MAR 19760011: TURTLE LAKE

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19760011

TURTLE LAKE URANIUM EXPLORATION PROJECT

-INDEX-

SUMMARY

1) Four Radiometric anomalies indicative of uranium mineralization, were found, three in granitic rocks and one in metasedimentary rocks.

2) Surface chip sampling indicates two anomalous areas, Sample #26 coincides with Padiometric anomaly #2, while Sample #8 is in area D, in metasedimentary rocks but not associated with a radiometric anomaly.

3) Outcrop areas surveyed were predominantly granitic with the exception of three areas of metasedimentary rocks, as follows:

   A) North of Lake #1; 9000'N - 1000'E on east side of Creek.
   B) At 2835' east on line between Lake #4 and the Allan Fault.
   C) N/E of Lake #1, immediatly adjacent to the lake shore. Known as area D.

4) Mineralization in the outcrop areas consisted primarily of Quartz in the granites and Iron, Graphite, Molybdenum, and Quartz in the metasediments.

5) Less than 20% of the permit area has been explored, the explored area is completely with in the south-east quadrant of the permit area.

6) The Allan Fault is very distinctive and can be used as an access into the area of intersecting Remote Sensed Linears.

7) Cut and blazed lines can be used as a base for further exploration work.

8) Turtle Lake and Lake #4 are the only known lakes useable by aircraft.

9) Uranium City is a better base for logistical support than Fort Chipwyan.

RECOMMENDATIONS

A) Serious consideration of a possible air borne scintillometer survey over the complete permit area.

B) Serious consideration be given to a re-evaluation of the Landsat imagery using the photographs of some outcrop areas as ground truths.

C) To complete the surface prospecting of the permit area.

1) Scintillometer survey of outcrop and lightly mantled areas.

2) Radon gas survey of heavily mantled areas, principally the N/W section of the permit area and sand ridges throughout the complete area.

3) Delineation of the known exposures of meta-sedimentary rocks with associated mineralization, and further exploration to detect other meta-sedimentary areas.

4) Sample lake bottom sediments for indications of Uranium Mineralization.

D) Short hole diamond drilling (Pack-Sack Drill) of known radiometric and chip sample anomalous areas discovered to date, and to drill other anomalies as they occur with additional exploring.

URANIUM EXPLORATION

TURTLE LAKE

North-Eastern Alberta, Exploration Permit Number 245

INTRODUCTION

A) Remote Sensing

Data from the Landsat satellite system provide a unique reconnaisance level search tool for minerals, gas and oil. This technique was applied to a search of North-Eastern Alberta and North-Western Saskatchewan for Uranium prospects with reflective characteristics similar to those of the Cluff Lake deposits in the Carswell Dome area of Saskatchewan.

The use of Remote Sensing in mineral exploration, i.e. the application of interpreted Landsat data, is a relatively new exploration technique, the most direct application of which, is to use a known mineralized ground truth site located within the same scene as the search area. No such site lies north of Lake Athabasca and within the Province of Alberta.

This search, therefore, returned to the previously used ground truth site at Cluff Lake and extended the use of that spectral signature to the next northern Landsat scene taken some 20 seconds earlier. In this manner, the possibility of calibration errors were kept to a minimum.

Two areas, one lying due north of Turtle Lake and the second, east of Burstall Lake were found which have the same spectral response as Cluff Lake, Saskatchewan.

A considerable bibliography is emerging on the subject of interpretation of Landsat images. One such class of observables are referred to as "Linears". These occur world-wide and appear as straight and slightly curved lines. In length, they vary from hundreds of miles to the resolution element of the data (about 300 Feet.) While considerable controversy exists as to their exact geological meaning, there is no doubt that many are the surface expression of deep seated faults, fractures, joints, folds, and facies boundaries.

It has, for example, been established that fractures and faults in older rocks do propagate upward through younger rocks. Thus the linear set should include structural features which have had control, during deposition and concentration of mineralization.

Two methods are available to determine which sub-units of the full linear set have the greatest probability of alteration, even when ground truth data are not available. The first is to look for the maximum number of intersections and the second is to look for anomalous changes in surface reflection across the linear, the gossan or halo indicative of alteration. A maximum probability exists where the two occur together.

Additional evidences that the Turtle Lake and Burstall Lake areas are favourable ground is found from a structural analysis which indicates major intersections of linears, where the linears are also the boundaries of spectral reflections similar to the Cluff Lake ground truth site.

B) Permit Acquisition and Option

Exploration Permits #244 and 245, of 31½ and 78 sections respectively, called here after the Burstall Lake and Turtle Lake Permits were acquired by C and E Explorations Ltd., upon receipt of the completed Landsat study conducted by, "Denver Mineral Exploration Corporation", of Littleton, Colorado.

A 12% interest in each permit area was purchased by, "Pacific Petroleums", with an option to acquire further ownership.

Exploration

1) Method

A) Scintillometer Survey
B) Examination of outcrop areas for structure and mineralization.

2) Topography

A) A one inch to one mile forest cover map showing the permit area, the major linears and curvi-linear features from the Landsat study was prepared. A second topographic map 1:50,000 scale, showing section, township and range was used as a base map for the ensuing geological exploration. The only lake in the permit area having a particular name is, "Turtle Lake". The other lakes were given an identification number 1 through 17.

The country varies in elevation from 900 to 1,100 feet, most of the outcrop lies above the 1,000 foot contour. Walking is difficult in most areas because of dead fall in old burn areas and swamp. It is easier on the ridges and throughout the outcrop areas.

EXPLORATION TARGETS

From a perusal of the literature and air photo's it would appear that the areas most conducive to mineral accumulation could include the following, always realizing that actually, no portion of the permit area, can be taken for granted, as being productive or non-productive in a mineral sense.

A) Areas of Remote Sensed Linear and Curvi-Linear intersections.
B) Fault Zones.
C) The large expanse of Glacial-Fluvial material in the N/W portion of the permit area.
D) Occurences of Meta-sedimentery rocks.

C) General Geology of Permit Areas

Permit area #245, "Turtle Lake", is located in the Pre-Cambrian area of North-Eastern Alberta, as shown on the geological map of Alberta. Research Council of Alberta Map #35.

It is an area of reputedly undivided Granitic Plutonic Rocks comprised of, biotite granite, porphyroblastic and porphyritic granite, some granite gneiss and meta-sedimentary rocks, "A".

The eastern edge of the permit area is reputed to be a contact zone between the rock units mentioned above, "A", and a granite gneiss, "Agg".

D) Uranium Occurances

Vein Type

Uranium mineralization, primarily Uraninite and Pitchblende, is found in the Beaverlodge area, around Uranium City on the east end of Lake Athabasca, approximately 65 to 70 miles east of our permit area.

Some mineralization north of permit area #245 was found by Dr. J. D. Godfrey of the Research Council of Alberta, his discoveries are described in preliminary Report #58-4, "Mineralization in the Andrew, Waugh, and Johnson Lakes Area", North-Eastern Alberta. Briefly the mineral occurrences he mentions are three locations of Uranium grading 1.03; 3.93; and 3.29% U_3O_8 with accompanying Molybdenum of 0.69, 1.03 and 1.40%, respectively, the mineralization occur in meta-sedimentary rocks containing appreciable iron.

The uranium mineral occurrences both east and north of Lake Athabasca are in practically every case, associated with structure in the form of primary or secondary faulting.

2) Research Council of Alberta, Map #35

EXPLORATION

3) Time: and Personnel

A preliminary exploration program utilizing two geologists, a geophysical prospector and four assistants was conducted from August 25th to September 15th inclusive. B. V. McConnell, Professional Engineer, and E. M. Estabrooks, Professional Geologist, were the Geologists employed in the project while L. C. Card was the Geophysical prospector. The four assistants were utilized from August 25th to September 6th inclusive and were employed primarily as line cutters but were also used in a cooking and prospecting capacity where necessary.

4) Logistics

Uranium City was used as a supply base with Norcan Air supplying our principal means of transport. Supplies are more easily obtained in Uranium City than in Fort Chipewyan, the permit area being approximatly equi-distant between the two communities.

Norcan air used Otter, Beaver, and Cessna aircraft to conduct our camp moves and in transportation between the permit area and Uranium City. Groceries were purchased at the Eldorado Store and Hudson Bay Company, Hardware from the Uranium City Hardware and accomodation was secured at the Uranium City Hotel.

5) Lakes

Turtle Lake is one of the few Lakes in the general area, upon which, an Otter can land. Hence our main camp was established on the north shore of Turtle Lake. Later, during the program, we were landed on Lake #4 by a Beaver Aircraft. Most other lakes in the permit area are unsuitable for any kind of aircraft usage. The lakes are shown and numbered on Map #4.

WORKS COMPLETED

20,550 feet of cut line and approximately 22,200 feet of blazed line were used as guides for our scintillometer surveys, examination of outcrops along these lines and the acquisition of surface chip samples from areas having anamolous scintillometer readings. 18 plates showing the locations of the various cut, blazed and scintillometer survey lines accompany this report.

TL–Plate #1 - Location of Lakes; Cut and Blazed lines
" #2 - Surveyed portion of the permit area split into sub-areas, A,B,C,D,E,F, respectively.
" #3 - Area A - Anomaly #1 - Sample #19 (Granites)
" #4 - " B - Sample #11, Sample #24 (Granites)
" #5 - " C -
" #6 - " E -
" #7 - " E -
" #8 - " E -
" #9 - " E - Area of Meta-sediments - Sample #5 & #21.
" #10 - " E - Anomalies E-1, E-2, E-3; Anomaly #2 @11,050'N Sample #26 (Granites)
" #11 - " E -
" #12 - " E -
" #13 - " E -
" #14 - " E -
" #15 - " F - Meta-sediments (Barren)
" #16 - " D - Samples #25, 8, 15, 22: (Meta-sediments)
" #17 - " D - Anomaly #3 (Meta-sediments)
" #18 - " C_1 - Anomaly #4 Granitics

Plate #17 is missing from the report.
J. Sciarra
20-April-06.

GEOPHYSICAL INSTRUMENTS USED

1) T.V.5 McPhar Scintillometer
To: Total Count T_1 = UR; TH; PoT: T_2 = UR;TH T_3 = TH

2) Scintrex total count scintillometer, Model B6S-1S
Only capable of total count reading.

Through conversation with T. Truman, Exploration manager of Eldorado, a T_1 reading of 1500 counts on the T.V.5 McPhar or the French SPP2-SRAT scintillometers is usually indicative of Uraninite mineralization, a true indication of the cause of the higher scintillometer readings can only be acquired by the Pack-Sack drilling of the anomalous area, because of the leaching of the uranium and related minerals from the surface rock exposures.

A total of 328 total count and 99 T_1 count readings with the McPhar instrument were acquired over the area surveyed.

The T.V.5 McPhar instrument was used all most exclusively over granitic areas. It developed a malfunction near the end of the stay in the Turtle Lake camp and was not available when we discovered the area of meta-sedimentary rocks in areas F and D.

The scintrex Model 1BGS-1S was used along cut and blazed lines and on outcrops of granitic and meta-sedimentary rocks as they were encountered.

Estimated background of radiometric counts over granitic and meta-sedimentary terrain.

A) T.V.5 McPhar To = 8 to 10,000 Counts on 3 second interval
T_1 = 300 to 400 " " " " "

B) Scintrex Model 1B6S-1S =
Granitic outcrops To = 20/30 Counts/Second
Meta-sediments To = 15/20 " / "

The level of radioactivity was assessed using the following releative scale; "significant" when radioactivity is in the range of 2.5 to 4 times background, "High" when radioactivity is 4 to 5 times background, and "Very High" when radioactivity is 6 times background or greater. For the purpose of this presentation, we have considered 3 times background and up, to be anomalous and deserving of further examination via short hole diamond drilling using a Pack-Sack diamond drill or trenching, to get below the leached zone, with a Plugger and related steel.

ANOMALOUS /LOCATIONS BASED ON SCINTILLOMETER READINGS.

Using McPhar T.V.5 (Granitics)

Plate	Location	Radioactive Counts	Anomaly #
3	5000'N/400'W	T_1 1400	1
	5050'N/400'E	T_1 1750	1

T_1= 1400 T_2= 750 T_3= 600 Counts
T_1= 1750 T_2= 850 T_3= 800 Counts

Plate	Using Scintrex Scintillometer (Granitics)		
18	N/W Lake #1	To = 1200 CPS	4
		To = 350 CPS	
		To = " CPS	
		To = " CPS	

Using McPhar T.V.5 (Granitics)

Plate	Location	Radioactive Counts	Anomaly #
10	11,050'N	"D" To = 50,000 Counts	2
12		"A" T_1 = 1,600 "	Sub-Anomalies
13		"B" To = 39,000 "	A
14		"C" T_1 = 1,400 "	B
			C
			D

"A" To = 37,000 Counts
T_1 = 1,600 T_2 = 700 T_3 = 550
55' = To 13,000 56' = To 37,000 57' = To 32,000 58' = To 13,000

"B" To = 39,000
118'N = To 16,000 1'W = To 39,000 1'N = To 22,000 1'N = To 14,000

"C" To= 22,000
T_1 = 1,400 T_2 = 450 T_3 = 300
126'N = To 17,000 127'N = To 22,000 128'N = To 22,000 129'N = To 18,000

"D" To = 25,000 (1); 42,000 (2); 44,000 (3); 50,000 (4); Counts
1) T_1 = 1,200 T_2 = 1,000 T_3 = 500
2) T_1 = 1,500 T_2 = 1,000 T_3 = 600
3) T_1 = 1,800 T_2 = 1,000 T_3 = 650
4) T_1 = 1,700 T_2 = 1,400 T_3 = 1,000

Using Scintrex Scintillometer?

Plate	Location	Radioactive Counts	Anomaly
17	140'E	To = 600	3 Meta-sediments

140'E = To 15 145'E = To 600 146'E = To 200 150'E = To 15
1'N = To 40
1'S = To 60

EXPLORATION GENERAL

Our objective during this first preliminary stage of exploration was to proceed northward from Turtle Lake to Lake #4, thence east to the Allan Fault area, then south to the area of intersection of the two major straight lineaments of the Remote Sensed study.

We managed to reach the Allan Fault area during the time available, hence a relatively small portion of the permit area, approximatly 20% was covered during the initial ground exploration. Additional exploration will be required to determine the significance, if any, of the linear and curvilinear surface features and their relationship to uranium mineralization.

Most of the exposed rock along the cut and blazed lines was granitic in one form or another, with two small areas of meta-sediments, one in area F between Lake #4 and the Allan Fault, the other being in the east side of the creek, north of lake #1 and 1000'east of the cut line at 9000'N.

A large exposure of meta-sedimentary rocks is located on the North-East shore of Lake #1, on area D, from which we acquired a number of samples, locations of which are shown on Plate #16. One anomalous scintillometer reading was acquired in this area and is depicted on Plate number 17. Plate #17 is missing.

Further exploration of the area designated as "D", and the country directly north and south of Lake #1 and on the South-East side of the Lake as well. These southern outcrops would be partially outside our southern permit boundary.

SAMPLES

Surface rock chip samples were acquired from most of the anomalous scintillometer count areas, and some were acquired from the meta-sediment area designated as area "D". The locations of the samples are shown on the accompanying plates.

TL- Plate #3	Area A	Sample	#19	2.2 PPM	U_3O_8	(Granitic)
TL- Plate #4	" B	"	#11	1.1 "	" "	(Granitic)
TL- Plate #4	" "	"	#24	4.5 "	" "	(Granitic)
TL- Plate #9	" E	"	#21	5.6 "	" "	(Meta-sediment)
TL- Plate #9	" "	"	#5	4.5 "	" "	(Meta-sediment)
TL- Plate #14	" E	"	#26	12.3 "	" "	(Granitic)
TL- Plate #16	" D	"	#15	2.2 "	" "	(Meta-sediment)
			#22	5.61% Fe .001% Mo		
		"	#8	7.9 PPM		(Meta-sediment)

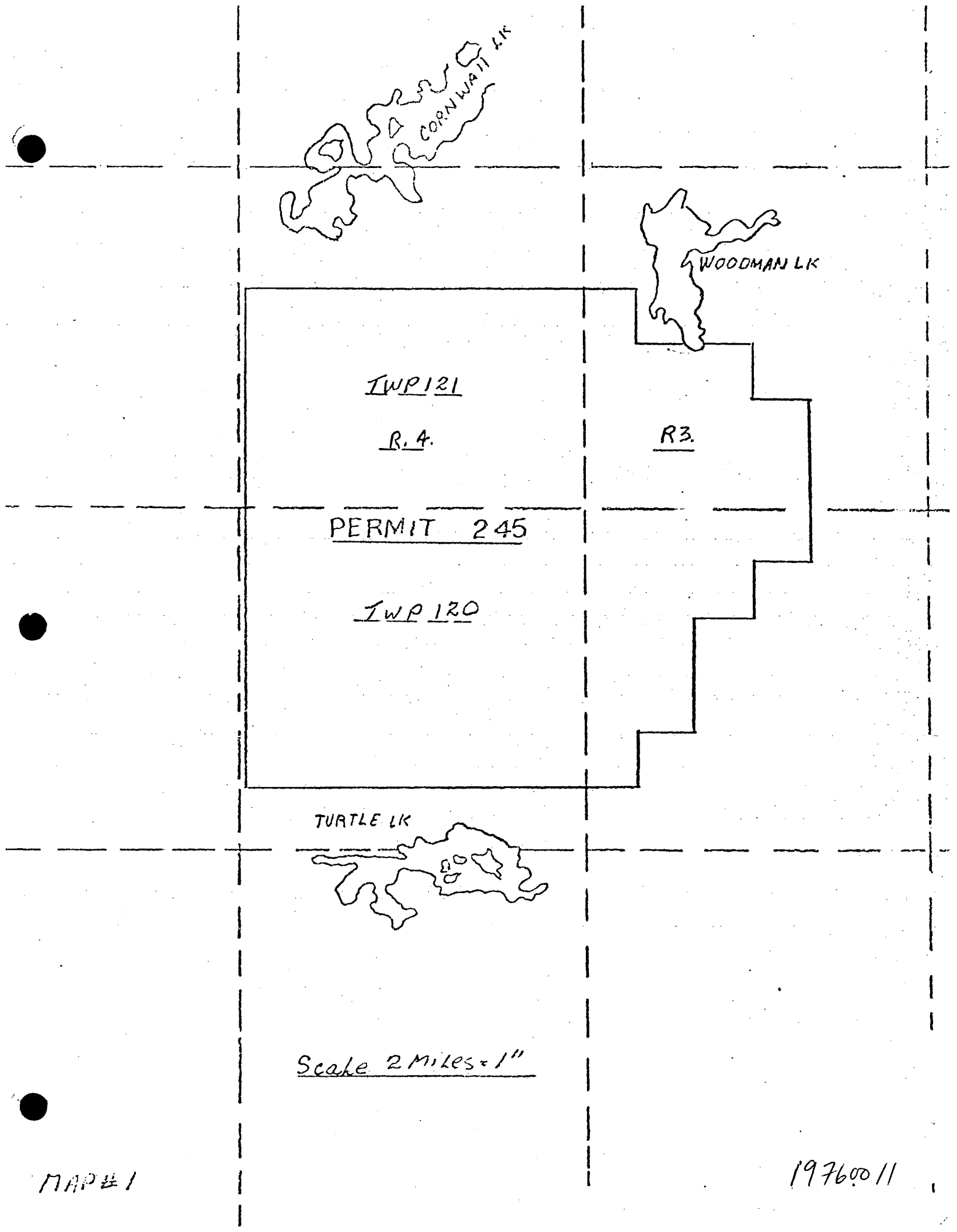
Samples, continued.

