WATSON LAKE M.D.

MAP No. 105 B 9

ASSESSMENT REPORT ☐
N. M. E. A. P. ☐
CONFIDENTIAL ☐
OPEN FILE ☐

TYPE OF WORK: GEOLOGY, GEOCHEMISTRY, GEOPHYSICS

REPORT FILED UNDER	C.E.G.B. EXPLORATION CANADA LTD. DOCUMENT NO. 091788
DATE PERFORMED	AUGUST-OCTOBER 1985 DATE FILED:
LOCATION – LAT.	60°37'N AREA: CABIN CREEK
LONG.	130°24'W
CLAIM NO.	BOZO 1-12 YA73628-YA73639
VALUE $6,000.00	
WORK DONE BY	A.T. TURNER
WORK DONE FOR	CENTRAL ELECTRICITY GENERATING BOARD EXPLORATION (CANADA) LTD.
REMARKS	79-ELLE

091788

Yor 85 NO REF.
INFORMATION NOT IN PUBLIC DOMAIN

A program of soil and silt sampling, trenching, geological mapping and prospecting was carried out in 1985.

Seven trenches were dug but bedrock was not encountered. Consequently, anomalous Pb, Zn and Ag soil samples have yet to be explained. No gold values were encountered when soils were analyzed.

INFORMATION NOT IN PUBLIC DOMAIN

GEOLOGICAL, GEOCHEMICAL AND GEOPHYSICAL REPORT ON THE BOZO 1-12 MINERAL CLAIMS, CABIN CREEK AREA, YUKON TERRITORY

WATSON LAKE MINING DISTRICT
NTS 105B-9W

LATITUDE 60°37'24"N LONGITUDE 130°24'18"W

BASED ON WORK COMPLETED BETWEEN
AUGUST 10 AND OCTOBER 15, 1985

for

CENTRAL ELECTRICITY GENERATING BOARD
EXPLORATION (CANADA) LIMITED

by

A. T. Turner, B.Sc., P.Geol.

January 24, 1986

091788

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 6,000.00 .

20 March 1986

Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

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1.0 INTRODUCTION

During the 1985 uranium reconnaissance program conducted by CEGB Exploration (Canada) Ltd., in the Cabin Creek area, anomalous radioactivity was discovered in the Cretaceous biotite quartz monzonite stock.

Rock chip analyses revealed uranium values within a megaporphyritic phase of the intrusive (up to 2.1% U_3O_8) and within a clay altered quartz monzonite (up to 5650 ppm U_3O_8).

This report documents geochemical, geophysical and geological studies carried out over Bozo 1-12 claims between August 10 and October 15, 1985.

2.0 LOCATION AND ACCESS

The Cabin Creek stock is situated 100 km northwest of Watson Lake. The closest settlement is Rancheria, approximately 60 km to the south-southwest on kilometre 1183 of the Alaska Highway (see Figure 1).

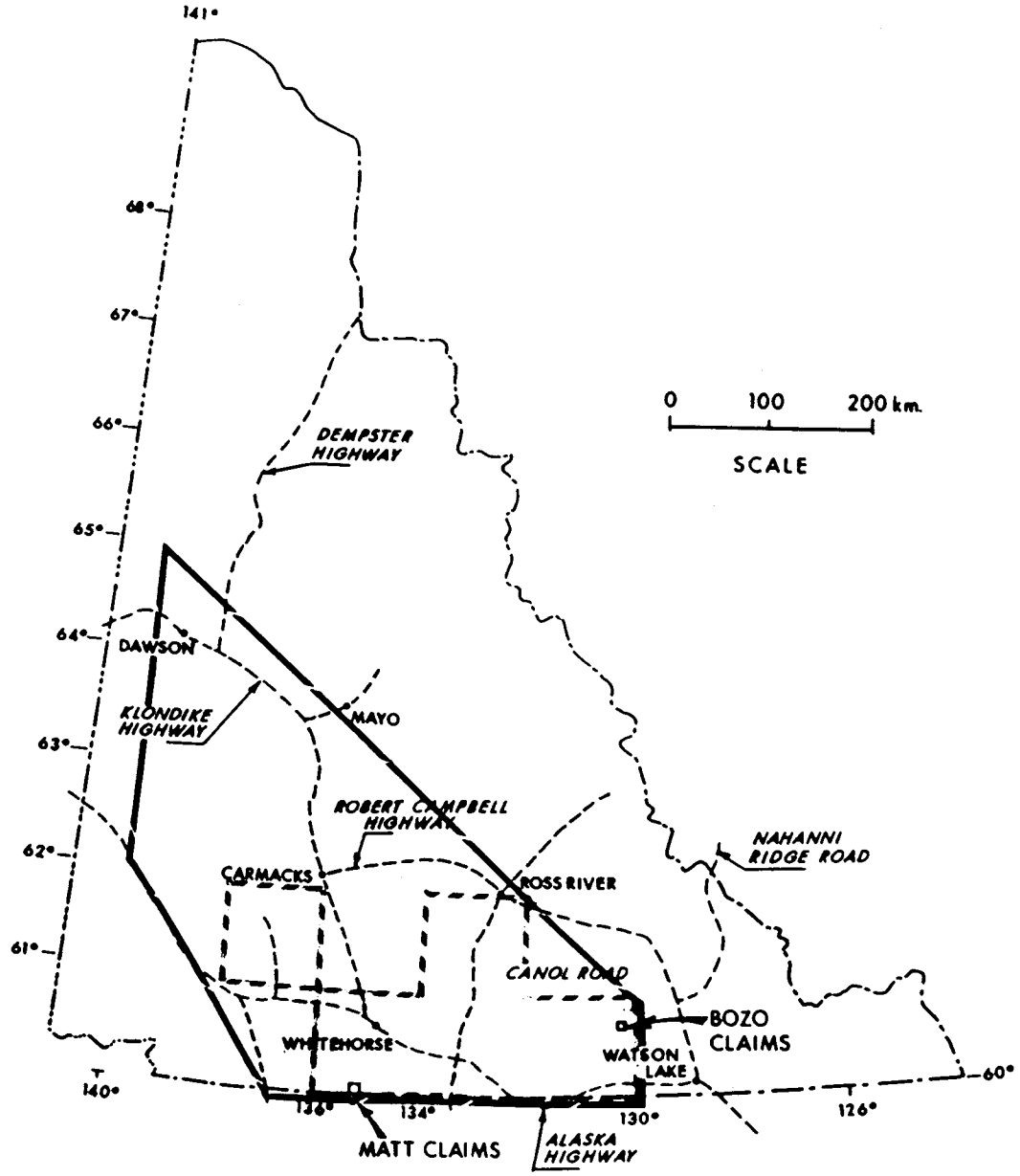
A winter road extends from the Alaska Highway north to the Liard River-Cabin Creek junction and passes to within 10 km of the eastern edge of the batholith. A fixed wing airstrip is situated just south of the Liard River - Cabin Creek junction. This airstrip was utilized by previous exploration companies during placer gold mining operations on Cabin Creek.

During the 1985 season, the field crew was mobilized from Watson Lake to the Liard River-Cabin Creek junction utilizing a float-equipped fixed wing aircraft chartered from Watson Lake Flying Services. Personnel and equipment were then transported by helicopter to a camp site just north of the Bozo Claims on a tributary of Cabin Creek.

3.0 REGIONAL GEOLOGY

Geological mapping of the Wolf Lake map sheet was carried out by Poole of the Geological Survey of Canada during the early 1950's at a scale of 1:250,000 (see Map 1). This work delineated the boundaries of Cretaceous intrusions designated the Cassiar (Unit 15) and Seagull (Unit 16) batholiths and related stocks. These units intrude:

- late Proterozoic to Mississippian miogeosynclinal sedimentary rocks (Cassiar Platform)
- a thick intensely sheared sequence of Carboniferous clastic, carbonate and intrusive rocks (Yukon Cataclastic Complex).



Joint Venture Area of Interest

1985 Study Area

CEGB EXPLORATION (CANADA) LTD.

EXPLORATION AREAS
AND INFRASTRUCTURE

YUKON TERRITORY

DATE	AUTHOR	FIGURE
October 1985	A.T.T.	1

4.0 LOCAL GEOLOGY AND STRUCTURE

The Cabin Creek area is underlain by Cretaceous porphyritic biotite granite-quartz monzonite which intrudes Cambrian quartzites, biotite schists and gneisses (see Map 2). The intrusive rocks are medium to coarse grained and generally consist of 30% quartz, 55% feldspars (microcline and plagioclase) and 10-15% biotite with minor magnetite, apatite, rutile and rare earth minerals. Irregular shaped quartz grains from 0.5 to 2.5 mm in size are clear to dark smoky gray. Orthoclase phenocrysts range from 2 to 10 cm in length.

Three localized textural and/or compositional phases of the stock have been observed:

- clay altered muscovite-biotite quartz monzonite (Bozo Grid #1, see section 7.5.1)
- magnetite biotite rich zones (Bozo Grid #2, see section 7.5.2)
- small pods of very coarse grained megaporphyritic granite (Bozo Grid #3, see section 7.5.3)

The most prominent regional structural feature is the northwest trending Tintina fault system parallel to the Liard River. Evidence of major crosscutting northeast striking faults are observed along Cabin Creek and a southern tributary which passes through the central portion of the Cabin Creek stock.

5.0 PREVIOUS EXPLORATION

During 1978, the Geological Survey of Canada carried out the Uranium Reconnaissance Program (URP) over the Wolf Lake map sheet. The highest stream sediment result (75.1 ppm U) in the Cabin Creek area is situated near the northern contact of the intrusive along a major tributary of Cabin Creek (see Map 2).

During 1979, Eldorado acquired claims (Elle 1-139) over the Cabin Creek stock where six airborne radiometric anomalies had been defined. Initial work consisted of ground radiometric, soil and rock geochemical surveys within grids established over the property. A total of 531 soil and 323 rock samples were collected for uranium analyses. Two ground radiometric anomalies (6000 cps, BGS-ISL) were further examined by trenching. The highest radiometric readings coincided with anomalous soil (>400 ppm U) and rock sample (>2000 ppm U and 390 ppm Th) results.

Preliminary mineralogical studies indicated that the source of the anomalous radioactivity was due to an abundance of euxinite within this coarse grained phase of the intrusive. The company also reported a heavy mineral sample within their claim boundary yielding greater than 10,000 ppb Au.

R. T. Bell of the Geological Survey of Canada collected radioactive rock samples from the Eldorado trenches and various outcrops within the intrusive during 1981. One sample of quartz monzonite float from a pit showed values of greater than 5000 ppm U. Bell attributes most of the radioactivity to "opalescent coatings on fractures, and from euxenite-polycrase and monazite".

6.0 LAND STATUS

Twelve contiguous mineral claims (Bozo 1-12) were acquired by staking on August 4, 1985 (see Figure 2). These claims were recorded at the office of the Mining Recorder in Watson Lake on August 8, 1985. Metal grant tags with serial numbers YA 73628 - YA 73639 were issued on September 3, 1985. These tags will be affixed to the appropriate posts during the 1986 field exploration program. Sufficient exploration expenditures from the 1985 program will be applied to these claims to hold the property in good standing for an additional five years.

7.0 THE 1985 PROGRAM

7.1 General

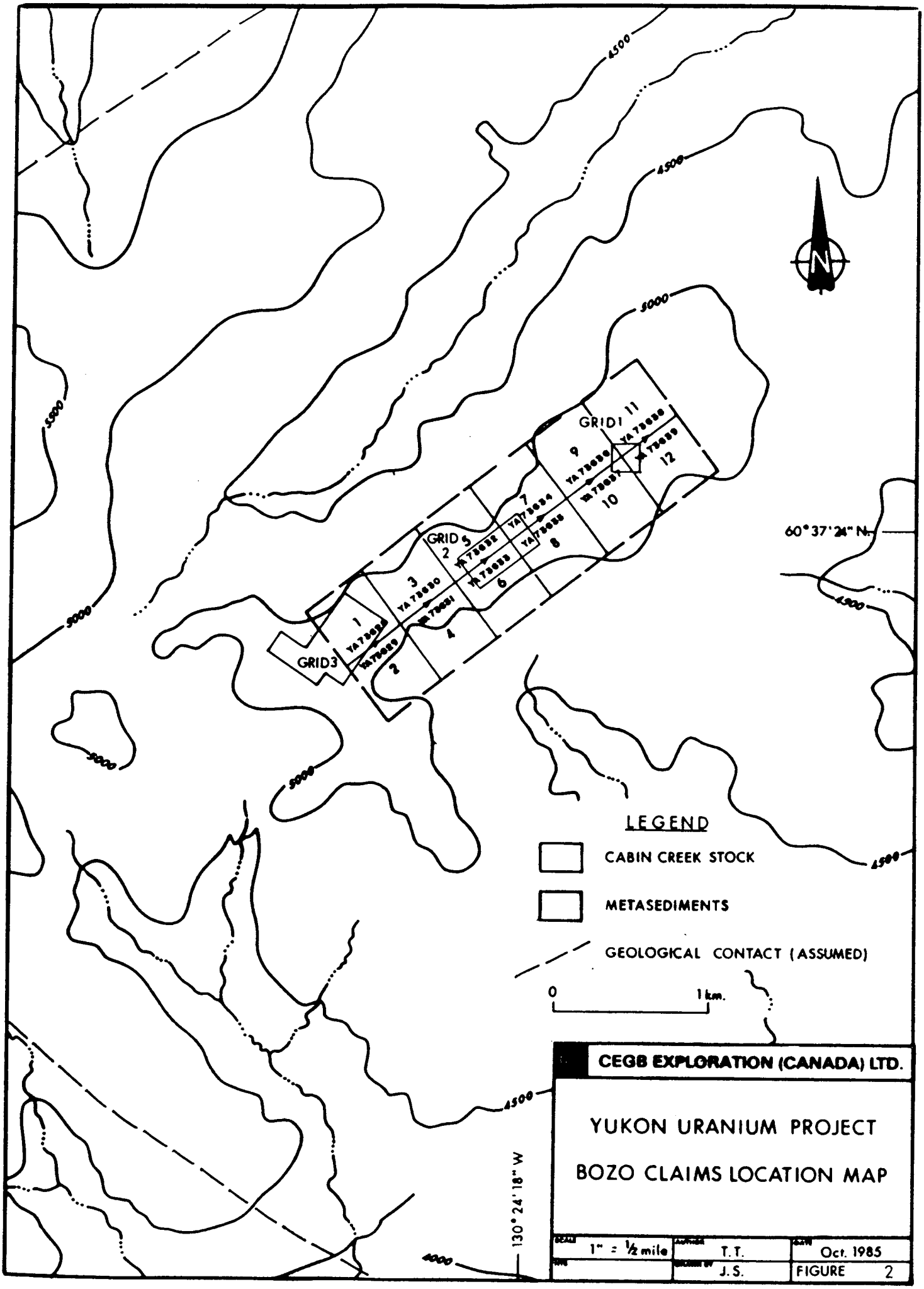
Initial field work commenced on August 15 and was completed on August 24. The following personnel participated in the project:

1. Terry Turner - Project Geologist
   27 Rundleson Way NE
   Calgary, AB, T1Y 3H7

2. Sam Amukun - Geologist
   Tesso International Consulting Co.
   44 Shootfield Crescent
   Agincourt, ON, M1S 4E2

3. Denis Yaychuk - Geologist
   3931 Parkdale Road
   Saskatoon, Sask., S7H 5B3

4. Tom Bojczyszyn - Geologist
   231 - 18 Avenue NE
   Calgary, AB, T2E 1N3


4500
5000
5500
GRID 1
GRID 2
GRID 3
1
2
3
4
5
6
7
8
9
10
11
12
60°37'24" N.
130°24'18" W
LEGEND
CABIN CREEK STOCK
METASEDIMENTS
GEOLOGICAL CONTACT (ASSUMED)
0
1 km.
CEGB EXPLORATION (CANADA) LTD.
YUKON URANIUM PROJECT
BOZO CLAIMS LOCATION MAP
1" = ½ mile
T.T.
Oct. 1985
J.S.
FIGURE 2

5. Paul MacDougall - Geologist
   2 Harbourview Drive
   Sidney Mines, NS, B1V 3A1

6. Bob McPherson - Geologist
   326 Point McKay Gardens NW
   Calgary, AB, T3B 4V8

The Cabin Creek stock was selected for regional evaluation because of:

- known uranium occurrences
- its relationship to other high level Cretaceous batholiths within the Wolf Lake map sheet
- proximity to large structural features (i.e. Tintina and cross cutting faults).

7.2 STRUCTURAL STUDY

Linears were compiled from high level airphotos A11449-395 to 398 and plotted in quasi-corrected fashion on a 1:31,680 scale base map. The linears were segregated as to direction for comparison with the classic igneous intrusion joint model and with the shear couple model related to the nearby Tintina fault system. Interpreted maps were prepared by extending or connecting linears so as to highlight the more persistent trends. A field examination of these linears was proposed with the purpose of detecting dilation zones where structurally controlled uranium mineralization might occur.

7.3 RECONNAISSANCE SURVEYS

Initial ground radiometric prospecting surveys identified anomalous radioactivity and rock geochemistry results associated with four distinct lithologies:

- megaporphyritic granite (Eldorado trench), spectrometer readings up to 25,800 cps, partial and total extraction analyses of 778.0 ppm and 2.1% U_3O_8 respectively
- clay altered quartz monzonite, spectrometer readings up to 10,000 cps, partial extraction analyses up to 956.0 ppm U_3O_8
- porphyritic magnetite-biotite rich quartz monzonite, radiometric readings from 1000 to 3600 cps, partial and total extraction analyses up to 208.0 and 1550.0 ppm U_3O_8 respectively

- aplite dyke - isolated occurrence, up to 990 ppm U_3O_8 (total).

Encouraged by initial geochemical results, Bozo claims 1-12 were staked to cover the above radioactive occurrences.

7.4 BOZO CLAIM EXPLORATION PROGRAM

Geology

Initial geological mapping within the Bozo claims and the immediate area was completed at a scale of 1:5,000 (see Map 3). Rock exposure is less than five percent and is largely confined to the ridges. All outcrops were tied to the main base line or grid lines by topofil and compass.

Porphyritic biotite quartz monzonite is the predominant rock type underlying the western half of the property. Magnetic biotite rich phases (Grid #2, Bozo 6 claim) and megaporphyritic pods (Grid #3, Bozo 3 claim) generally occur within this unit. The eastern half of the claims are generally underlain by an equigranular biotite quartz monzonite. The radioactive clay altered quartz monzonite lies within this equigranular phase (Grid #1, Bozo 11 and 12 claims).

Structure

Observations on exposed portions of the stock indicated primary foliation (crystal alignment) directions ranging from 030 to 060 degrees. Crushing and sheet-like cataclastic structures, often obscuring the foliation in this reworked stock, are chiefly north-south striking. The angle between cataclastic and primary foliation, both of which have an airphoto linear response, was observed to be either 55 - 60 degrees or 30 - 45 degrees. Where the angular separation was 60 degrees, a shear couple or fault related origin is postulated. Where the separation was 45 degrees, active shearing possibly occurred along one diagonal joint direction in late stage magmatic deformation. Both processes were probably active and shear couple phenomena (striking 045 and 170 degrees) are related to major wrench faulting along the Tintina fault.

Other ground observations were the widespread joint controlled gullies and trenches striking generally east-west. Locally there are parallel veins of barren vuggy quartz and occasional offsetting, suggesting normal faulting along these breaks. East-west linears tend to be terminated or offset by 010-025 degree linears, so probably both were involved during

late uplift of the stock. Aplite dykes having a width of less than one metre were observed, having a preferred direction of 130 degrees, which may represent a primary cross joint direction.

Geophysical Characteristics

Ground magnetometer and radiometric readings were collected along the main baseline at 25 and 50 metre intervals respectively (see Map 5).

The two main phases of the intrusive are characteristically different with regard to radiometric background and magnetic signature as shown below. The equigranular phase appears to occupy the core of the stock as displayed in the regional magnetics shown on Map 2.

Lithology	Radiometrics (cps)		Magnetics (gamma)	
	Background	Range	Background	Range
Porphyritic Biotite Quartz Monzonite	650	450-924	1100	747-1302
Equigranular Quartz Monzonite	550	442-626	375	299-864

Geochemistry

A total of 55 soil samples were collected along the main base line at 50 metre intervals within the Bozo Claim boundaries. The baseline was extended 450 metres to the southwest and northeast where an additional 18 samples were collected.

On the Bozo claim the background is about 3 ppm and the highest result was 52.0 ppm. This anomalous sample is situated in close proximity to the exposures of radioactive clay altered quartz monzonite.

Northeast of Bozo 11 and 12 claims, five consecutive sample stations showed anomalous soil results between 12.0 and 72.0 ppm U_3O_8. These results are as yet unexplained.

7.5 Bozo Grid Exploration Program

Three grids were erected within the claim boundary to cover radioactive occurrences. For control purposes, the grids were tied to the claim line (also the main baseline) which has an orientation of 55 degrees. Ground radiometric and magnetometer surveys were carried out over each grid and

along the main baseline. This was supplemented by soil, stream sediment and rock chip sampling when warranted. A compilation of all rock chip samples collected in the Cabin Creek area is shown in Table 1.

7.5.1 Bozo Grid #1

Geology: Detailed geological mapping was completed over a 10 m grid at a scale of 1:200 (see Map 5). Only two rock units (designated Units A and E) are exposed within the grid.

Unit A is a clay altered muscovite-biotite granodiorite which is exposed in outcrop only along the western edge of a north-south trending draw. Representative samples are typically buff coloured, hematized, fractured and contain smoky quartz. Most boulders found in the area are angular and appear to be frost heaved. Trenching exposed concentrations of boulders occurring along a north-south trend for a distance of 50 metres and along a 120 degree trend for about 60 metres. The width of each zone appears to be less than 5 metres.

Unit E is equigranular biotite granodiorite and is exposed on the ridge top near the northwestern edge of the grid. This unit is usually porphyritic with potash-feldspar laths up to 4 cm. Both angular and well rounded boulders of this unit are found randomly scattered throughout the grid.

Radiometric Survey: Radiometric readings were recorded at each grid station and also in the hole which was excavated to weathered bedrock for soil sampling purposes (see Maps 6 and 7). Surface readings ranged from 370 cps in the swamp area in the extreme southeast to 1270 cps in the vicinity of altered radioactive boulders at the intersection of the sub baseline and line 0+00. In-the-hole radiometric readings generally showed elevated readings, twice that obtained on the surface. At numerous stations where readings exceed 1000 cps, altered intrusive boulders were found in the hole. The highest reading (2025 cps) is situated near the southern limit at which altered boulders were detected. Granite sand was exposed by trenching at this location (Line 0+00W and Line 0+40S).

Anomalous radioactivity within the clay altered quartz monzonite showed spot radiometric readings ranging from less than 1000 cps to 18,000 cps. The uranium to thorium ratio was as high as 14 to 1.

The radiometric background of the equigranular quartz monzonite is approximately 500 cps and all boulders show relatively consistent readings.

TABLE 1

LITHOLOGICAL COMPILATION, CABIN CREEK AREA (See Maps 3, 6, 11 and 14)

SAMPLE NUMBER	LOCATION	RADIOMETRICS (cps) OUTCROP	BAG COUNT	ANALYSES (ppm U_3O_8) PARTIAL	TOTAL	DESCRIPTION
85 RT-9	60°38'30"N, 130°17'W	3300		47.2	424.0	Porphyritic biotite quartz monzonite, feldspar phenocrysts to 3 cm; U/T=8/1, radioactivity could be related to north-south structure.
85 RT-10	Eldorado Trench 60°37'20"N, 130°24'35"W	3300		61.3		Medium grained porphyritic quartz monzonite, smoky quartz, myrmekitic texture, north-south trending mineralized zone, U/T=5/1.
85 RT-11	Eldorato Pit 60°37'10"N, 130°25'12"W	8300	1800 - 2500	778.0	2.1%	Coarse grained megaporphyritic phase of quartz monzonite, consists mainly of biotite and feldspar, U/T=12/1.
85 RT-12	130°26'W, 60°37'W	1300		15.1		Biotite quartz monzonite, coarse grained with orthoclase phenocrysts to 5 cm, U/T=4/1.
85 RT-13	130°23'30"W, 60°37'N	1700		11.1		Biotite quartz monzonite, coarse grained, anomalous radioactivity trending 060°; U/T= 6/1.
85 RT-14	60°37'20"N, 130°24'W			51.9		Biotite quartz monzonite, smoky quartz, minor epidote, rusty fractures.
85 RM-29-111	130°17'W, 60°39'N	3800	200	5.9		Coarse grained biotite quartz monzonite, smoky quartz; U/T=5.5/1.
85 RM-4-1	60°37'10"N, 130°25'12"W	4000	700	424.0		Pinkish pegmatitic quartz monzonite, possible fine acicular crystals of euxenite.
85 BO-178	60°37'20"N, 130°24'W	3700	230	26.7		Biotite quartz monzonite, feldspars to 4cm, euhedral 1mm magnetite.
85 BO-179	Grid #2	2575	350	47.2	518.0	Porphyritic biotite quartz monzonite, magnetic, fresh, smoky quartz.
85 BO-182	Grid #1	2600	650	920.0	943.0	Clay altered muscovite granite, slightly smoky quartz, manganese coatings.

