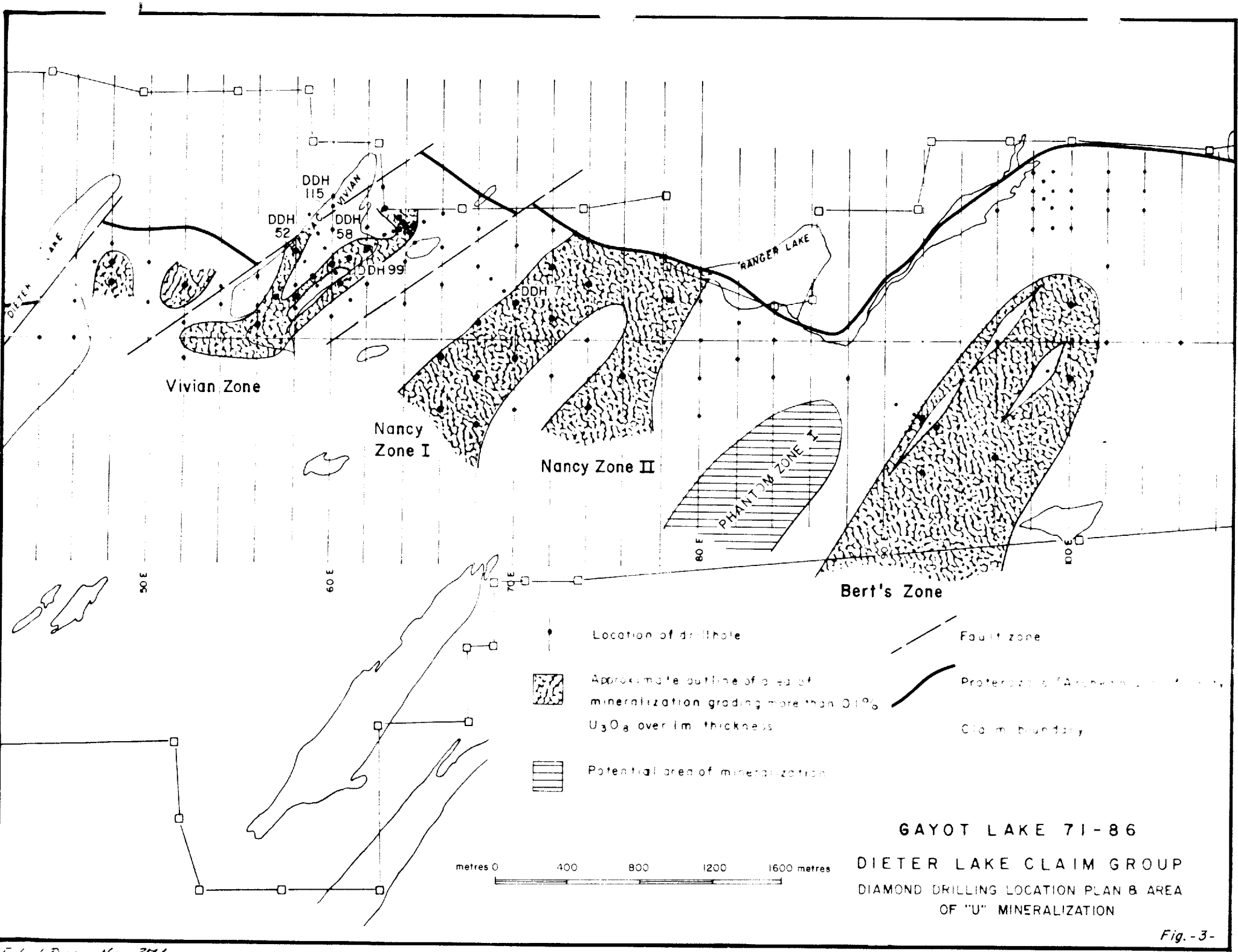
- 1) Testing of a Quebec uranium financial analysis computer program.
- 2) Crushing and screening of bulk sample material (2000 kg) by Lakefield Research Canada Ltd.
- 3) Radiometric sorting tests on bulk sample by Ore Sorters Canada Ltd.
- 4) Metallurgical testing of sorted sample by UEB, Bonn, Germany.