TL-Plate #16	Area D	Sample #8	9.41% Fe		
"	"	"	.004% Mo		
"	"	"	#22	4.5 PPM U_3O_8	(Meta-sedimentary)
"	"	"	11.1% Fe		
"	"	"	.006% Mo		
"	"	"	#25	4.5 PPM U_3O_8	(Meta-sedimentary)

It is suggested that further exploration, in the areas of Samples #8 and #26 having 7.8 and 12.3 PPM of U_3O_8 in surface chip samples that were susceptable to leaching, is necessary to determine their significance and extent.

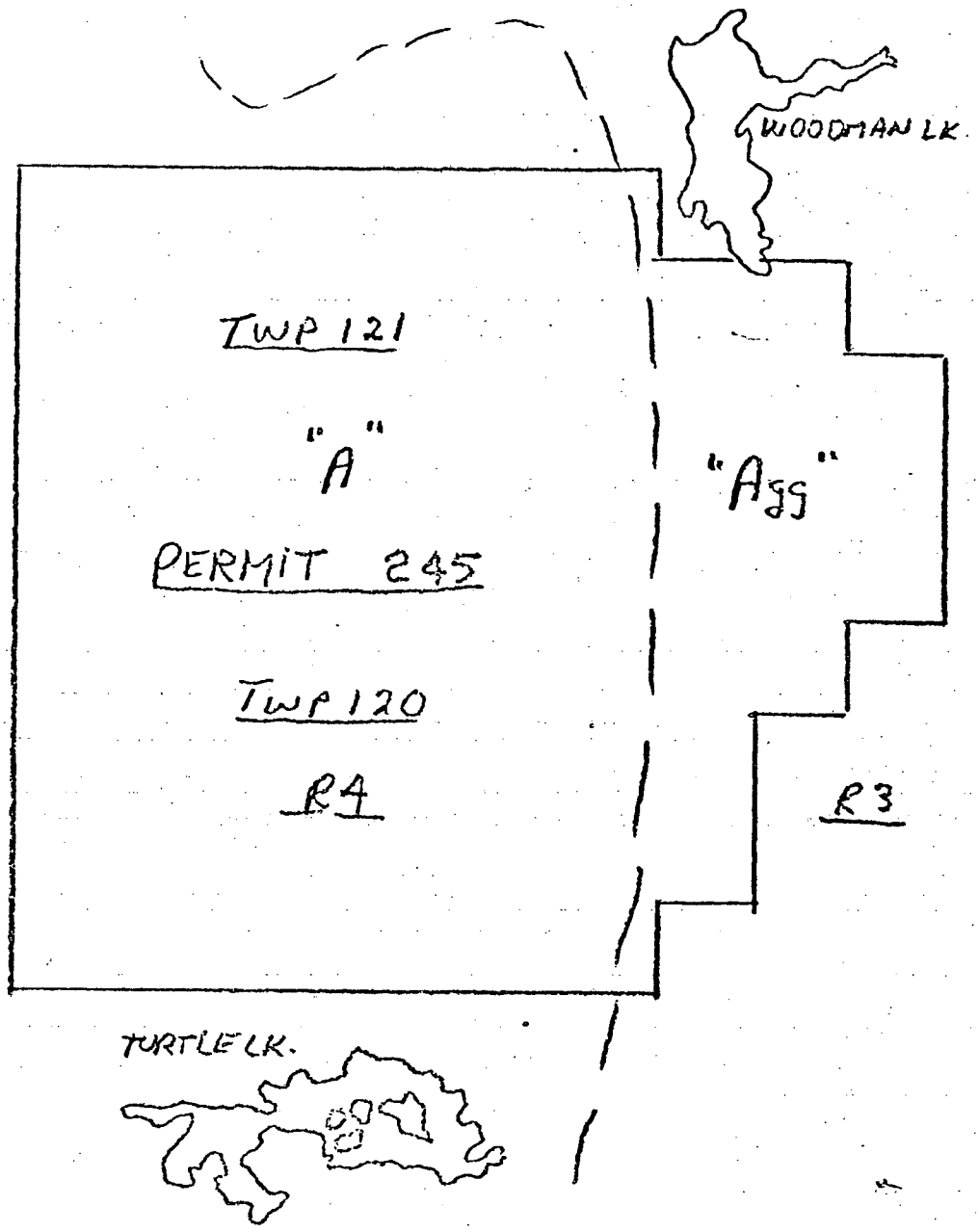
[redacted]

.0012.3 ppm = .0012 %



MAP #1

19760011



FROM GEOLOGICAL MAP ALBERTA # MAP 35

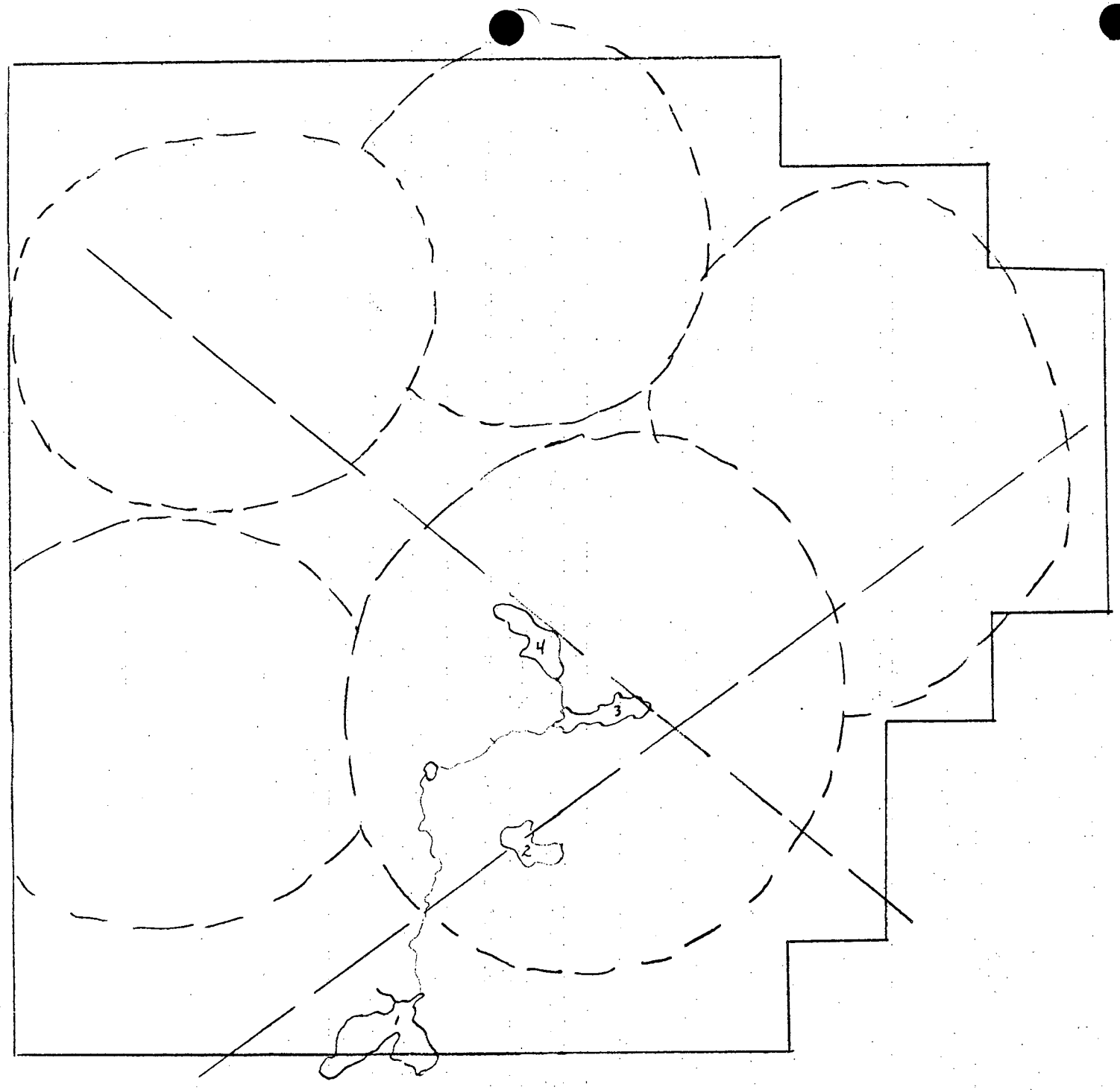
ARCHEAN "A" UNDIVIDED GRANITIC PLUTONIC ROCKS

"Agg" GRANITE GNEISS

MAP #2

SCALE 2 Miles = 1"

19760011

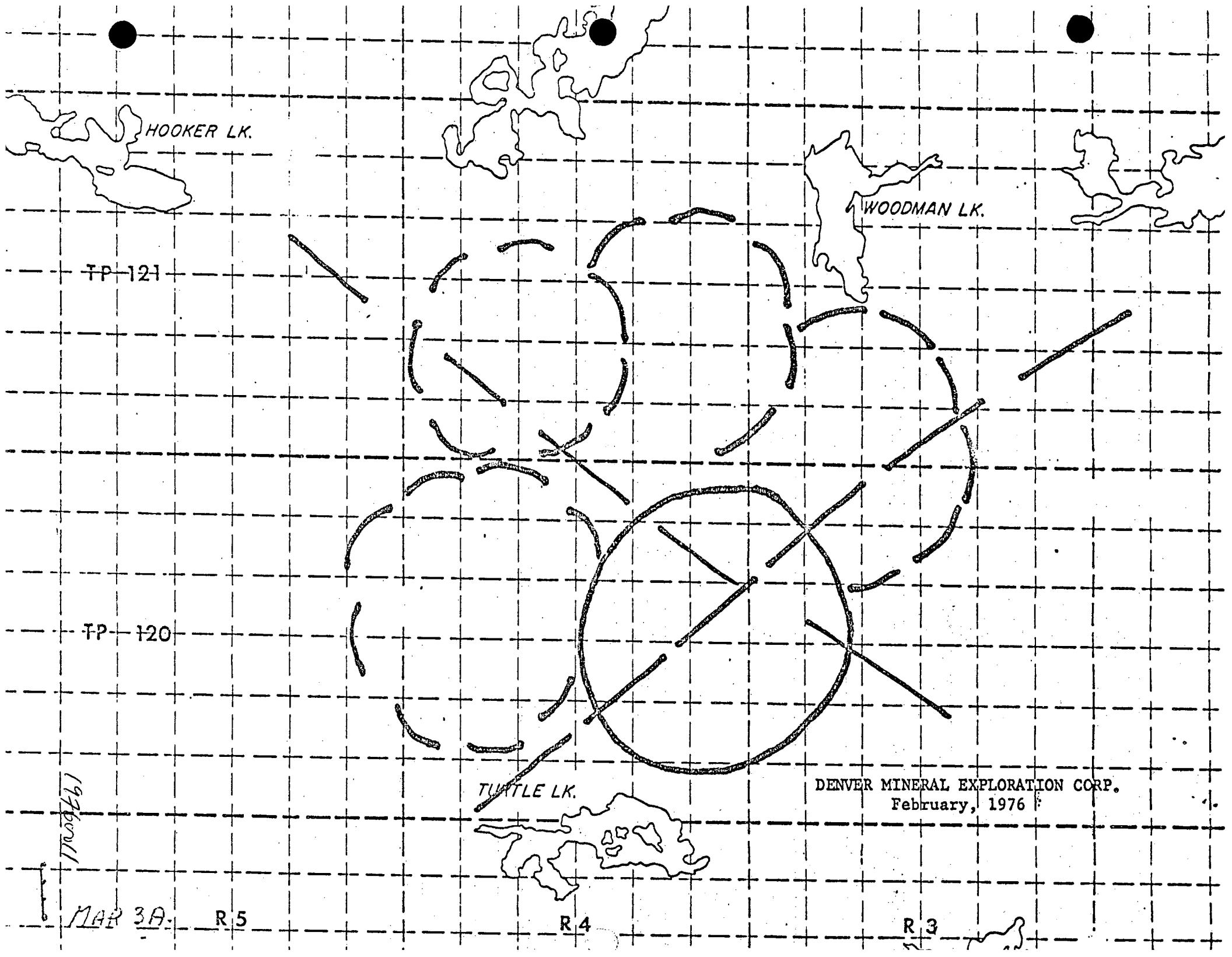


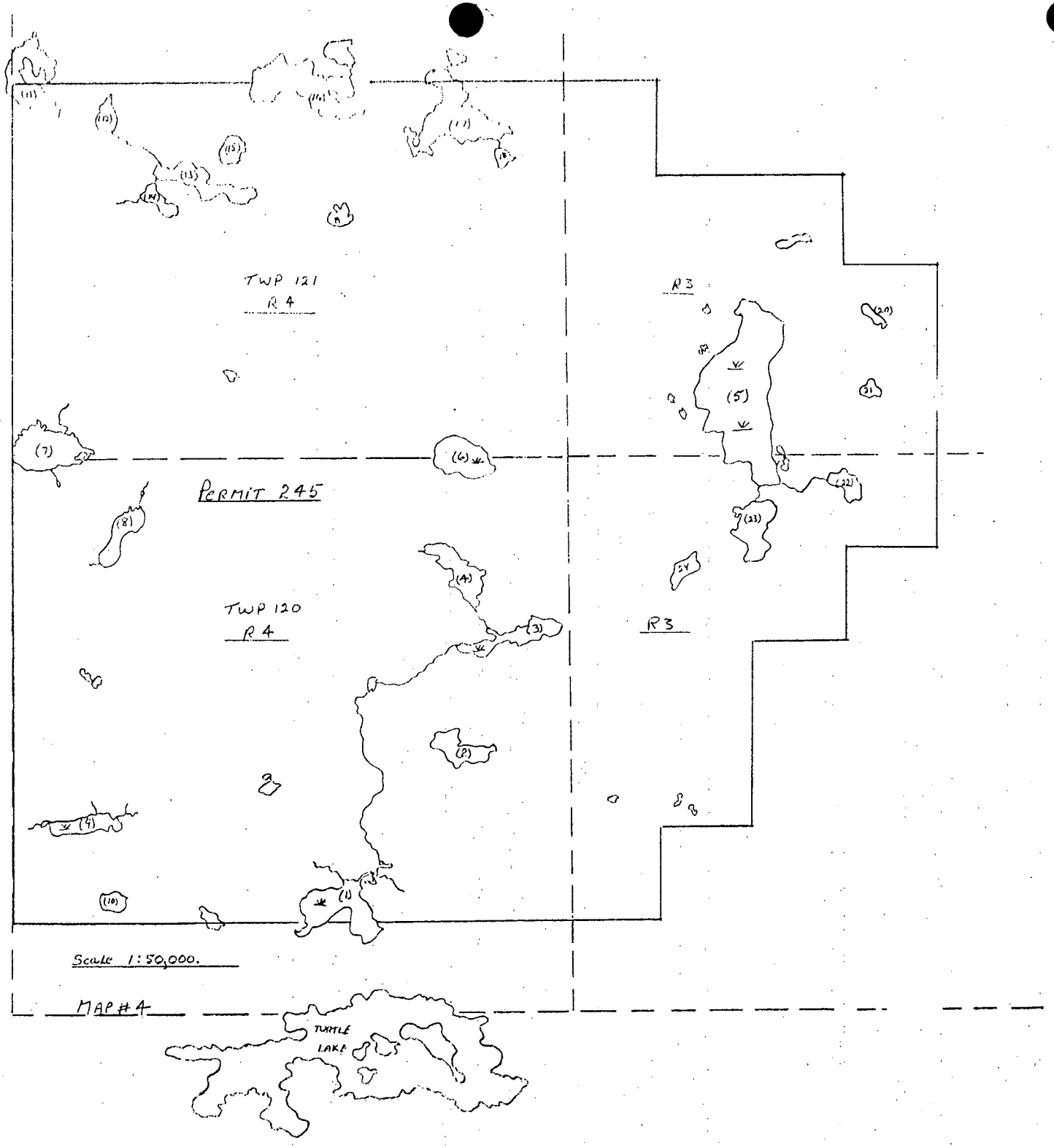
SCALE 1 MILE = 1"

LINEARS & NESTING OVALS IN PERMIT AREA.