SAMPLE NUMBER	LOCATION	RADIOMETRICS (cps) OUTCROP	BAG COUNT	ANALYSES (ppm U_3O_8) PARTIAL	TOTAL	DESCRIPTION
85 BO-183	Grid #1	1750	400	413.0	424.0	Clay altered muscovite granite, trace of light green opaline film, smoky and clear quartz, hematized coatings, intensely fractured.
85 BO-184	Grid #1	10,300	475	956.0	1037.0	Clay altered granite, medium grained, slightly porphyritic, black quartz, secondary uranium?, hematite, sericite and muscovite.
85 BO-186	60°37'N, 130°27'W		350	215.0	990.0	Magnetic biotite quartz monzonite, fracutred, smoky quartz and clear quartz, biotite clots.
85 BO-192	Grid #3	20,500	1350	448.0	0.21%	Muscovite pegmatite with tourmaline and magnetite crystals, biotite clots.
85 BO-193	Grid #3 Eldorado Pit	25,800	2600	684.0	0.61%	Porphyritic biotite quartz monzonite, magnetic U/T=9/1.
85 BO-194	Grid #3	4550	325	61.4	518.0	Myrmeketic granite, magnetite, tourmaline.
85 BO-196	Grid #3	4500	475	198.0	471.0	Altered pegmatite, muscovite, tourmaline, smoky and clear quartz, magnetite.
RT-1000	Grid #3	750 - 800	160	3.3		Biotite quartz monzonite, medium to coarse grained, moderately magnetic.
RT-1001	Grid #3		170	8.7		Coarse grained quartz monzonite, weakly magnetic near biotite clots.
RT-1002	Grid #2		185	30.7		Megaporphyritic biotite quartz monzonite.
RT-1003	Grid #2		175	10.6		Porphyritic biotite quartz monzonite, very magnetic fine grained biotite rich groundmass.
RT-1004	Grid #3	3,600	400	208.0	1550.0	Medium grained porphyritic quartz monzonite, smoky quartz, biotite flakes, weakly magnetic.
RT-1005	Grid #3			37.8		Medium grained porphyritic quartz monzonite, weakly magnetic.
RT-1006	Grid #3		270	780.0	990.0	Fine grained equigranular leucocratic quartz monzonite, weakly magnetic.
RT-1007	Grid #3	2,100		33.0		Medium to coarse grained biotite quartz monzonite, smoky quartz, weakly magnetic.

SAMPLE NUMBER	LOCATION	RADIOMETRICS (cps) OUTCROP	BAG COUNT	ANALYSES (ppm U_3O_8) PARTIAL	TOTAL	DESCRIPTION
RT-1008	Grid #3		410	101.0	613.0	Coarse grained biotite quartz monzonite, smoky quartz, moderately - very magnetic.
RT-1009	Grid #3 B.L., 1+67S		425	28.0		Medium grained biotite quartz monzonite, very magnetic.
RT-1010	Grid #3 3+25S,9+00E	2,000	170	4.5		Coarse grained porphyritic quartz monzonite, non-magnetic.
RT-1011	Grid #3 31+92W,5+00N	1,400		37.8		Porphyritic quartz monzonite, clear to lightly smoky quartz, non-magnetic.
RT-1012	Grid #3 BL+315S	900 - 1000	160	3.3		Very fine grained aplite dyke(?), leucocratic.
RT-1013	Grid #2		260	51.9	306.0	Megaporphyritic quartz monzonite, smoky quartz intergrowths to 3cm.
RT-1014	Grid #3 4+05S,0+50W		170	6.6		Medium grained porphyritic quartz monzonite, smoky quartz, non-magnetic.
RT-1015			380	144.0		Medium grained biotite with quartz monzonite, very magnetic.
RT-1016	Grid #3 31+11W,3+70S	4,000	225	63.7		Medium to coarse grained porphyritic quartz monzonite, very magnetic.
RT-1017	Grid #3 Bozo Claims 2+50S,S.B.L.	850	200			Porphyritic biotite quartz monzonite, moderately magnetic
RT-1018	3m SW of Eldorado Trench	550 - 600	160	1.7		Porphyritic biotite quartz monzonite, coarse grained, magnetite grains, clear and smoky quartz.
RT-1020	170m N of BL+5W on Main	925	195	47.2		Altered muscovite quartz monzonite, medium grained, smoky quartz, hematite haloes around bleached clay-altered feldspar.
RT-60	Grid #1 135+13E		1050	2125.0	1830.0	Highly altered biotite, muscovite quartz monzonite, hematized, smoky quartz.
RT-61	Grid #1		210	70.8	77.8	Altered biotite-muscovite-quartz monzonite.
RT-62	Grid #1	18,000+	3500	5650.0	3540.0	Altered biotite-muscovite quartz monzonite, smoky quartz, secondary? uranium.
85 BO-200			185	11.3		Pegmatite, fresh and unaltered.

SAMPLE NUMBER	LOCATION	RADIOMETRICS (cps) OUTCROP	ANALYSES (ppm U_3O_8) BAG COUNT	PARTIAL	TOTAL	DESCRIPTION
RMD-7			500	61.4		Coarse grained biotite quartz monzonite, weakly magnetic, smoky quartz.
CCS-7	2km W of Bozo claims,	1400	900	13.9		Porphyritic biotite quartz monzonite.
CCS-8	W of Bozo Claims	4200		31.0		Biotite quartz monzonite-gravel consisting of black quartz phenocrysts and biotite in soil.
RMD-8	Western contact	13,700		221.7		Porphyritic biotite quartz monzonite, magnetic.
85 DY-9	E of Bozo Claims	1835	170	68.4		Hematized porphyritic quartz monzonite.
85 DY-13-R	NE Contact	3625	250	13.2		Porphyritic biotite quartz monzonite.
85 DY-14-R	NE Contact	3790	250	1.5		Porphyritic biotite quartz monzonite.
CCS-4	Bozo 4 Claim	2800		9.7		Porphyritic biotite quartz monzonite, magnetic.
BO-641	130°26'W, 60°37'N	3500	580	94.4		Porphyritic quartz monzonite, magnetic.

Magnetometer Survey: A ground magnetic survey showed a relief of 120 gammas with the highest readings within the eastern half of the grid (see Map 8). The north-south trending draw, along which a concentration of clay altered quartz monzonite has been exposed, lies at the western edge of the elevated magnetic readings.

Geochemistry: A total of 133 soil samples were collected within the grid (soil descriptions are in Appendix 2 and locations are shown on Map 9). Results ranged from 1.3 to 114 ppm U_3O_8 and the background is about 6 ppm. The highest value (114.0 ppm) occurs on the southernmost grid line within a water saturated swampy grassland. An anomalous zone defined by the 12.0 ppm contour line extends along the southern edge of the grid and is coincident with intermittent drainage. Within the outline of the altered zone, up to 64 ppm U_3O_8 was recorded in a spot anomaly downslope from the southeastern extent of the exposed mineralized boulders.

The results of rock chip grab samples from the altered zone ranged from 70.8 ppm U_3O_8 (RT-61, 1000 cps) to 5650.0 ppm U_3O_8 (RT-62, 18,000 cps).

A concentration of 19 altered boulders were located 170 m north of the grid. A rock specimen (RT-1020) collected from this location analyzed 47.2 ppm U_3O_8 where a spot radiometric reading of 975 cps was recorded.

Mineralogy: A sample of the altered muscovite-biotite quartz monzonite (sample CC-1) was sent to Vancouver Petrographics Ltd. (see Appendix 3). Their report recognized deuteric alteration resulting in the formation of kaolinite from plagioclase and subsequent hematization. Accessory minerals recognized include apatite, zircon and rutile. An autoradiograph of the sample showed a low level of radioactivity and mineralogical studies were unwarranted.

Three rock specimens of the radioactive clay altered intrusive were analyzed by scanning electron microanalyzer and X-ray methods by S. Amukun (see Appendix 4). Two phases of alteration and mineralization have been recognized. The first phase of mineralization is the development of uranium-bearing rare earth minerals, rare earth phosphates containing thorium and brannerite. This phase is associated with deuteric or relatively low hydrothermal alteration of potassium feldspars to muscovite. A later phase is represented by the development of low radiogenic lead-containing pitchblende (probably formed by the remobilization of uranium from uranium-rare earth minerals) and is associated with replacement of quartz and potassium feldspar with kaolinite and with minor sericite-illite alteration of the potassium feldspar.

Secondary uranium was observed in sample RT-62 (5650 ppm U_3O_8). This sample was further examined by the Geological Survey of Canada which reported uranophane, an unidentified uranium-silicate-phosphate and brannerite (see Appendix 6).

7.5.2 Bozo Grid #2

Geology and Structure: Geological mapping was completed over Grid #2 at a scale of 1:1,000 (see Map 10). Rock exposure is less than ten percent and is restricted to the western half of the grid. The predominant rock type is porphyritic biotite quartz monzonite. Very often large angular slabs of this unit appear to be frost heaved. Numerous linear structural features trend in a northeast-southwest direction. Subvertical north-south, east-west trending joints have also been recognized.

Radiometric Survey: The radiometric background over the grid is approximately 500 cps (see Map 11). Broad anomalous zones outlined by the 600-700 cps contour line generally depict areas where elevated spot radiometric readings were recorded.

Detailed prospecting identified 170 radioactive spot anomalies between 1000 and 3600 cps. These anomalous readings are associated with magnetic, biotite rich phases of the intrusive. These zones could be traced intermittently over short distances and are generally less than one metre in width.

Two radiometric anomalies were selected for trenching. The highest radioactivity was observed at the base of the soil horizon where a 5 cm magnetite-biotite band occurs. Uranium to thorium ratios are approximately 3 to 1.

Geochemistry: Rock samples of biotite quartz monzonite collected at the bottom of the one metre pits analyzed 10.6 and 30.7 ppm U_3O_8.

Soil sample collected at 50 m intervals along the main baseline analyzed from 0.4 ppm to 6.2 ppm U_3O_8.

Magnetometer Survey: Magnetic relief is approximately 1400 gammas (see Map 12). The northeast trending elevated magnetic zone defined by the 1500 gamma contour between lines 13+50W and 15+50W is largely grass and sand covered. A correlation of magnetics with radiometrics is not apparent.

7.5.3 Bozo Grid #3

Geology and Structure: Lithologies mapped within this grid at a scale of 1:1000 consist of both porphyritic and

equigranular phases of the intrusive (see Map 13). These units are generally exposed as frost heaved angular boulders. Two small pods of megaporphyritic granite occur along the sub-baseline. The largest pod (less than 5 metres in diameter) was initially trenched by Eldorado and is situated at the intersection of the sub-baseline and Line 0+00.

Two 60° and 90° striking vuggy quartz veins were traced intermittently over the northeastern portion of the grid. An aplite dyke situated along SL4+00S is parallel to the major 90° striking fracture trend.

The most prominent structural feature passes through the central portion of the grid in a NE-SW direction. This feature is represented by a linear grass and moss covered depression where frost heaved boulders and shallow subcrop of porphyritic biotite quartz monzonite occurs.

Radiometrics: The radiometric background averages 650 cps (see map 14). Elevated readings generally correspond to rock exposure. The highest radiometric readings (20,400 and 25,800 cps) are underlain by megaporphyritic phases of the intrusive. Uranium to thorium ratios were 9 to 1. Numerous small radiometric anomalies (up to 1700 cps) are related to magnetite, biotite rich zones similar to those encountered on Grid #2. Uranium to thorium ratios were less than 3 to 1.

Geochemistry: Soil samples collected along the sub-baseline at 25 m intervals ranged from 1.1 to 205.0 ppm U_3O_8. The highest result was collected next to the Eldorado trench. Soil samples collected along the main baseline at 50 m intervals ranged from 0.2 to 8.2 ppm U_3O_8.

A rock sample (RT-11) of the megaporphyritic phase of the intrusive was collected from the Eldorado trench. Analytical results for uranium, thorium and rare earth elements are summarized in Table 2. In addition to anomalous uranium (2.1% U_3O_8 total), significant results for cerium (5,390.0 ppm), yttrium (4,807.0 ppm) and niobium (11,084.0 ppm) are present. These results are compared to the radioactive clay altered quartz-monzonite (RT-62) collected from Bozo grid #1.

Rock chip samples of weakly radioactive porphyritic biotite quartz monzonite showed partial extraction uranium values of less than 10 ppm U_3O_8.

Petrographic Studies: A representative sample (CC-2) from the Eldorado trench was sent to Vancouver Petrographics Ltd. where the mineral kobeite $[(Y,U)(Ti,Nb)_2(O,OH)_6]$ was observed in close association with biotite (see Appendix 3.0).

Magnetometer Survey: The magnetic relief within the grid is 1500 gammas (see Map 16). Northeast trending magnetic features are generally parallel to prominent structural lineaments observed in the area. Areas of highest magnetic relief did not outline coincident radiometric anomalies.

TABLE 2

ANALYTICAL SUMMARY, CABIN CREEK

Sample Number	RT-11 (Grid 3)	RT-62 (Grid 1)
Sample Radioactivity (cps)	2500/150	3500/150
Uranium (partial)	778.0	5,650.0
Uranium (total U_3O_8)	2.1%	0.54%
Thorium (Th)	3,500.0	55.0
Cerium (Ce)	5,390.0	1,480.0
Dysprosium (Dy)	1,180.0	4.4
Europium (Eu)	54.9	2.1
Lanthanum (La)	1,050.0	355.0
Lutetium (Lu)	156.0	<0.05
Neodymium (Nd)	3,220.0	1,160.0
Samarium (Sm)	1,560.0	335.0
Ytterbium (Yb)	941.0	2.3
Yttrium (Y)	4,807.0	<1.0
Tantalum (Ta)	1,100.0	4.0
Niobium (Nb)	11,084.0	N.A.
Uranium/Thorium Ratio	12/1	14/1
Description	Megaporphyritic Granite (pegmatite)	Clay altered quartz monzonite

N.A. = Not analyzed

8.0 Conclusions and Recommendations

Potential exists for intragranitic vein uranium deposits associated with deuteric phases of the Cabin Creek Batholith.

Some characteristics of the classical intrusive related uranium deposits have not been recognized at this stage, namely episyenitization and sodium metasomatism.

Impressive localized hydrothermal alteration is present and associated uranium mineralization may be of economic interest.

Grid #1

The exact nature of the mineralization is difficult to establish due to the intense alteration overprint. However, mineralogical studies have established:

- first stage deuteric or high temperature hydrothermal alteration associated with the development of uranium bearing rare earth minerals, rare earth phosphates and brannerite

- late stage development of pitchblende forming event by remobilization of uranium-rare earth minerals with later supergene effects.

Although the dimensions (5 m x 50 m) of the two intersecting alteration zones appear to be localized and the grade (70.8 ppm to 5,650 ppm U_3O_8) too low, other larger occurrences may exist in unexplored portions of the batholith.

Grid #2

Low uranium values (less than 30.7 ppm U_3O_8) associated with biotite rich phases of the intrusive are too small and of no economic interest.

Grid #3

Anomalous uranium (2.1% U_3O_8), rare earth (5,390 ppm CE and 4,807 ppm Y) and niobium (11,084 ppm) associated with megaporphyritic phases of the intrusive are considered too localized to be of economic interest.

Investigations in the Cabin Creek area have shown the most effective exploration tools to be structural and geological mapping supplemented by detailed radiometric prospecting and geochemical sampling.

The following program is recommended for the 1986 exploration program:

- Detailed radiometric prospecting within the magnetic low core of the pluton northeast of the Bozo claims in search of additional radioactive alteration zones. Unexplained soil geochemical anomalies along the extended baseline also warrant follow-up investigations. Additional lands should be acquired by staking within this area.

- Prospective anomalies should be examined by structural mapping, magnetometer and VLF surveys to delineate possible mineralized alteration zones and structures. These include numerous intersection points outlined on the linear interpretation map.

9.0 1985 Expenditures

Expenditures for the 1985 program on the Bozo 1-12 claims are $29,371.34 and are tabulated below:

Code #	Description	Cost
C102	Geology, office labour	2,213.51
C104	Geology, field labour	4,400.83
C105	Geology, supplies	774.86
C106	Board & lodging	1,892.29
C112	Fixed wing transport	980.00
C113	Helicopter transport	6,898.50
C114	Ground transport	317.73
C120	Contractors (5 geologists)	9,625.27
D108	Magnetics, equipment rental	319.20
E116	Rock assays	563.15
E316	Soil assays	1,386.00
	Total:	$29,371.34

10.0 References

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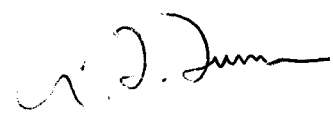
Poole, W.H.
1960: Map 10-1960, Geology of Wolf Lake, GSC

11.0 Statement of Qualifications

I, Arthur Terry Turner, do hereby certify that:

- I am presently residing at 27 Rundleson Way, NE, Calgary, Alberta, T1Y 3H7
- I am a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta
- I have been actively involved in mineral exploration in Canada, Australia and New Guinea since 1966
- I supervised and participated in the 1985 exploration program on the Bozo 1-12 mineral claims.



APPENDIX 1

GEOCHEMICAL RESULTS - BARRINGER MAGENTA

GEOCHEMICAL ANALYSIS of URANIUM

- FLUORIMETRIC -

Procedure A - Leachable Uranium

The sample (0.250gm.) is digested in 4N nitric acid for 2½ hours. The solution is made up to volume and a 2 ml. aliquot is transferred to a test tube. To this is added aluminum nitrate and ethyl acetate and the mixture shaken. After the layers separate, an aliquot of ethyl acetate is transferred to a clean platinum dish and evaporated off. The fluoride flux is then added to the dish and the flux is melted for three minutes. After cooling, the fluorescence of the disc formed is compared with a series of freshly prepared standards using a Jarrell-Ash Fluorimeter.

Procedure B - Total Uranium

The sample (0.250gm.) is completely decomposed in a mixture of nitric-perchloric-hydrofluoric acids and taken to dryness. The residue is dissolved in dilute hydrochloric acid and a 2 ml. aliquot is transferred to a test tube. Aluminum nitrate and ethyl acetate are added and the mixture shaken. After the layers have separated, an aliquot of ethyl acetate is transferred to a clean platinum dish and evaporated off. The fluoride flux is added to the dish and the flux is melted for three minutes. After cooling, the fluorescence of the disc formed is compared with a series of freshly prepared standards using a Jarrell-Ash Fluorimeter.

In both procedures, the detection limit is 0.2 ppm. Under routine conditions, the error may range from ± 8 to 15 per cent of the uranium content.

ASSAY ANALYSIS of URANIUM

Procedure I - Fluorescence (up to 5% U_3O_8)

The sample (1.0000 gm.) is digested in 8N Nitric acid to almost dryness. The solution is made up to volume and an aliquot is transferred to a volumetric flask. To this is added aluminum nitrate and ethyl acetate and the mixture shaken.

After the layers have separated, an aliquot of ethyl acetate is transferred to a clean platinum dish and evaporated off. The fluoride flux is added to the dish and the flux is melted for three minutes. After cooling, the fluorescence of the disc formed is compared with a series of freshly prepared standards using a Jarrell-Ash Fluorimeter.

Procedure II - Volumetric (greater than 5% U_3O_8)

The sample is decomposed in a mixture of nitric, hydrochloric, perchloric, hydrofluoric and sulphuric acids and evaporated to dryness. The salts are dissolved in dilute sulphuric acid; iron and other interfering elements are separated from uranium by chloroform extraction of their cupferron complexes. Uranium VI is reduced to the tetravalent state with titanous sulphate. The uranium IV is subsequently reoxidized to uranium VI with ferric sulphate and is determined by titrating the resulting iron II with potassium dichromate.

Note: Precision volumetric apparatus is used throughout both assay procedures.

Appendix B

THE DETERMINATION OF THORIUM IN SOIL, ROCK & CORE SAMPLES

Chemical methods for the determination of thorium are complex and involve difficult and tedious manipulation. The analytical chemistry of thorium is complicated by the colorless nature of the ion, by its single valence state, by the lack of selective and sensitive reagents, and by its association with elements that present difficult analytical problems.

Neutron Activation Analysis (N.A.A.) is an analytical technique which is particularly suited to the analysis of thorium. The technique is quantitative, requires no sample dissolution, and in this respect, is non-destructive.

The methodology is simple. A known quantity of sample is sealed in a disposable capsule. The capsule is then exposed to neutrons at a radiation site for a measured length of time. At a known time later, the capsule is presented to a nuclear counting station where the induced radioactivity is measured and analysed.

The detection limit is 1 ppm. As the ppm value increases above the detection limit, the error decreases to about 5%.

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER		U3O8 PPM
BX-:	195	6.1
RMD-:	7	61.4
BO-:	178	26.7
BO-:	179	47.2
BO-:	182	920.0
BO-:	183	413.0
BO-:	184	956.0
BO-:	186	215.0
BO-:	192	448.0
BO-:	193	684.0
BO-:	194	61.4
BO-:	196	198.0
BO-:	200	11.3
CCS-:	5	8.5
CCS-:	6	13.0
CCS-:	7	13.9

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER		U308 PPM
85-BSL:	1	205.0
85-BSL:	2	6.6
85-BSL:	3	3.1
85-BSL:	4	3.1
85-BSL:	5	2.0
85-BSL:	6	3.8
85-BSL:	7	4.2
85-BSL:	8	12.4
85-BSL:	9	2.8
85-BSL:	10	6.4
85-BSL:	11	5.7
85-BSL:	12	4.2
85-BSL:	13	3.5
85-BSL:	14	9.8
85-BSL:	15	1.5
85-BSL:	16	1.1
85-BSL:	17	3.3
85-BSL:	18	16.0
85-BSL:	19	5.2
85-BSL:	20	3.5
85-BSL:	21	4.4
85-BSL:	22	2.8
85-BSL:	23	4.2
85-BSL:	24	3.1
85-BSL:	25	2.1
85-DY:	7	4.7
85-DY:	8	6.6

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER	TOTAL U3O8 PPM
RT:3	530.0
RT:4	60.1
RT:9	424.0
RT:11	2.1%
BO:179	518.0
BO:182	943.0
BO:183	424.0
BO:184	1037.0
BO:186	990.0
BO:192	0.21%
BO:193	0.61%
BO:194	518.0
BO:196	471.0

SIGNED: .....