6. RESULTS (see also drill plan Fig.3 and cross section Fig. 4)

6.1 DIETER LAKE CLAIM GROUP

The drilling program at Dieter Lake was carried out with the knowledge of the stratabound nature of the U-mineralization, of the well defined stratigraphic position of the main mineralized horizon and of its changing character along strike and dip.

Detailed drilling at Lake Vivian revealed narrow zones of rich mineralization exceeding 1 m thickness (up to 2 m) and having good grade (0.2-0.5% U_3O_8), separated by almost barren zones. The mineralized horizon, where it was thick and of high grade, had a very distinct appearance: it is an olive green to brown very fine grained calcium rich layer which was deposited as a silty mud in a transitional environment between gyttja and saprotel facies



GAYOT LAKE 71-86
 DIETER LAKE CLAIM GROUP
 DIAMOND DRILLING LOCATION PLAN & AREA
 OF "U" MINERALIZATION

File No. 271

WNW

ESE

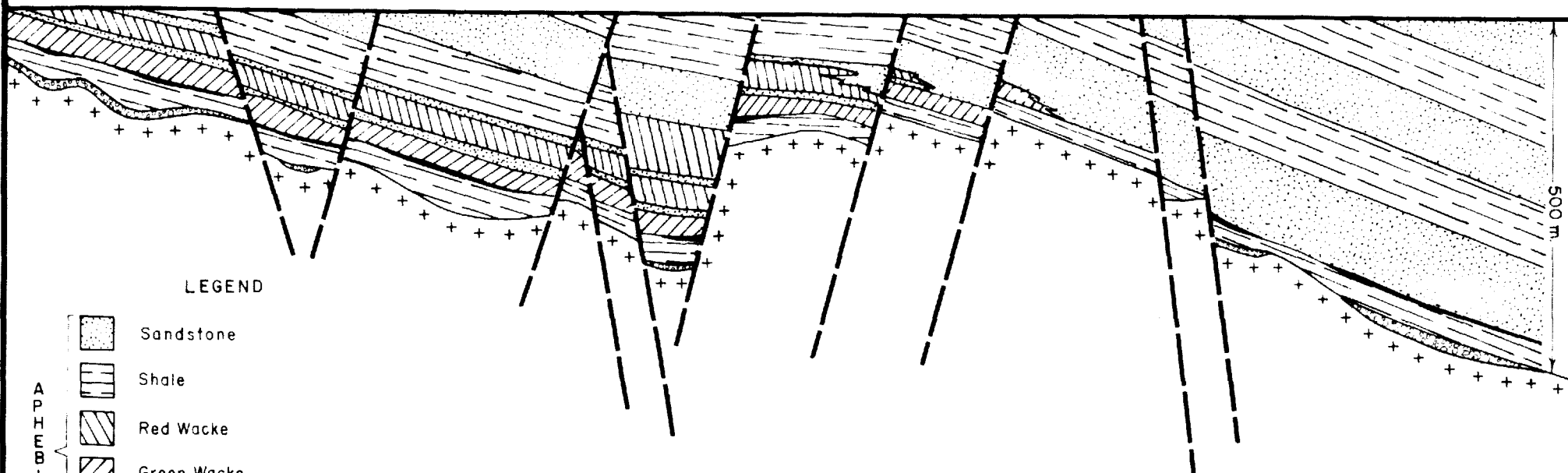
4 Km

Vivian Zone









Nancy Zone I

Nancy Zone II

Berts Zone



LEGEND

-  Sandstone
 -  Shale
 -  Red Wacke
 -  Green Wacke
 -  'U' Mineralization
 -  Conglomerate
 -  Basement
 -  Fault
- APHEBIAN
- ARCHEAN

SCHEMATIC E.-W. CROSS SECTION OF DIETER LAKE DRILLING AREA

(oxi-redox boundary close to the top of the sediments at the time of deposition). Disturbed bedding is a very characteristic feature (slumping, load structures, convolute bedding). We assume a very low rate of sedimentation at that time (retarded sedimentation) within a restricted basin (lacustrine environment). Shrinkage cracks are hosts for calcite veinlets and occasionally remobilized pitchblende. In the hanging wall a partly massive and recrystallized limestone horizon of 0.2 to 1 m thickness occurs.

