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WHITEHORSE
Office of the Supervising Mining Recorder
Yukon Territory

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GEOLOGICAL AND GEOCHEMICAL REPORT
ON THE BEN 1 TO BEN 16 MINERAL CLAIMS
WHITEHORSE MINING DISTRICT

LATITUDE 60° 01' NORTH LONGITUDE 134° 58' WEST

N.T.S. MAP-SHEET 105-D/~~3E~~ 2

Based on Work Completed Between July 7th and 14th, 1978

For

E&B Explorations Ltd.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $1600.00

Resident Geologist or ~~Resident Mining Engineer~~

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

B.R. BAXTER
Supervising Mining Recorder
for Commissioner of Yukon Territory

By

R.J. Beaty, B.Sc., M.Sc., D.I.C.

And

R.R. Culbert, PhD., P.Eng.

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D.G. Leighton & Associates Ltd.

15 August 1978

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CONTENTS

ILLUSTRATIONS

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GEOLOGICAL CONSULTANTS

3155 WEST 12TH AVENUE
VANCOUVER, B.C.
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GEOLOGICAL AND GEOCHEMICAL REPORT ON THE BEN PROPERTY

INTRODUCTION

This report describes the results of geological mapping and geochemical sampling for uranium on the BEN property during the 1978 field season. These surveys are follow-up to geochemical anomalies derived from the analysis of sample pulps acquired from Kennco Explorations Ltd. The area was also intensively prospected using hand-held scintillometers.

Work on the BEN property was done between July 7th and 14th, 1978, during the course of a larger program covering a number of properties in the Bennett Lake region.

The conclusions and recommendations set forth in this report are based on the work cited above.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

1. The BEN property consists of 16 mineral claims located about 22 kilometers southwest of Carcross, Yukon Territory on Munroe Lake.

2. The claims are underlain by Paleozoic Yukon Group metamorphic rocks and later granitic intrusives.

3. The property was staked to cover a uranium anomaly derived from the analysis of regional stream sediment samples.

4. Work including geological mapping, more detailed geochemical sampling and intensive prospecting with hand-held scintillometers failed to detect any indication of worthwhile radioactive mineralization.

5. No additional work is recommended.

Respectfully submitted,

D.G. LEIGHTON & ASSOCIATES LTD.

R.J. Beaty, B.Sc., M.Sc., D.I.C.

R.R. Culbert, PhD., P.Eng.