MAP #3

1/20/76


HOOKER LK.
WOODMAN LK.
TP 121
TP 120
TURTLE LK.
DENVER MINERAL EXPLORATION CORP.
February, 1976
MAP 3A
R 5
R 4
R 3


TWP 121
R 4
R3
PERMIT 245
TWP 120
R 4
R3
Scale 1:50,000.
MAP #4
TURTLE
LAKE

11/2400

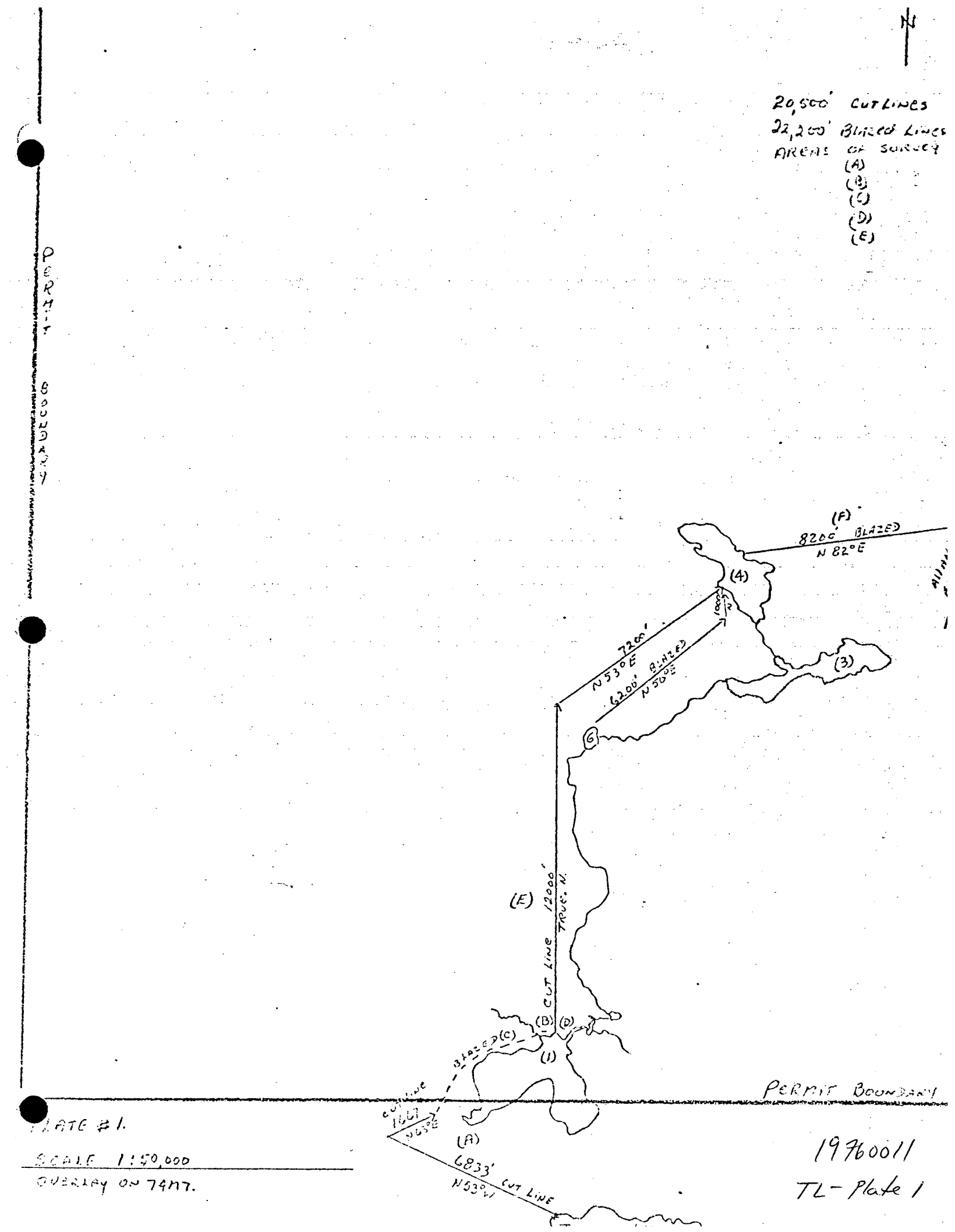


PLATE #1.

SCALE 1:50,000

OVERLAY ON 7.5M7.

19760011

TL - Plate 1

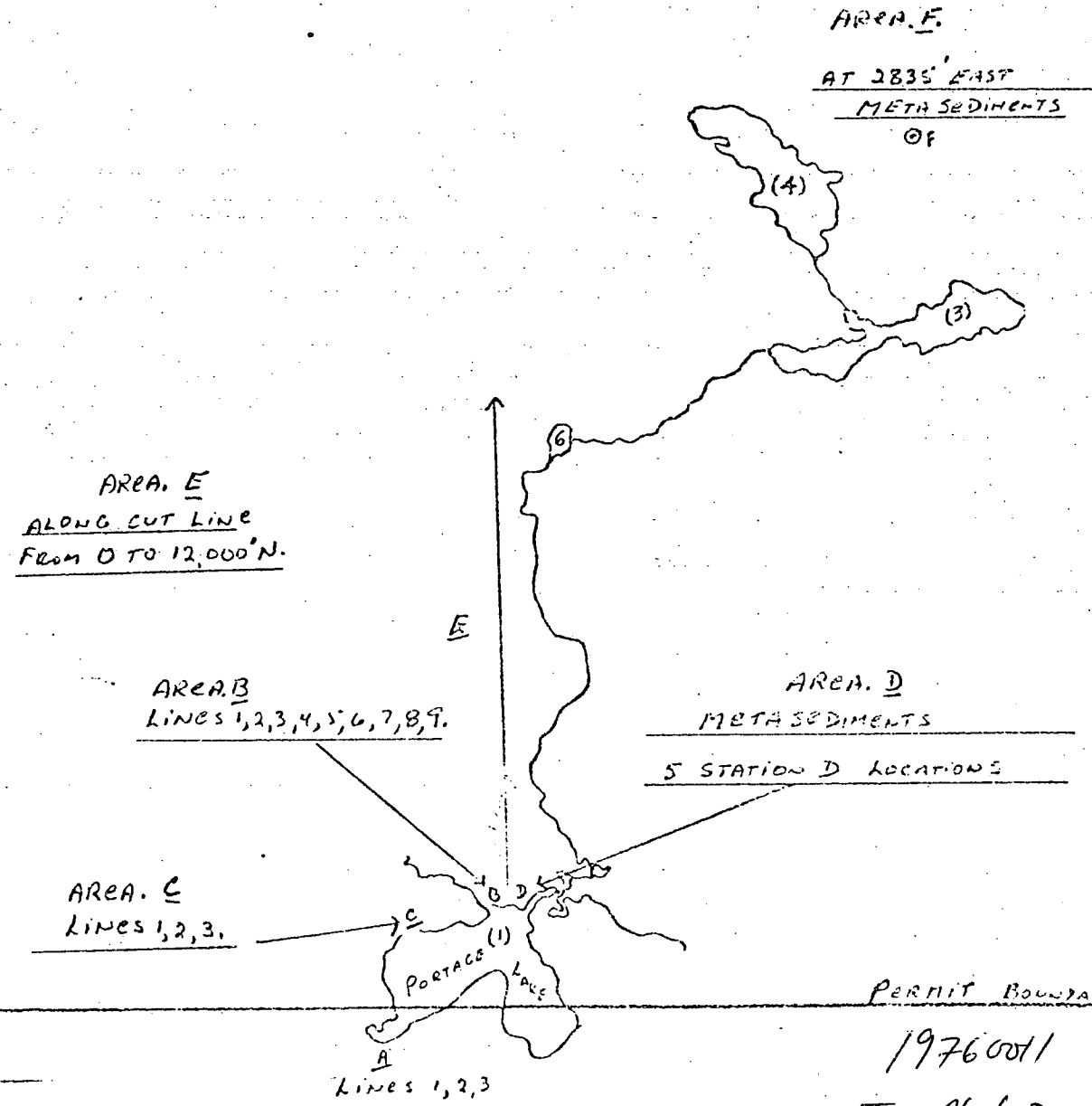


PLATE #2

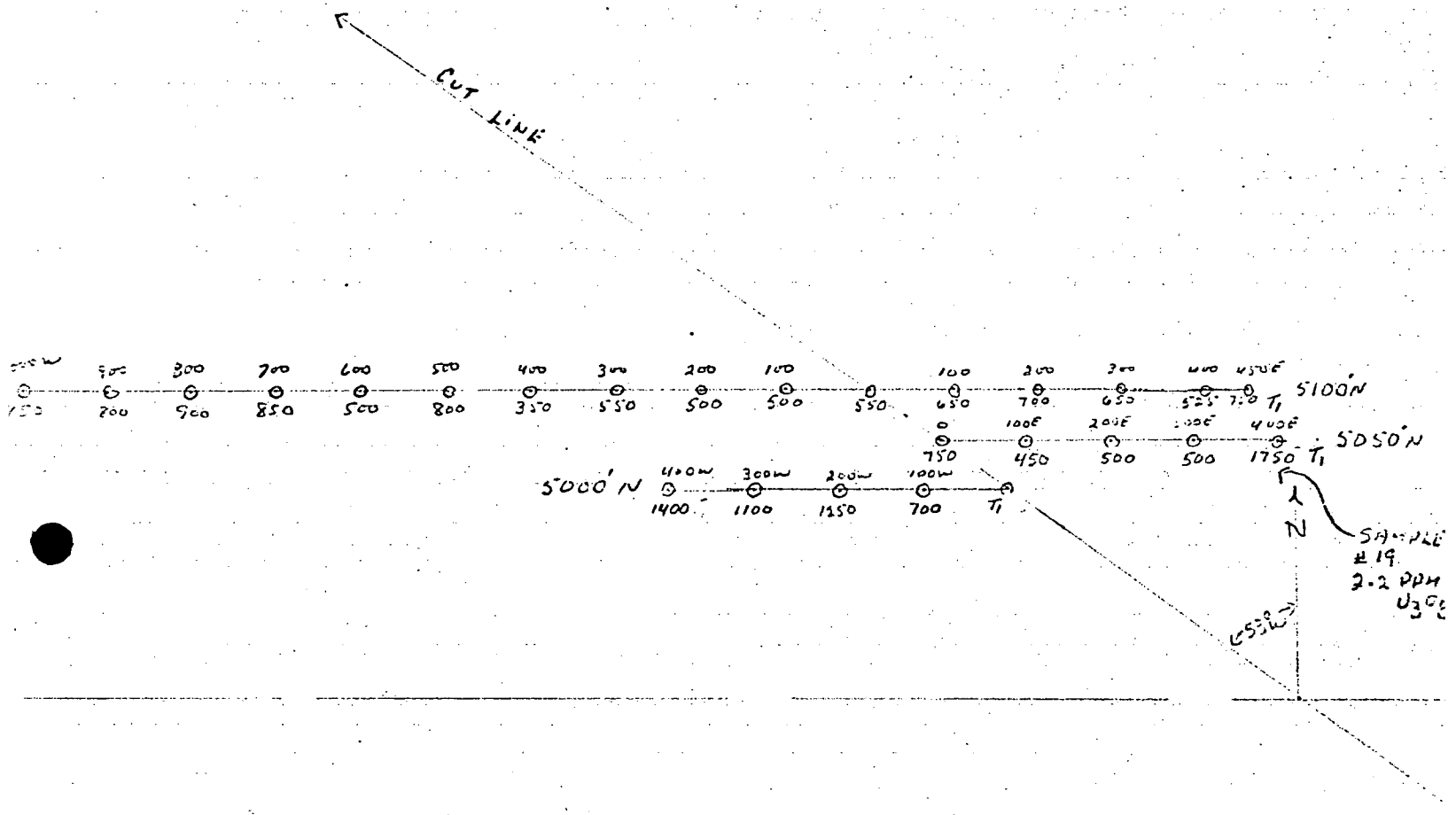
SCALE 1:50,000
OVERLAY ON 7417

1976001

TL-Plate 2

AREA "A" T.L.

ANOMALY # ONE



TVS McPHAR SCINTILLOMETER T_1

5050'N 400'E 1750 T_1 T_1; U; TH; K: 1750 T_2 TH; U: 850 T_3 TH; 200 } ANOMALOUS

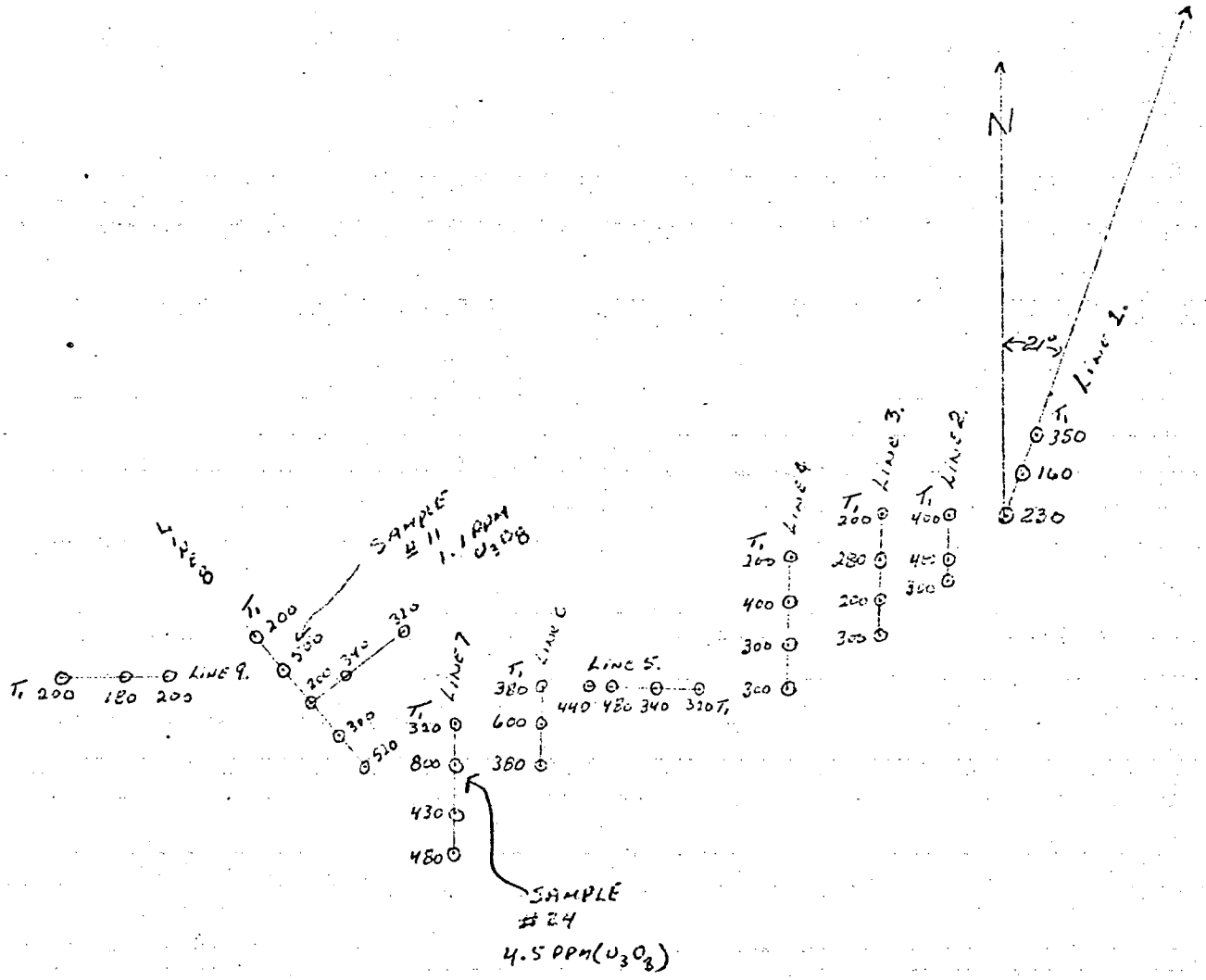
5000'N - 400'W T_1 1400.

19760011

TL-Plate 3

PLATE # 3. SCALE 1" = 210'

AREA "B" T. L.

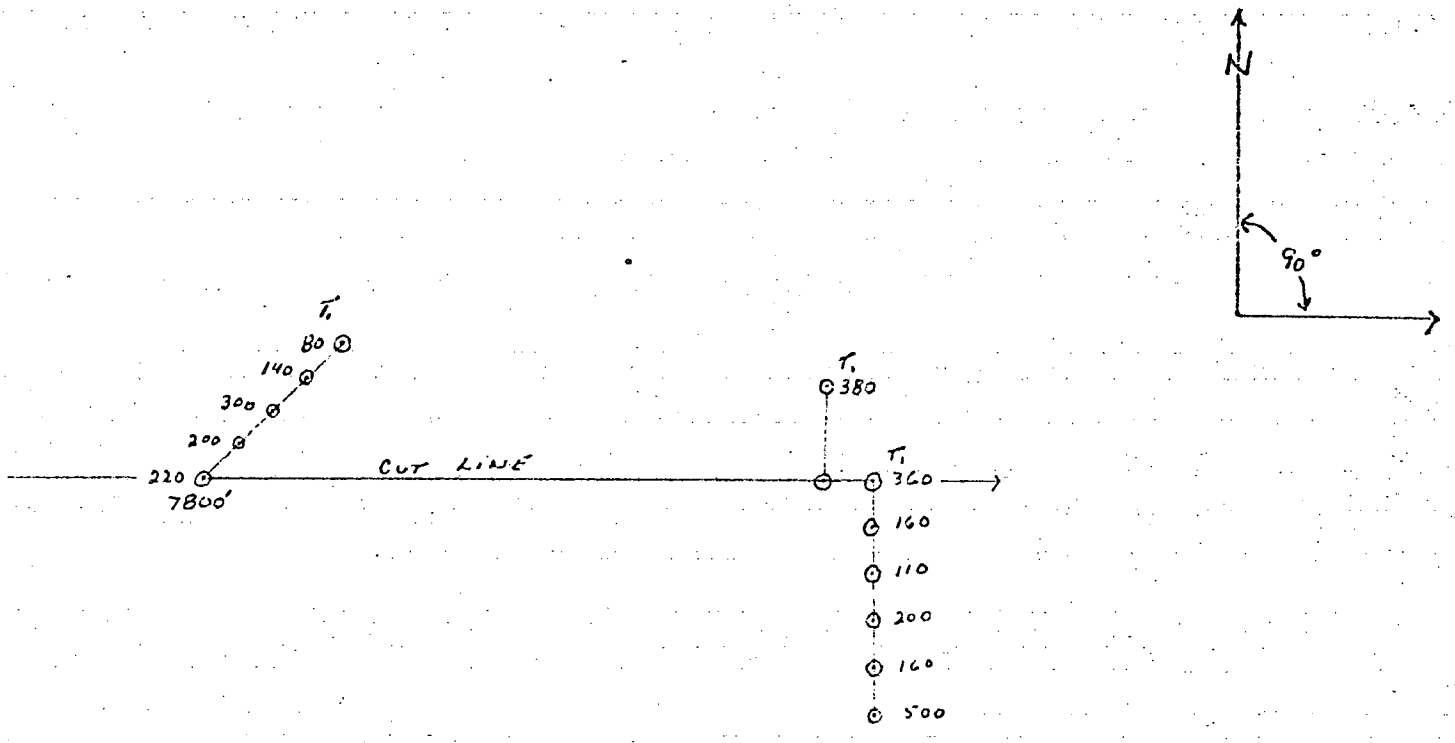


SCALE 0 100' 200' 300' 400' 500' 600'
1" = 210'

PLATE # 4

19760011
TL – plate 4

AREA "C" T. L.