The mineralized zones, which are on the average 400 m wide and perhaps 1.5 to 2 km long, have a northeasterly trend and parallel the prevailing fault system. A relation between basin lows and highs predetermined by the above presedimentary and later reactivated fault system is apparent: on elevated portions of the basin floor very thin and poorly mineralized equivalents of the mineralized horizon are found today whereas on the slopes of these elevations and in the troughs between them, much thicker and better mineralized accumulations of this horizon are found. Two modes of enrichment within the narrow zones are considered:

1. The pertinent sediments were deposited and mineralized evenly on lows and highs of the basin floor, and slumping on slopes resulted in the accumulation of the mineralized sediments down slope.
2. These sediments preferably accumulated down slope and in the troughs (quieter environment), where conditions for release of U out of solution and adsorption onto clay minerals (reducing environment) were favourable.

Probably the reality is a combination of both possibilities.

Furthermore, a comparison of the drill pattern from 1979 with that of 1980 at Lake Vivian shows that in spite of the irregularity of the mineralization, the overall reserves did not change significantly, which implies that, perhaps by luck, already the results of the large drilling pattern of 1979 statistically reflected the true picture. Geologically speaking this implies that there was a certain amount of U evenly distributed over a certain area of the basin and available for adsorption within a certain volume of sediment of proper composition and within the right environment. If there were no morphological irregularities within the basin floor (flat as a table) and the oxi-redox boundary were everywhere close to the top of the sediments at the time of deposition, the overall amount of U fixed within the main mineralized horizon, considering a sufficiently large area, would probably be the same as we have it now within the same large area, but concentrated within specific zones. Generally speaking, the more accentuated the morphological irregularities are, the narrower and richer the mineralizations are. This may explain, why hitherto the Vivian Lake area contains the richest U-mineralization as opposed to the Nancy and Bert's zones, though this still has to be confirmed by detailed drilling.

Drilling at the Nancy zones confirmed the southwestern continuation of the mineralization here and revealed a southwesterly trending barren ridge within this zone, separating it into two zones, thereby enlarging the Nancy zone as a whole. Grades of individual mineralizations (up to 0.34% U_3O_8 / 1 m) are not as high as in the Vivian Zone, but the average grade is comparable.

The 1979 discovered indications of a possible new zone SW of Bert's Lake were followed up in 1980 and drilling resulted in the new Bert's zone, with individual (up to 0.22% U_3O_8 / 1 m) and average grades slightly lower than the Nancy Zone. The major and better part of this zone however should be found south-west of where the actual drilling was done: a comparison of the mineralized horizon from the northeastern and southwestern extremities of the Nancy zones suggests, that the mineralization encountered at the Bert's zone represents the northeastern extremity of a larger zone (high silt content and relatively oxidized (reddish)).

Due to the great depth (400 to 500 m), and limited footage available, no drilling could be done southwest of the actual drill holes at the Bert's zone.

The ore reserves of 21.3 million pounds for the Dieter Lake Claim Block calculated by the Exploration Development Services Group will be discussed under 6.5.

Compilation maps for trace element distribution within the mineralized zones show very good correlation between U and Cu, and good correlation between U and V on one hand and U and Mo on the other hand.

The most prominent NE fault or fault zone at Lake Vivian (major lefthand offset of sediments), is associated with high chargeability values (IP-survey), hematization and molybdenum mineralization within the Archean basement close to the unconformity with the Aphebian Sakami Formation (holes # 52 (0.8% Mo/1 m) and # 58 (0.22% Mo/ 3m) drilled in 1979). Five holes drilled on this structure confirmed the relation of the Mo mineralization with the structure (hole #115 encountered 0.05% Mo and over 11 m within tectonized hematitic "granite"). This mineralization is open to the NE and SW.

A resistivity depth sounding survey was conducted to map the basement irregularities below the Sakami Formation. This survey was not successful due to the screening effect of a shale unit of high electrical conductivity.

In 1980, eight 45-gallon drums of the ore from a trench over the Lake Vivian showing were sent to Lakefield Research of Canada Ltd., for preparation. The results of ore sorting by Ore Sorters Canada Ltd., will be discussed under 6.6.