15 August 1978

GENERAL DESCRIPTIONS

Location and Access

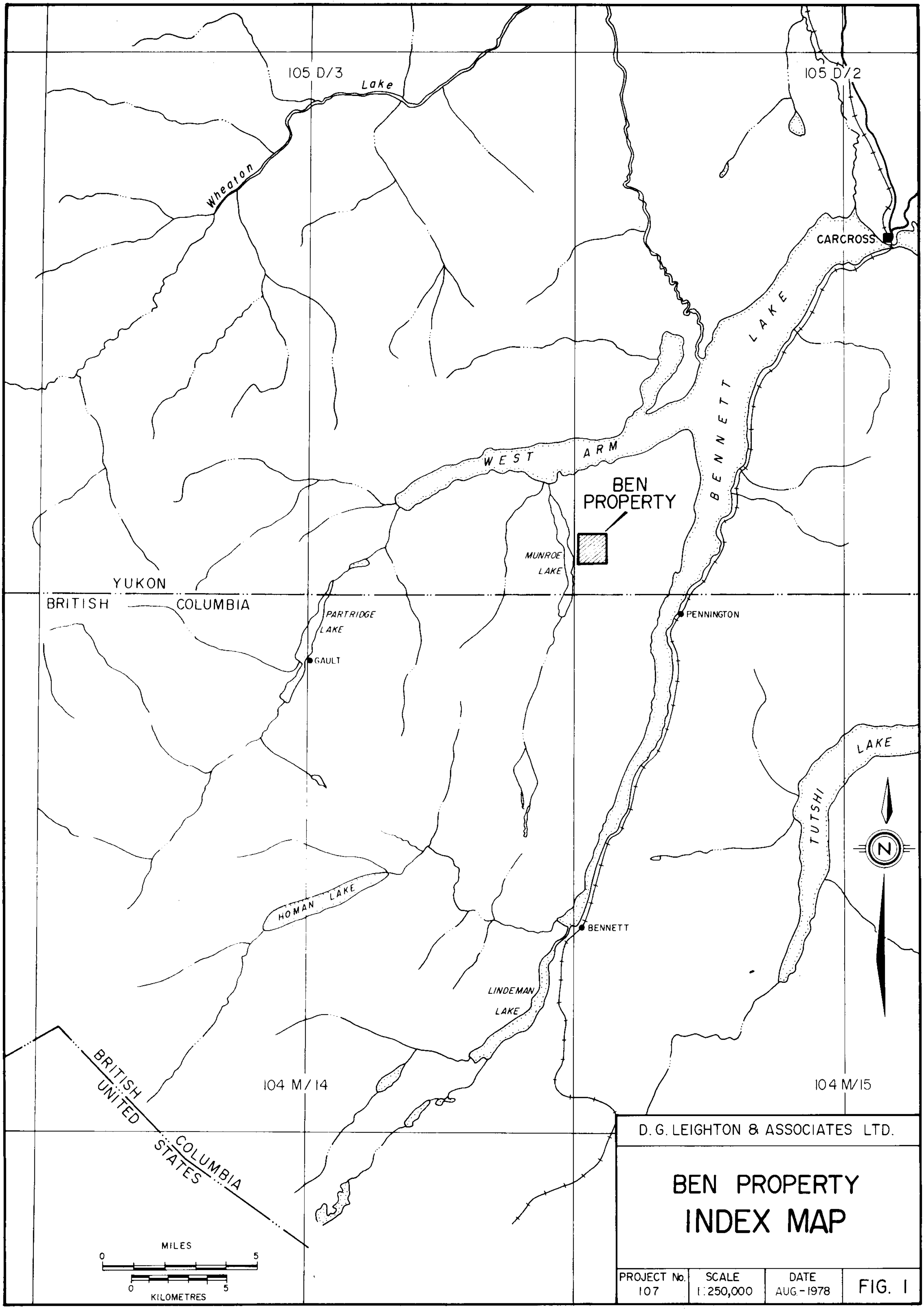
The BEN property is located on the east side of Munroe Lake, 22 kilometers southwest of Carcross, Yukon Territory. Geodetic co-ordinates are: 60° 01' North latitude; 134° 58' West longitude.

The claims are accessible by helicopter or float plane.

Claims

The BEN property consists of sixteen mining claims held in the name of Welcome North Mines Ltd. (N.P.L.). These are:

Claim	Record No.	Record Date	Expiry Date
BEN 1-16	YA19266-YA19281	July 25, 1977	July 25, 1978



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BEN PROPERTY INDEX MAP

PROJECT No.	SCALE	DATE	
107	1:250,000	AUG.-1978	FIG. 1

GEOLOGY

Two main intrusive rock units occur on the BEN property: fine grained quartz monzonite and medium grained biotite quartz monzonite grading to a porphyritic hornblende-biotite quartz monzonite. These phases intrude magnetite-rich massive dark green amphibolite gneiss probably belonging to the Paleozoic Yukon Group.

Background radioactivity of rock types are as follows:

Unit	Radioactivity (cps)
Fine grained quartz monzonite	140 - 160*
Medium grained biotite quartz monzonite	120 - 135
Magnetite amphibolite	60 - 90
Aplite dikes	200 - 250

No anomalous zones were encountered in surface scintillometer prospecting.

One small gossan occurs in biotite quartz monzonite, due to traces of disseminated pyrite. The amphibolite gneiss is highly magnetic, especially near its contact with quartz monzonite due to the presence of several percent disseminated magnetite.

* All prospecting was done using French SPP2-NF scintillometers.

GEOCHEMISTRY

The property lies on a steep hillside draining into Munroe Lake. Most creeks flow only during break-up in early summer. High uranium values in silt are considered to result from leaching of high background granitic rocks coupled with enhancement by organic scavenging in samples from alluvial fans near the lake. The highest value, T13, is due to organic matter in the sample.

The results of the geological and geochemical work on the BEN property are shown on an attached map entitled "BEN PROPERTY - GEOLOGICAL-GEOCHEMICAL COMPILATION" (see pocket). Samples were analysed using the procedure outlined in Appendix "A".