SCALE 0 100' 200' 300' 400' 500'

1" = 210'

1976011

TL - Plate 5

PLATE # 5.

AREA "E" T. L.

N

1950'N ⊙ T_o 14,000

1600'N ⊙ T_o 18,000

1500'N ⊙ T_o 20,000

T_o 18,000 ⊙ 1225'N 20,000 T_o

1200'N ⊙——⊙ 18,000 T_o, 540 T_1, 380 T_2, 300 T_3:

1150'N ⊙ 14,000 T_o.

⊙⊙⊙ 14,000 T_o
16 20 30,000

1,000'N ⊙——⊙ 20,000 T_o. 540 T_1; 380 T_2; 280 T_3.
T_o 18,000

900'N ⊙ 6,000 T_o. SWAMP

800'N ⊙ 6,000 T_o. SWAMP

700'N ⊙ 10,000 T_o

600'N ⊙ 14,000 ⊙ 10,000 ⊙ 12,000 ⊙ 2,000 ⊙ 9,000 T_o
400 180 250 260 230 T_1

T_o T.V.S. Pine Point

LINE SCALE 0 100' 200' 300' 400' 500'

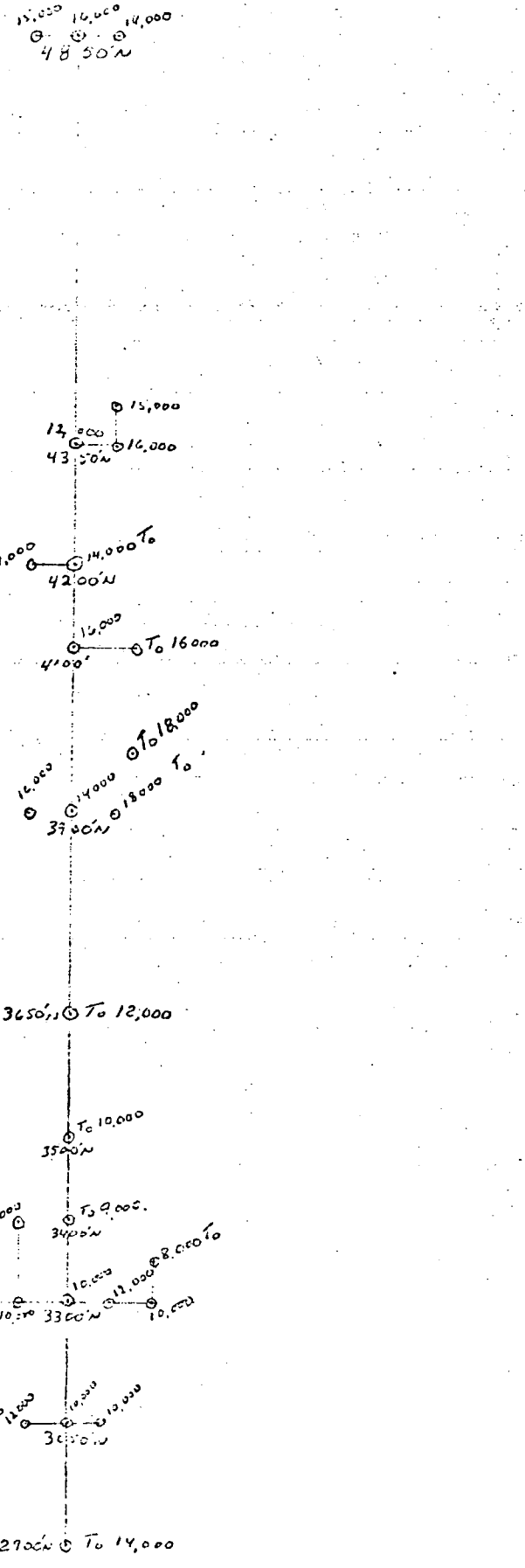
1" = 210'

19760011

TL-Plate 6

PLATE #-6

AREA "E" T. L.



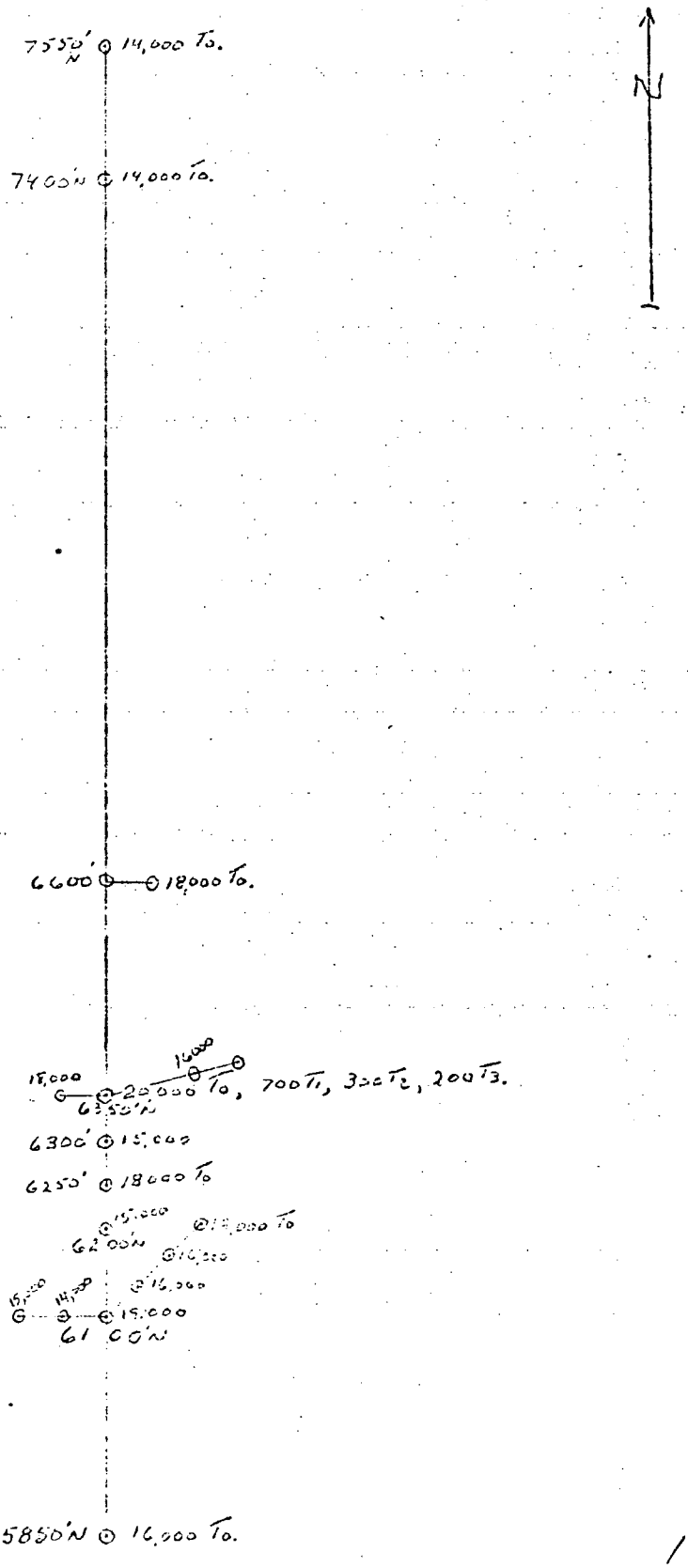
1976 0011

TL - Plate 7

PLATE 7. SCALE 1": 210'

0 100' 200' 300' 400' 500'
SCALE

AREA "E" T. L.



1976011

TL - Plat - 8

PLATE 8.

0 100' 200' 300' 400' 500'

SCALE 1" = 210'

AREA "E" T. L.

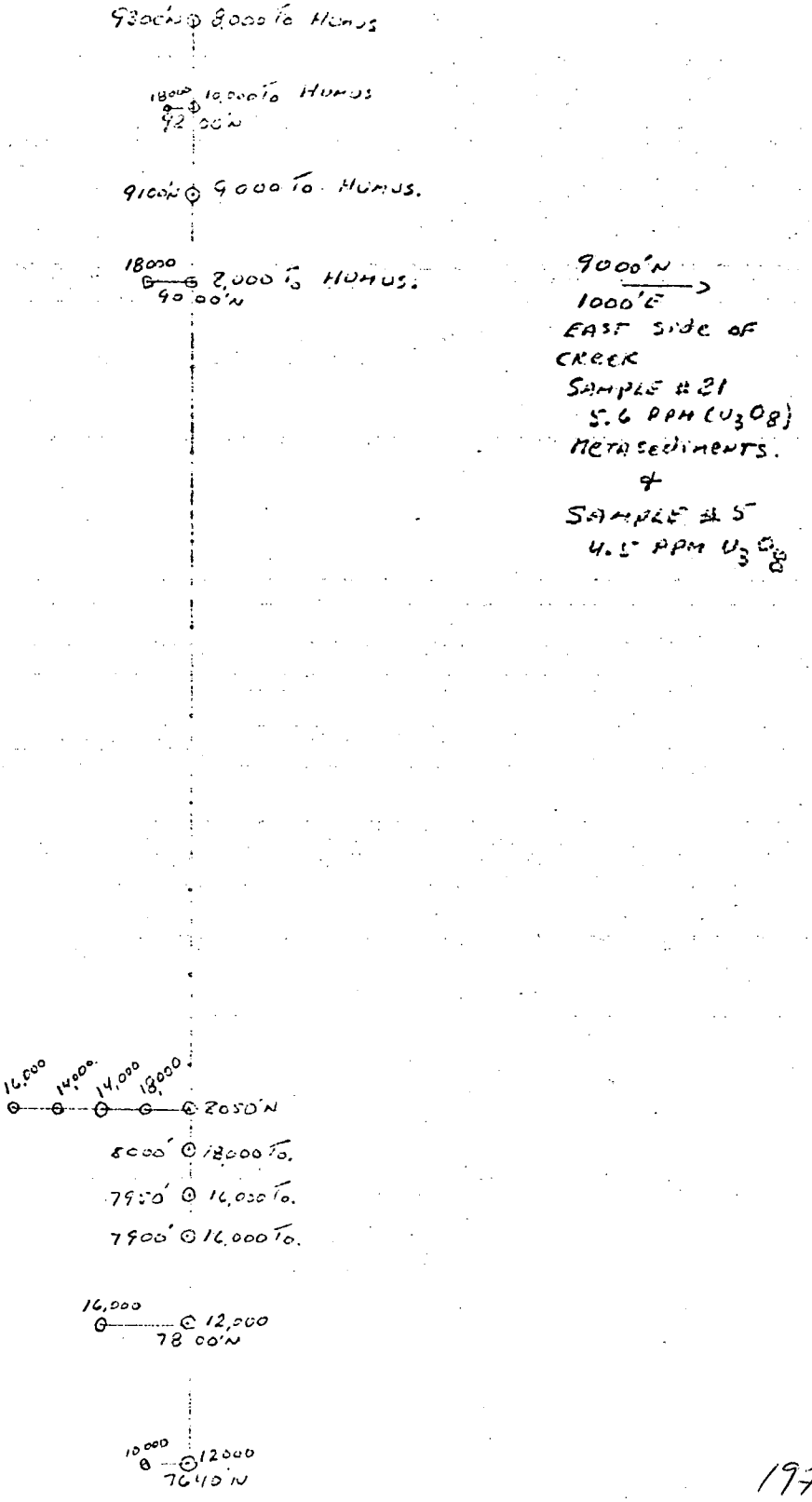


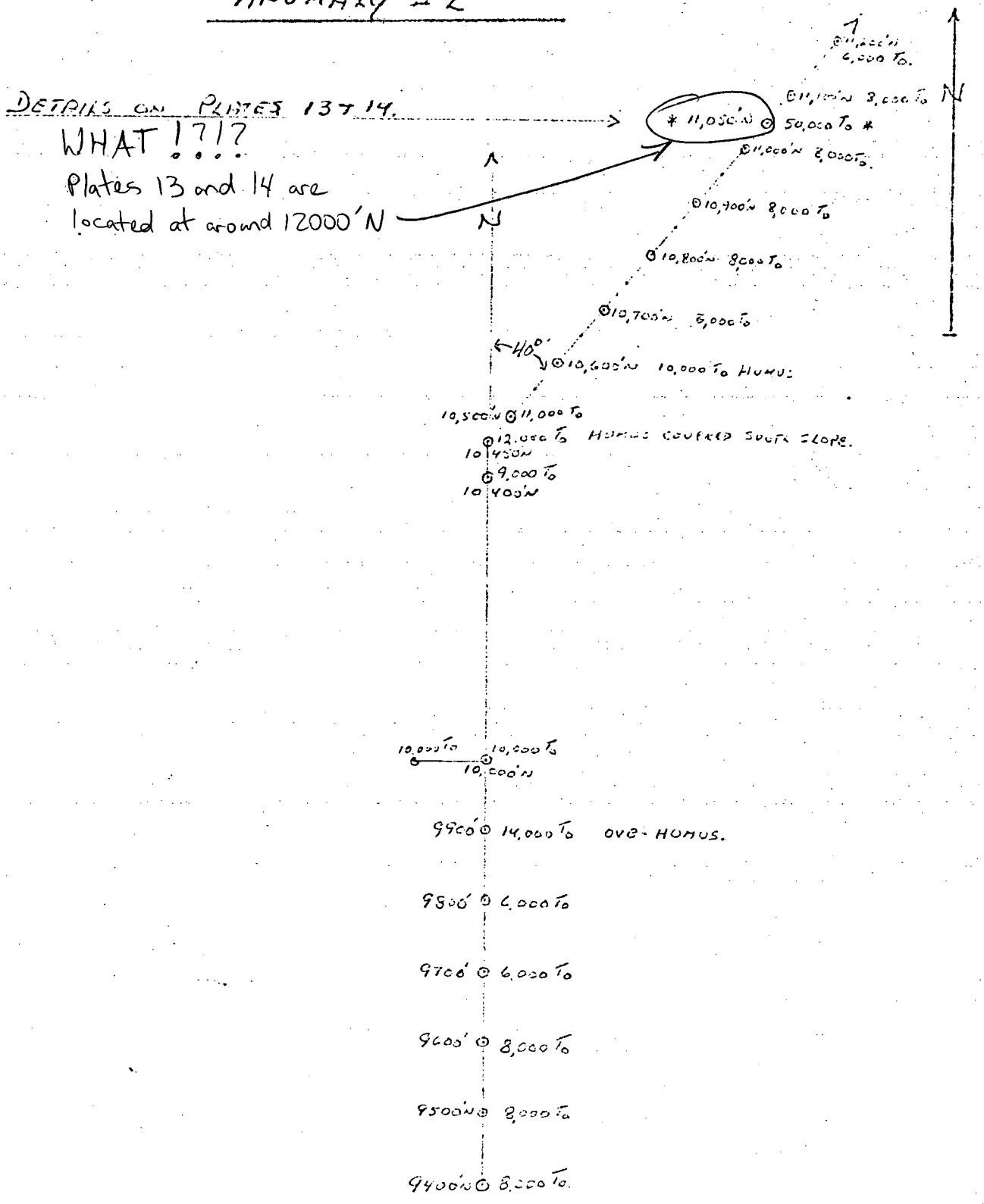
PLATE 9

1976001 1

TL-Plate 9

AREA "E" T. L.