6.2

LAC PONS (PE 635)

The mineralized wacke-type boulders found north of the Sakami outlier of Lac Pons, with respect to lithology and mineralization, resembled

those found in the western part of the Dieter Lake area (Fearless I). For this reason a second Dieter Lake U-occurrence at Lac Pons seemed possible and even better grades were hoped for.

Drilling in this area revealed, that the lower Sakami at the rim of the Lac Pons sedimentary basin is only poorly developed. Holes LP 6 and 11 drilled in the northeastern part of the outlier encountered thinly bedded, dark green, reworked wackes and shaly wackes intermixed with sandy and conglomeratic material. The mineralized interval in LP 6 (20 cm of $\sim 0.5\%$ $U_{38}O_8$) occurred within fractured red clay concretions, set in a dark green wacke-type matrix. In hole LP11 the mineralization occurred as two thin beds of 20 cm each and secondary uranium oxides were associated with hematite, limonite and manganese. The two intervals assayed 0.03% and 0.045% over one meter each.

An attempt to intersect lower Sakami at deeper levels where it might be better developed had to be aborted, since LP14, apparently drilled on a downfaulted block did not encounter lower Sakami even at a depth of 321 m.

The inferred source area of the mineralized boulders was not tested yet, since the hole drilled for this purpose, after going through very thick overburden, only encountered basement rocks.

The drilling results so far indicate very sporadic mineralization within an environment which cannot be compared with the main mineralized horizon at Dieter Lake. The only remaining favourable area for better mineralization seems to be the down faulted block of LP14, assuming that this area already was a trough at the time of sedimentation (reducing environment).

6.3

LAC GERZINE (PE 634,650)

In previous years the Lac Gerzine area was mapped and prospected both geochemically and radiometrically without encouraging results, although low grade mineralization, both in boulders and in outcrops were found. The drilling program in this area was primarily undertaken to test, if the unit of lower Sakami similar to the Dieter Lake area and favourable for U-mineralization was developed at all and if so, to search for the proper facies for U-accumulation. The program was to drill along the northern margin of the basin where the sediments could be expected to be thinnest, at a spacing on the order of 1 km. Several holes were also planned for the central and southern part of the basin, where deeper portions of the sedimentary pile were uplifted (area southeast of Fenster Lake). Overall results of this drilling campaign were negative as neither appropriate units of lower Sakami units (the lower Sakami here being a quartz pebble conglomerate embedded in green wacke-type matrix) nor strongly radioactive zones were encountered.

On the Rivière Giraud grid the contact between Sakami sediments and Archean basement was mapped by means of a VLF-EM and a magnetometer survey.

6.4 MILDRED LAKE (PE 658)

In 1980, the Mildred Lake area was mapped by S. Winter and E. Canova. The following is a resumé of their report:

The east-west elongated Archean sedimentary Sakami outlier at Mildred Lake (30 km long, 5 km wide) occurs in a graben structure bounded by faults trending 060° to 100°, with a tongue-like inlier of Archean basement in the western part of the outlier, representing a horst structure. In general, the Sakami sediments are dipping 10°-40° south and are nonmetamorphic except for some dynamo-metamorphism in the south eastern part of the area. The sediments unconformably overly Archean basement.

The different lithologies, their stratigraphic relationships and their estimated thickness are shown in Table 1.

The Archean basement of the eastern half of the area consists predominantly of granitic rock-types with occasionally pegmatitic patches. No regolith was observed. In the vicinity of faults, retrograde metamorphism (chloritization) and hematite alteration was observed.

Along the north western edge of the outlier the main rock-types of the basement are mafic gneisses of amphibolite facies, having a dioritic to quartz dioritic composition. Crosscutting these rocks are dikes of granite and pegmatite.

The southwestern edge of the outlier is bordered by gneisses and migmatites, grading into granite gneiss and granite.

The highest radioactivity (100-200 c/s SPP-2) was observed within the granitic rock-types.