C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
P=QUESTIONABLE PRECISION: *=INTERFERENCE: TR=TRACE: ND=NOT DETECTED:
IS=INSUFFICIENT SAMPLE: NA=NOT ANALYZED: MS=MISSING SAMPLE

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER	U3O8 PPM
RT- : 1000	3.3
RT- : 1001	5.7
RT- : 1002	30.7
RT- : 1003	10.6
RT- : 1004	308.0
RT- : 1005	37.8
RT- : 1006	780.0
RT- : 1007	33.0
RT- : 1008	101.0
RT- : 1009	28.3
RT- : 1010	4.5
RT- : 1011	37.8
RT- : 1012	3.3
RT- : 1013	51.9
RT- : 1014	6.6
RT- : 1015	144.0
RT- : 1016	63.7
RT- : 60	2125.0
RT- : 61	70.8
RT- : 62	5650.0
BO- : 384 -A	378.0
BO- : 384	283.0
BO- : 628	28.3
BO- : 641	94.4
BX- : 633	85.0
BX- : 634	56.6

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
0+50N :0+50 E	2.8
0+50N :0+40 E	4.4
0+50N :0+30 E	5.4
0+50N :0+20 E	4.0
0+50N :0+10 E	2.0
0+50N :0+10 W	4.6
0+50N :0+20 W	3.0
0+50N :0+30 W	6.0
0+50N :0+40 W	3.2
0+50N :0+50 W	2.4
0+40N :0+50 E	4.0
0+40N :0+40 E	3.2
0+40N :0+30 E	3.0
0+40N :0+20 E	3.8
0+40N :0+10 E	3.2
0+40N :0+10 W	3.6
0+40N :0+20 W	3.2
0+40N :0+30 W	4.2
0+40N :0+40 W	3.4
0+40N :0+50 W	3.4
0+30N :0+50 E	16.0
0+30N :0+40 E	5.6
0+30N :0+30 E	8.0
0+30N :0+20 E	5.2
0+30N :0+10 E	5.4
0+30N :0+10 W	5.0
0+30N :0+20 W	9.0
0+30N :0+30 W	6.2
0+30N :0+40 W	3.2
0+30N :0+50 W	4.4

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U3O8 PPM
0+20N :0+50 E	10.4
0+20N :0+40 E	5.0
0+20N :0+30 E	5.0
0+20N :0+20 E	6.0
0+20N :0+10 E	5.4
0+20N :0+10 W	5.8
0+20N :0+20 W	8.6
0+20N :0+30 W	7.8
0+20N :0+40 W	6.0
0+20N :0+50 W	4.8
0+10N :0+50 E	7.4
0+10N :0+40 E	6.0
0+10N :0+30 E	11.6
0+10N :0+20 E	5.4
0+10N :0+10 E	6.0
0+10N :0+10 W	6.2
0+10N :0+20 W	6.0
0+10N :0+30 W	4.8
0+10N :0+40 W	17.2
0+10N :0+50 W	16.0
0+00N :0+50 E	4.0
0+00N :0+40 E	8.4
0+00N :0+30 E	3.8
0+00N :0+20 E	10.6
0+00N :0+10 E	6.6
0+00N :0+10 W	7.2
0+00N :0+20 W	8.0
0+00N :0+30 W	14.2
0+00N :0+40 W	6.4
0+00N :0+50 W	10.8

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
0+10S :0+50 E	7.4
0+10S :0+40 E	4.6
0+10S :0+30 E	6.6
0+10S :0+20 E	6.8
0+10S :0+10 E	13.2
0+10S :0+10 W	5.8
0+10S :0+20 W	3.2
0+10S :0+30 W	9.0
0+10S :0+40 W	7.6
0+10S :0+50 W	2.8
0+20S :0+50 E	12.0
0+20S :0+40 E	3.2
0+20S :0+30 E	9.0
0+20S :0+20 E	7.6
0+20S :0+10 E	64.0
0+20S :0+10 W	5.4
0+20S :0+20 W	5.0
0+20S :0+30 W	8.8
0+20S :0+40 W	26.0
0+20S :0+50 W	20.0
0+30S :0+50 E	8.0
0+30S :0+40 E	7.6
0+30S :0+30 E	4.4
0+30S :0+20 E	5.4
0+30S :0+10 E	7.4
0+30S :0+10 W	9.6
0+30S :0+20 W	28.0
0+30S :0+30 W	9.0
0+30S :0+40 W	13.0
0+30S :0+50 W	94.0

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GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
0+40S :0+50 E	8.8
0+40S :0+40 E	5.2
0+40S :0+30 E	2.8
0+40S :0+20 E	12.2
0+40S :0+10 E	42.0
0+40S :0+10 W	48.0
0+40S :0+20 W	60.0
0+40S :0+30 W	14.8
0+40S :0+40 W	28.0
0+40S :0+50 W	3.0
0+50S :0+50 E	106.0
0+50S :0+40 E	40.0
0+50S :0+30 E	32.0
0+50S :0+20 E	88.0
0+50S :0+10 E	46.0
0+50S :0+10 W	6.2
0+50S :0+20 W	9.8
0+50S :0+30 W	5.0
0+50S :0+40 W	3.0
0+50S :0+50 W	4.0
0+60S :0+50 E	80.0
0+60S :0+40 E	17.0
0+60S :0+30 E	26.0
0+60S :0+20 E	114.0
0+60S :0+10 E	42.0
0+60S :0+10 W	96.0
0+60S :0+20 W	4.0
0+60S :0+30 W	1.2
0+60S :0+40 W	5.8
0+60S :0+50 W	1.3

BARRINGER MAGENTA
Laboratories (Alberta) Ltd.

4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
PHONE: (403) 250-1901

13-SEP-85
PAGE: 8 OF 11
COPY: 1 OF 2

AUTHORITY: T. TURNER

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CALGARY, ALBERTA T2P 3V4

PROJECT: YUKON - 8113

WORK ORDER: 8303D-85

ATTN: P. COOPER

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
SBL-:0+50 N	2.0
SBL-:0+40 N	0.7
SBL-:0+30 N	8.8
SBL-:0+20 N	28.0
SBL-:0+10 N	4.6
SBL-:0+00 N	26.0
SBL-:0+10 S	2.8
SBL-:0+20 S	4.8
SBL-:0+30 S	3.6
SBL-:0+40 S	5.0
SBL-:0+50 S	8.2
SBL-:0+60 S	86.0
BL-:4+50 E	19.0
BL-:4+00 E	30.0
BL-:3+50 E	72.0
BL-:3+00 E	36.0
BL-:2+50 E	12.0
BL-:2+00 E	3.6
BL-:1+50 E	4.6
BL-:1+00 E	4.2
BL-:0+50 E	3.6
BL-:0+00 E	7.2
BL-:0+50 W	1.8
BL-:1+00 W	2.4
BL-:1+50 W	3.2
BL-:2+00 W	2.6
BL-:2+50 W	3.2
BL-:3+00 W	2.4
BL-:3+50 W	1.1
BL-:4+00 W	10.4

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COPY: 1 OF 2

AUTHORITY: T. TURNER

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PROJECT: YUKON - 8113

WORK ORDER: 8203D-85

ATTN: P. COOPER

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
BL-:4+50 W	1.1
BL-:5+00 W	52.0
BL-:5+50 W	3.8
BL-:6+00 W	0.4
BL-:6+50 W	1.4
BL-:7+00 W	2.4
BL-:7+50 W	1.7
BL-:8+00 W	0.4
BL-:8+50 W	2.0
BL-:9+00 W	4.2
BL-:9+50 W	4.4
BL-:10+00 W	2.8
BL-:10+50 W	1.4
BL-:11+00 W	3.2
BL-:11+50 W	2.8
BL-:12+00 W	1.5
BL-:12+50 W	3.0
BL-:13+00 W	5.8
BL-:13+50 W	3.0
BL-:14+00 W	2.2
BL-:14+50 W	4.0
BL-:15+00 W	1.0
BL-:15+50 W	0.4
BL-:16+00 W	3.0
BL-:16+50 W	4.4
BL-:17+00 W	2.0
BL-:17+50 W	6.4
BL-:18+00 W	4.6
BL-:18+50 W	2.0
BL-:19+00 W	1.8

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AUTHORITY:T. TURNER

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PROJECT: YUKON - 8113

WORK ORDER: 8202B-85

ATTN: P. COOPER

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: SOIL

SAMPLE NUMBER	U308 PPM
BL-:19+50 W	3.2
BL-:20+00 W	0.7
BL-:20+50 W	6.8
BL-:21+00 W	0.5
BL-:21+50 W	14.4
BL-:22+00 W	2.8
BL-:22+50 W	0.8
BL-:23+00 W	7.6
BL-:23+50 W	0.9
BL-:24+00 W	0.2
BL-:24+50 W	0.7
BL-:25+00 W	0.5
BL-:25+50 W	5.2
BL-:26+00 W	2.0
BL-:26+50 W	2.2
BL-:27+00 W	1.8
BL-:27+50 W	0.4
BL-:28+00 W	8.2
BL-:28+50 W	0.4
BL-:29+00 W	2.0
BL-:29+50 W	1.1
BL-:30+00 W	1.7
BL-:30+50 W	0.9
BL-:31+00 W	6.0
BL-:31+50 W	2.8

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PAGE: 11 OF 11
COPY: 1 OF 2

AUTHORITY: I. CORNER

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PROJECT: YUKON - 5113

WORK ORDER: 8303D-85

ATTN: P. COOPER

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SIGNED: .....
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
P=QUESTIONABLE PRECISION; *=INTERFERENCE; TR=TRACE; ND=NOT DETECTED;
IS=INSUFFICIENT SAMPLE; NA=NOT ANALYZED; MS=MISSING SAMPLE

BARRINGER MAGENTA
Laboratories (Alberta) Ltd.

4200B - 10 STREET N.E.
CALGARY, ALBERTA
T2E 6K3
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PAGE: 1 OF 3
COPY: 1 OF 2

AUTHORITY: T. TURNER

C.E.G.B. EXPLORATION LTD.
1680, 700 - 9 AVENUE S.W.
CALGARY, ALBERTA T2P 3V4

PROJECT: YUKON

WORK ORDER: 8240D-85

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER	Y PPM	DY PPM	TA PPM	TH PPM
85-RT-:11	4807.0	1180.0	1100.0	3500.0
85-RT-:2026	8090.0	1160.0	1700.0	8900.0
85-RT-:2027	702.0	95.3	130.0	640.0
85-BX-:690	2328.0	329.0	360.0	610.0
85-RT-:62	<1.0	4.4	4.0	55.0

BARRINGER MAGENTA
Laboratories (Alberta) Ltd.

4200B - 10 STREET N.E.
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18-OCT-85
PAGE: 3 OF 3
COPY: 1 OF 1

AUTHORIT: T. TURNER

C.E.G.E. EXPLORATION LTD.
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CALGARY, ALBERTA T2P 3V4

PROJECT: YUKON

WORK ORDER: 8240D-E5

ATTN: P. COOPER

*** FINAL REPORT ***

GEOCHEMICAL LABORATORY REPORT

SAMPLE TYPE: ROCK

SAMPLE NUMBER	PB PPM	V PPM	ZN PPM
85-RT :11	208.0	20.0	52.0
85-RT :2026	248.0	<10.0	445.0
85-RT :2027	19.0	40.0	18.0
85-BX :690	24.0	70.0	15.0

SIGNED: .....
C. Douglas Read,
LABORATORY MANAGER

FOOTNOTES:
P=QUESTIONABLE PRECISION: *=INTERFERENCE: TR=TRACE: ND=NOT DETECTED:
IS=INSUFFICIENT SAMPLE: NA=NOT ANALYZED: MS=MISSING SAMPLE

APPENDIX 2

MINERALOGICAL STUDY BY GSC

CABIN CREEK AREA

Energy, Mines and Resources Canada
Earth Sciences
Geological Survey of Canada
601 Booth Street
Ottawa, Ontario
K1A 0E8

Énergie, Mines et Ressources Canada
Sciences de la Terre
Commission géologique du Canada
601, rue Booth
Ottawa (Ontario)
K1A 0E8

NOV 1 3 1985

November 4, 1985

Your file / Votre référence

Our file / Notre référence

M85-137

Mr. A.T. Turner,

Senior Geologist,

Central Electricity Generating Board

Exploration (Canada) Ltd.

Suite 1680, Weatern Canadian Place
700 - 9th Avenue S.W.
Calgary, Alberta, T2P 3V4

Dear Terry:

The principal uranium-bearing phase in the altered granite sent to us Oct. 17, has been identified by powder X-ray diffraction as Uranophane $Ca(UO_2)_2SiO_7 \cdot 5H_2O$. The whole-rock mineralogy was confirmed by whole-rock diffraction as the assemblage Quartz-Microcline-Muscovite - Kaolin. The enclosed 2-day autoradiograph shows the distribution pattern of the radioactive phases (the largest cut surface was irregular - the grey fuzzy areas are holes which become very radioactive through accumulation of radon etc.) There is a second, as yet unidintified secondary uranium silicate or silicate-phosphate which contributes to the radioactivity - we have a reasonable powder pattern on small-camera film, and Mr. A. Roberts of the X-ray laboratory will try a large-camera film to try to identify the mineral. We may have to wait for our search-match program which is on order - it may be a mixture of an hydrated oxide and a silicate (or even a new mineral). I checked the composition of the uranium-bearing areas on a small polished block - in addition to the calcium-uranium-silicon of Uranophane, and the U-Si-(P) + (Al,Si etc.) of the other secondary phase, I picked up one small area with a strong U-Ti response - without a polished thin section I can not check if this is due to an opaque oxide (eg. brannerite), or a rutile + U-mineral mixture (rutile was identified in thin section in the petrographic report you sent with the sample).

Both secondary uranium minerals occur as small flakes at the edge of mica or kaolin, or as coatings on quartz grains. I will let you know if we make a positive identification of the other mineral. I have retained the sample in case we have to make other powder mounts.

Yours truly,

Gina LeCheminant
Mineralogy Section

Canada

APPENDIX 3

MINERALOGICAL STUDIES BY SAM AMUKUN

Tesso International Consulting Co.
44 Shootfield Cres.
Agincourt, Ontario M1S 4E2

REPORT ON PETROGRAPHIC AND X-RAY STUDIES ON CABIN CREEK STOCK MINERALIZED BOULDERS.

SYNOPSIS

A number of uranium-bearing phases were detected by extensive SEM and X-ray analysis as follows:

The first phase of mineralization is related to the first stage of alteration which consists of replacement of feldspar by muscovite, where muscovite replaces microcline in all the mineralized rocks examined in the study, and inclusions of relict K-spar in muscovite are fairly common. The alteration of K-spar to muscovite probably took place at relatively higher temperatures (deuteric or high temperature hydrothermal alteration), and was probably associated with the development of uranium-containing rare-earth minerals as well as rare-earth phosphates containing thorium, and brannerite which was identified by it's strong uranium and titanium peaks in the EDS spectra.

A late stage alteration consisting of kaolinite and minor illite/sericite appears to replace quartz and probably partially replaces the K-spars as well. The assemblage K-spar:sericite/illite:kaolinite is not in equilibrium, and may have formed at low temperature, where attainment of equilibrium is kinetically difficult.
Associated with this late stage of alteration is development of thorium-free pitchblende, containing low radiogenic lead, which probably formed by remobilization of uranium/ rare earth-bearing minerals.
In addition, chloritic replacement of biotite is also present, and because this could also be a low temperature alteration product, it may be related to the late kaolinitic alteration.

CONCLUSION

An examination of alteration products involving rare earth minerals in established granite-related uranium-producing camps in the world indicates that the closest geological situation to the Cabin Creek deposits appears to be the French granite-related producing deposits, where brannerite and rare earth/uranium-containing minerals have been reported to constitute as much 5-10% of the ores in producing mines.

Tesso International Consulting Co.
44 Shootfield Cres.
Agincourt, Ontario M1S 4E2

Canadian deposits containing brannerite and rare earth/uranium minerals include: The Elliott Lake-Bancroft camps of Ontario, and U.G.'s Lone Gull prospect in the N.W.T.

It is the author's optimistic belief that better-developed altered zones containing rare earths and uranium minerals can exist somewhere in the area to warrant possibilities for an economic French-like situation, and that these zones can be explored for geochemically using the anomalous rare earth concentration, and by the use of surveys utilizing the resultant negative magnetism, low density, and low conductive response of the altered rocks.

PETROGRAPHY

The three samples investigated, namey BO 193 (collected by T. Bojczyszyn), 85 RF 19 (collected by A.T. Turner/J.A. Climie), and CCS 23 (collected by the author) are all medium-grained inequigranular intrusive granitic rocks with hypidiomorphic-granular textures, and appear to have originally have been of quartz monzonite to granite (sensuo stricto) composition.

In thin section, quartz totals about 30% of the rocks and occurs in a variety of shapes and forms in the 0.5 - 2.5mm size range, where quartz grains may be intergrown with feldspars.

Subhedral microcline grains 1.0 - 2.0mm in size also consist of about 30% of the slide, and are intergrown with quartz, plagioclase, and small amounts of muscovite, biotite, limonite/hematite, clear zircon, rutile, apatite, and magnetite.

All the plagioclase is mostly lath-like, in the o.5 - 1.0mm size, and in general are altered to finely disseminated masses of ultrafine-grained platy crystals of clays, which were identified by x-ray methods as kaolinite, minor montmorillonite(?) and illite, and make up to 25% of the slide.

Muscovite occurs as smaller grains around altered plagioclase phenocrysts where illite/sericite appear to replace it, but it generally occurs as wide lath-like flakes 0.1 - 1.0mm in size. Muscovite totals about 10-15% of the rock.

Oxidation products seem to include limonite/hematite, which have stained the clays, as well as the accessory minerals apatite, rutile, and biotite.

The following table details the mineral compositions of the three rocks investigated.

X-RAY STUDY

Hand-picked specimen of white to pale greenish yellow altered clays were x-rayed. These clays are alteration products of felspars, whose oriented mounts gave strong kaolinite and weak illite reflections.

MINERALOGICAL COMPOSITION OF THE SAMPLES

MINERAL	SAMPLE NO.		
	BO 193	85RF 19	CCS 23
Quartz	31	35	30
Microcline@ Plag	35	30	35
Kaolinite(minor illite)	25	15	20
Muscovite	12	09	10
Biotite	3	5	2
Magnetite	trace	trace	trace
Uranium/rare earth	1	0.5	1
Limonite/hematite	minor	minor	minor
Clear Zircon	trace	trace	trace
Apatite	minor	minor	minor
Rutile	minor	trace	minor
Illite/sericite (from alterat'n of Musc.)	trace	trace	trace

Quartz forms irregular to subrounded grains with a grain size of 0.5 - 2.5mm, and may be intergrown with subhedral felspar (microcline and plagioclase) crystals.

Subhedral to anhedral microcline grains 1.0 - 2.0mm in size also consist of about 30% of the slide, and are intergrown with quartz, plagioclase, and small amounts of muscovite, biotite, limonite/hematite, clear zircon, rutile, apatite, and magnetite.

All the plagioclase is mostly of lath-like shapes in the 0.5 - 1.0mm size category, and in general are altered to finely disseminated masses of ultrafine-grained platy crystals of clays, which were identified by x-ray methods as kaolinite (with or without montmorillonite), minor illite/sericite, and constitute upto 25% of the slide. In zones that appear to be the beginning of all alteration events, the plagioclase is mildly sericitic, containing local zones of muscovitization, where unusually stubby flakes of muscovite 0.1 - 1.0mm in size are concentrated. The muscovitesappear to have formed at a late stage in the consolidation of the granitic magma, and as such appear to pre-date all the other minor and trace minerals.

Of the other accessory minerals, biotite forms thin, broad flakes upto 0.5mm in size, and in scattered single flakes which are partly included in quartz; Apatite and rutile occur as broad to tabular grains 0.05 - 0.2mm, which are inclusions in other minerals. Magnetite cubes and limonite/hematite stains and dust have affected most minerals in the slide.

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Agincourt, Ontario M1S 4E2

The most significant clay mineral appears to be kaolinite, and the kaolinite:illite ratio is about 5:1 or possibly 10:1. In addition to kaolinite and illite, a well-defined 15 Å basal reflection was noticeable in all three samples. This reflection probably indicates a smectite group clay mineral, most likely montmorillonite. In order to positively identify the smectite group clay mineral, treatment with ethylene glycol and heating tests should be conducted. A random mount of clay particles with random orientation should also be x-rayed.
The significance of montmorillonite is that it would indicate a low temperature environment of approximately 100°C or less thus consistant of low hydrothermal effects.

ALTERATION

Petrographic and SEM data indicate that the first stage of alteration probably consisted of muscovitization of K-spar, where muscovite replaces microcline in all the mineralized rocks examined. Inclusions of relict K-spar in muscovite which are common are evidence of this stage of alteration. The alteration of K-spar to muscovite probably took place at a higher temperature induced by deuteric or hydrothermal events. Associated with this stage of alteration, uranium-containing rare earth minerals, rare earth phosphates containing thorium, and brannerite were formed.

A late alteration consisting of kaolinite and minor illite/sericite appears to replace quartz and probably partially replaces the K-spars. This assemblage of K-spar: illite/sericite:kaolinite is not in equilibrium, and it appears that it probably formed at lower temperatures where the attainment of chemical equilibrium is kinetically difficult, if not impossible. Associated with this stage of late laolinitic (montmorillonitic?) and minor illitic/sericitic alteration is the crystallization of pitchblende which appears to be directly related to it.

In addition, another stage of alteration which could also be a low temperature alteration product, and thus may be related to the late kaolinitic alteration, involves chloritic replacement of biotite. The release of magnetite which is destroyed in most cases is related to this stage of alteration.

SCANNING ELECTRON MICROSCOPIC (SEM) STUDY

Several uranium-bearing phases were detected by EDS analysis using SEM methods. EDS Spectral plots are included, photomicrographs will be available shortly.

1. Brannerite

Brannerite occurs as up to 0.2mm diameter grains which have been identified by SEM and by the corresponding strong uranium and titanium peaks in the EDS spectra (included). This variety of brannerite contains minor amounts of iron.

2. Pitchblende

The primary uranium oxide grains occur as minute crystal 5-20 micron in size. The EDS spectra (included) indicates that it is a thorium-free variety with minor amounts (perhaps 1%) of radiogenic lead. It probably represents a young pitchblende which formed by remobilization of uranium from other uranium-bearing minerals in the system, possibly the rare-earth minerals of the early muscovitization alteration stage previously described. The pitchblende contains minor amounts of silicon, phosphorus and iron.

3. Unknown Uranium/rare earth-containing minerals.

One or more uranium and/or rare earth-containing minerals are suspected to be associated with the early stage of alteration involving muscovitization of K-spar. The EDS spectra listed below in units of keV energies, undoubtedly indicate the presence of major amounts of Ce, La, U, Th, Pb, with lesser amounts of Si, Al, and P. Unfortunately in an EDS spectral plot, the SiK_{α} line overlaps with Ta M-line. The 1.48 keV Al-K_{α} line could also overlap with high energy peaks of rare earths (eg Thulium), and additionally the P-K_{α} line overlaps with the Y-L line.
Since no well-defined Ta L-peaks were observed at 8.1 and 9.4 keV, its presence is doubtful at the moment.

EDS Spectra (keV energies) Peaks

1.48, 1.76, 2.04, 2.36, 3.04, 3.16 to 3.32, 3.68, 4.64, 4.84, 5.24, 5.68, 6.40, 8.04, 10.52, 12.96, and 13.60.

Without additional work concerning this mineral(s), several possibilities can be speculated viz:

a) Rare earth silicate containing uranium
b) Rare earth phosphate in which silicon partly substitutes for phosphorous.