ANOMALY #2



0 100' 200' 300' 400' 500'

SCALE 1" = 210'

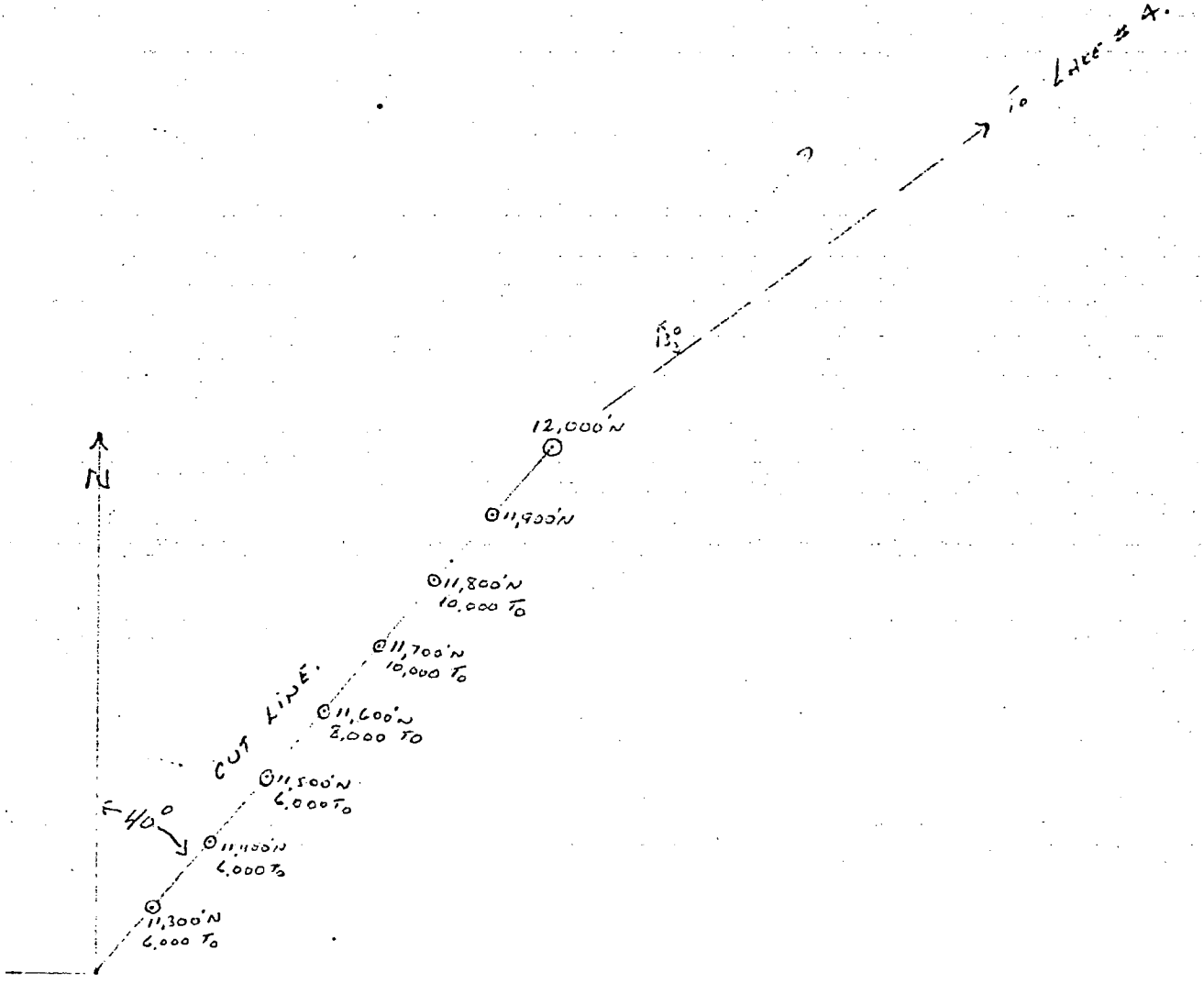
1:2520?

PLATE 10

1976011

TL-Plate 10

AREA "E" T. L.



0 100' 200' 300' 400' 500'

SCALE 1" = 210'

PLATE #11

19760011

TL-Plate 11

AREA "E" T. L.

ANOMALOUS AREA LIES EAST OF CUT LINE BETWEEN 11,010'N AND 12,000'N. DETAILS ON PLATES 13 AND 14.

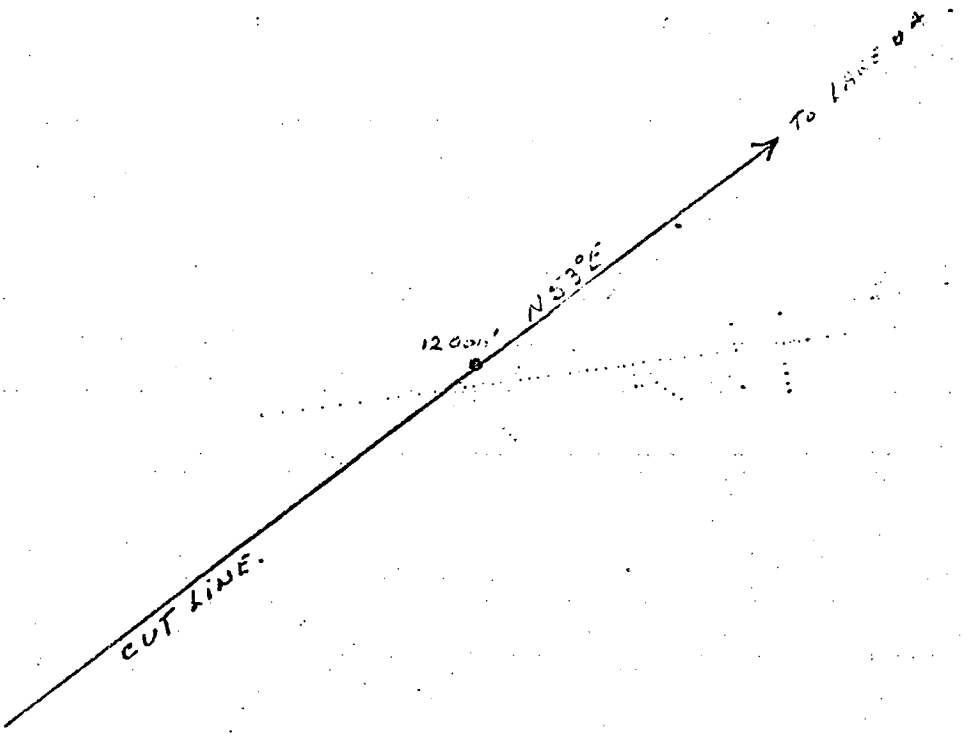


PLATE #12

0 100' 200' 300' 400' 500'
Scale 1" = 210'

19760011
TL-Plate 12

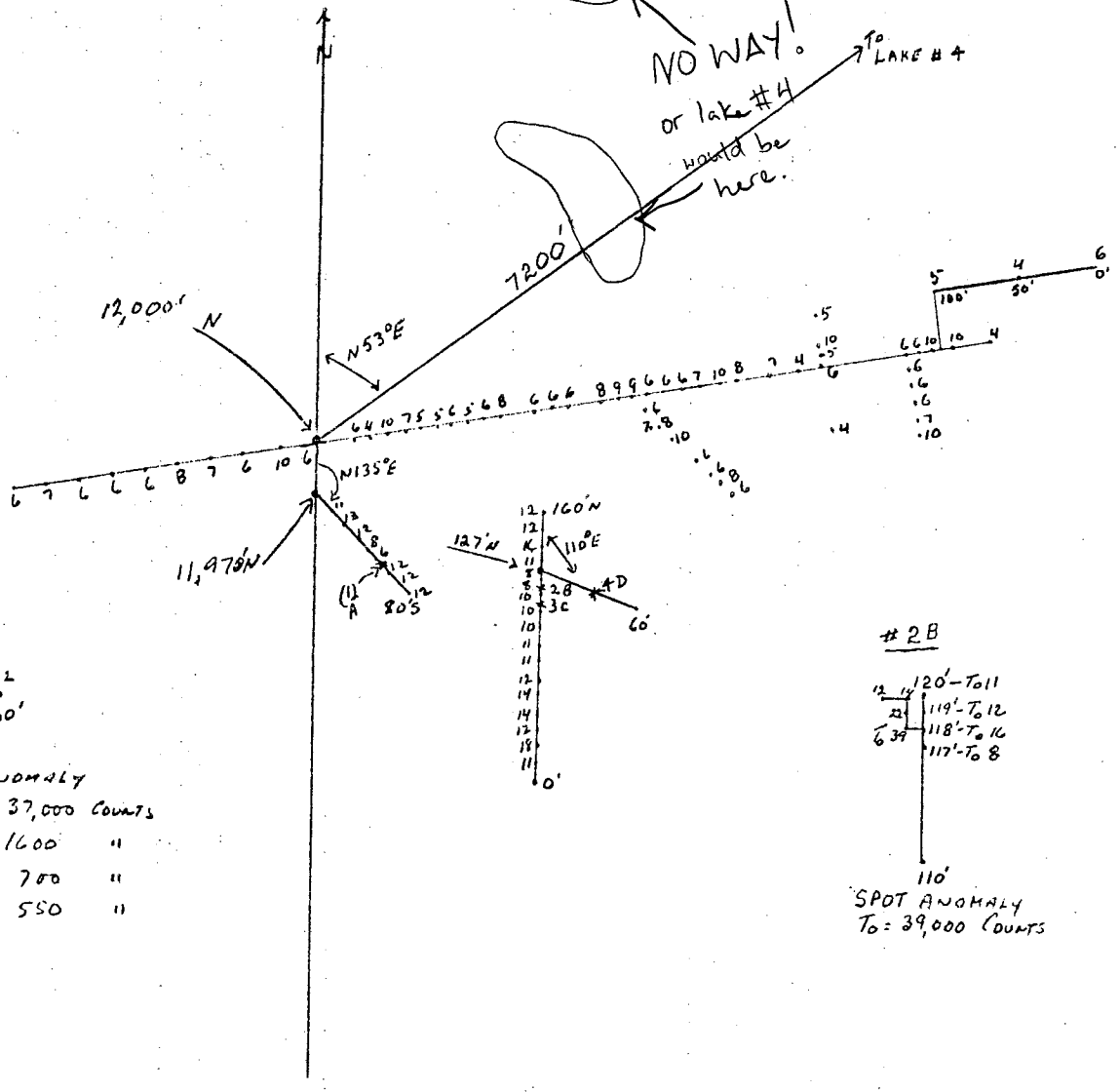
11/20/61

AREA E TL-PLATE #13

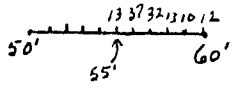
TOTAL COUNT IN THOUSANDS.
T_o = 5,000 SHOWN AS 5. ETC. → closer to 1:1500
SCALE 1:50,000 1" = 120'

NO WAY! or lake #4 would be here.

SUB ANOMALIES (1) A. (2) B. (3) C. (4) D. } TOGETHER CONSTITUTE ANOMALY #2 IN THE REPORT.



#1A

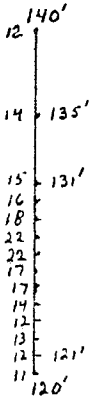


LOCALIZED ANOMALY
55'-56' T_o = 37,000 COUNTS
T_1 = 1600 "
T_2 = 700 "
T_3 = 550 "

#2B

SPOT ANOMALY
T_o = 39,000 COUNTS

#3C @127' T_1 = 1400 COUNTS
T_2 = 450 "
T_3 = 300 "



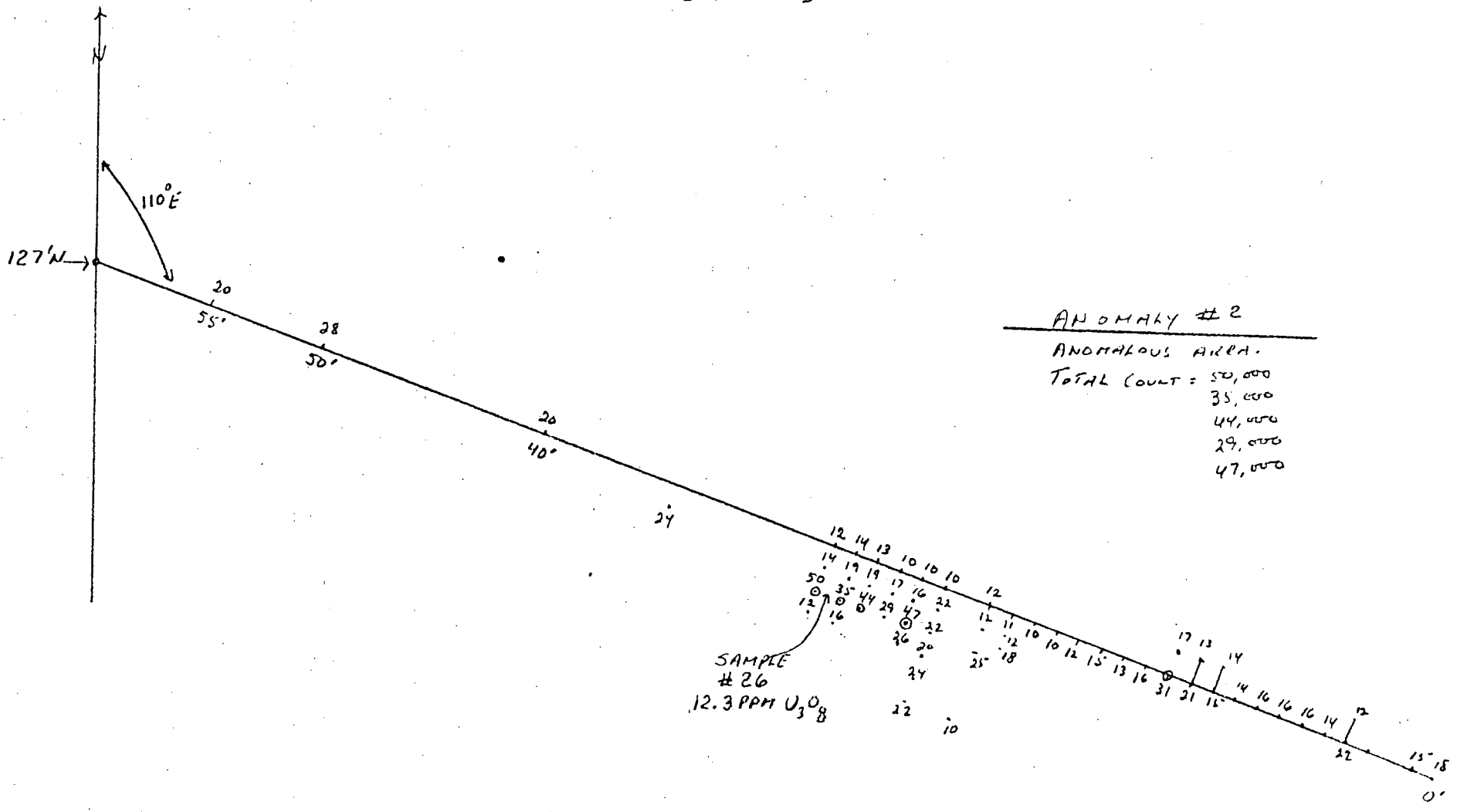
LOCALIZED ANOMALY @ 1269 127'
T_o = 22,000 COUNTS

AREA E

SUB-ANOMALY 4D

TL — PLATE #14

SCALE 1" = 5'



ANOMALY #2

ANOMALOUS AREA.

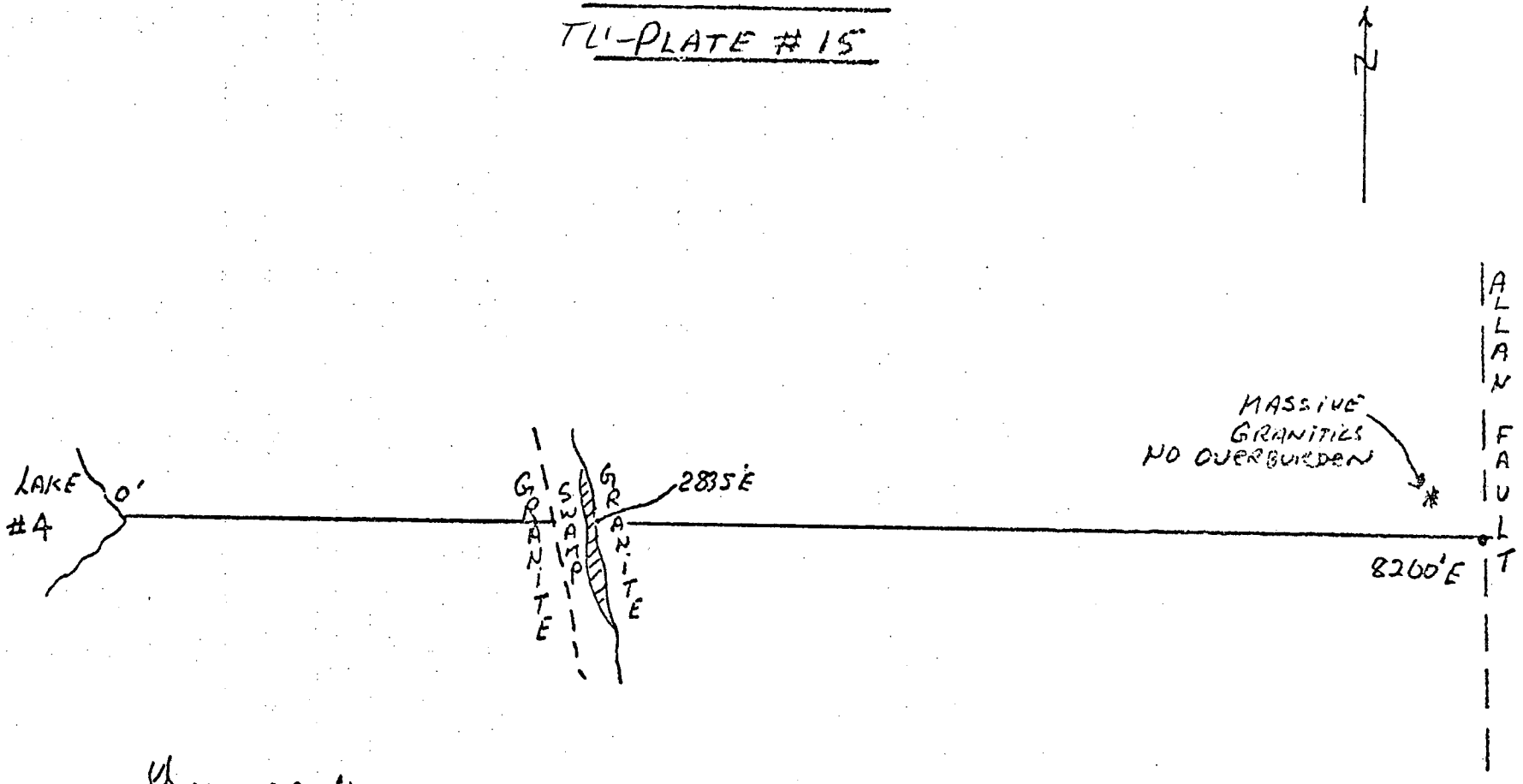
TOTAL COUNT = 50,000
35,000
44,000
29,000
47,000