LEGEND

A	Alluvium, coarsely alluvial/talus fans, aulluvial fans, moraine
B	Medium-grained biotite quartz monzonite; variably porphyritic hornblende-biotite quartz monzonite
C	Fine-grained quartz monzonite
(stippled)	Metamorphic rocks, abundant magnetite, amphibolite gneiss

- B15 — Silt sample location, sample number
- 20, 18 — Uranium p.p.m., Thorium p.p.m.
- Geological boundary assumed
- Outcrop
- PYRITE — Mineralization
- (G) — Creek letters for reference
- Claim posts and claim line
- Claim outline from Government map

METERS
0 100 200 400 600

FIG. 2

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BEN CLAIM GROUP

GEOLOGICAL & GEOCHEMICAL COMPILATION

PROJECT	PROJECT No.	SCALE	DATE
BENNETT	107	1 : 10,000	AUG.-1978

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APPENDIX "A"

ANALYTICAL PROCEDURE
LOW ENERGY GAMMA SPECTROSCOPY (LEGS)

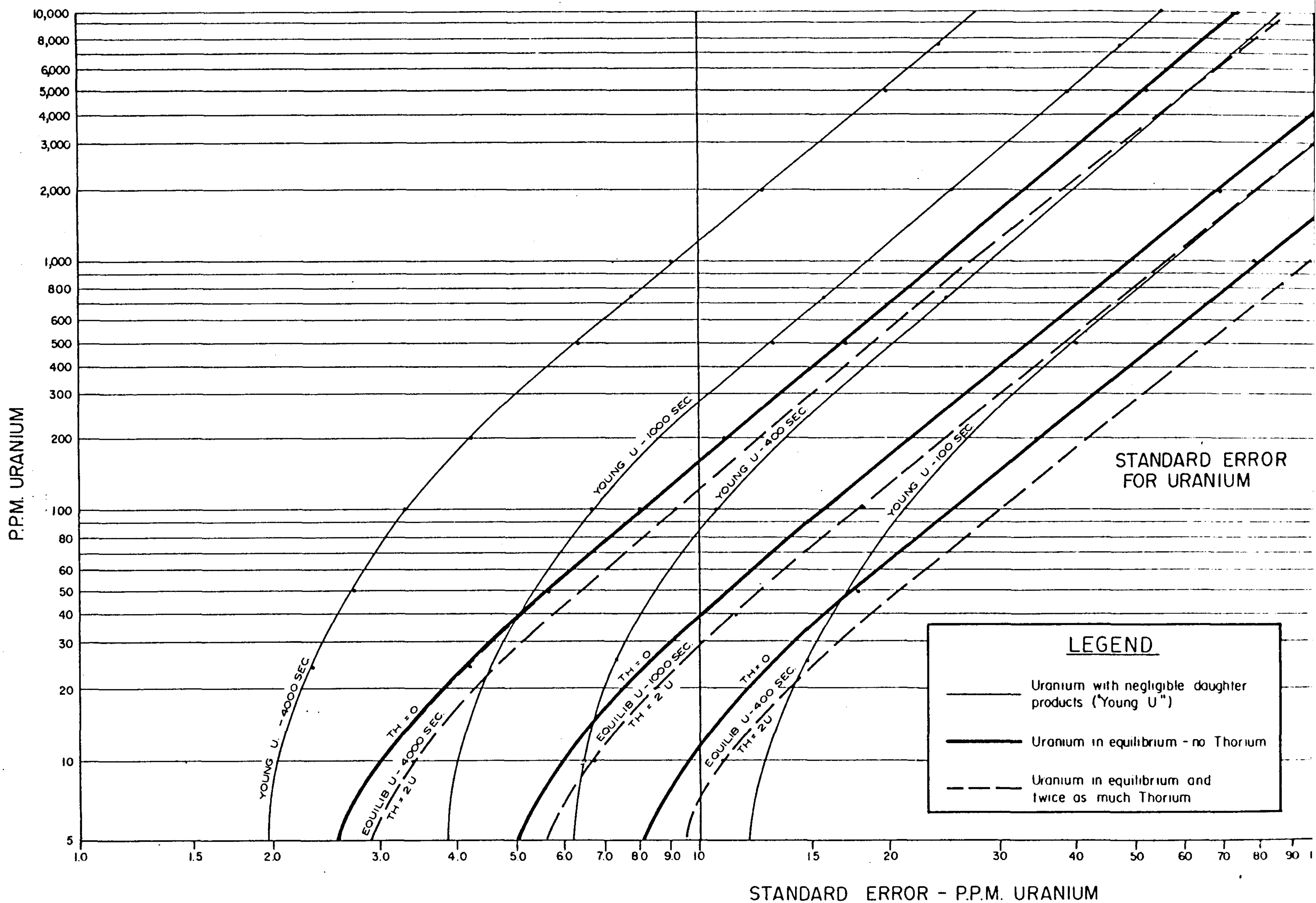
Analysis of low energy gamma radiation provides a rapid and accurate method of assaying geological materials (silt, soil, rock, etc.) for uranium, thorium and the uranium daughter products radium and lead-214.