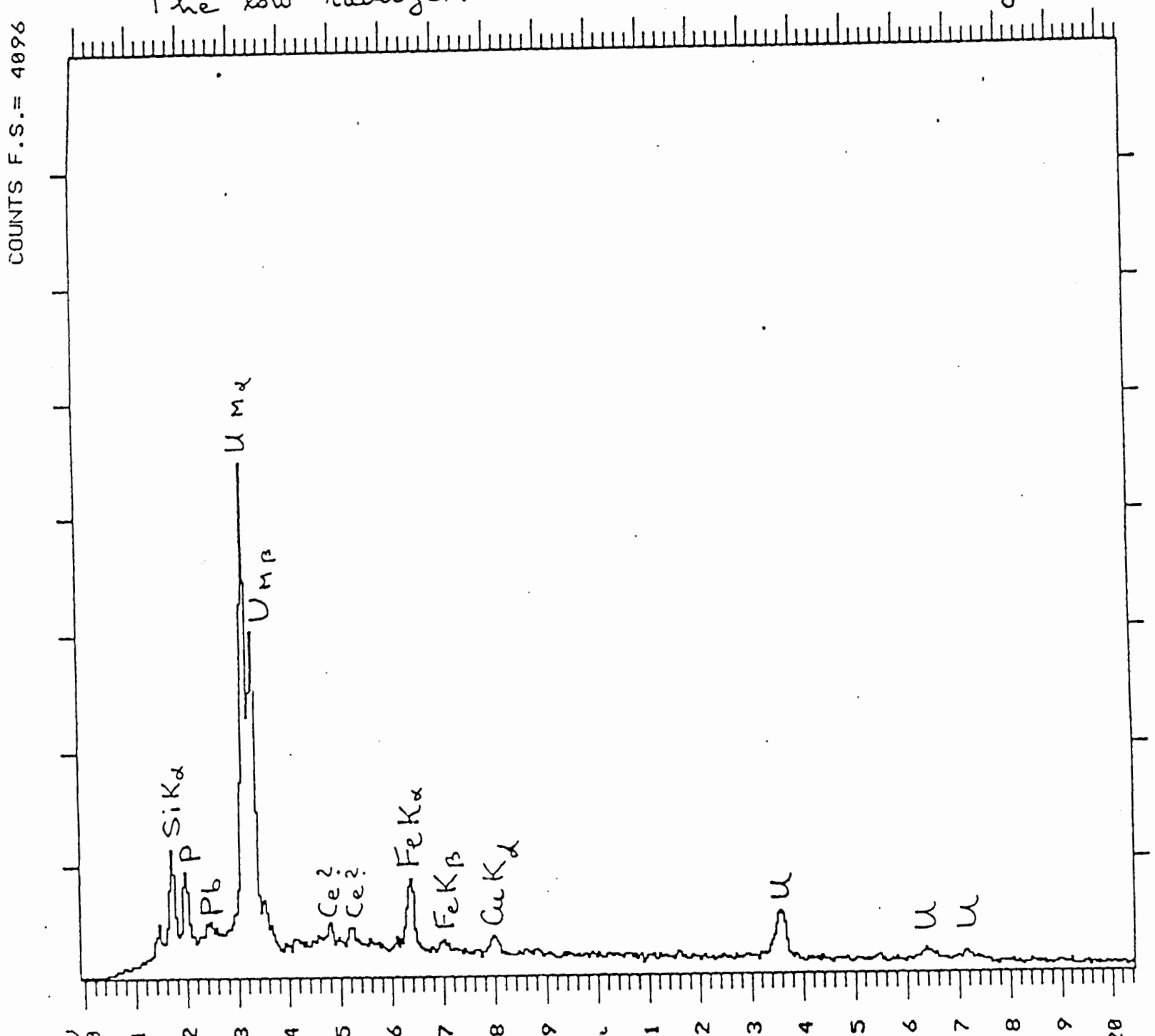
At present no known rare earth silicates which contain significant amount of uranium have been reported in the literature.

4. Uranium/Ce-La phosphates

A uranium mineral, with Cerium-Lanthanum phos-phosphates, and a fair amount of Thorium in solid solution were detected. The mineral could be either Monozite or Rhabdophane.

Samuel E. Amukun, B.Sc., M.Sc., F.G.A.C
Senior Geologist
Tesso International Consulting Co.

Pitchblende with minor amount of Fe, Si, P and Pb.
The low radiogenic lead content is noteworthy.



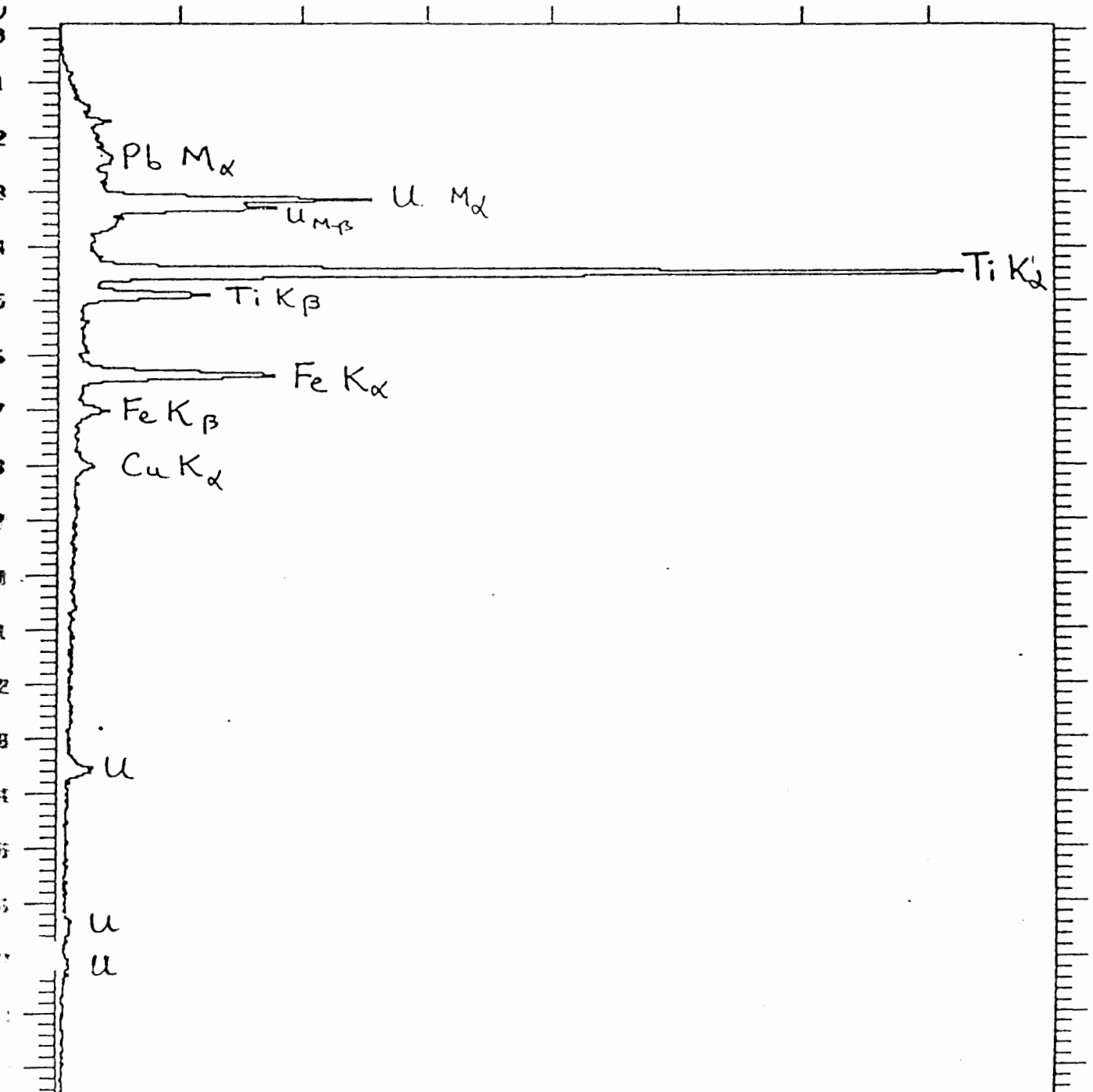
FLEXTRAN [7-T]

MP3'-1C SPEC.DUMP

TRACOR-NORTHERN SPECTRAL PLOT

1ST HALF: EXEC(2-W) DATA LABEL LT= 100 SECS 0.040 KEV

COUNTS F.S.= 8192

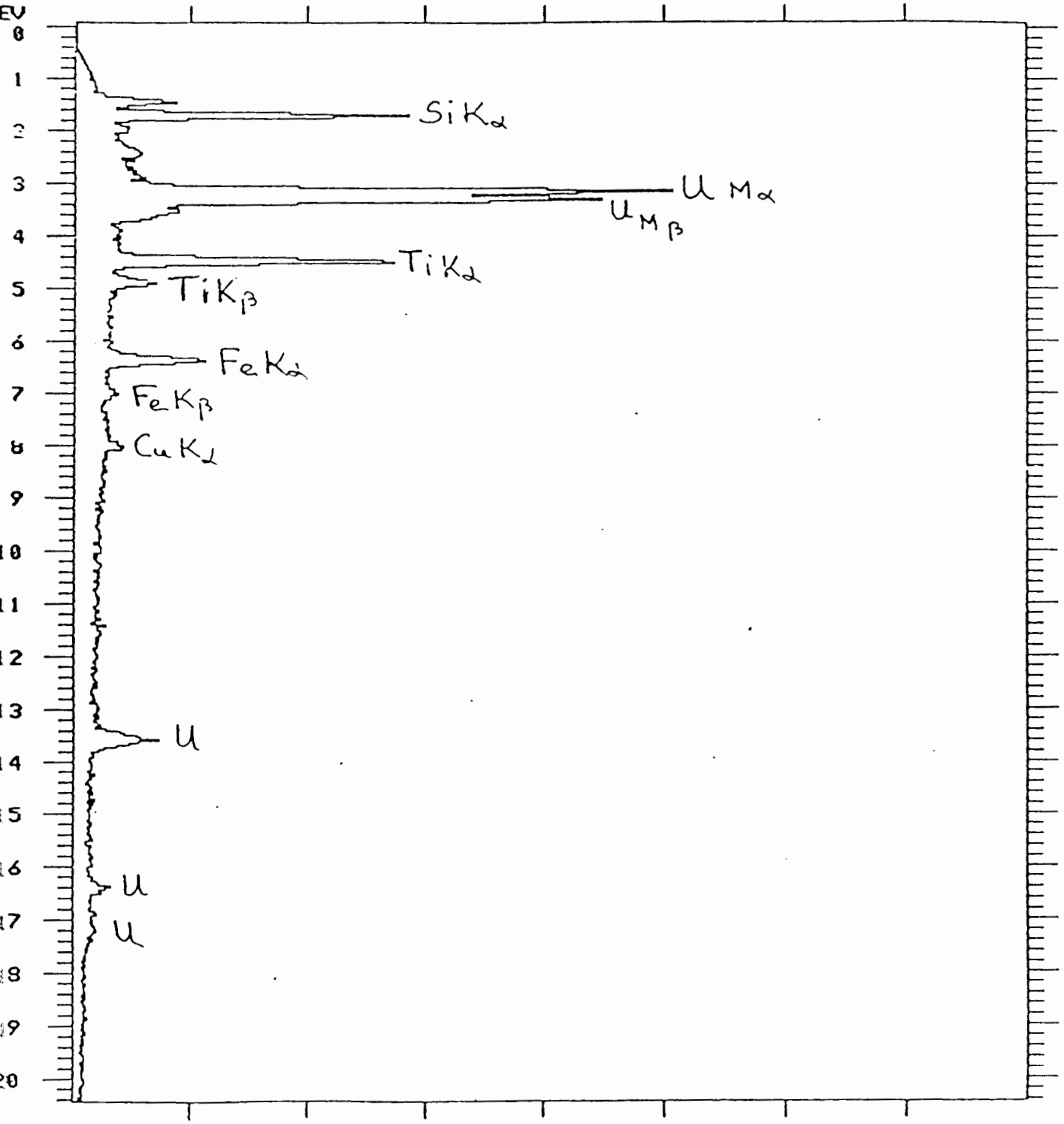


Brannerite containing minor amounts of iron.

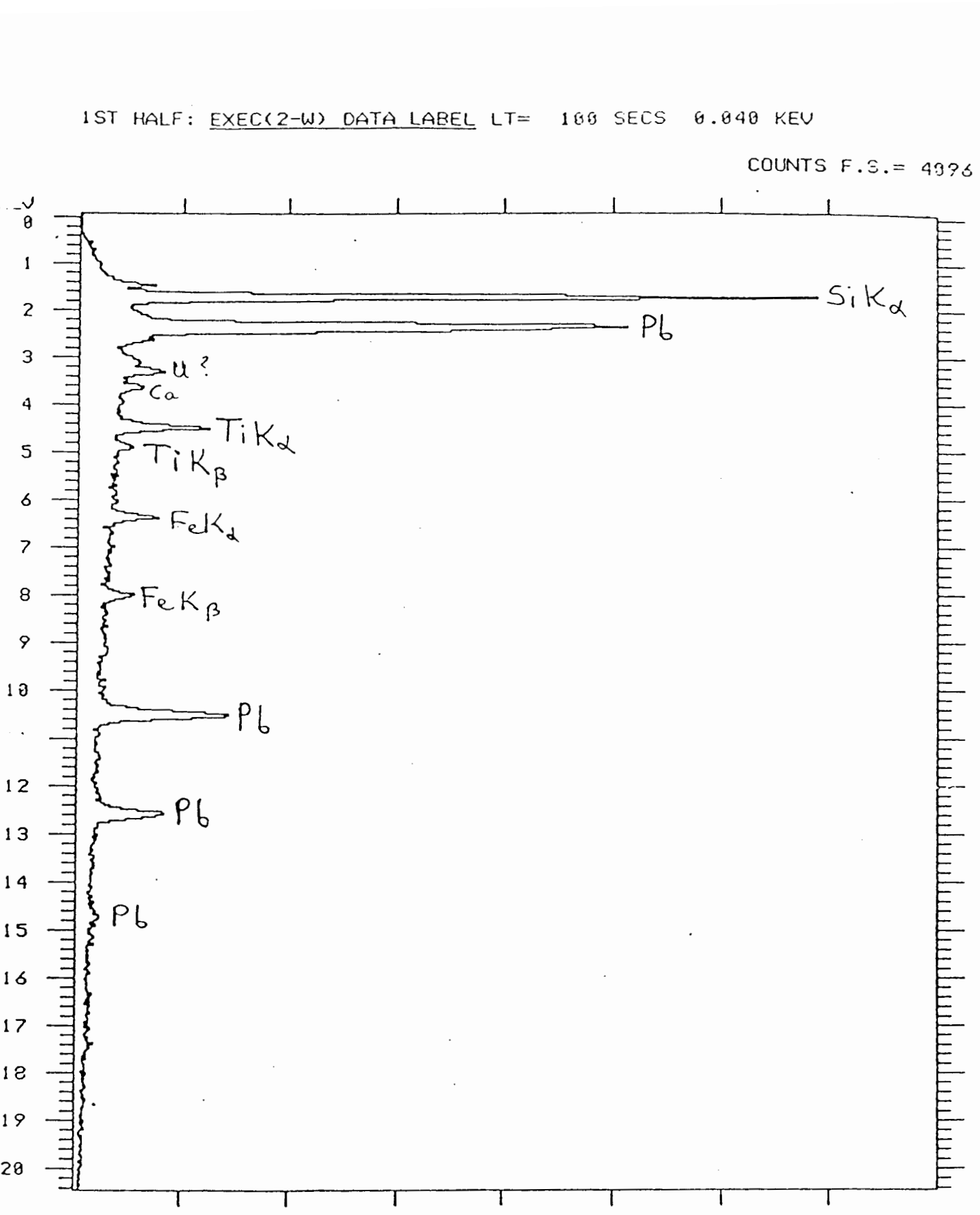
TRACOR-NORTHERN SPECTRAL PLOT

1ST HALF: EXEC(2-W) DATA LABEL LT= 100 SECS 0.040 KEV

COUNTS F.S.= 4096



Uranium titanate (possibly brannerite) with quartz inclusions.

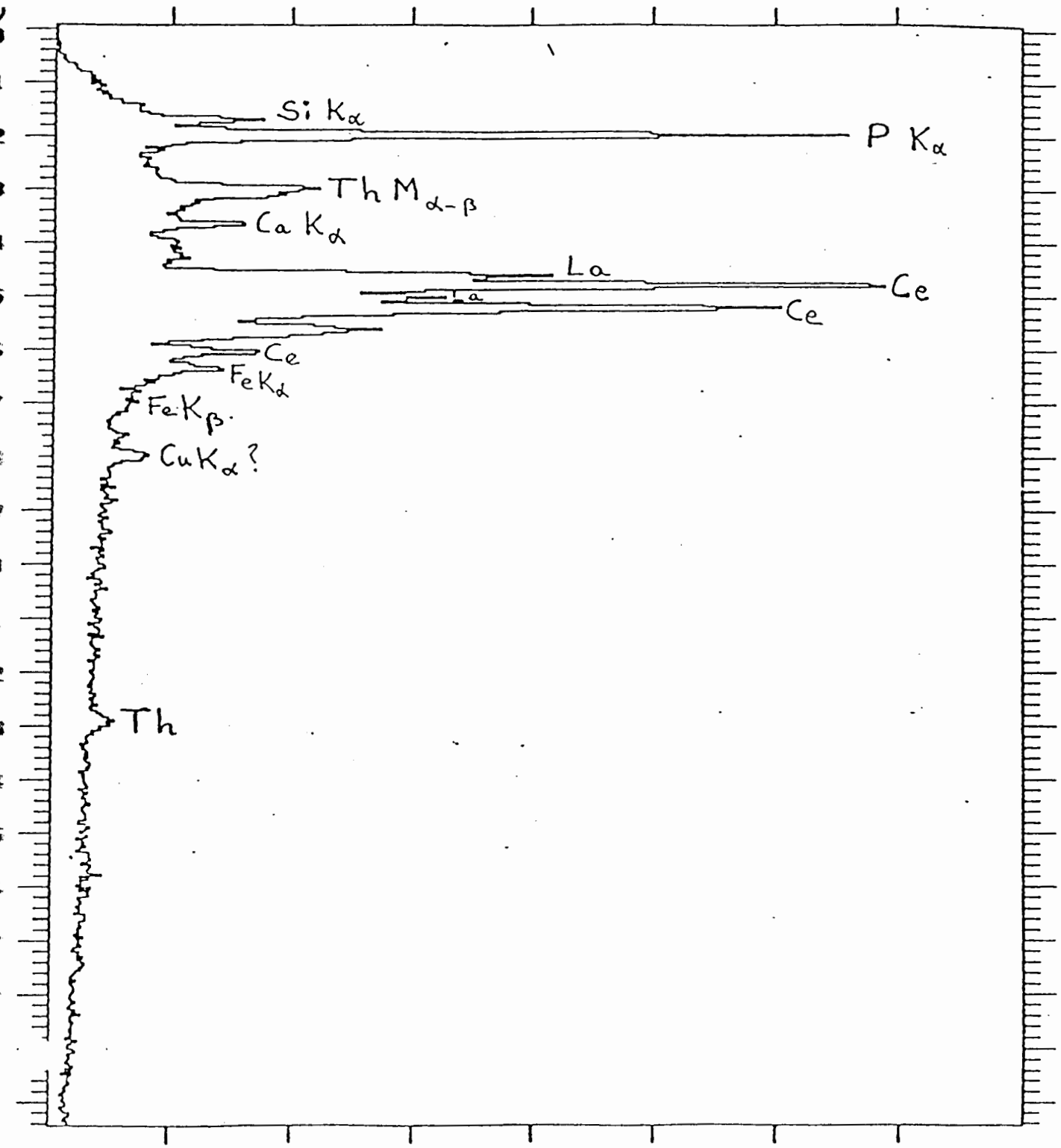


lead - silicate ? compound intergrown with brannerite.

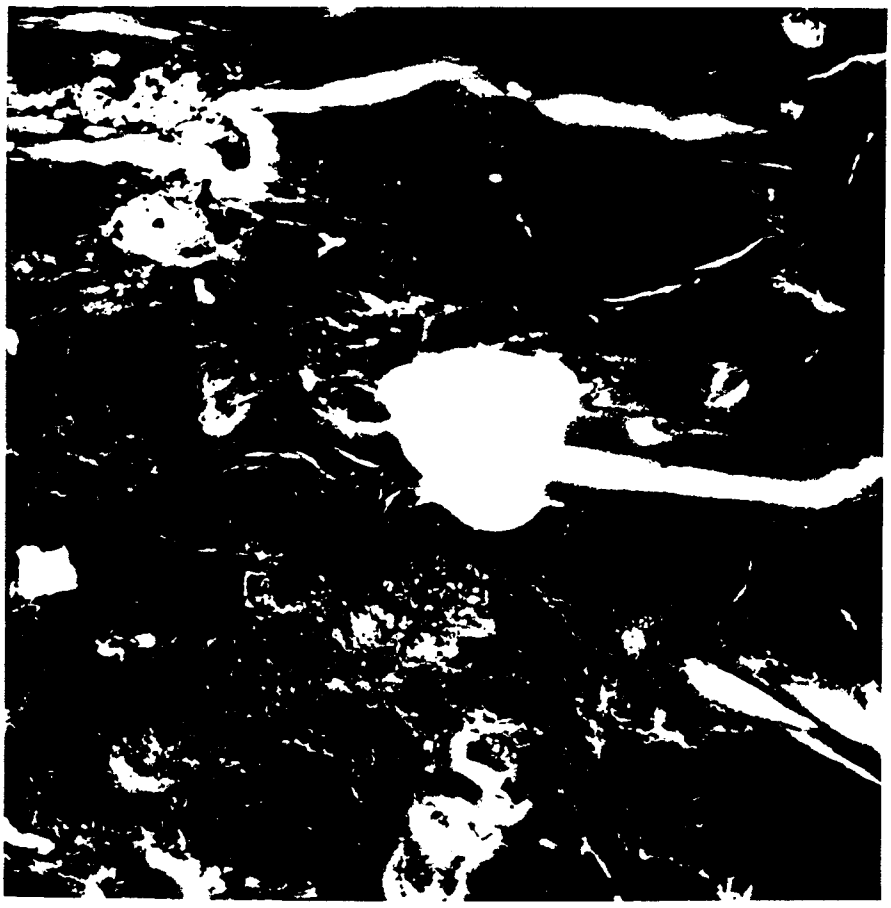
TRACOR-NORTHERN SPECTRAL PLOT

1ST HALF: EXEC(2-W) DATA LABEL LT= 100 SECS 0.040 KEV

COUNTS F.S.= 2048



Monazite or Rhabdophane
containing minor amount of Thorium and Calcium



PHOTOMICROGRAPH 101

Lead oxide or carbonate phase (cerussite?), with Ca and Fe in solid solution, is indicated by white grain in the center of the photograph.

The lead mineral occurs in kaolinite matrix adjacent to a small muscovite flake- See EDS spectra on following page.

PHOTOMICROGRAPH 102

Uranium silicate phase indicated by the white subhedral grain in the center of the photograph.

The uranium-bearing phase occurs in a clay matrix. The following peaks, recorded only manually, with no computer plot, appear in the EDS spectra of this mineral:

1.48	1.72	2.40	
2.60	3.16-3.36		
4.52	6.40	7.08	All in keV
8.04	13.64		

These x-ray peaks indicate Si, Al, Pb, U, Ti, Fe,and Cu.

PHOTOMICROGRAPH 103

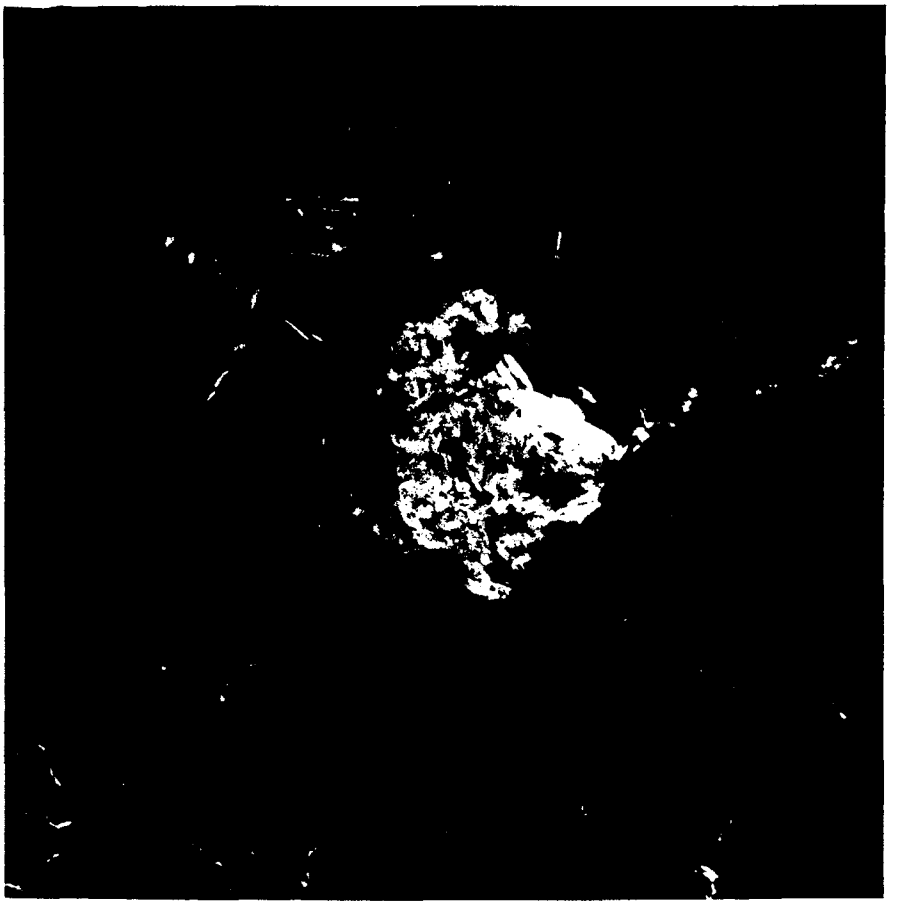
Uranium and thorium-bearing rare earth mineral (white grains near the center of the photograph).