A7600 11

AREA F

SCALE 1000' = 1"

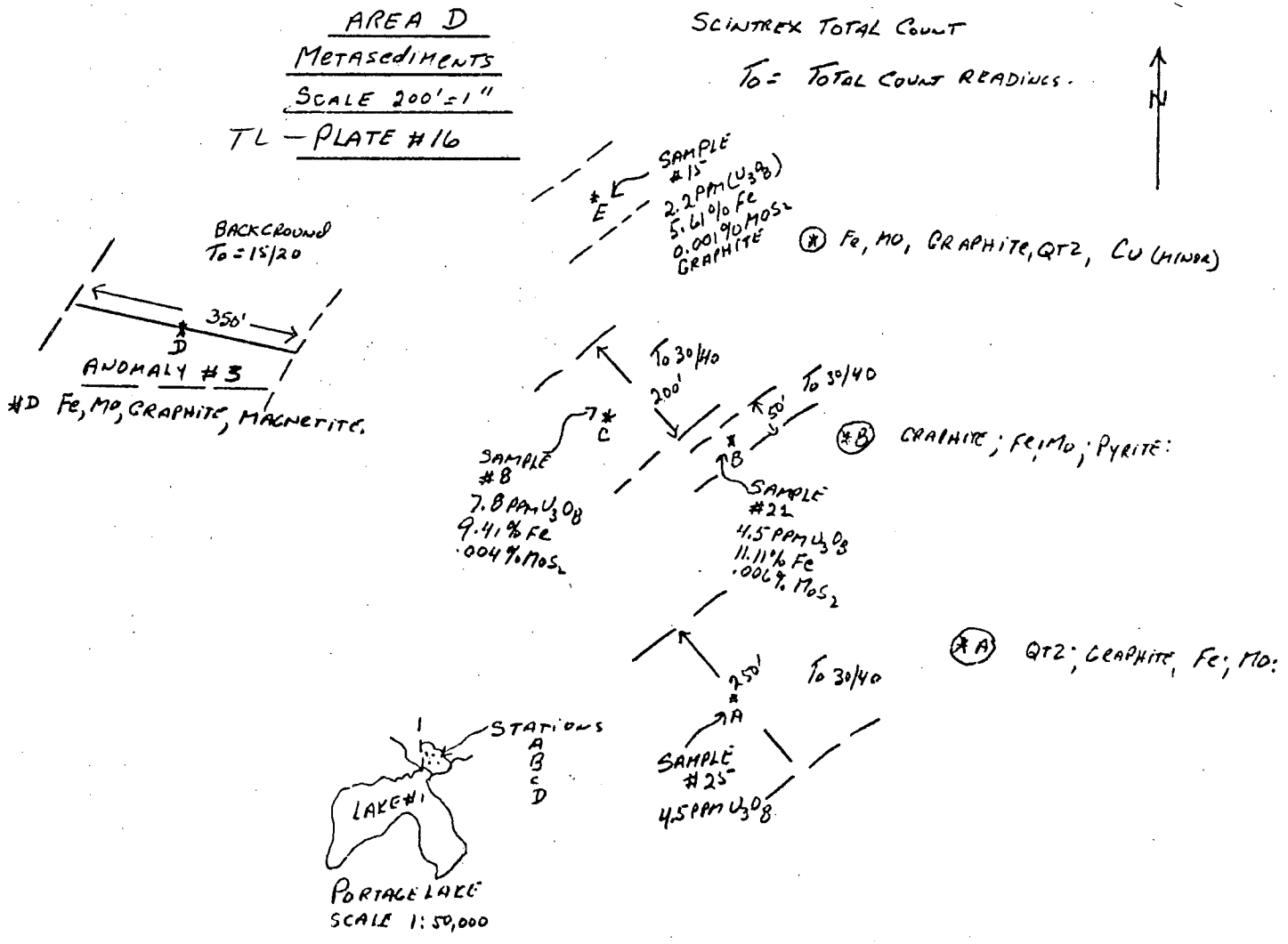
TL-PLATE #15



1976011

Metasediments
Mainly schistose rocks.
(Biotite + chloritic)

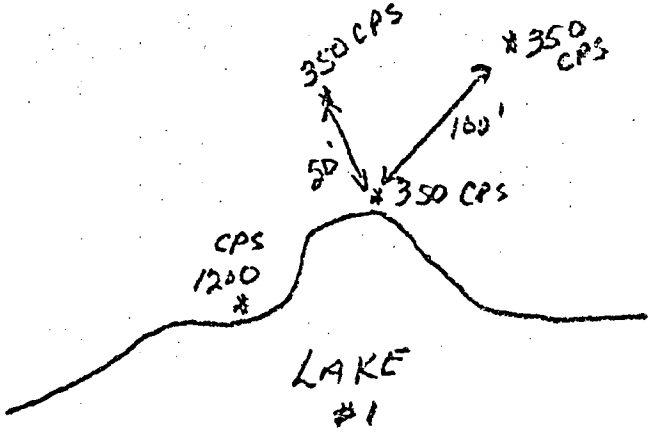
AREA D
Metasediments
Scale 200'=1"
TL – Plate #16



AREA C, ANOMALY #4
TL— PLATE #18

19760011

ALONG BLAZED LINE N/W & N OF LAKE #1.
SCALE: 100' = 1" ON LINE
LAKE SHORE NOT TO SCALE
CPS READINGS ON SCINTREX MODEL IBGS-1S
BACKGROUND ON GRANITIC OUTCROP TO: 20/30 COUNTS



BURSTALL LAKE

URANIUM

EXPLORATION PROGRAM

BURSTALL LAKE URANIUM EXPLORATION PROGRAM.

-INDEX-

BURSTALL LAKE URANIUM EXPLORATION PROGRAM

SUMMARY

1) Exploration sub-areas A through E shown on Plates 4 through 8.

2) Those were lines that were walked by one or more geological personnel using Scintrex and a French model Scintillometer.

3)
Area A	-	has one anomaly	(Plate 4)
Area B	-	" " "	(Plate 5)
Area C	-	Anomalous	(Plate 6)
Area D	-	Two anomalous regions	(Plate 7)
Area E	-	Significant but not considered anomalous.	

4) Ten surface chip samples submitted for assay, results are as follows; .013; .059; .008; .026; .028; .082; .002; .028; .007 and .329% U_3O_8 respectively. (Plate 11 - Assay Report)

5) Sample #53; .329% U_3O_8; CPS reading 10,000 depicted on Plates 6 and 10.

6) Explored areas primarily granitic country rocks, with localized areas of meta-sedimentary rocks.

7) Exploration took place between September 16th and 23rd inclusive.

BURSTALL LAKE URANIUM EXPLORATION PROGRAM

RECOMMENDATIONS

A) Serious consideration be given to a re-evaluation of the Landsat imagery, using photography of some outcrop and lightly mantled areas as ground truthing.

B) Serious consideration be given to a possible air-borne scintillometer survey over the complete permit area.

C) Complete the surface prospecting of the permit area.

1) Scintillometer survey of outcrop and lightly mantled areas.
2) Radon gas survey of heavily mantled areas.
3) Delineation of known exposures of meta-sedimentary rocks with associated mineralization and further explanation to detect other meta-sedimentary areas.
4) Sample Lake bottoms sediments for indications of uranium mineralization.

D) Short Hole Diamond drilling using a pack-sack diamond drill of known radionetric and chip sample anomalous areas discovered to date.

E) Plane table geological mapping exercise in the vicinity of the complete area C with special emphasis on the locality of Sample number 53 (Plate #10)

URANIUM EXPLORATION

BURSTALL LAKE

North-Eastern Alberta, Exploration Permit Number 245

INTRODUCTION

A) Remote Sensing

Data from the Landsat satellite system provide a unique reconnaisance level search tool for minerals, gas and oil. This technique was applied to a search of North-Eastern Alberta and North-Western Saskatchewan for Uranium prospects with reflective characterisitics similar to those of the Cluff Lake deposits in the Carswell Dome Area of Saskatchewan.

The use of Remote Sensing in mineral exploration, i.e. the application of interpreted Landsat data, is a relatively new exploration technique, the most direct application of which, is to use a known mineralized ground truth site located within the same scene as the search area. No such site lies north of Lake Athabasca and within the Province of Alberta.

This search, therefore, returned to the previously used ground truth site at Cluff Lake and extended the use of that spectral signature to the next northern Landsat scene taken some 20 seconds earlier. In this manner, the possibility of calibration errors were kept to a minimum.

Two areas, one lying due north of Turtle Lake and the second, east of Burstall Lake were found which have the same spectral response as Cluff Lake, Saskatchewan.

A considerable bibliography is emerging on the subject of interpretation of Landsat images. One such class of obervables are referred to as "Linears". These occur world-wide and appear as straight and slightly-curved lines. In length, they may vary from hundreds of miles to the resolution element of the data (about 300 feet). While considerable controversy exists as to their exact geological meaining, there is no doubt that many are the surface expression of deep seated faults, fractures, joints, folds, and facies.

It has, for example, been established that fractures and faults in older rocks do propagate upward through younger rocks. Thus the linear set should include structural features which have d control, during deposition and concentration of mineralization.

Two methods are available to determine which sub-units of the full linear set have the greatest probability of alteration, even when ground truth data are not available. The first is to look for the maximum number of intersections and the second is to look for anomalous changes in surface reflection across the linear, the gossan or halo indicative of alteration. A maximum probability exists where the two occur together.

Additional evidences that the Turtle Lake and Burstall Lake areas are favourable ground is found from a structural analysis which indicates major intersections of linears, where the linears are also the boundaries of spectral reflections similar to the Cluff Lake ground truth site.

BURSTALL LAKE URANIUM EXPLORATION PROGRAM

B) Permit Acquisition and Option

Exploration Permits # 244 and 245, 31¼ and 78 sections respectively, called here after the Burstall Lake and Turtle Lake Permits were acquired by C and E Explorations Ltd., upon receipt of the completed Landsat study conducted by, "Denver Mineral Exploration Corporation", of Littleton, Colorado.

A 12% interest in each permit area was purchased by, "Pacific Petroleums", with an option to acquire further ownership.

Exploration

1) Method

A) Scintillometer Survey
B) Examination of outcrop areas for structure and mineralization.

2) Topography

A one inch to one mile forest cover map showing the permit area and the major linears from the Landsat study was prepared. A second topographic map, 1:50,000 scale, showing section, township and range was used as a base map for the ensuing geological exploration.

Topographically, the eastern and east central portion of the permit area has elevations in the range of 800 to 850 feet above sea-level, the ground rises to the east gradually with local areas of 1100 to 1150 foot elevation.

Most of the outcrop examined during the exploration program was above the 1050 foot contour, where the country rock is predominatly granitic, with localized relatively small patches of meta-sediments.

3) Personnel and Logistics

A) Three geological personnel in the persons of B.V. McConnell, Professional Engineer; E.M. Estabrooks, Professional Geologist; and L.C. Card, Geophysical Prospector were employed on the survey.

We arrived on location on September 16th and worked through September 23rd, returning to Calgary on September 24th.

B) Five major traverses were made (Plates 4 through 8) using a Brountin compass for navigation. The traverses were started from either the Lake we camped on (Plate #2), Lake #1; or from north and south of Ness Creek, which is navicable by canoe or motor boat from the camp-site on Lake #1, approximately 10,000' east.

C) Norcan air of Uranium City again supplied the transportation via an Otter aircraft for camp moves. Supplies were purchased in Uranium City from the Hudson Bay Company grocery store and Uranium City Hardware.

EXPLORATION TARGETS

From a perusal of the Landsat study; the Geologic map of Alberta, Map #35; and air-photo's of the permit area, it would appear that the areas most condusive to mineral accumulation could include one or more of the following;

A) Areas of Remote Sensed Linear features. (Plate #2)
B) Fault zones in the Country rocks.
C) The large expanse of heavily mantled country on the east central portion of the permit area.
D) Occurrences of meta-sedimentary rocks.
E) Outcrops of granitic and pegmatitic country rocks.

GENERAL GEOLOGY OF PERMIT AREA

Permit #244, Burstall Lake area, is located with-in the Pre-Cambrian-archean aged rocks of North-Eastern Alberta, as shown on Geologic Map of Alberta, Map #35. It is depicted as being an area of predominantly porphyblastic granites and is designated as unit "Ap" on the map.

KNOWN URANIUM OCCURRENCES

There are no known recorded occurences of Uranium mineralization in the area surrounding the limits of Permit #244. Exploration was conducted via various companies, north, east, and south of our particular permit area during the summer of 1976.

A geological report by Dr. J.D. Godfrey of the "Research Council of Alberta", is in the preparatory stages but will not be published for some time.

In discussion with T. Truman, Exploration Manager, Eldorado, it was learned that all Uranium occurrences eleven now to date in the Beaverlodge area and in the area west and north of our permit area, are associated with faulting and in most cases shearing. The pitch-blend of Eldorado, Beaverlodge, is in a dark reddish granitic rock which has a very distinctive appearance.

Geophysical Equipment

1) Scintrex Total Count Scintillometer 1B6S-1S
2) French Scintillometer SPP2-SRAT

The general background of Counts per second in the granitic rocks is in the range of CPS 30/50 for both instruments and from 20/30 in the meta-sediments. We felt that CPS readings of 5 times background are, "significant", 5/10 times background as " high", and anything over 10 times as being "Very High".

All of the areas we regard as anomalous are in the third catagory.

Where ever possible, chip samples of areas having high scintillometer readings were collected, and submitted for assay. The results of which are shown in the assay report included in the study as Plate #11.

Anomalous Locations with-in Exploration Areas

Area A

1) Anomaly #1 (Plate #4)

CPS reading in two locations of 600/700 and 700/800 counts respectively, with chip sample #30 assaying 0.013% U_3O_8

Area B

1) Anomaly #1 (Plate #5)

CPS reading in an area approximately 8" to 1' wide, 15' to 20' long, striking S/W. CPS = 4,000 in a granitic host rock. Surface chip sample #28 assayed 0.059% U_3O_8.

A second locality with in this area had a CPS reading of 1,000 in a granitic host rock (Plate #5) and a surface chip sample that assayed 0.008% U_3O_8 relatively low compared to chip sample #28. However, the CPS reading is in the very high catagory.

Area C

1) This designated area as depicted on (Plate #6) is considered anomalous by the authors, a detailed plane table survey is required to accurately locate the stutions with their accompanying Scintillometer and chip sample locations.

CPS readings over 6 locations range from 1000 to 10,000 counts with surface chip sample assays ranging from .002% to 0.329% U_3O_8 in granitic and meta-sedimentary rocks. Plate #10 elaborates on the location, size and configuration of the area, that supplied a CPS reading of 10,000 counts and a surface chip sample assay of .326% U_3O_8.

Area D Anomaly #1

This exploration area has two locations of anomalous CPS readings, are at location #1, i.e. CPS 2/3,000 counts with surface chip sample #38 giving an assay of 0.026% U_3O_8 in an altered biotite-subistive host rock. (Plate #7)

Anomaly #2

A CPS reading of 1400/100 counts on a shear granite face is shown on (Plate #7). No surface sample was taken.

Area E

Two locations of CPS counts of 900 and 700/1000 respectively, were found, surface chip samples of the initial location having 900 CPS gave an assay result of .007% U_3O_8. Further work is required in the general area to determine if indeed, either of these two locations can be considered anomalous.