Disequilibrium in nature between uranium and its daughters may be considered as the result of differential mobility between parent and daughter elements at two points in the U^{238} decay sequence. The first originates with the long half lives of Ionium (Th^{230}) and its daughter Radium-226, and the second with the short-lived but very mobile radon 222. The comparatively rapid decay sequence of U^{235} may be considered to remain in equilibrium for practical purposes.

Analysis of the portion of the gamma ray spectrum between 50 and 500 KEV allows the low energy radioactivity from the initial part of the decay sequence (and representing the actual uranium present) to be differentiated from representatives of the above mentioned later segments of this chain, namely Ra-226 and Pb-214. Thorium (whose decay sequence is sufficiently rapid to involve minimal disequilibrium in nature) is also differentiated in this spectrum range.

In LEGS analysis, a weighed 8.7 cc sample of the material to be analyzed is placed in a plastic vial and inserted into a center-well scintillating crystal (BICRON 3MW3) protected from cosmic radiation by a six inch lead shielding. The crystal is monitored by an INOTEC 5200 pulse height analyzer which breaks the resulting gamma ray spectrum (50 to 500 KEV range) into 1,024 gradations or channels, and accumulates pulse counts in each channel for a pre-set counting period. The analyzer then integrates across four segments of the gamma spectrum and the resulting numbers are entered into a HP 97 programable desk calculator to obtain uranium and thorium content in ppm and Ra-226 and Pb-214 content in percent equilibrium or ppm uranium equivalents. Background radiation corrections are involved for sample of low radioactivity and self-adsorption corrections for those rich in uranium or thorium.

The technique is calibrated using Geological Survey of Canada Radioactive Rock Standards, and chemical standards from Min-En Laboratories and the B.C. Department of Mines. Figure A-1 shows the standardization results for uranium. These samples were counted for at least 4,000 seconds each, however, and in the usual 400 - 1,000 second geochemical analysis runs it is the counting statistic uncertainty which almost entirely controls the accuracy. Standard errors for uranium and Pb-214 under various conditions and counting times are given in Figure A-2.



P.P.M. URANIUM
STANDARD ERROR - P.P.M. URANIUM
STANDARD ERROR FOR URANIUM
YOUNG U. - 4000 SEC.
YOUNG U - 1000 SEC.
YOUNG U - 400 SEC.
YOUNG U - 100 SEC.
TH = O
EQUILIB U - 4000 SEC.
TH = 2 U
EQUILIB U - 1000 SEC.
EQUILIB U - 400 SEC.
LEGEND
Uranium with negligible daughter products ("Young U")
Uranium in equilibrium - no Thorium
Uranium in equilibrium and twice as much Thorium