The rare earth mineral occurs as inclusions in muscovite and at the grain boundary of muscovite.

The following peaks (recorded only manually, with no computer plot) occur in the EDS spectra in units of keV:

1.48	1.76	2.04
2.36	3.04	3.16-3.32
4.64	4.84	5.24
5.68	6.08	6.40
8.04	10.52	12.96
13.60		

Cerium (4.84, 5.24, and 6.08 keV), Lanthanum (4.64, 5.6 keV), Uranium (3.16-3.32 and 13.60 keV), Thorium (3.04and 12.96 keV), Lead (2.36 and 10.52 keV), Iron (6.40 keV), and Copper (8.04 keV) are identified without doubt.



PHOTOMICROGRAPH 105

Pitchblende (light grey anhedral grain in the center) of the photograph) occurs in kaolinite, whose EDS spectra was observed but not recorded) .

The EDS spectra of pitchblede is presented on the following page, and is indicated to contain only minor to trace amount of radiogenic lead and no detectable thorium.

APPENDIX 4

VANCOUVER PETROGRAPHIC LTD. REPORT

CABIN CREEK AREA

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
FORT LANGLEY, B.C.
VOX 1JO

PHONE (604) 888-1323

Invoice 5298

Report for: J. A. Climie,
CEGB Exploration (Canada) Ltd.,
Suite 1680, Western Canadian Place,
700 - 9th Avenue S.W.,
Calgary, Alberta,
T2P 3V4.

August 13, 1985

Samples: CC-1 and CC-2.

Summary:

CC-2 is a coarse grained granite consisting of mainly of microcline, plagioclase, quartz and small amounts of biotite. Radioactivity is due to the presence of kobeite ((Y,U)(Ti,Nb)2(O,OH)6) which forms clusters of inclusions in and around the biotite. This was confirmed by EDS analysis using a scanning electron microscope. It is a uranium dominant variety; peak hights on the spectrum showed major U, Ti, Nb with lesser Y and also traces of Fe.

CC-1 is a medium grained quartz-monzonite consiting of an equigranular intergrowth of microcline, quartz and plagioclase, with lesser muscovite. Sparse microcline phenocrysts are present. Moderately intense alteration has resulted in the formation of kaolinite (and illite) from the plagioclase. Limonitic stain has developed in some of the clay. Accessory zircon and rutile have been hematised. No potential uranium-bearing phases were recognised in the section.

Since total and leachable uranium analyses gave similar results it is likely that the uranium is contained within the clay portion of the rock, either as a secondary uranium mineral or perhaps as a dispersed species along intergranular boundaries or absorbed in the clay portion. Hematisation of zircon and rutile suggest that any primary uranium-bearing mineral (such as kobeite) occuring as an accessory would be similarly affected and the uranium dispersed. However in order to check this hypothesis, autoradiographs are being made of slabs of the rock and further microscopic work will be carried out if required.

A. L. Littlejohn, M.Sc.

CC-1: ALTERED (KAOLINITE) QUARTZ MONZONITE.

This sample is a medium grained, inequigranulr intrusive rock with a hypidiomorphic-granular texture; sparse phenocrysts of microcline occur in the hand specimen, but none were intersected in the section. Moderately intense pervasive deuteric alteration has resulted in the formation of kaolinite from plagioclase. Minerals are:

quartz	35%	
microcline	35	
kaolinite	22	(minor illite)
muscovite	8	(minor alteration to illite)
limonite/hematite	minor	
rutile	minor	
apatite	trace	
zircon	trace	
biotite	trace	

Quartz forms shapeless to subrounded grains 1 to 2mm in size which are intergrown with subhedral feldspar (microcline and plagioclase) grains 0.5 to 1.5mm in size; plagioclase tends to be more lath-like. All the plagioclase has been altered to a mass of extremely fine kaolinite; in places fine platey grains of illite are intergrown with it. Rounded quartz grains about 5mm in size occur. The quartz is smokey in hand specimen.

Muscovite forms broad flakes 0.3 to 1.0mm in size which occur between the feldpar and quartz grains. Clusters of the smaller flakes are common, particularly in association with the altered plagioclase. Where this occurs the muscovite is breaking down to an aggregate of platey illite grains with grain size less than 0.05mm.

Accessory minerals are apatite, zircon, rutile and biotite. Biotite is rare and forms thin flakes up to 0.2mm in size which are included in quartz. Zircon forms rounded grains up to 0.05mm in size which are included in quartz and altered plagioclase. Apatite forms rounded to thin tabular grains up to 0.2mm in size which are included in the altered plagioclase. Rutile forms ragged rounded grains 0.05 to 0.1mm in size which are included in the muscovite and altered plagioclase. Subprismatic grains up to 0.4mm in size occur between quartz, feldspar and muscovite grains.

The altered plagioclase is often associated with limonite which has stained the clays in patches. Extremely fine hematite clusters and streaks are sometimes associated with these and have also developed along the cleavages of the muscovite. Fe has also affected the rutile and zircon grains which have been highly altered with hematite.

CC-2: GRANITE.

This sample is a coarse grained, somewhat inequigranular, leucocratic intrusive rock with a hypidiomorphic texture. Clusters of prismatic kobeite grains - $(Y,U)(Ti,Nb)2(O,OH)6$ - occur in association with biotite which is sandwiched between the quartz and feldspars. Minerals are:

microcline	70%
plagioclase	17
quartz	10
biotite	2
kobeite	1
muscovite	minor
magnetite	trace
apatite	trace
hematite	trace

Microcline forms euhedral grains 1 to 2cm in size which are intergrown with plagioclase laths 2 to 5mm in size. Quartz forms subrounded grains 1 to 5mm in size which occur in shapeless interstitial aggregates of a few grains, sandwiched between the feldspars. Small patches of myrmekite occur at the edges of some microcline grains. Some of the microclines contain small laths of plagioclase as well as stringers and patches of exsolved perthitic material; a few small quartz inclusions are present as well.

The plagioclase is mildly sericitic with extremely fine sericite but deuteric alteration has produced muscovite, rather than sericite. This forms broad flakes 0.1 to 0.5mm in size which occur in clusters within some of the plagioclase grains.

Biotite forms broad flakes 1 to 2mm in size which occur sandwiched between and partly included the feldspars and quartz. Single flakes only occur in the section. It is closely associated with kobeite which forms tabular or elongated grains 0.2 to 1.0mm in length. These occur in clusters of many grains within the biotite and in the adjacent quartz and feldspar. Clusters of a few grains may occur away from the biotite.

Magnetite and apatite are also associated with the biotite, forming inclusion within it. The magnetite forms cubic grains about 0.4mm in size. It is altering to hematite. Thin streaks of hematite may occur along the biotite cleavages and specks occur in the feldspars. This is a mild deuteric effect. The apatite forms tabular grains about 0.6mm in size occuring included in the biotite.

Vancouver Petrographics Ltd.

JAMES VINNELL, Manager
JOHN G. PAYNE, Ph. D. Geologist

P.O. BOX 39
8887 NASH STREET
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PHONE (604) 888-1323

September 12th, 1985

Report for: J. Climie,
CEGB Exploration (Canada) Ltd.,
Suite 1680, Western Canadian Place,
700 - 9th Avenue S.W.,
Calgary, Alberta
T2P 3V4

Samples:

This note describes additional work on the samples CC-1 and 2, reported on by Al Littlejohn under invoice number 5298 on August 13th, 1985.

No potential U-bearing phases were found in sample CC-1 in the previous work. At your request autoradiographs were made in an effort to pin-point sources which might have escaped recognition in the optical work.

The overall level of radioactivity in this sample is low. Autoradiographs of 3 slabbed portions of the sample, as well as the cut-off chip from the original slide, all revealed a similar weak pattern of scattered discrete tiny spots. These are the result of an exposure time of 1 week.

The distribution of point sources in the cut-off chip could not be correlated with anything specific in the slide, so a further attempt was made by exposing the slide itself.

The enclosed autoradiograph is the result of 10 days exposure. As you see, there are a few minute spots of blackening but, even though the slide and radiograph can be overlain very accurately (by matching the letters CC-1), I am still unable to identify any specific mineral phases as responsible for the radioactivity. Most of the spots seem to occur within, or on the grain boundaries of, pervasively altered plagioclase. Some seem to be in the vicinity of granules or wisps of limonite and/or altered muscovite. This tends to confirm Littlejohn's opinion (§ 3 of his summary).

The length of time required to produce an autoradiographic pattern from this rock suggests that the uranium levels, even at the points of maximum concentration, must be very low. In view of the lack of specific targets it will be a relatively time-consuming and expensive process trying to isolate these points with the scanning electron micro-analyzer and, in my opinion, unwarranted. Perhaps a better sample could be provided?

Of course, we can go to this step if you really want it. If so, please send back the slide and autoradiograph to me and I will see to it.

Just for comparison I included the cut-off chip and slide from sample CC-2 in the autoradiographs as well. As you can see they give a much stronger, clearly defined pattern, in which the strongest area of blackening was, in fact, the point analysed by Littlejohn and (note the position of the marker on the slide) identified as kobeite.

J.F. Harris Ph.D.

APPENDIX 5

SOIL SAMPLE SUMMARY SHEETS

SOIL SURVEY, MAIN GRID BASELINE
BOZO CLAIMS, CABIN CREEK AREA, YUKON

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 4+50E	19.0	25	600	pebbly silty sand with roots and some organics, moderate mossy grass boulder slope
BL 4+00E	30.0	30	539	silty pebbly sand with roots and organics, moderate mossy grassy boulder slope
BL 3+50E	72.0	30	582	silty pebbly sand with roots and organics, moderate mossy grassy boulder slope
BL 3+00E	36.0	40	580	sandy silt with roots and organics, moderate mossy grassy boulder slope
BL 2+50E	12.0	35	465	pebbly sandy silt with roots; very gentle mossy bushy boulder slope
BL 2+00E	3.6	30	525	sandy gravel with roots, very gentle mossy bushy slope with boulders
BL 1+50E	4.6	30	498	silty pebbly sand with few roots; very gentle east sloping mossy bushy slope with boulders
BL 1+00E	4.2	35	521	silty pebbly sand with few roots, level mossy boulder patch
BL 0+50E	3.6	25	596	pebbly sandy silt with roots and organics, level mossy boulder patch
BL 0+00	7.2	30	642	pebbly sand with roots, level mossy boulder patch
BL 0+50W	1.8	25	522	pebbly sandy silt with roots and organics, level mossy boulder patch
BL 1+00W	2.4	20	611	pebble silty sand with boulders in hole, top ridge level mossy boulder patch, organics and roots present

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 1+50W	3.2	25	488	pebbly sand, very gentle slope near top ridge, mossy bushy patch with frequent boulders
BL 2+00W	2.6	35	490	pebbly silty sand, very gentle mossy bushy slope, boulders present
BL 2+50W	3.2	35	486	silty pebbly sand, very gentle mossy bushy slope with few boulders
BL 3+00W	2.4	30	489	pebbly sand, very gentle mossy bushy slope with few boulders
BL 3+50W	1.1	25	494	silty pebbly sand with roots, very gentle mossy slope east of mini grid #7 and few boulders
BL 4+00W	10.4	35	508	pebbly silty sand with roots, very gentle mossy bushy slope in mini grid #1 with few boulders
BL 4+50W	1.1	35	559	pebbly silty sand with roots, very gentle mossy slope at claim posts in mini grid #1 with few boulders
BL 5+00W	52.0	20	442	silty clayey sand, boggy swamp area near mini grid
BL 5+50W	2.8	25	450	pebbly silty sand, gentle grass moss slope, black organics near surface
BL 6+00W	0.4	15	472	pebbly sandy silt, lots of black organics and roots, gentle bushy slope with a few boulders around
BL 6+50W	1.4	10	505	pebbly sandy granite, outcrop or boulder stopped digging, gentle mossy bushy slope
BL 7+00W	2.4	25	494	silty sandy pebbly gravel, gentle mossy bushy slope
BL 7+50W	1.7	30	487	silty sandy pebbly gravel, gentle mossy slope, few float boulders present

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 8+00W	0.4	20	532	pebbly silty sand with a few roots, gentle mossy slope with increase in float boulder appearance, draw near here (100° attitude) with outcrop
BL 8+50W	2.0	20	480	silty pebbly sand, on top of hill on a level mossy patch, boulders present
BL 9+00W	4.2	15	626	silty pebbly sand, on top of hill near claim posts on a mossy boulder patch
BL 9+50W	4.4	25	585	clayey sandy silt, on level mossy patch with lots of float boulders
BL 10+00W	2.8	20	568	silty pebbly sand with roots, gentle mossy bushy slope with lots of boulders
BL 10+50W	1.4	25	519	silty pebbly sand with roots, gentle bushy slope with a few boulders
BL 11+00W	3.2	20	543	pebbly silty sands with a few roots, gentle mossy slope with an increase in float boulders
BL 11+50W	2.8	20	625	pebbly clayey silty sand, float boulders abundant, gentle bush patch slope
BL 12+00W	1.5	20	594	silty pebbly sand with a few roots, few boulders in this level bushy patch
BL 12+50W	3.0	20	645	silty pebbly sand with a few boulders near, level moss patch
BL 13+00W	5.8	15	608	silty pebbly sand, boulders prevented digging, few float boulders present on level moss patch
BL 13+50W	3.0	25	516	silty pebbly sand with some roots, level moss patch area

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 14+00W	2.2	25	460	silty pebbly sand with some roots, level mossy bush patch
BL 14+50W	4.0	25	563	silty pebbly sand with some roots, gentle mossy slope east of saddle area
BL 15+00W	1.0	20	483	pebbly silty sand with some roots, level grassy moss patch with no boulders near
BL 15+50W	0.4	20	432	pebbly sandy silt with few rocks, mossy bushy level patch on saddle with no boulders
BL 16+00W	3.0	15	527	pebbly sandy clayay silt with few roots, some float boulders near on this mossy level patch
BL 16+50W	4.4	15	450	silty pebbly sand, no boulders near, level mossy bushy saddle area
BL 17+00W	2.0	5	631	clayey pebbly silty sand with few roots, boulder or outcrop prevented digging
BL 17+50W	6.4	20	714	silty pebbly sand with few roots, boulders present in this level mossy bushy saddle area, draw near at 100° attitude
BL 18+00W	4.6	20	518	silty pebbly sand with few roots, level mossy bush saddle area
BL 18+50W	2.0	20	526	pebbly clayey sandy silt, gentle grass moss slope, few roots present
BL 19+00W	1.8	20	924	pebbly silty sand with some roots, gentle mossy bushy slope approaching large saddle east of gas drums
BL 19+50W	3.2	25	538	pebbly clayey sandy silt with roots only near surface, gentle bushy slope

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 20+00W	0.7	30	553	sandy pebbly gravel with few roots, gentle mossy bushy slope
BL 20+50W	6.8	25	724	sandy pebbly gravel with few roots alongside draw which runs E-W and has outcrop there, gentle mossy bushy slope
BL 21+00W	0.5	15	709	pebbly clayey sandy silt with some roots, gentle bushy mossy slope
BL 21+50W	14.4	25	647	pebbly sandy clayey silt with outcrop near and draw running E-W, lots of black rich organ-ics and roots present, gentle grassy slope
BL 22+00W	2.8	25	607	pebbly clayey sandy silt with some roots, gentle mossy bushy slope
BL 22+50W	0.8	20	717	silty pebbly sand with some roots, level mossy patch
BL 23+00W	7.6	35	674	pebbly sandy clayey silt with roots present, moderate to steep mossy grass slope with some outcrop near
BL 23+50W	0.9	35	620	pebbly sandy clayey silt with roots present, moderate to steep mossy grass slope
BL 24+00W	0.2	30	620	sandy pebbly clayey silt with few roots at surface, moderate grassy mossy slope
BL 24+50W	0.7	20	651	silty pebble gravel with a few roots only near surface, moderate grassy mossy slope
BL 25+00W	0.5	30	658	pebbly sandy clayey silt with some roots and boulders present, moderate mossy slope
BL 25+50W	5.2	30	672	pebbly sandy clayey silt with roots and black organics, moderate mossy slope

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 26+00W	2.0	25	815	sandy pebbly silt with pebbles and boulders in soil, moderate mossy slope
BL 26+50W	2.2	25	692	clayey pebbly sandy silt with few roots, gentle mossy slope
BL 27+00W	1.8	15	785	pebbly sandy clayey silt with lots of roots, very gentle mossy slope
BL 27+50W	0.4	20	675	sandy pebbly clayey silt with roots present, gentle mossy slope with few boulders present
BL 28+00W	8.2	15	795	sandy pebbly clayey silt with lots of roots and black organics, boulder prevents digging, mossy slope with many boulders
BL 28+50W	0.4	25	809	clayey pebbly sandy silt, gentle mossy slope
BL 29+00W	2.0	20	676	sandy pebbly clayey silt, boulder prevents digging, gentle mossy bouldery pebbly slope
BL 29+50W	1.1	20	657	pebbly sandy clayey silt with some roots, gentle mossy slope
BL 30+00W	1.7	25	567	pebbly clayey silt with some roots, gentle mossy slope
BL 30+50W	0.9	25	630	pebbly sandy clayey silt with some roots, grassy mossy slope
BL 31+00W	6.0	35	530	sandy clayey silt with roots and black organics present, grassy slopes with bushes
BL 31+50W	2.8	20	660	pebbly clayey silty sand, grassy slope

Grid Location	Analyses ppm U_3O_8	Depth (cm)	Radio-metrics (cps)	Soil Description
BL 26+00W	2.0	25	815	sandy pebbly silt with pebbles and boulders in soil, moderate mossy slope
BL 26+50W	2.2	25	692	clayey pebbly sandy silt with few roots, gentle mossy slope
BL 27+00W	1.8	15	785	pebbly sandy clayey silt with lots of roots, very gentle mossy slope
BL 27+50W	0.4	20	675	sandy pebbly clayey silt with roots present, gentle mossy slope with few boulders present
BL 28+00W	8.2	15	795	sandy pebbly clayey silt with lots of roots and black organics, boulder prevents digging, mossy slope with many boulders
BL 28+50W	0.4	25	809	clayey pebbly sandy silt, gentle mossy slope
BL 29+00W	2.0	20	676	sandy pebbly clayey silt, boulder prevents digging, gentle mossy bouldery pebbly slope
BL 29+50W	1.1	20	657	pebbly sandy clayey silt with some roots, gentle mossy slope
BL 30+00W	1.7	25	567	pebbly clayey silt with some roots, gentle mossy slope
BL 30+50W	0.9	25	630	pebbly sandy clayey silt with some roots, grassy mossy slope
BL 31+00W	6.0	35	530	sandy clayey silt with roots and black organics present, grassy slopes with bushes
BL 31+50W	2.8	20	660	pebbly clayey silty sand, grassy slope

SOIL SURVEY, GRID #1
BOZO CLAIMS, CABIN CREEK AREA, YUKON

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+50N,0+50W	2.4	10	600	outcrop pebbly silty sand with dark organics and roots, boulders prevented digging, very gentle moss bush slope with boulders
0+50N,0+40W	3.2	15	625	outcrop pebbly silty sand with dark organics and roots, boulders prevented digging, level moss bush patch with boulders
0+50N,0+30W	6.0	30	750	pebbly silty find sand with few organics and roots, level bouldery mossy bushy patch
0+50N,0+20W	3.0	20	700	pebbly coarse sand with roots, level bouldery, moss bush patch, boulder prevented digging
0+50N,0+10W	4.6	20	675	pebbly coarse sand with few roots, very gentle bouldery moss bush slope, boulder prevented digging
0+50N, SBL	2.0	20	700	relatively unaltered, fractured biotite quartz monzonite subcrop, slope 10° south
0+50N,0+10E	2.0	25	700	pebbly medium to coarse sand with roots, very gentle bouldery moss bush slope
0+50N,0+20E	4.0	30	800	pebbly medium to coarse sand with few roots, very gentle bouldery moss bush slope
0+50N,0+30E	5.4	35	900	medium to coarse sand with roots and some black organics near surface, very gentle bouldery moss bush slope
0+50N,0+40E	4.4	30	750	pebbly medium to coarse sand with some roots and organics near surface, very gentle moss bush slope, few boulders near

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+50N,0+50E	2.8	25	700	pebbly medium to coarse sand with some organics and roots throughout, very gentle bush slope, few boulders near
0+40N,0+50E	4.0	30	820	pebbly medium to coarse sand with some roots and no organ-ics, very gentle moss grass slope with few boulders
0+40N,0+40E	3.2	30	775	pebbly medium to coarse sand with some roots, very gentle moss grass slope with few boulders
0+40N,0+30E	3.0	40	875	medium to coarse sand with few roots, very gentle bush moss slope with few boulders
0+40N,0+20E	3.8	30	750	pebbly medium to coarse sand with few roots, gentle bush moss slope with few boulders
0+40N,0+10E	3.2	25	800	pebbly medium to coarse sand with few rocks, gentle bush moss slope with few boulders near
0+40N, SBL	0.7	40	750	medium brown sand and soil, p-gravel with sandy soil, sample taken just above subcrop
0+40N,0+10W	3.6	25	600	pebbly medium to coarse sand with few rocks and boulders, gentle moss grass slope with increase in boulders near
0+40N,0+20W	3.2	30	725	pebbly medium to coarse sand with few rocks, gentle moss bush slope with some boulders
0+40N,0+30W	4.2	30	750	pebbly medium to coarse sand with some roots, gentle to level moss bush patch near ridge, increase in boulders near
0+40N,0+40W	3.4	35	750	silty fine sand with roots and dark organics, level moss bush patch, some boulders

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+40N,0+50W	3.4	15	650	pebbly medium to coarse sand, boulders prevented digging, some black organics, level moss bush patch
0+30N,0+50E	16.0	30	775	medium to coarse sand, gentle moss slope
0+30N,0+40E	5.6	40	825	medium to coarse sand, gentle moss slope
0+30N,0+30E	8.0	30	725	medium to coarse sands with roots, gentle moss slope
0+30N,0+20E	5.2	20	750	pebbly sand with boulders in place, gentle moss slope
0+30N,0+10E	5.4	400	875	medium to find sand with roots, gentle moss slope
0+30N, SBL	8.8	30	700	brown sandy soil, 3 m east of shown, 5^o slope to south
0+30N,0+10W	5.0	35	825	medium to coarse sand, gentle mossy slope
0+30N,0+20W	9.0	30	825	medium to coarse sand with roots, altered rocks near here, gentle mossy bushy slope
0+30N,0+30W	6.2	40	1350	medium to coarse sand with roots and organics near surface and altered rocks, gentle mossy bushy slope
0+30N,0+40W	3.2	20	675	pebbly sand with boulders in place, gentle mossy bushy slope
0+30N,0+50W	4.4	200	675	pebbly sand with roots and boulders in place, gentle mossy bushy slope
0+20N,0+50E	10.4	45	775	medium to coarse sand with roots and black organics near surface, very gentle grassy mossy slope

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+20N,0+40E	5.0	30	750	pebbly sand with few black organics at surface, gentle grassy mossy slope
0+20N,0+30E	5.0	25	725	pebbly sand with few black organics, gentle grassy mossy slope
0+20N,0+20E	6.0	40	850	pebbly sand with few black organics near surface, gentle moss slope
0+20N,0+10E	5.4	35	850	medium to coarse sand with roots, gentle mossy slope
0+20N, SBL	28.0	45	1075	granite sand subcrop, light brown to buff in colour, 5° slope
0+20N,0+10W	5.8	45	800	medium to coarse sand with altered rocks near, gentle mossy slope
0+20N,0+20W	8.6	25	800	medium to coarse sand with roots and few organics, gentle mossy slope
0+20N,0+30W	7.8	30	1375	pebbly sand with roots and few organics and altered rocks, gentle mossy bushy slope
0+20N,0+40W	6.0	35	825	pebbly sand with very few organics at surface, gentle mossy bushy slope
0+20N,0+50W	4.8	20	674	pebbly sand with roots and organics, gentle mossy bushy slope
0+10N,0+50E	7.4	45	875	medium to coarse sand with roots, very gentle moss grass slope
0+10N,0+40E	6.0	40	800	fine to coarse sand with roots, very gentle moss grass slope
0+10N,0+30E	11.6	35	775	pebbly sand with roots, very gentle moss grass slope