The lower two units of Sakami sediments within the graben i.e., the quartz pebble conglomerate and the wackes and mudstones are considered to be continental fluvial (delta ?) deposits, whereas the quartz arenite may be eolian, at least in part. The gap in the sequence may stratigraphically correspond to the position of the main ore horizon at Dieter Lake (opinion of writer). Between the quartz arenite and the following continental deposits of interbedded quartz arenites, sandstones mudstones and siltstones there may exist an unconformity. The next unit, i.e. the green wacke and siltstones may represent playa-type sediments. Between this unit and the following alluvial conglomerate, thought to be deposited in a hot dry continental environment, an unconformity may again exist.

TABLE 1
 SAKAMI SEDIMENTS
 MILDRED LAKE AREA - LITHOLOGIES, STRATIGRAPHIC
 RELATIONSHIPS AND THICKNESSES

		LITHOLOGIES	Thickness
PRECAMBRIAN PROTEROZOIC - APHEBIAN		Alluvial Fanglomerate - granite boulder conglomerate	+ 500 m
		- interbedded granite boulder conglomerate and arkosic sandstone	800 m
		~~~~~unconformity ?~~~~~	
		Green wacke and siltstone	100 ⁺ m
		Orange-red sandstone - interbedded quartz arenite, subarkosic sandstone, siltstone, mudstone	200 m
		~~~~~unconformity ?~~~~~	
		- quartz arenite	500 m
		Gap in sequence - No outcrop	?
		Red wacke and red mudstones	20 [±] m
		Quartz pebble conglomerate	1 [±] m
ARCHEAN		~~~~~Unconformity (Fault)~~~~~	
		Basement - granite, gneisses, quartz diorite	

High radioactivity (4000 c/s SPP-2) was found associated with the basal quartz pebble conglomerate. Spectrometry indicated this to be due mainly to thorium.

The Mildred Lake sedimentary outlier is considered to represent Sakami Formation, but in part the stratigraphy differs considerably from the Sakami-type found at Dieter Lake.

6.5

EXPLORATION DEVELOPMENT SERVICES GROUP

The report of this group titled "ESTIMATION OF URANIUM RESOURCES FOR THE GAYOT LAKE PROJECT (Dieter Lake Claim Group)" was completed in February 1981 only, but since it is dealing with drilling results prior to 1981 a summary of this report will be included here.

To calculate the geological ore reserves at Dieter Lake, a cut-off of 200 ppm over a mineralized or diluted mineralized minimum thickness of 2 m was chosen. Thus, the 145 holes drilled in the area were reduced to a population of 91 holes.

The average (mean) grade of these 91 holes was 0.055% U_3O_8 over two meters, with a minimum of 0.02% U_3O_8 and a maximum of 0.25% U_3O_8 over two meters, the maximum not representing the true maximum, since the much higher grades encountered in holes 71 and 99 were arbitrarily reduced by a factor of three to account for the apparent singularity of their high grades.

A modified polygon method was then applied to calculate the volume of each block represented by a drill hole. The density of the ore grade rock was approximated to be 2.7 g/cc, with the calculated average of 201 density determination of 2.67 g/cc.

The following is a citation of the original report:

"The global insitu uranium resources of the Dieter Lake mineralization is (thus) estimated to be approximately 20 million tonnes material grading 0.049% U_3O_8 , which indicates 9700 tonnes (21.3 million pounds) U_3O_8 metal(oxide)."

Calculations for ore reserves with different cutoffs from .02% U_3O_8 over 2 meters up to 0.10% U_3O_8 over 2 meters were also presented.

The summarizing table is reproduced here:

Table 2 - Summary of Estimation Results for Polygon Method

<u>Cutoff %</u>	200 ppm Over 2 Meter Minimum Thickness		
	<u>Tonnes Material</u>	<u>Tonnes U308</u>	<u>Grade U308%</u>
.02	19,719,612	9708.6	.049
.03	15,150,591	8587.7	.057
.04	11,261,943	7322.5	.065
.05	7,889,724	5866.6	.074
.06	5,994,864	4819.1	.080
.07	3,411,666	3193.8	.094
.08	2,211,786	2339.1	.106
.09	905,850	1278.4	.141
.10	905,850	1278.4	.141

Overall carbonate content of the ore is approximately 13% CaCO_3 , without there being any correlation between U_3O_8 content and CaCO_3 content of the ore.