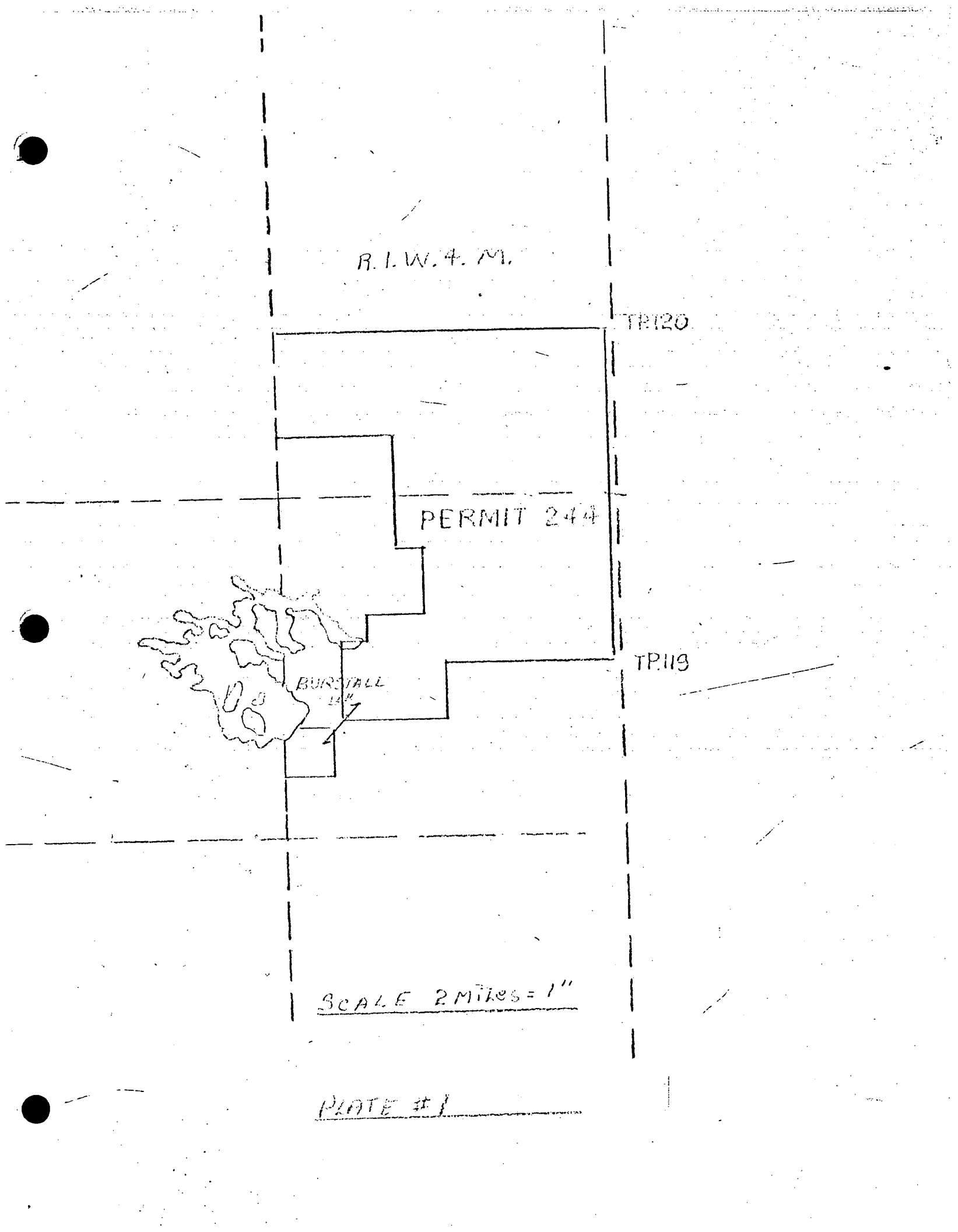
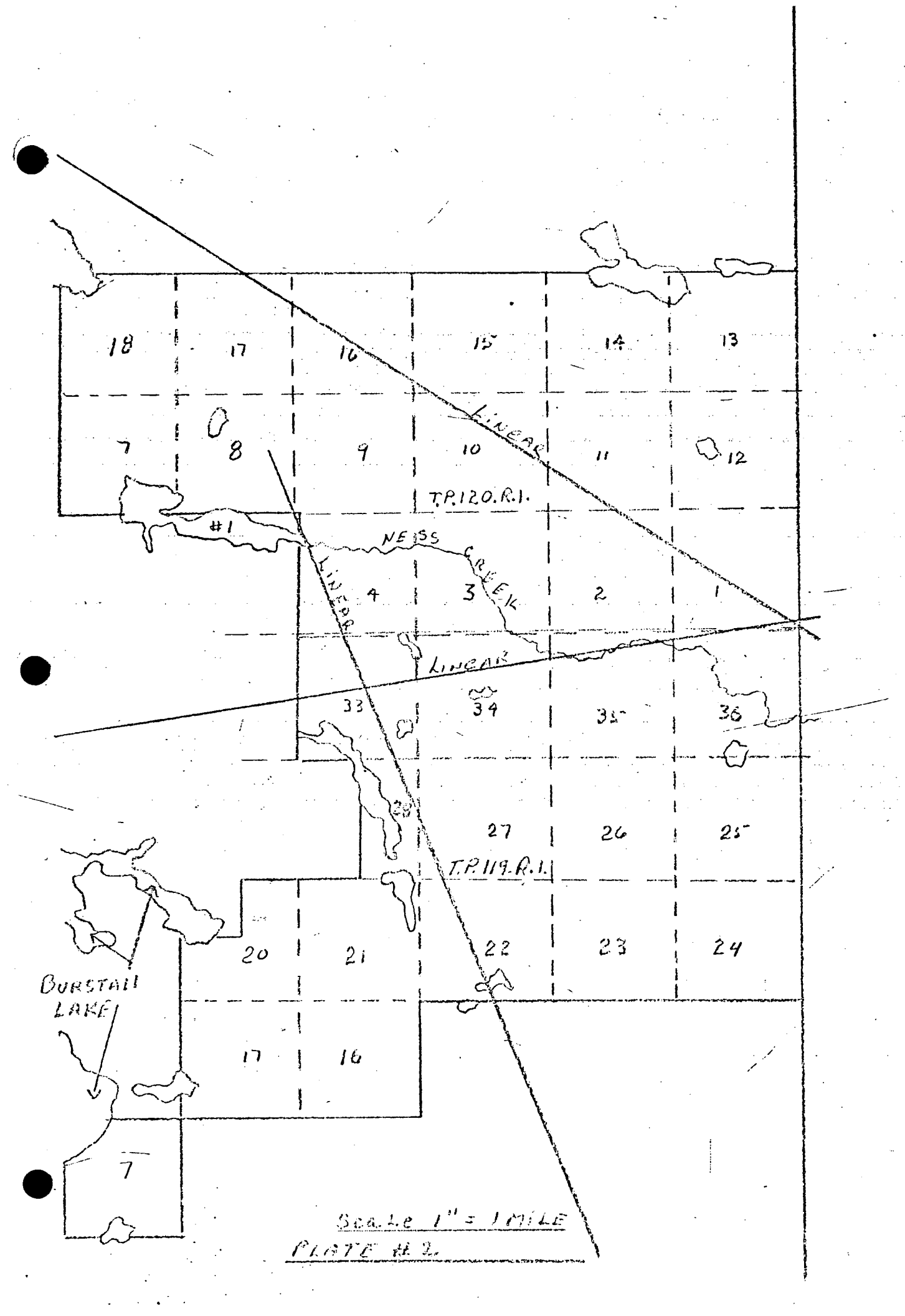


PLATE #1



Scale 1" = 1 MILE

PLATE #2.

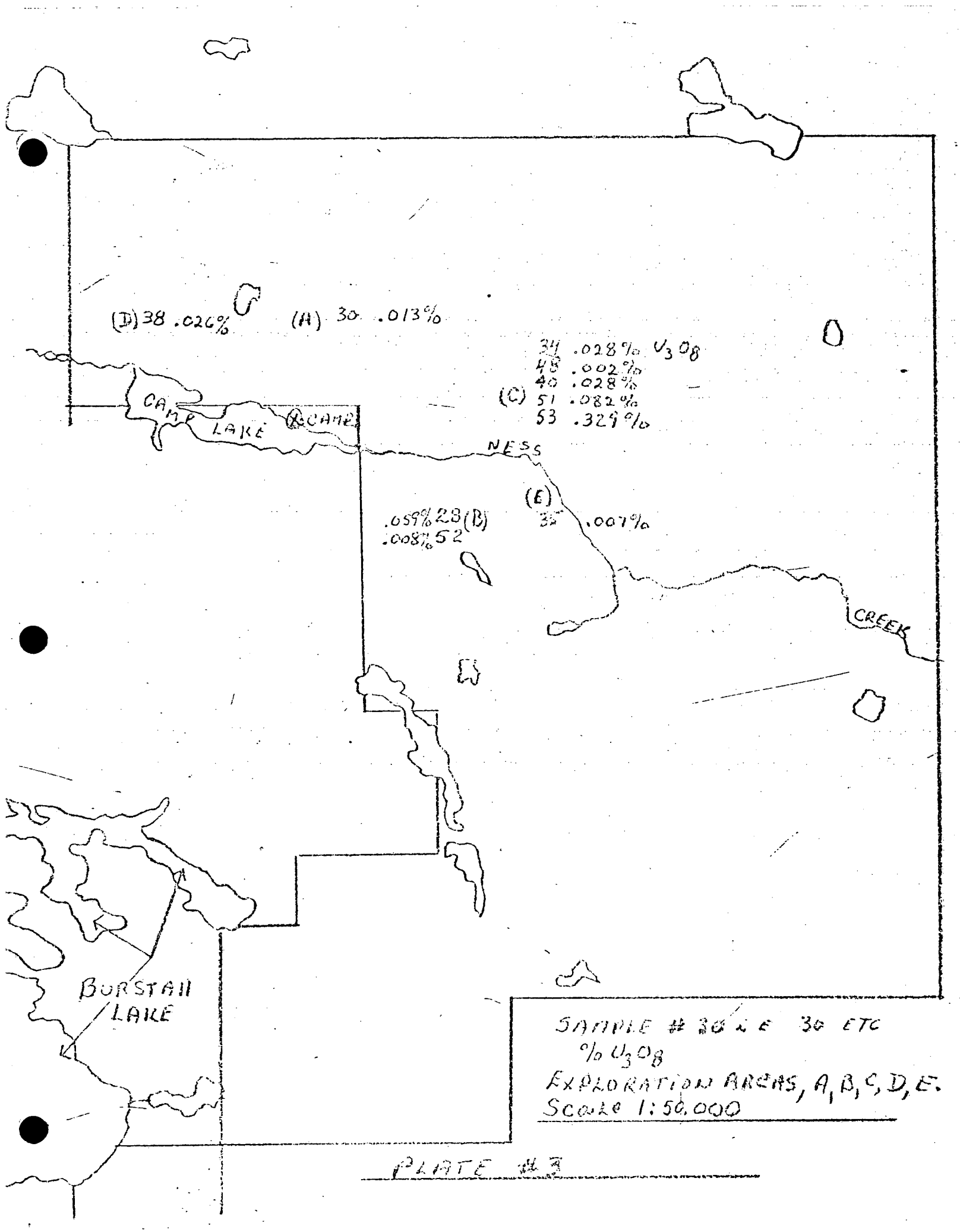

(D) 38 .026%
(A) 30 .013%
34 .028% U_3O_8
48 .002%
40 .028%
(C) 51 .082%
53 .329%
CAMP LAKE
CAMP
NESS
(E)
35 .007%
.059% 28 (B)
.008% 52
CREEK
BURSTALL LAKE
SAMPLE # 30 & E 30 ETC
% U_3O_8
EXPLORATION AREAS, A, B, C, D, E.
Scale 1:50,000

PLATE #3

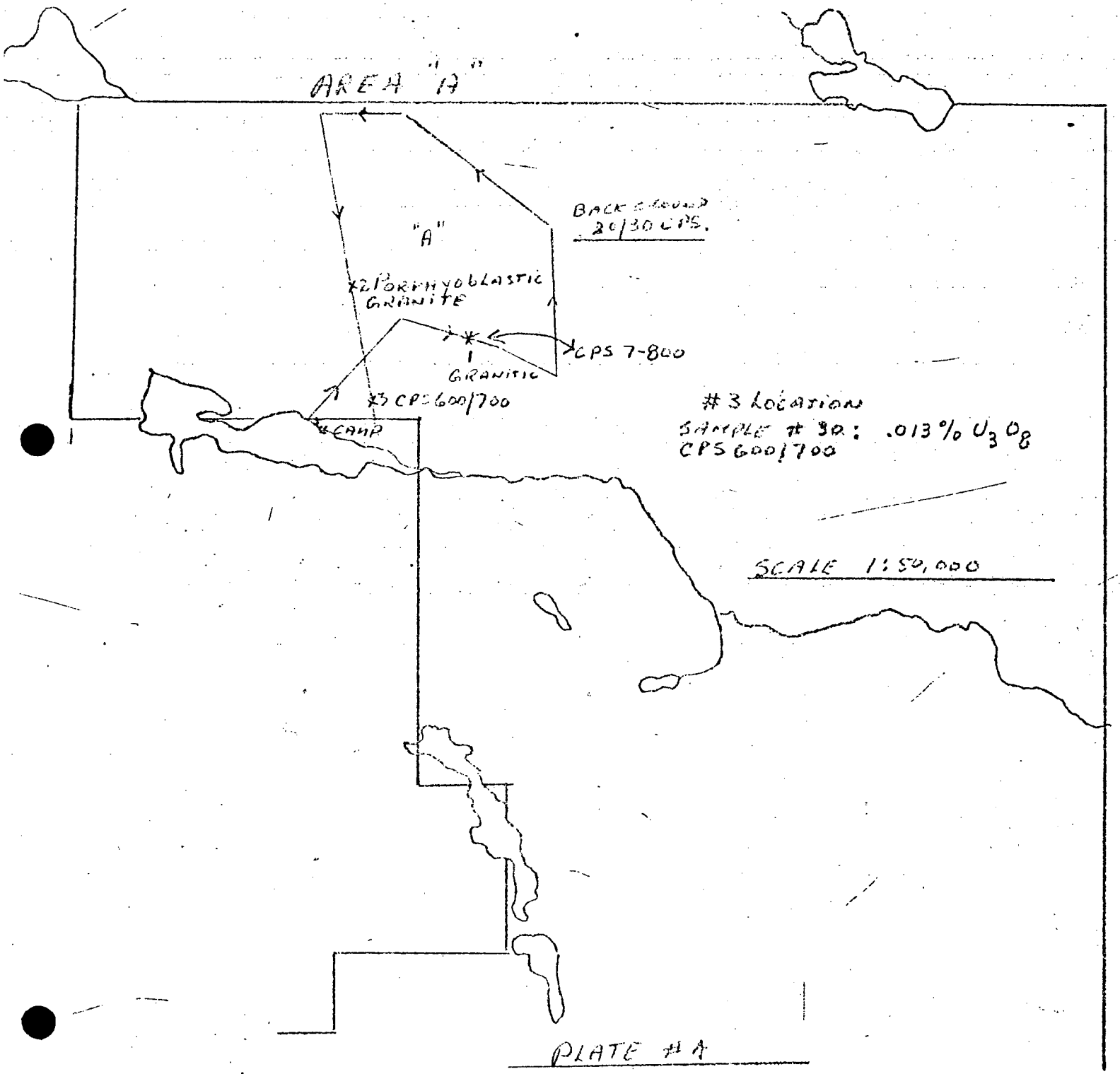
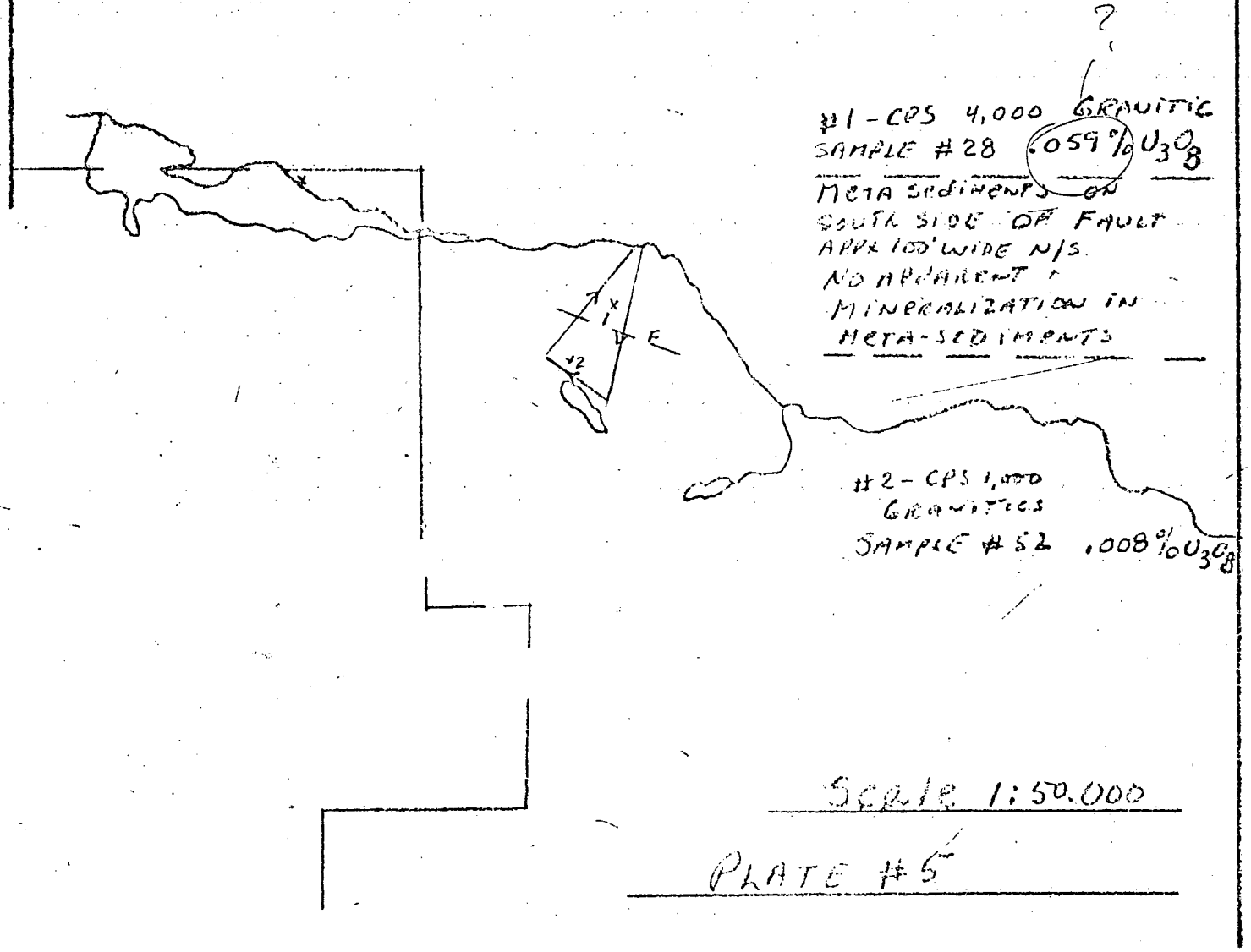

AREA "A"
"A"
BACKGROUND 20/30 CPS.
#2 PORPHYOBLASTIC GRANITE
CPS 7-800
1
GRANITIC
#3 CPS 600/700
CAMP
#3 LOCATION
SAMPLE # 30: .013% U_3O_8
CPS 600/700
SCALE 1:50,000