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+10N,0+20E	5.4	30	750	pebbly sand with roots, very gentle moss grass slope
0+10N,0+10E	6.0	35	875	medium to coarse sand with roots, very gentle moss grass slope
0+10N, SBL	4.6	7	950	orange to medium brown soil and fine pebbly sand, minor organics
0+10N,0+10W	6.2	30	800	medium to coarse sand with roots, very gentle moss grass slope
0+10N,0+20W	6.0	15	675	silty pebbly sand with roots and boulders in place, very gentle moss grass slope
0+10N,0+30W	4.8	25	700	pebbly silty sand with roots, very gentle moss grass slope
0+10N,0+40W	17.2	50	875	moist medium to coarse sand with altered rocks, very gentle moss grass slope
0+10N,0+50W	16.0	50	825	moist medium to coarse sand with black organics and roots, very gentle moss slope near bog swamp
L0, 0+50W	10.8	40	875	coarse sand, mossy bushy slope
L0, 0+40W	6.4	35	775	pebbly silty sand with few roots, very gentle mossy slope
L0, 0+30W	14.2	30	800	silty pebbly sand with few roots, very gentle mossy slope
L0, 0+20W	8.0	35	800	silty pebbly sand with roots, very gentle mossy slope
L0, 0+10W	7.2	35	1000	pebbly silty sand with roots and altered rocks, very gentle mossy slope
L0, 5BL	26.0		1400	brown sandy soil, 5^{o} slope, located in draw 3 metres east of radioactive zone

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
L0, 0+10E	6.6	35	850	medium sand with roots, very gentle mossy slope
L0, 0+20E	10.6	50	875	medium to coarse sand with organics and few roots, very gentle mossy slope
L0, 0+30E	5.8	40	850	medium to coarse sand with roots, very gentle mossy slope
L0, 0+40E	8.4	45	940	silty sand with few roots, very gentle mossy slope
L0, 0+50E	4.0	40	800	silty sand with few roots, very gentle mossy slope
0+10S,0+50E	7.4	40	875	medium to coarse sand with some roots, gentle grass moss slope, few boulders near
0+10S,0+40E	4.6	30	725	medium to coarse sand with some roots, gentle bush moss slope, few boulders near
0+10S,0+30E	6.6	30	850	pebbly medium to coarse sand with some roots, gentle moss grass slope with few boulders near
0+10S,0+20E	6.8	30	775	fine to coarse sand with few roots, gentle moss grass slope with radioactive (altered) boulder just south downslope
0+10S,0+10E	13.2	20	750	pebbly medium to coarse sand with few roots and boulders, gentle moss grass slope with radioactive boulders (altered) 5ft South and West
0+10S, SBL	2.8	25	825	orangy brown sandy soil, minor organics, clay altered boulders at bottom of hole
0+10S,0+10W	5.8	25	1050	silty medium sand with some roots, gentle moss grass slope with some boulders, radioactive boulders (altered to the West

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+10S,0+20W	3.2	30	750	pebbly medium to coarse sand with roots, gentle moss grass slope with boulders
0+10S,0+30W	9.0	25	700	silty medium to coarse sand with roots and boulders, gentle moss grass slope with few boulders
0+10S,0+40W	7.6	25	750	pebbly medium to coarse sand with roots, gentle grass moss slope with some boulders
0+10S,0+50W	2.8	25	700	silty medium to coarse sand with roots and some black organics near surface, gentle grass moss slope near boggy swamp
0+20S,0+50W	20.0	25	750	medium to coarse sand with some roots and black organics, gentle moss grass slope, few boulders
0+20S,0+40W	26.0	30	775	medium to coarse sand with some roots and black organics, gentle moss grass slope with few boulders
0+20S,0+30W	8.8	25	750	pebbly medium to coarse sand with some roots and black organics, gentle moss grass slope with few boulders
0+20S,0+20W	5.0	30	750	pebbly medium to coarse sand with roots, gentle moss grass slope with boulders near
0+20S,0+10W	5.4	30	775	pebbly medium to coarse sand with roots, gentle moss grass slope with radioactive altered RX 5 ft NE
0+20S, SBL	4.8	35	975	orangy brown sandy soil, minor organics, few clay altered boulders at bottom of hole

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+20S,0+10E	64.0	15	600	silty fine sand with roots and organics, boulder prevented digging, radioactive altered boulders to West and North upslope, moss grass slope
0+20S,0+20E	7.6	30	850	silty fine to medium with roots, gentle moss grass slope with some boulders near, radio-active altered to NW
0+20S,0+30E	9.0	30	825	pebbly medium sand with boulders in hole, few roots and organics near surface, gentle moss grass with some boulders
0+20S,0+40E	3.2	30	750	fine to medium sand with roots and some black organics near surface, gentle moss grass slope, few boulders
0+20S,0+50E	12.0	30	825	fine to medium sand with roots and some black organics near surface, gentle moss grass slope, few boulders near
0+30S,0+50E	8.0	30	775	medium to coarse sand with few roots, gentle moss grass slope, few boulders
0+30S,0+40E	7.6	40	850	medium to coarse with few roots, gentle moss bush slope, few boulders
0+30S,0+30E	4.4	25	775	pebbly medium to coarse sand, gentle moss bush slope, few boulders in hole
0+30S,0+20E	5.4	30	875	medium to coarse sand with few rocks, gentle moss grass slope with increase in float boulders and few altered boulders to NW
0+30S,0+10E	7.4	15	800	fine to medium sand between boulders, gentle draw with grassy slope

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+30S, SBL	3.6	35	800	medium brown fine to coarse grained sand with relatively fresh P-gravel size quartz monzonite
0+30S,0+10W	9.6	30	850	medium to coarse sand with few roots, gentle moss grass slope with altered radioactive boulders due West upslope
0+30S,0+20W	28.0	45	1025	medium to coarse sand with no roots, black organics and roots only near surface, gentle moss grass slope with boulders near, radioactive altered rocks 5 ft due East
0+30S,0+30W	9.0	40	900	medium to coarse sand with black organics and rocks, gentle moss grass slope with boulders, radioactive altered rocks 5 ft South
0+30S,0+40W	13.0	35	950	pebbly coarse sand with few roots, gentle moss grass slope with few boulders near spring (H_2O) few altered boulders in hole
0+30S,0+50W	94.0	30	1025 (H_2O)	silty medium to fine sand with few roots and dark organics and H_2O, gentle grass slope below bog to NW
0+40S,0+50W	3.0	50	900	medium to coarse sand with few roots, gentle grass moss slope with boulders near
0+40S,0+40W	28.0	45	1025	medium to coarse sands with few roots and black organics near surface, gentle grass moss slope with boulders near
0+40S,0+30W	14.8	40	900	moist coarse sand with few roots, steep embankment of small H_2O seepage, few boulders near

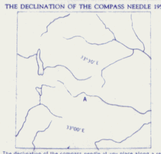
Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+40S,0+20W	60.0	45	850 (H_2O)	moist coarse sand along H_2O seepage with few boulders near, radioactive altered boulders NE and N
0+40S,0+10W	48.0	40	2025	medium to coarse sand, gentle boulder grass slope, altered boulders in hole and to the N
0+40S, SBL	5.0	30	825	P-gravel beneath orangy brown sandy layer
0+40S,0+10E	42.0	45	900	medium to coarse sand with some rocks and organics near surface, gentle grass moss slope, boulders near
0+40S,0+20E	12.2	30	900	pebbly sand, mossy slope with float boulders near
0+40S,0+30E	2.8	35	825	pebbly medium to coarse sand with boulders in hole, gentle moss grass slope, boulders near
0+40S,0+40E	5.2	30	850	fine to medium sand with roots and boulders in hole, gentle moss grass slope, few boulders
0+40S,0+50E	8.8	25	800	pebbly medium to coarse with roots and boulders in hole, gentle moss grass slope, few boulders
0+50S,0+50W	4.0	35	975	wet medium to coarse sand with some roots and black organics only near surface, level grass moss bog patch
0+50S,0+40W	3.0	30	975	wet pebbly medium to coarse sand with few roots and black organics near surface, level bog patch
0+50S,0+30W	5.0	30	850	wet medium to coarse sand with some black organics, level bog patch

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+50S,0+20W	9.8	35	925	wet medium to coarse sand with few black organics and roots, level bog patch with few boulders near
0+50S,0+10W	6.2	40	800	wet medium to coarse sand with black organics and roots only near surface, gentle grassy slope before bog, few boulders
0+50S, SBL	8.2	60	975	brown to light buff sand, minor clay altered pebbles in vicinity
0+50S,0+10E	46.0	30	1425 (H_2O)	medium to coarse sand with black organics near surface, gentle grass moss slope, few boulders
0+50S,0+20E	88.0	45	500 (H_2O)	moist medium to coarse sand with few roots, steep embank-ment next to H_2O seepage, few boulders
0+50S,0+30E	32.0	45	700 (H_2O)	silty medium to fine sand with roots and some black organics near surface, gentle grass moss slope, few boulders near
0+50S,0+40E	40.0	45	525 (H_2O)	silty medium to fine sand with roots, gentle grass moss slope with few boulders
0+50S,0+50E	106.0	40	725 (H_2O)	silty medium to fine sand with roots, gentle grass moss slope, few boulders
0+60S,0+50E	80.0	40	400 (H_2O)	medium sand, fining upwards to black organics at surface, gen-tle moss slope, few boulders
0+60S,0+40E	17.0	45	450 (H_2O)	medium sand fining upwards to black organics (silt) at surface, gentle moss slope, few boulders
0+60S,0+30E	26.0	40	525 (H_2O)	medium to fine sand with black organic pods throughout, gen-tle moss slope, few boulders

Station	U_3O_8 (ppm)	Depth (cm)	In Hole Radio-metrics (cps)	Soil Description
0+60S,0+20E	114.0	40	500 (H_2O)	medium to fine sand with little organics, gentle moss slope, few boulders
0+60S,0+10E	42.0	45	775 (H_2O)	medium sand with black organic pods throughout steep embank-ment of H_2O seepage, few boulders
0+60S, SBL	86.0	55	1100	Brown sandy soil and p-gravel
0+60S,0+10W	96.0	40	950	wet medium to coarse sand, level grassy bog area
0+60S,0+20W	4.0	35	925	wet medium to coarse sand, level grassy bog patch
0+60S,0+30W	1.2	35	875	wet medium to coarse sand with some black organics, level bog patch
0+60S,0+40W	5.8	30	950	wet medium to coarse sand with few black organics, level bog patch
0+60S,0+50W	1.3	40	(900)	wet medium to coarse sand with few black organics, level bog patch

NATIONAL TOPOGRAPHIC SERIES — DEPARTMENT OF MINES AND TECHNICAL SURVEYS — SECOND EDITION — CANADA SHEET 105 B

THE DECLINATION OF THE COMPASS NEEDLE 1951



The declination of the compass needle at any place along a red line is the declination given on that red line. At other places the declination is between those given on the neighbouring red lines; thus at the place marked A the declination is between 33°00'E. and 33°30'E. The declination of the compass needle is decreasing 4 minutes annually.

Surveys by the Topographical Survey in 1947. Compiled by the Topographical Survey in 1950 from air photographs taken in 1948. Photographed and printed by the Army Survey Est R.C.E. Dept. of National Defence, 1952

REFERENCE

Road, Hard Surface, All Weather	More than 2 Lanes / 2 Lanes	Route No.	Less than 2 Lanes
Road, Loose Surface, All Weather	2 Lanes or More / Less than 2 Lanes		Dry Weather
Road, Wagon, etc.	Cart Track	Trail or Portage	
Boundary, International		Boundary Mon.	
Boundary, Provincial		Survey Mon.	
Boundary, County or District		Bench Mark	BM 1514
Boundary, Indian Reserves, Park		Triangulation Sta.	
Surveyed Line		Spot Elevation (in feet)	4590
Main Electric Power Line		Telephone, Trunk Route	
Railway, Standard Gauge	Multiple Track / Station	Abandoned / Single Track / Stop	

Universal Transverse Mercator Projection.

WOLF LAKE
YUKON TERRITORY

Scale 1:250,000

1 Inch to 4 Miles Approximately

Miles 5 0 5 10 15 20 Miles

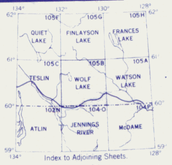
Kilometres 5 0 5 10 15 20 25 30 Kilometres

Contour interval 500 Feet
All Elevations in Feet above Mean Sea Level

Copies may be obtained from the Map Distribution Office, Department of Mines and Technical Surveys, Ottawa

REFERENCE

Building	Fire Lookout Tower	Contours, Elevation	
School	Wireless Station	Contours, Approximate	
Post Office	Mine	Contours, Depression	
Church	Cliff	Esker	
Stream, Indefinite or Unsurveyed		Wooded Areas	
Stream, Intermittent		Navigable Canal	Navigable
Stream, in Dry River Bed		Rapids and Falls	
Braided Stream		Ferry	FY
Marsh or Swamp		Dam	
Marsh or Swamp, in water		Lighthouse	
Glacier or Snowfield		Aerodrome (Elevation in feet)	2156
Sand, Gravel or Mud		Seaplane Anchorage	



Index to Adjoining Sheets

GEOLOGICAL COLUMN

CRETACEOUS OR TERTIARY

UPPERMOST CRETACEOUS OR LOWERMOST TERTIARY

SEAGULL AND HAKE BATHOLITHS AND STOCKS:

16 — mainly biotite leuco-quartz monzonite and alaskite, in places with quartz- tourmaline concentrations and miarolitic cavities

JURASSIC AND/OR CRETACEOUS

15 — 15a, CASSIAR BATHOLITH: mainly biotite quartz monzonite and granodiorite, in part sheared and altered; 15b, RAM STOCK: saussuritized biotite-hornblende quartz monzonite and granodiorite, in part sheared; 15c, LOGJAM STOCKS: mainly biotite-hornblende quartz monzonite with basic borders; 15d, mainly biotite quartz monzonite and granodiorite; 15e, mainly biotite-muscovite granodiorite

Geology by W.H. Poole, 1951
J.A. Roddick and L.H. Green, 1959
(GSC Map 10 - 1960)

LEGEND

- Uranium Exploration Areas and Number
- CEGB Silt sample location, number and result (ppm U_3O_8)
- CEGB Rock sample location, number and result (ppm U_3O_8)
- GSC Silt sample location, number and result (ppm U_3O_8) Open File Report #563
- GSC Water Sample Location, Number, and result (ppb F) Open File Report #563
- CEGB Exploration Area (1984)
- CEGB Exploration Area (1985)

URANIUM EXPLORATION ACTIVITY

NUMBER	CLAIM NAME	COMPANY
1	Goat	Canadian Occidental Petroleum Limited
2	Lick	Canadian Occidental Petroleum Limited
3	Co	Canadian Occidental Petroleum Limited
4	Skin	Du Pont Canada Ltd.
5	Ice	Canadian Occidental Petroleum Limited
6	Elle	Eldorado Nuclear Limited
7	Border	Canadian Occidental Petroleum Limited

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1985 URANIUM EXPLORATION PROGRAM

YUKON TERRITORY

GEOLOGICAL COMPILATION

WOLF LAKE MAP SHEET 091788

SCALE 1:250,000	AUTHOR A.T.T.	DATE October 1985	
NTS 105 B	DRAWN BY J.S.	MAP 1	

LEGEND

QUATERNARY

18 Glacial till

JURASSIC AND/OR CRETACEOUS

15d Logjam stocks; mainly biotite quartz monzonite and granodiorite

CAMBRIAN AND (?) EARLIER

1 1a Biotite schist, quartzite
1b Marble, skarn
1c Biotite schist and quartzite with sills, dykes and irregular bodies of pegmatite
1d Biotite schist, gneiss

SYMBOLS

- Geological boundary (defined, approximate, assumed)
- Fault (defined, approximate, assumed)
- Regional traverse lines
- Lineament (from air photographs)
- Isomagnetic contour lines
- ▲ RMD-8 Rock sample location and number
- ■ BS-10 Silt sample location and number
- ● DY-7 Soil sample location and number
- (15.1) Geochemical results (ppm U_3O_8)
- [1530] Radiometric readings (cps)
- ⊞ (15,130) U.P.563-565 Uranium in stream sediments (ppm), Fluorine in water (ppb)
- ⊗ Camp
- Trench
- Prospect pit
- Limit of mapping

REFERENCES:

Poole, W.H.
1968: Map 18-1968, Geology of Wolf Lake, GSC

Aero Surveys Ltd.
1961: GSC Geophysics Papers 1332 and 1333 G

0 1500 3000 4500 6000 7500 9000 10500 FT.

0 1 2 3 km.

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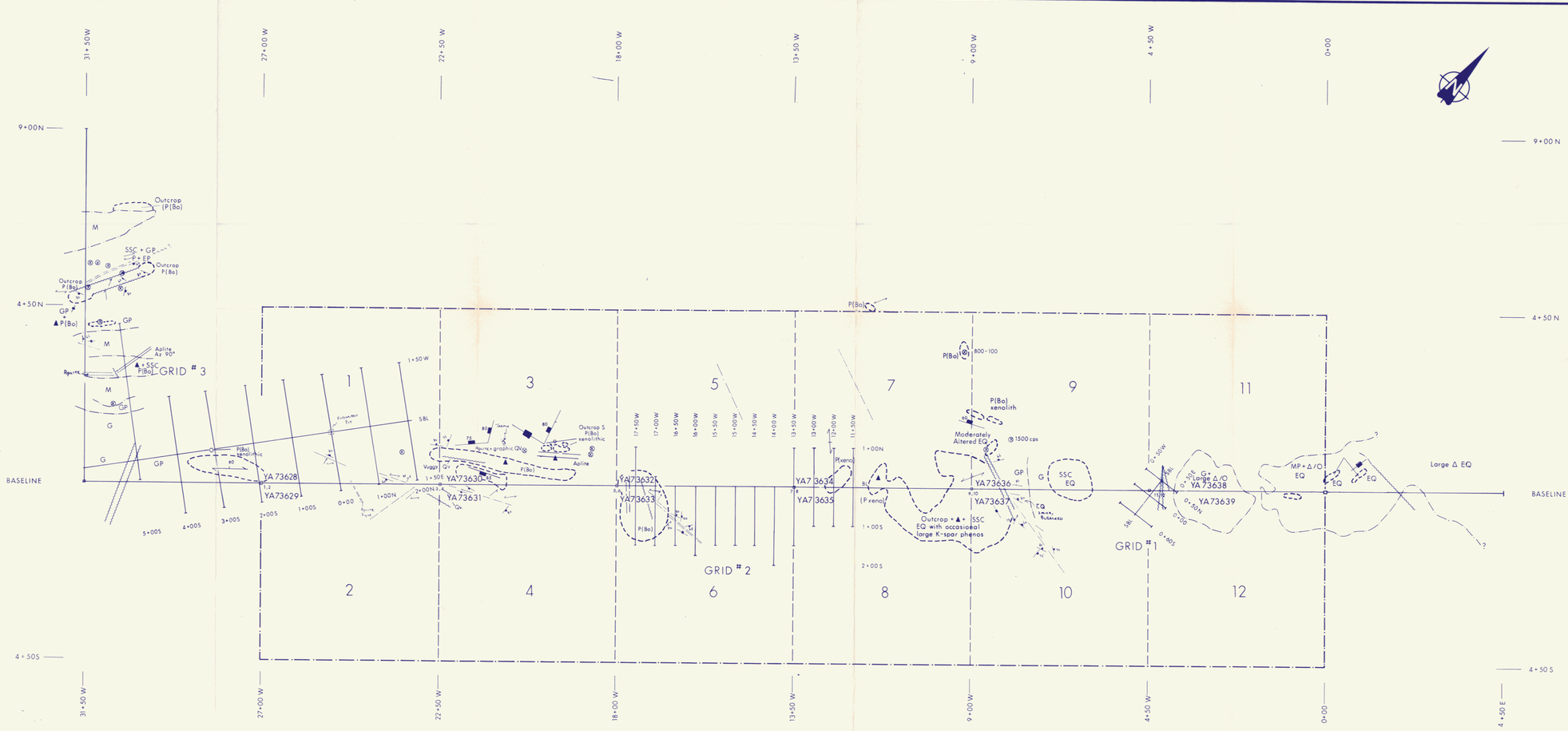
1985 URANIUM EXPLORATION PROGRAM

GEOLOGICAL COMPILATION
CABIN CREEK AREA

YUKON TERRITORY 091788

SCALE 1:31,180 ½ mile to 1 inch	AUTHOR A.T.T./T.B.	DATE October 1985
NTS 105 B 9&10	DRAWN BY T.B.	MAP 2



LITHOLOGY

- P(Bo) — PORPHYRITIC BIOTITE QUARTZ MONZONITE
- EP(Bo) — EQUIGRANULAR BIOTITE QUARTZ MONZONITE (also EQ) OCCASIONAL K-SPAR MEGACRYSTS
- Qv — QUARTZ VEIN

PHYSIOGRAPHY

- M — MOSSY AREA
- SSC — SHALLOW SUBCROP AREA
- GP — GRASSY AREA WITH PATCHES OF MOSS
- G — GRASSY AREA

SYMBOLS

- FOLIATION
- INCLINED JOINTING
- HORIZONTAL JOINTING
- DRAWS, FAULTS, SHEARS
- FROST HEAVE
- PHYSIOGRAPHIC BOUNDARY
- OUTCROP
- DYKES, VEINS
- ANOMALOUS RADIOACTIVE AREAS
- SAMPLE LOCATION
- BOZO CLAIM POST
- CLAIM BOUNDARY
- ANGULAR BOULDER
- ROUNDED BOULDER
- CRUSHING OR CATACLASTIC FOLIATION
- LINEAMENT

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GEOLOGY & PHYSIOGRAPHY

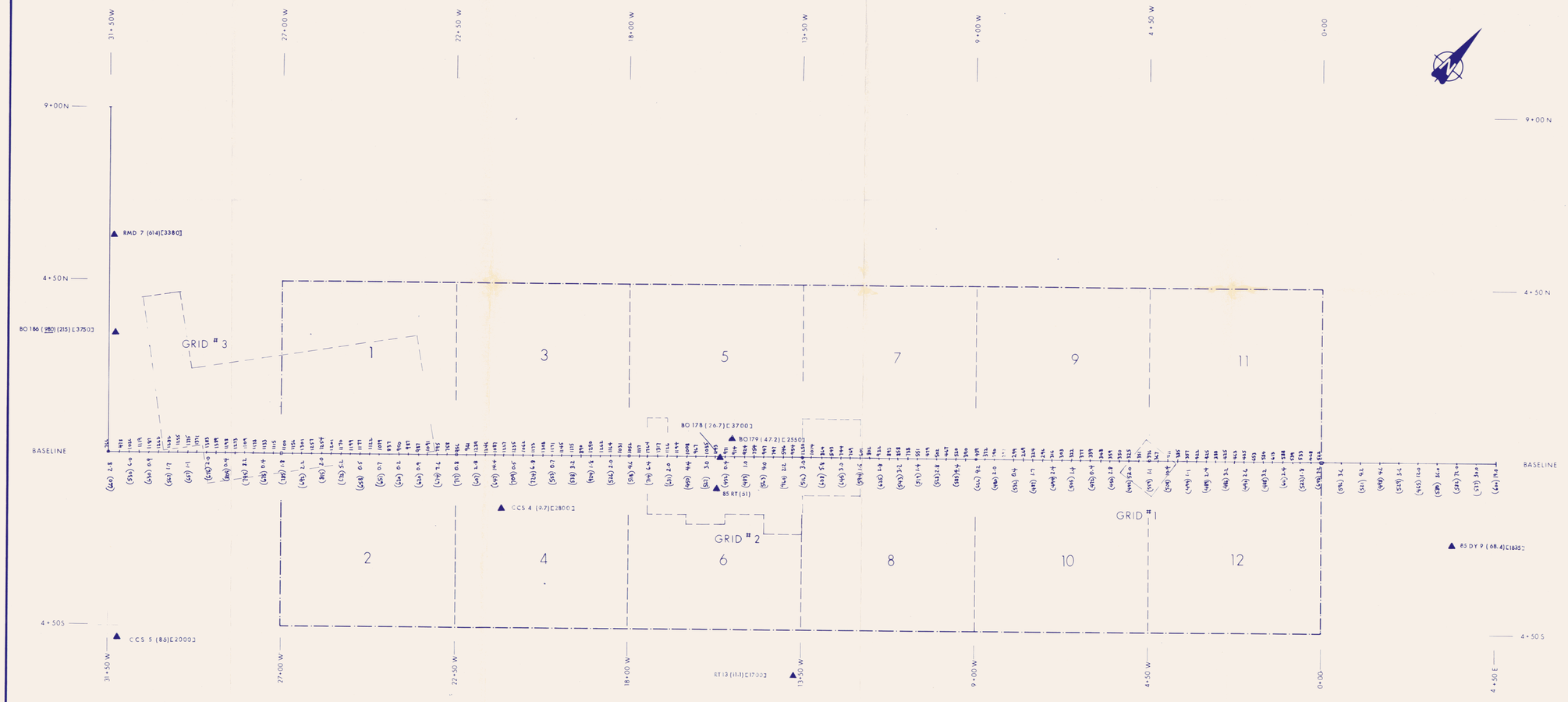
BOZO CLAIMS

CABIN CREEK AREA

YUKON TERRITORY

091788

SCALE 1:5,000	AUTHOR S.A.	DATE October 1985	
NTS 105 B/9	DRAWN BY J.S.	MAP 3	



0 100 200 300 400 500 m

LEGEND

- ▲RMD-8 ROCK SAMPLE LOCATION AND NUMBER
- (20.3) GEOCHEMICAL RESULTS (total ppm U_3O_8)
- (151) GEOCHEMICAL RESULTS (ppm U_3O_8)
- [15301] RADIOMETRIC READING (cps)
- BOZO CLAIM POST
- CLAIM BOUNDARY
- (600) 19-0 +522 — MAGNETOMETER READINGS (FOR TRUE VALUE, ADD 58,000 GAMMAS)
  - SOIL GEOCHEMICAL RESULT (ppm U_3O_8)
  - GROUND RADIOMETRIC READING (cps)