The global figures of the ore reserves calculation have a tolerance (at the 95% confidence level) of $\pm 9\%$.

A simulation of radiometric ore sorting for the whole of the Dieter Lake mineralization resulted, at the 200 ppm cutoff grade over a given thickness, in upgrading the material from an average of 0.049% U_3O_8 to an average of 0.11% U_3O_8 .

6.6

PROJECTS DIVISION GROUP

The test results from Ore Sorters Canada Ltd, showed that a good separation of ore and waste could be achieved with the Gayot Lake bulk sample. Nearly 50% of the sample by weight could be rejected maintaining an overall uranium recovery of 97%. The overall feed grade for the sample was nearly doubled from 0.189% U_3O_8 to 0.362% U_3O_8 .

UEB progress reports regarding the metallurgical testing of the bulk sample indicated that the very fine uranium distribution required long retention times in alkaline leaching and rendered low recovery. For a grindsize of -63 and a retention time of 168 hours only 66.7% of the U_3O_8 content of the sample was recovered.

Acid leaching for maximum recovery (92%) required 120 hours with a consumption of 210.5 kg of sulfuric acid per ton of ore. The most favourable conditions for acid leaching seem to be a retention time of 48 hours with a recovery of 88%. Acid consumption for this case was not given, but due to the high carbonate content, should still be high.

The metallurgical test work reveals, that the Dieter Lake ore is a difficult ore, much of the uranium probably still being present as adsorptions onto clay minerals and only partly forming proper pitchblende grains, easily leachable. These tests are still ongoing.

A refined economic orientation study will be completed by mid 1981.

7. CONCLUSION AND ASSESSMENT OF POTENTIAL

The potential of the Lac Pons area seems to be quite limited, although the central graben structure was not tested yet. In the tested area, mineralizations (up to 0.11% U_3O_8 over 1 m) occur quite irregularly.

The Lac Gerzine area appears to be without economic potential.

The Mildred Lake area is as yet untested by drilling and surveys carried out in the area do not encourage further investigations. However, should the Dieter Lake area, because of considerations which are beyond the scope of this report, become again the focus of intense exploration activity in the future, the Mildred Lake area may again attract some attention. As already stated, the stratigraphical level, in which the main ore horizon at Dieter Lake occurs, does not outcrop at Mildred Lake and is represented by a gap in the stratigraphic table. Unfavourable for the area is the high angle dip of the strata (10° - 40°), which means that a potential ore horizon rapidly reaches great depths. On the other hand this area may contain remobilizations of ore along faults as this is the case in the Lodeve/Hérault deposit of France.

The Dieter Lake area contains four known zones of major U-mineralization: the Vivian zone, the two Nancy zones and the Bert's zone. Applying a cutoff of 200 ppm over 2 m thickness, the total geological ore reserves are 20 million tonnes with an average grade of 0.049% U_3O_8 or 21.3 million pounds of U_3O_8 .

The mineralization is controlled by an oxi-redox boundary, slow sedimentation, shallow water, the topography of the bottom of the sedimentary basin and availability of uranium.

All four zones are, to a certain extent open to the south. However, increasing depths are becoming prohibitive, especially in the case of the Nancy and Bert's zones. The possibility of additional zones east of Bert's zone exists, however, unless there is a tectonic offset to the northeast, at least the major part of these zones will lie outside the southern boundary of the Dieter Lake Claim Group.

8.

EXPLORATION PROGRAM 1981

1. LAC PONS PE 635

2.1 Diamond drilling (1067 m) 01/03-15/04
1 geologist (6 months)

2. DIETER LAKE CLAIM GROUP

1.1 Diamond drill hole location survey

1.2 Linecutting (20 km) extension of grid to east limit of claims.

3. JOKER LAKE CLAIM GROUP

3.1 Linecutting (22.5 km) at 200 m spacings

3.2 MAG-VLF survey of grid

4. LAC CASGRAIN CLAIM GROUP

4.1 Linecutting (19.75 km) at 400 m spacings

4.2 MAG-VLF survey of grid

5. LAC BUDGET CLAIM GROUP

5.1 Linecutting (18.25 km) at 400 m spacings

5.2 MAG-VLF survey of grid



Wolf Geffrisch