FIGURE A-1

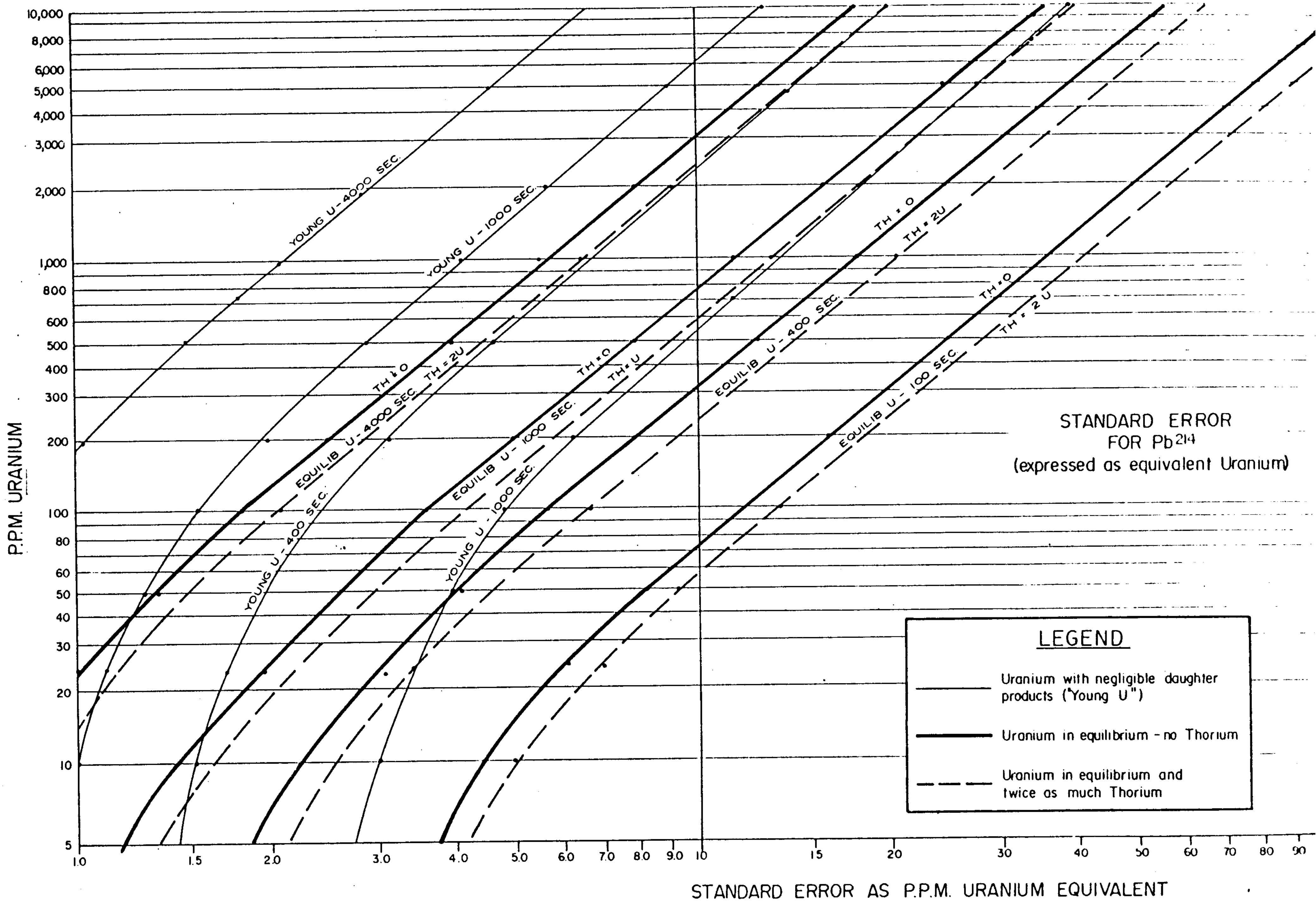

STANDARD ERROR
FOR Pb214
(expressed as equivalent Uranium)
P.P.M. URANIUM
STANDARD ERROR AS P.P.M. URANIUM EQUIVALENT
YOUNG U - 4000 SEC.
YOUNG U - 1000 SEC.
YOUNG U - 400 SEC.
YOUNG U - 1000 SEC.
EQUILIB U - 4000 SEC.
EQUILIB U - 1000 SEC.
EQUILIB U - 400 SEC.
EQUILIB U - 100 SEC.
TH = 0
TH = 2U
TH = U
LEGEND
Uranium with negligible daughter products ("Young U")
Uranium in equilibrium - no Thorium
Uranium in equilibrium and twice as much Thorium
10,000
8,000
6,000
5,000
4,000
3,000
2,000
1,000
800
600
500
400
300
200
100
80
60
50
40
30
20
10
5
1.0
1.5
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10
15
20
30
40
50
60
70
80
90

FIGURE A-2