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1985 URANIUM EXPLORATION PROGRAM

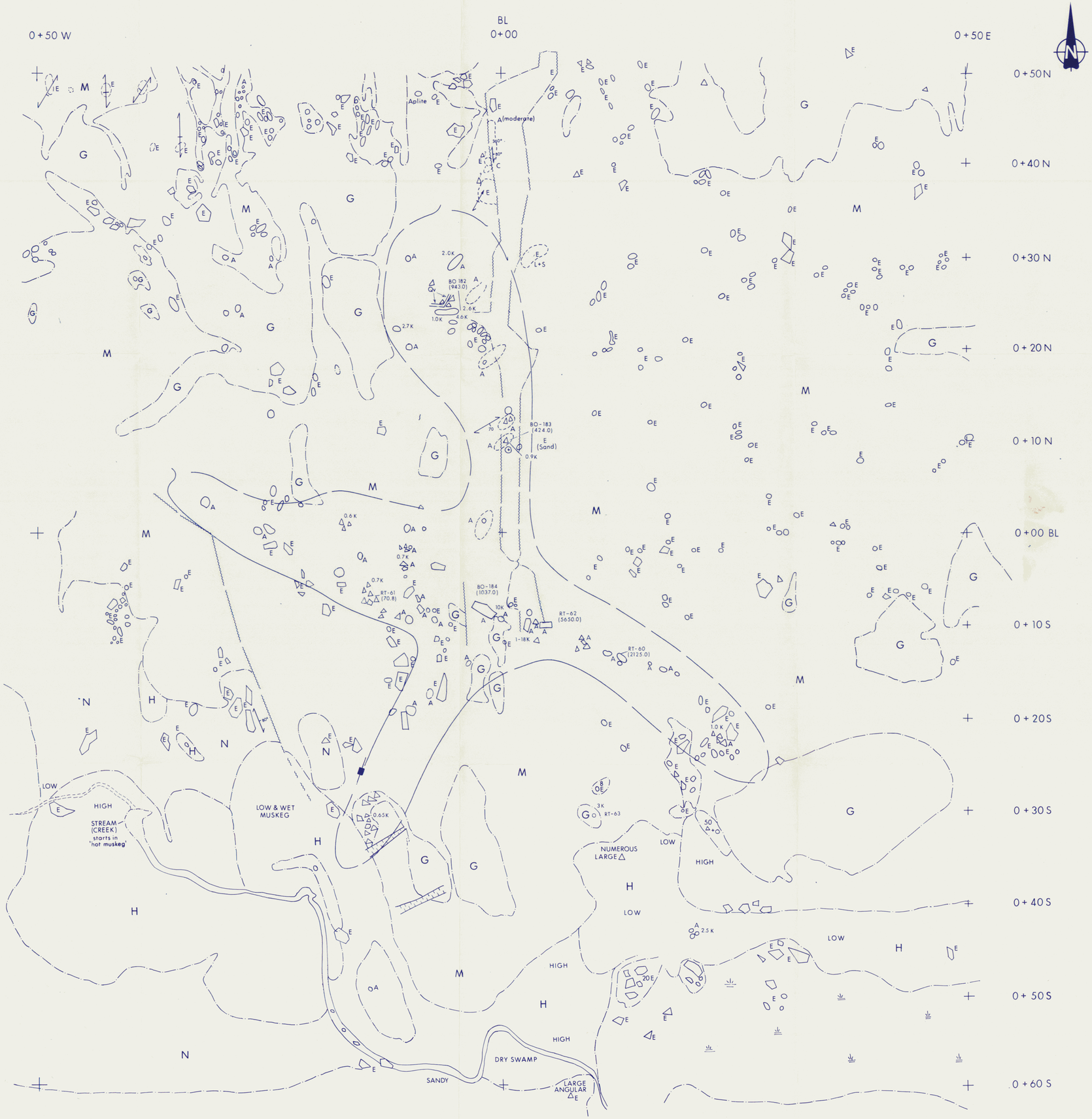
GEOCHEMICAL AND GEOPHYSICAL COMPILATION BOZO CLAIMS

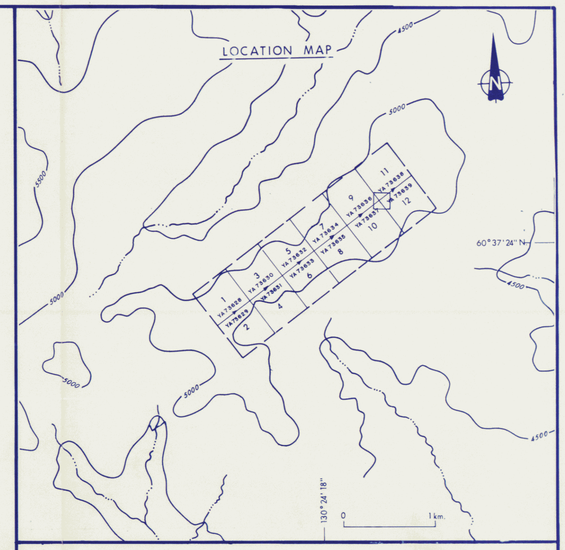
CABIN CREEK AREA

YUKON TERRITORY

091788

SCALE 1 : 5,000	AUTHOR A.T.T.	DATE October 1985
NTS 105 B-9	DRAWN BY J.S.	MAP 4





PHYSIOGRAPHY

- M MOSS WITH GRASSY PATCHES
- G GRASS WITH MOSSY PATCHES
- N TUSSOCK AREAS
- H LOW AND HIGH DRY MUSKEG AREAS

LEGEND

- PHYSIOGRAPHIC BOUNDARY
- JOINT
- FOLIATION, C INDICATES CATACLASTIC FOLIATION
- CLAY ALTERATION ZONE OUTLINE
- SWAMP
- OUTCROP
- ANGULAR BOULDERS
- ROUNDED BOULDERS
- E EQUIGRANULAR PORPHYRITIC BIOTITE QUARTZ MONZONITE
- A CLAY-ALTERED MUSCOVITE BIOTITE QUARTZ MONZONITE
- 20K RADIOMETRIC READING (cps × 1000)
- RT-60 (5650) ROCK SAMPLE LOCATION AND NUMBER RESULT (ppm U_3O_8, PARTIAL EXTRACTION)
- Qv QUARTZ VEIN
- TRENCH
- LINEAR FEATURE

0 5 m. 10 m.

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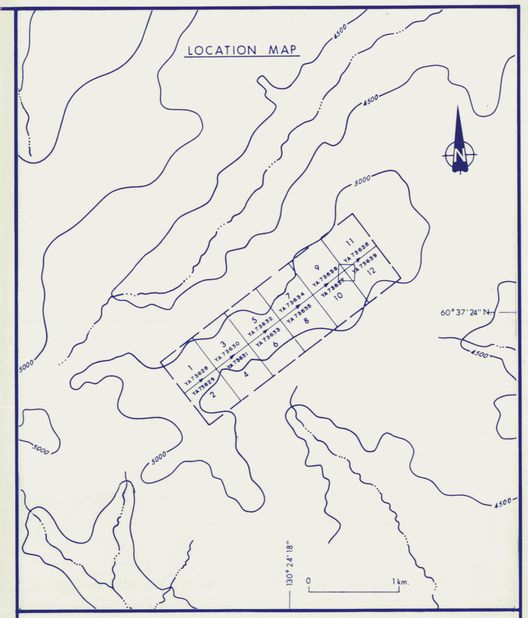
1985 URANIUM EXPLORATION PROGRAM
GEOLOGY & PHYSIOGRAPHY
GRID #1
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1 : 200	AUTHOR S.E.A.	DATE October 1985
NTS 105B / 9W	DRAWN BY J.S.	MAP 5



LEGEND

- o SPOT RADIOMETRIC READING (cps)
- \+ GRID STATION
- 490 RADIOMETRIC READING (cps)
- 500 RADIOMETRIC CONTOUR

0 5 10 metres

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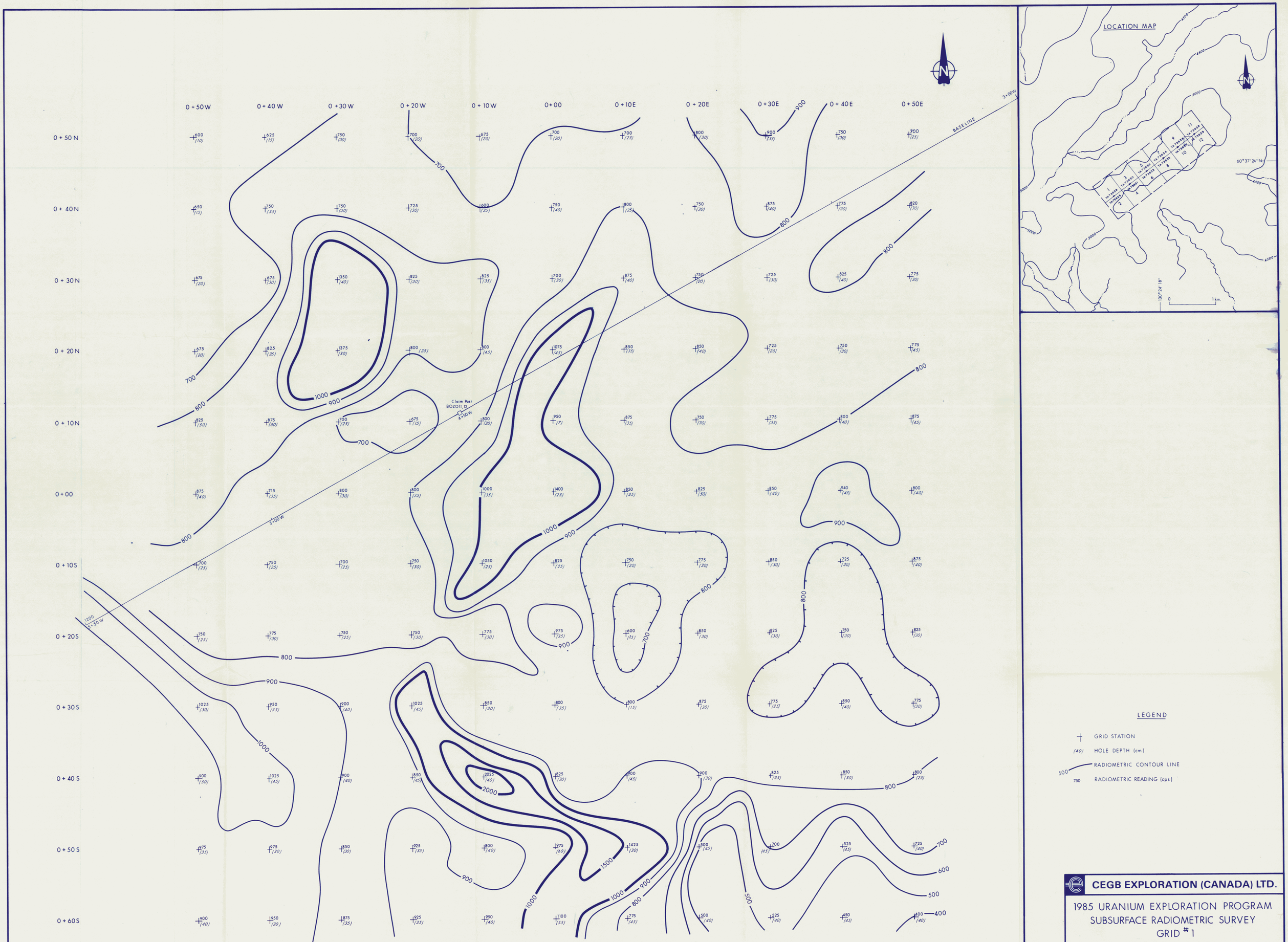
1985 URANIUM EXPLORATION PROGRAM
SURFACE RADIOMETRIC SURVEY
GRID # 1
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:200	AUTHOR A.T.T.	DATE October 1985
NTS 105 B / 9 W	DRAWN BY J.S.	MAP 6



LEGEND

- ┼ GRID STATION
- (40) HOLE DEPTH (cm.)
- 500 RADIOMETRIC CONTOUR LINE
- 750 RADIOMETRIC READING (cps)

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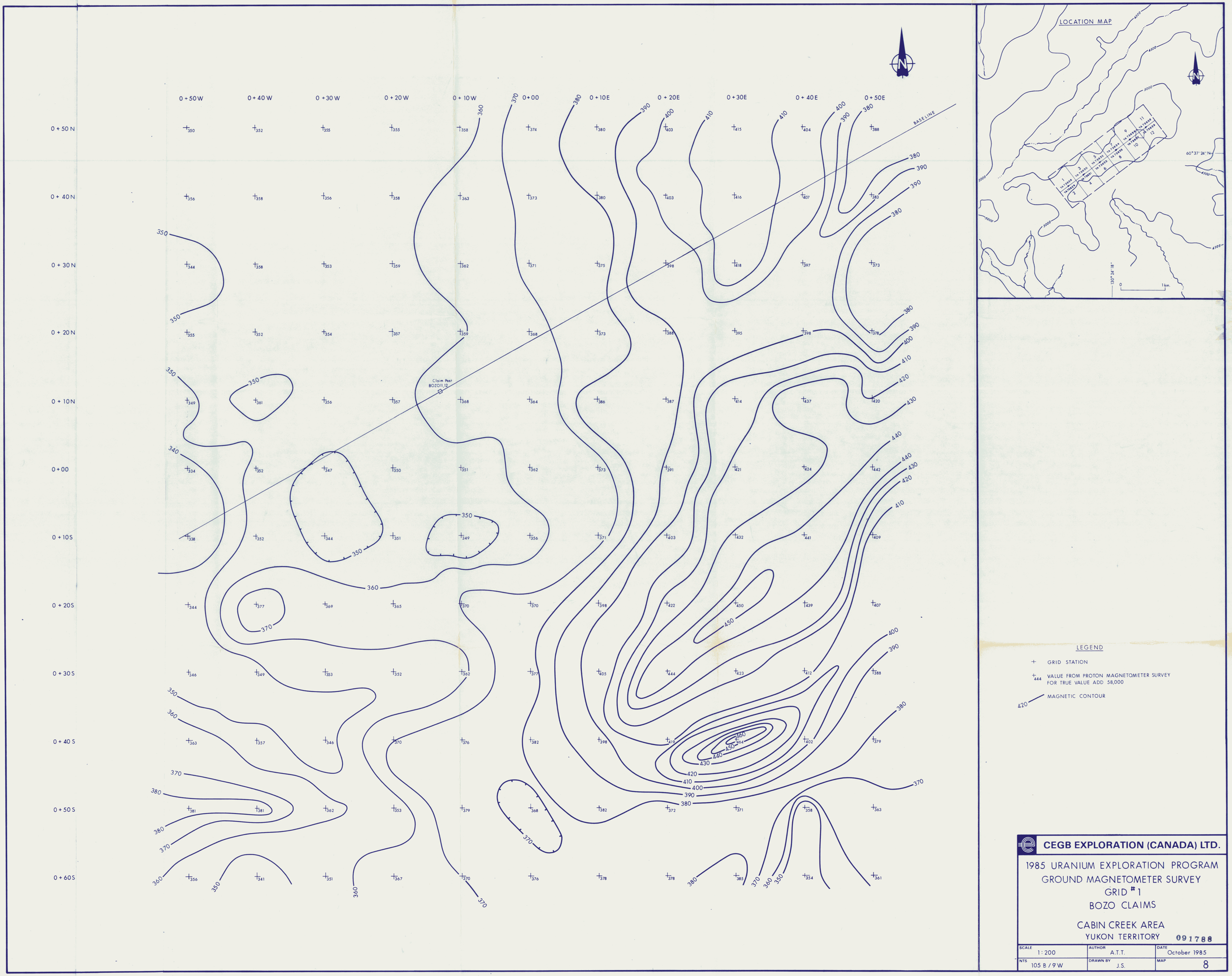
1985 URANIUM EXPLORATION PROGRAM
SUBSURFACE RADIOMETRIC SURVEY
GRID # 1
BOZO CLAIMS

CABIN CREEK AREA 091788
YUKON TERRITORY

SCALE	AUTHOR	DATE
1: 200	A.T.T.	October 1985
NTS 105 B / 9W	DRAWN BY J.S.	MAP 7



LEGEND

+ GRID STATION

+444 VALUE FROM PROTON MAGNETOMETER SURVEY FOR TRUE VALUE ADD 58,000

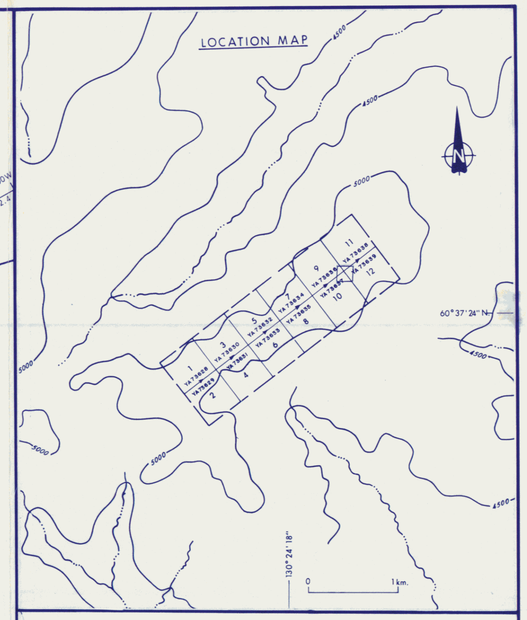
420 MAGNETIC CONTOUR

CEGB EXPLORATION (CANADA) LTD.

1985 URANIUM EXPLORATION PROGRAM
GROUND MAGNETOMETER SURVEY
GRID # 1
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY 091788

SCALE 1 : 200	AUTHOR A.T.T.	DATE October 1985
NTS 105 B / 9 W	DRAWN BY J.S.	MAP 8



LEGEND

- GRID STATION
- $\frac{+}{64.0}$ ppm U_3O_8 IN SOIL
- 12.0 GEOCHEMICAL CONTOUR

0 5 10 metres

CEGB EXPLORATION (CANADA) LTD.

SOIL GEOCHEMISTRY

GRID # 1

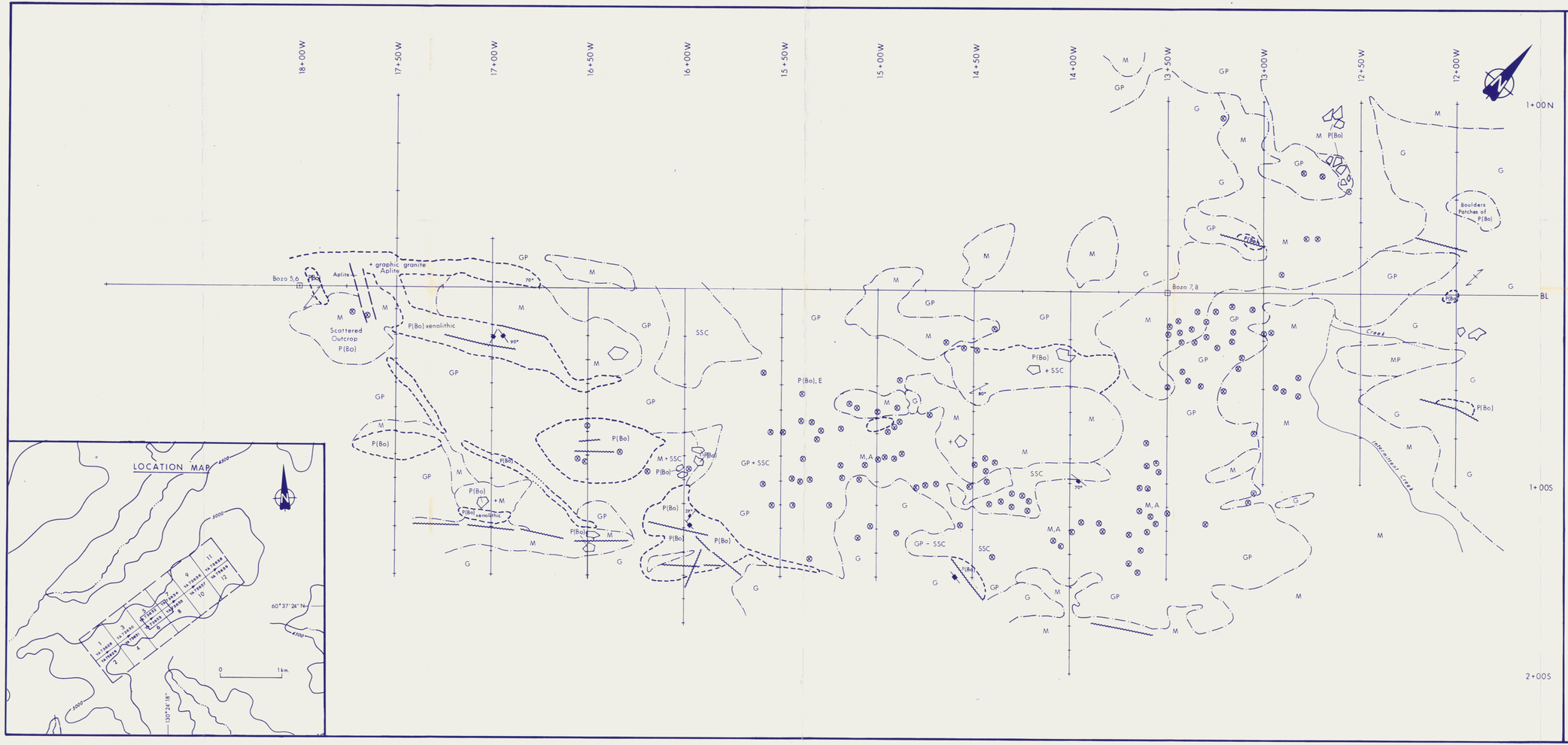
BOZO CLAIMS

CABIN CREEK AREA

YUKON TERRITORY

091788

SCALE 1 : 200	AUTHOR A.T.T.	DATE October 1985
NTS 105 B 9W	DRAWN BY J.S.	MAP 9



LITHOLOGY

- P(Bo) — BIOTITE PORPHYRITIC QUARTZ MONZONITE
- EP — EQUIGRANULAR TO PORPHYRITIC QUARTZ MONZONITE

PHYSIOGRAPHY

- M — MOSSY AREA
- G — GRASSY AREA
- GP — GRASSY AREA WITH PATCHES OF MOSS
- MP — MOSSY AREA WITH PATCHES OF GRASS
- SSC — SAND COVER

LEGEND

- PHYSIOGRAPHIC BOUNDARY
- OUTCROP, OUTCROP AREA
- AREA OF ANOMALOUS RADIOACTIVITY (>1000 cps)
- FAULTS, LINEARS, DRAWS
- FOLIATION
- JOINTING
- LARGE BOULDERS
- CLAIM POSTS

0 50 100 m.