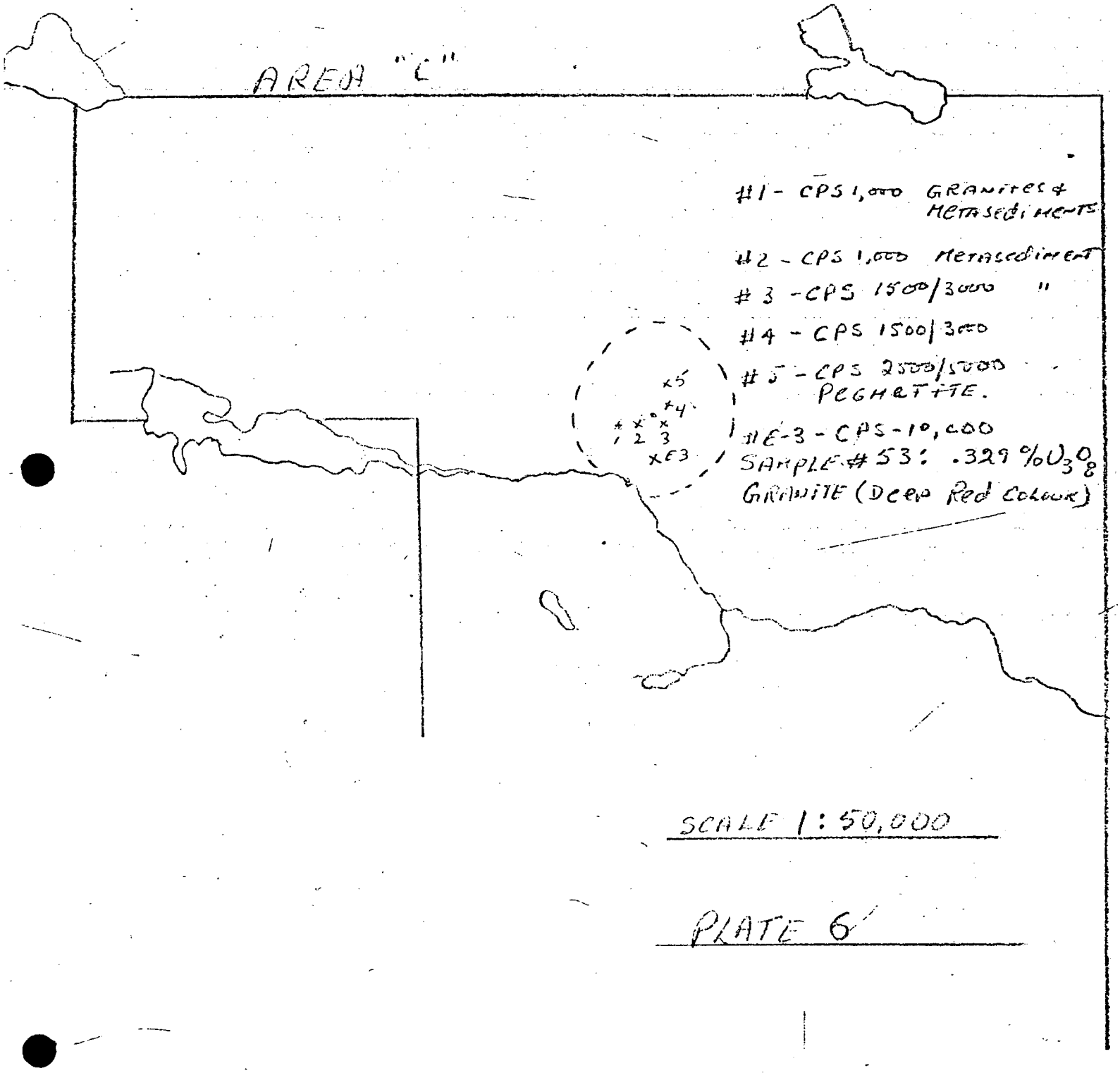
PLATE #4

AREA "B"



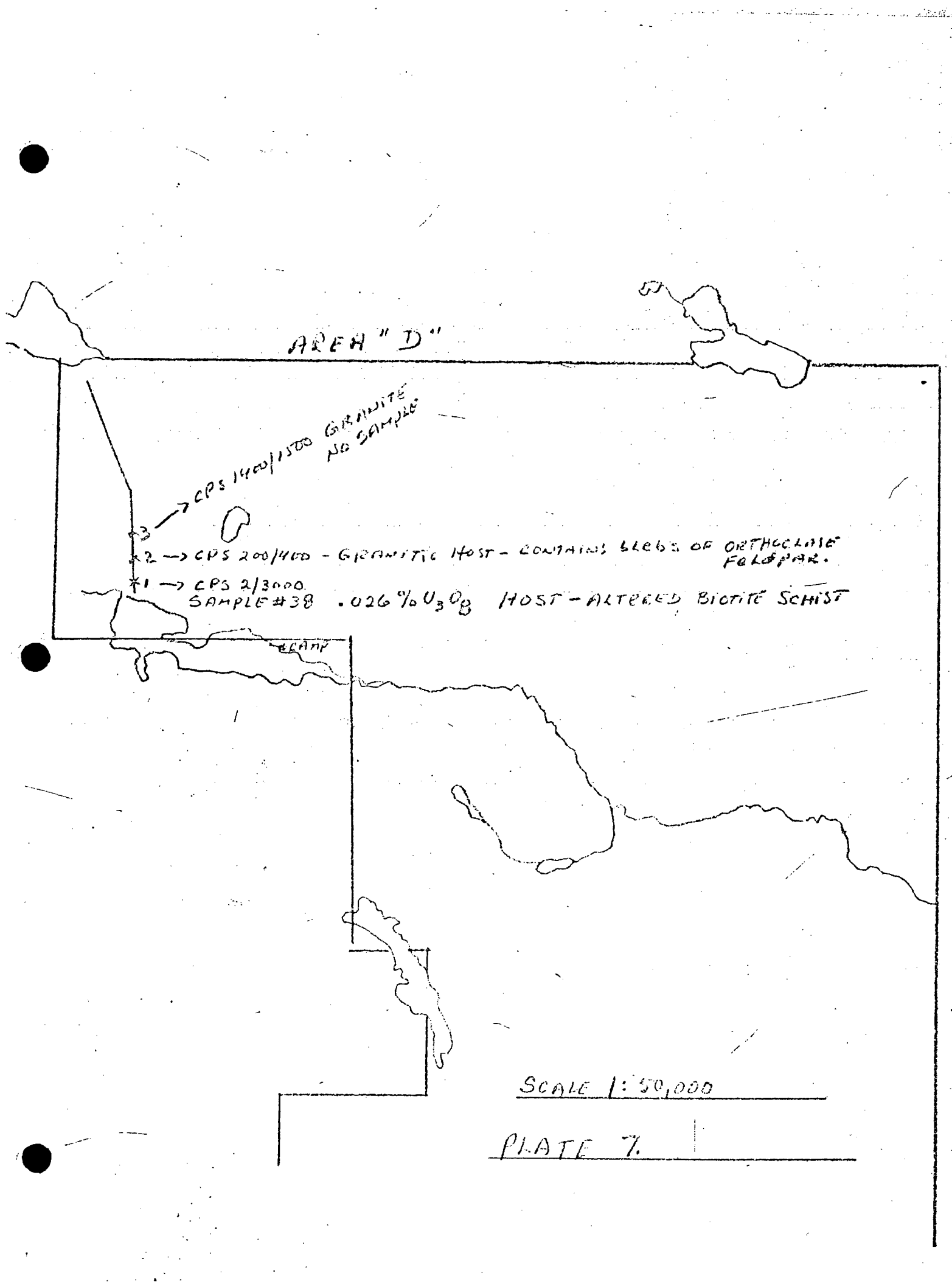
Scale 1:50.000

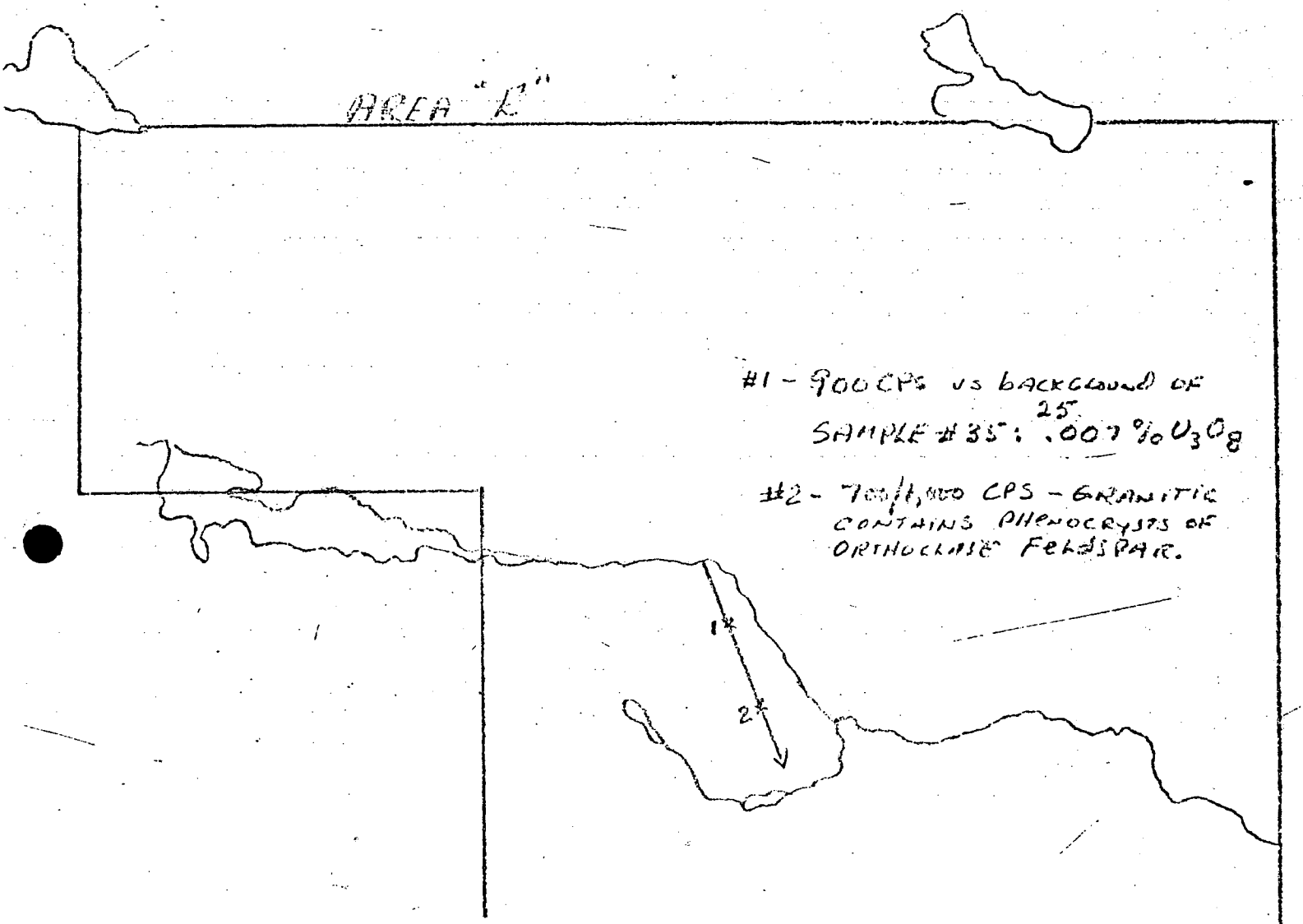
PLATE #5



SCALE 1:50,000

PLATE 6


AREA "D"
#3 → CPS 1400/1500 GRANITE NO SAMPLE
#2 → CPS 200/400 - GRANITIC HOST - CONTAINS SLEBS OF ORTHOCLASE FELDSPAR.
#1 → CPS 2/3000 SAMPLE #38 .026 % U_3O_8 HOST - ALTERED BIOTITE SCHIST
CAMP
SCALE 1: 50,000
PLATE 7.

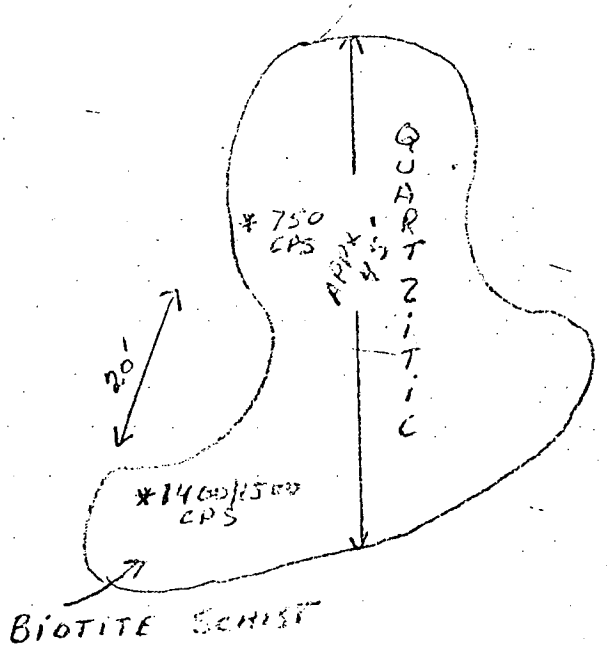


SCALE 1: 50,000

PLATE 8

Descriptions of Area "C" Locations

Sample #48: Area. – Not to scale:



↑ TREND OF OUTCROP IS NORTH 35° EAST.

CPS 1400/1500
SAMPLE #48: .002% U_3O_8

Sample #40: CPS 2000 .028% U_3O_8

STRIKE N5°W

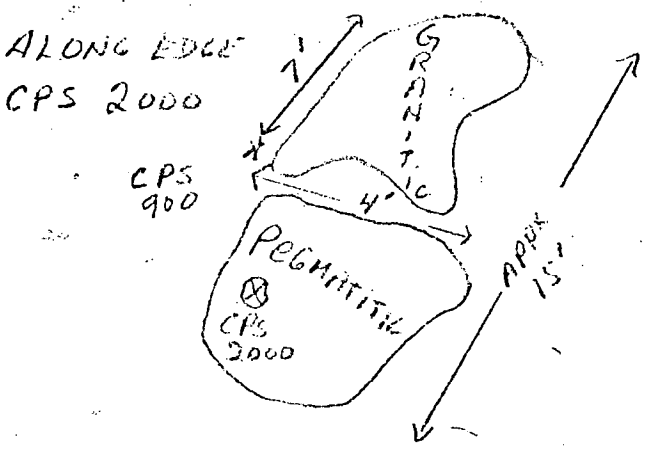


PLATE 9.

DESCRIPTIONS OF AREA C LOCATIONS

SAMPLE # 53: NOT TO SCALE

CPS 10,000

SAMPLE # 53: .326% U_3O_8

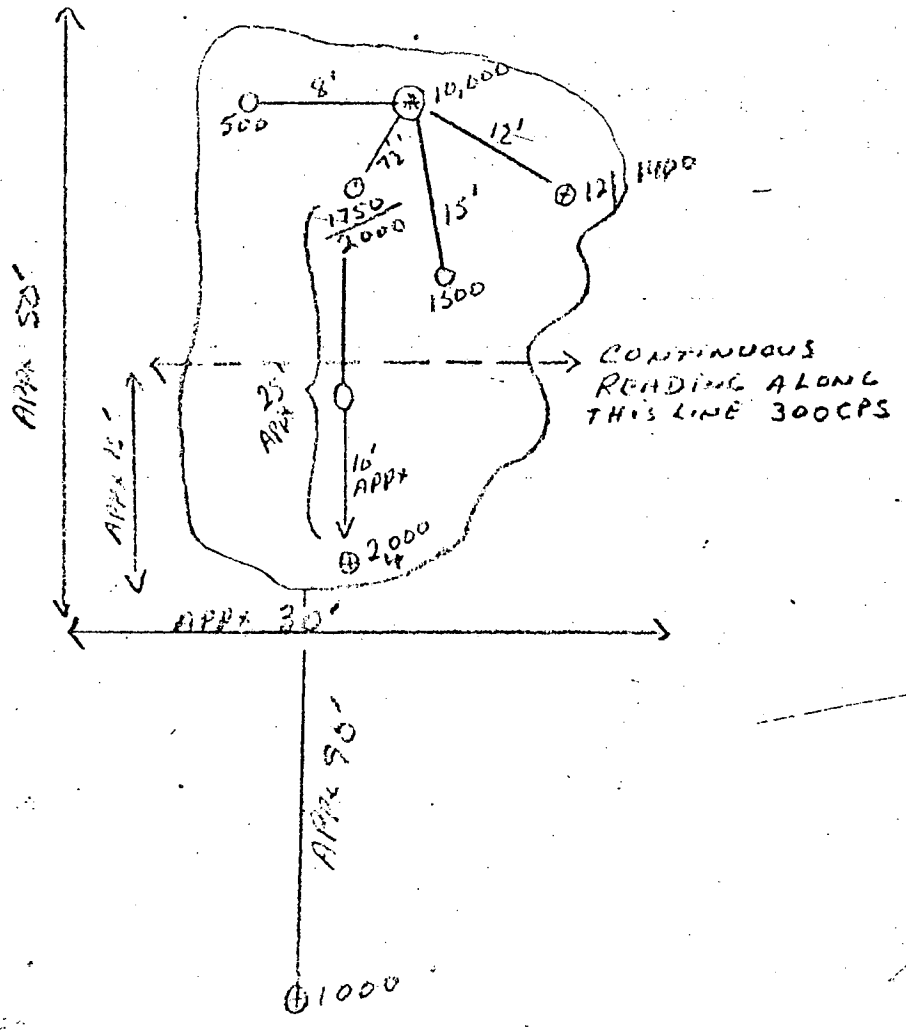


PLATE # 10

To: C & E EXPLORATIONS LTD.,
52 Calendar Rd. N.W.,
[redacted]gary, Alberta T2L 0P6

ATTN: Mr. L.C. Card

File No. 12148
Date September 29, 1976
Samples Chip

Certificate of ASSAY

LORING LABORATORIES LTD.

SAMPLE No.	Chemical U308 %
"Burstall Lake"	
Sample # 30 →	.013
Sample # 28 →	.059
Sample # 52 →	.008
Sample # 38 →	.026
Sample # 40 →	.028
Sample # 51 →	.082
Sample # 48 →	.002
Sample # 34 →	.028
Sample # 35 →	.007
Sample # 53 →	.329

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

Rejects Retained one month.

Pulps Retained one month unless specific arrangements made in advance.

[redacted]
Licensed Assayer of British Columbia

QUARTZ MINERAL EXPLORATION PERMIT No. 245

1976 no 11