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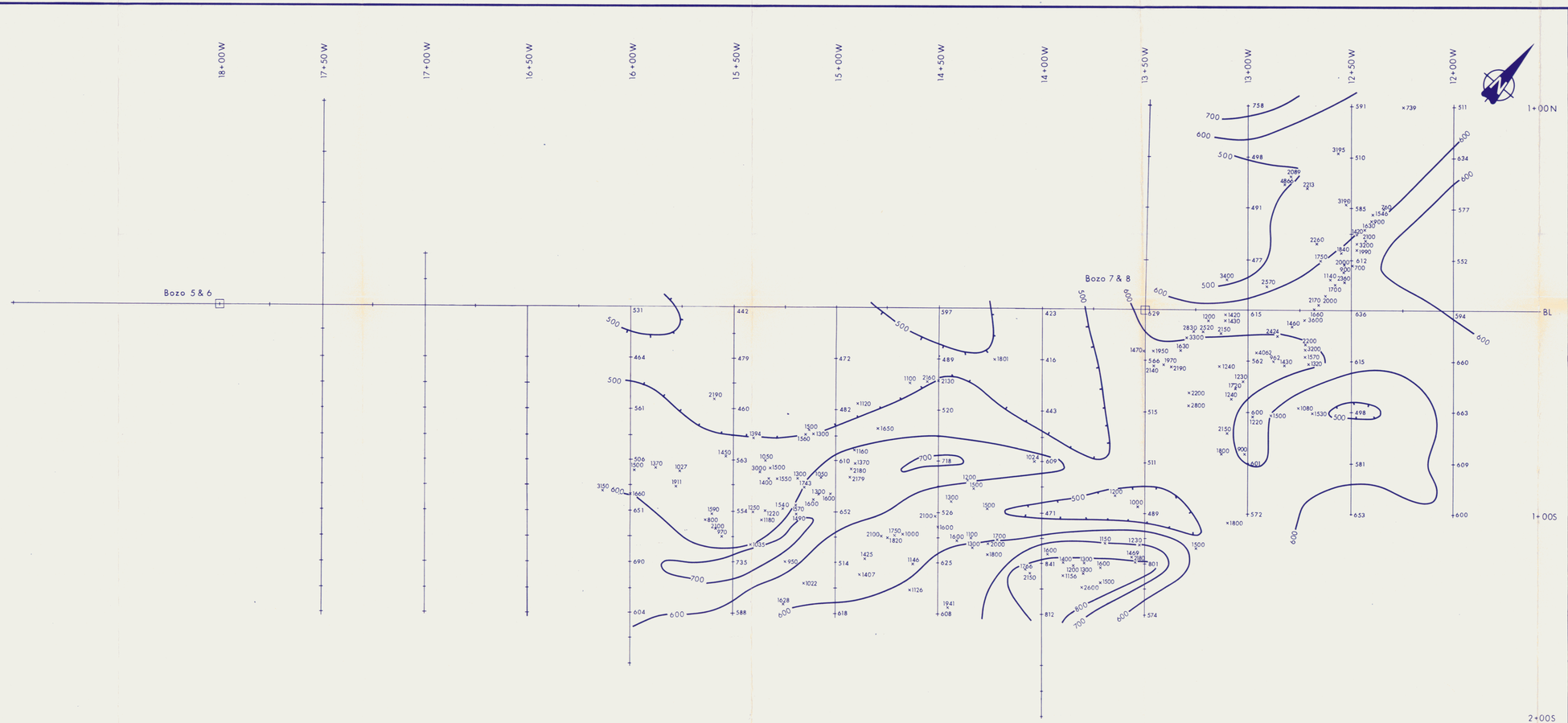
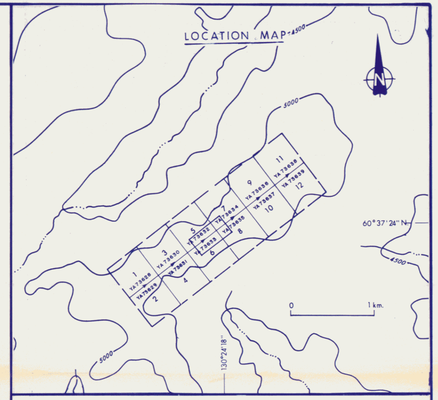
1985 URANIUM EXPLORATION PROGRAM
GEOLOGY & PHYSIOGRAPHY
GRID #2
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1000	AUTHOR S.A.A.	DATE October 1985
NTS 105 B / 9 W	DRAWN BY J.S.	MAP 10





LEGEND

- GRID STATION
- 511 RADIOMETRIC READING (cps)
- 3300 SPOT RADIOMETRIC READING (cps)
- 500 RADIOMETRIC CONTOUR

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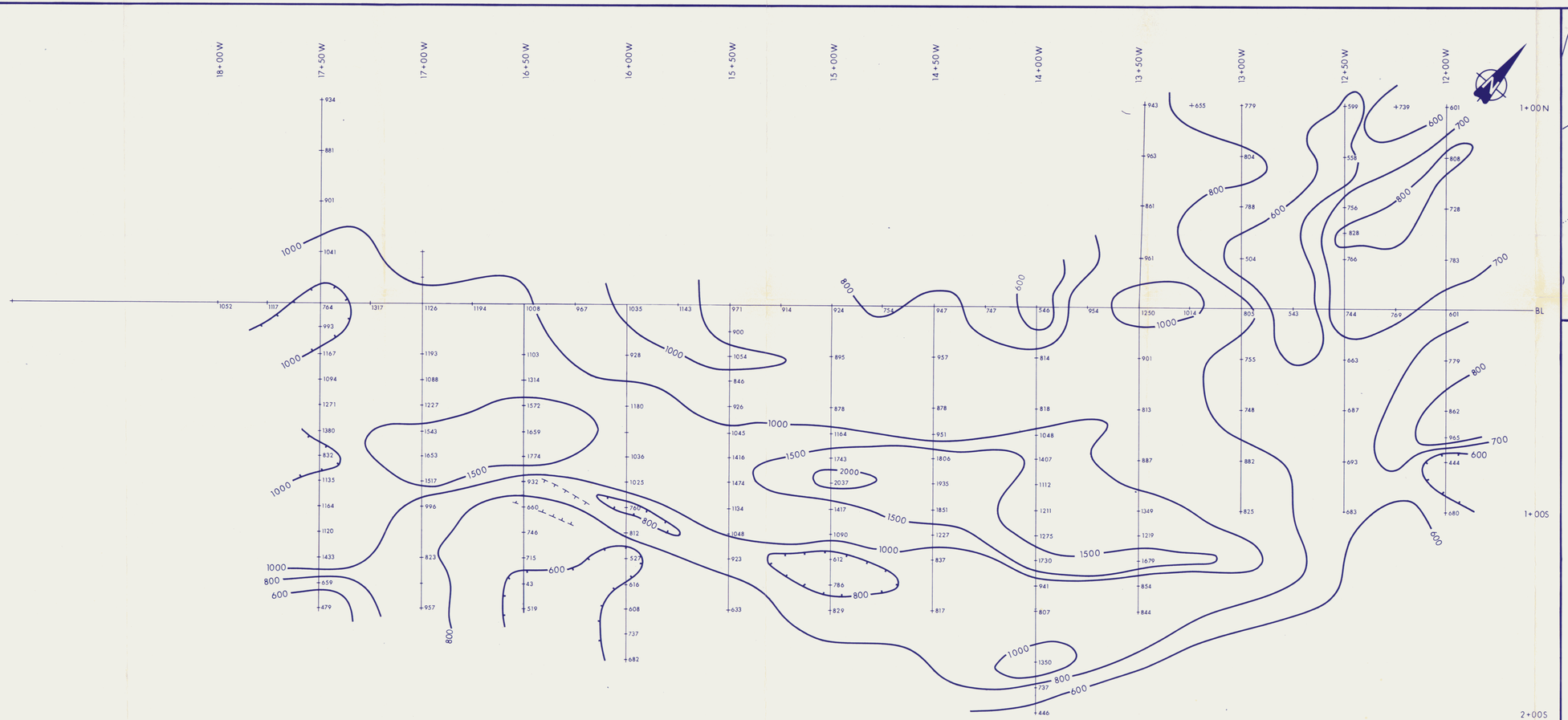
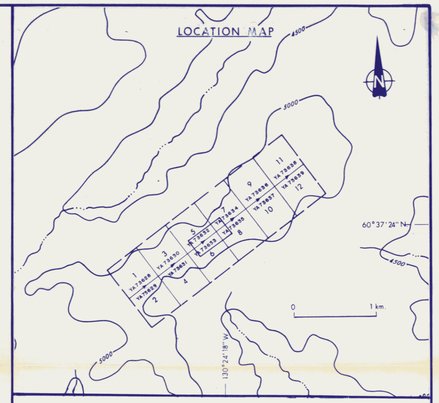
SURFACE RADIOMETRIC SURVEY
GRID # 2
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1000	AUTHOR A.T.T.	DATE October 1985
NTS 105 B/9W	DRAWN BY J.S.	MAP 11





LEGEND

- GRID STATION
- 882 MAGNETOMETER READING (gammas) For True Value add 58,000
- 500 MAGNETIC CONTOUR

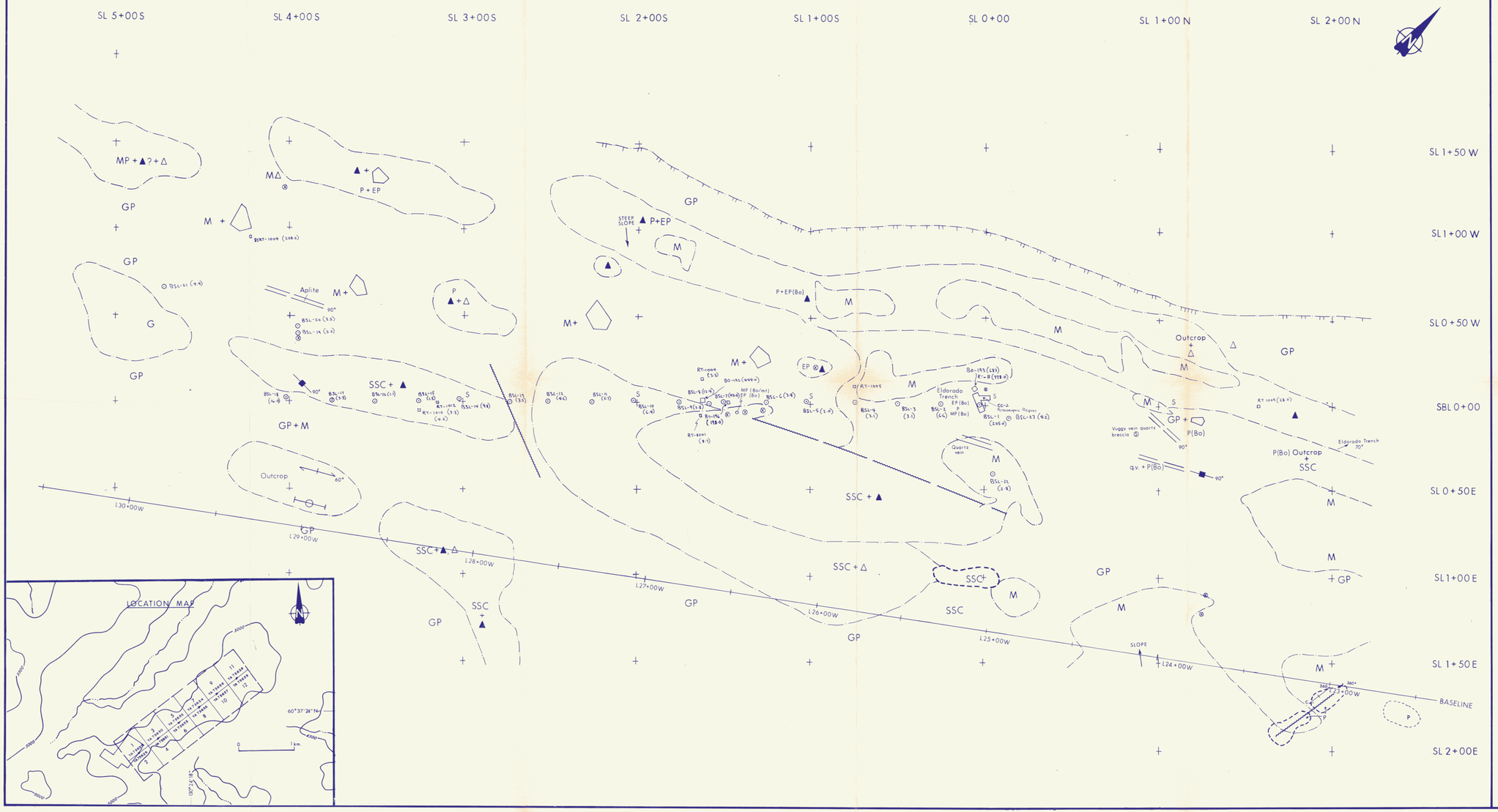
CEGB EXPLORATION (CANADA) LTD.

1985 URANIUM EXPLORATION PROGRAM
MAGNETOMETER SURVEY
GRID # 2
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1,000	AUTHOR A.T.T.	DATE October 1985
NTS 105 B-9	DRAWN BY J.S.	MAP 12



LEGEND

LITHOLOGY

- P — PORPHYRITIC BIOTITE QUARTZ MONZONITE
- EP — EQUIGRANULAR BIOTITE QUARTZ MONZONITE (with microcline megacrysts)
- MP — MEGAPORPHYRITIC QUARTZ MONZONITE

PHYSIOGRAPHY

- OUTCROP AREA
- PHYSIOGRAPHIC BOUNDARY
- M — MOSS
- GP — GRASS WITH MOSSY PATCHES
- G — GRASS
- SSC — SHALLOW SUBCROP

SYMBOLS

- FOLIATION (C indicates Cataclastic foliation)
- JOINTS (vert.)
- FROST HEAVE, PROXIMAL BOULDERS
- LARGE ANGULAR BOULDERS
- SMALL ANGULAR BOULDERS
- HORIZONTAL JOINTS (SHEETING)
- RADIOACTIVE SPOT
- LARGE TRENCH
- STEEP SLOPE
- DRAWS, FAULTS, SHEARS
- BSL-21 (4.9) — SOIL SAMPLE LOCATION, NUMBER & RESULT (ppm U_3O_8)
- RT-1001 (3.8) — ROCK SAMPLE LOCATION, NUMBER & RESULT (ppm U_3O_8)

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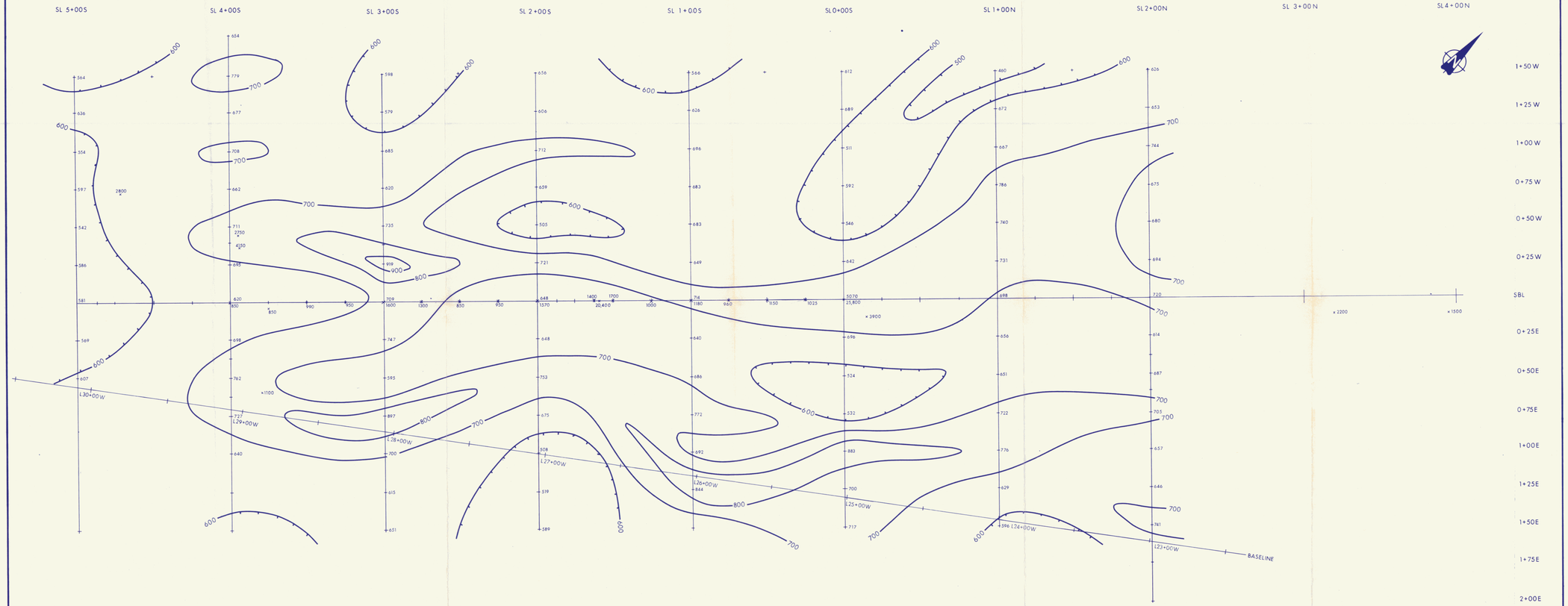
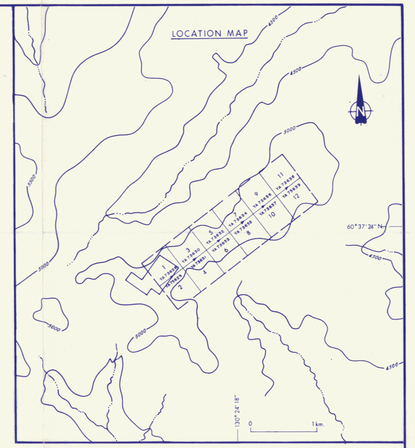
1985 URANIUM EXPLORATION PROGRAM
GEOLOGY & PHYSIOGRAPHY
GRID #3
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1,000	AUTHOR S.A.A.	DATE October 1985
NTS 105 B/9	DRAWN BY J.S.	MAP 13





LEGEND

- GRID STATION
- 722 RADIOMETRIC READING (cps)
- 700 RADIOMETRIC CONTOUR
- x1700 SPOT RADIOMETRIC READING (cps)

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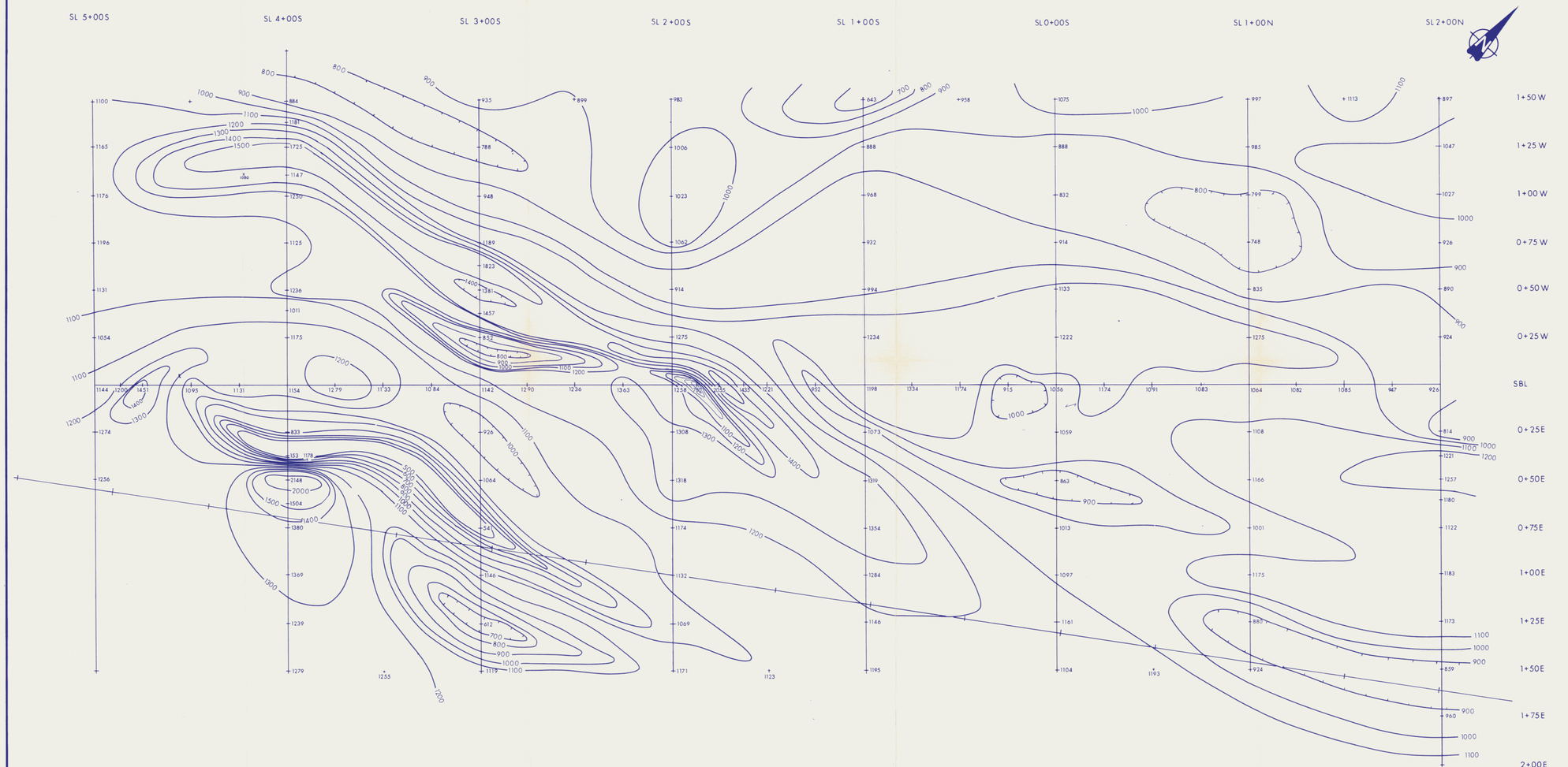
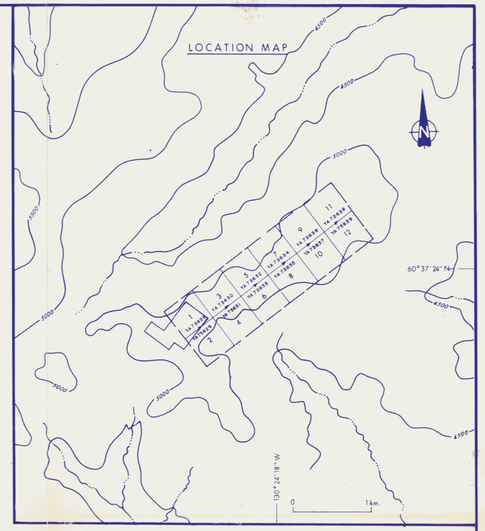
1985 URANIUM EXPLORATION PROGRAM
SURFACE RADIOMETRIC SURVEY
GRID # 3
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1,000	AUTHOR A.T.T.	DATE October 1985
NTS 105 B/9	DRAWN BY J.S.	MAP 14





LEGEND

† GRID STATION

500 MAGNETIC CONTOUR (GAMMAS)
FOR TRUE VALUE ADD 58,000

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1985 URANIUM EXPLORATION PROGRAM
GROUND MAGNETOMETER SURVEY
GRID # 3
BOZO CLAIMS

CABIN CREEK AREA
YUKON TERRITORY

091788

SCALE 1:1,000	AUTHOR A.T.T.	DATE October 1985
NTS 105 B/9	DRAWN BY J.S.	MAP 15