

116B 2/3

1150 14/15

ASSESSMENT REPORTS

Dawson M.D.

MAP No.

TYPE OF WORK: Radiometric Geochemical & Radon
Soil Gas Survey

090556

REPORT FILED UNDER	Archer Cathro & Assoc Ltd. UKON JOINT VENTURE
DATE PERFORMED	May 13-June 30 '79 DATE FILED: 31 January '80
LOCATION - LAT.	64°01'N
LONG.	139°04'W
CLAIM Nos.	SURPRIZE 1-225
	See reverse
WORK DONE BY	A.R. Archer, P. Eng. (ARCHER CATHRO & ASSOC. LTD)
WORK DONE FOR	Archer Cathro & Assoc. Ltd. CHEVRON CANADA LTD KERR ADDISON LTD
REMARKS	Radon soil gas surveys, geological mapping, soil panning and radiometric surveys were conducted on the property during the spring of 1979. The radon survey located three additional anomalous zones over 1,000 counts per hour. Back ground readings over the schist is approximately 300 counts per hour and

090556

600 counts per hour over the porphyry stock. In total ten anomalies have been delineated, five of which are over 5,000 cph. The anomalies are controlled by faults and the contact between the stock and schist. No anomalies were located by the radiometric survey.

Surprize 1,3,5,7
Surprize 10,12,14,16
Surprize 2,4,6,8
Surprize 9,11,13,15
Surprize 17-32
Surprize 33-95
Surprize 96-158
Surprize 159-205
Surprize 206-210
Surprize 211
Surprize 212-219
Surprize 220-225

YA9565-YA9568
YA9569-YA9572
YA9573-YA9576
YA9577-YA9580
YA10204-YA10219
YA10681-YA10743
YA29544-YA29606
YA31420-YA31466
YA31468-YA31472
YA31467
YA31473-YA31480
YA31900-YA31905

ARCHER, CATRO

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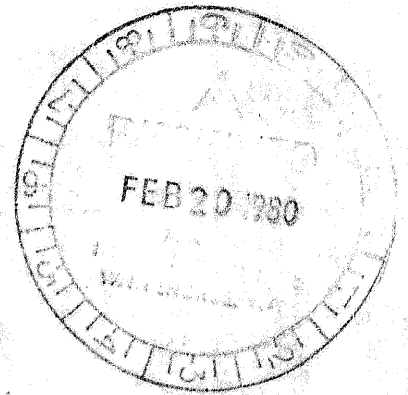
CONSULTING GEOLOGICAL ENGINEERS

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RADIOMETRIC GEOCHEMICAL AND RADON
SOIL GAS SURVEY
SURPRISE 1-225 CLAIMS



Claim Sheets 116B/2 and 3 and 1150/14 and 15

Latitude 64°01'N; Longitude 139°04'W

Work Conducted May 13, 1979 to June 30, 1979

A.R. Archer, B.A.Sc., P.Eng.

January 15, 1980

090556

Representation Work

\$16,600.00

J A Morin

R. Geologist Office

TABLE OF CONTENTS

	<u>PAGE</u>
Introduction -----	1
Property, Location and Access -----	1
Geology -----	2
General Setting -----	2
Mineralization -----	3
1979 Surveys -----	4
Survey Methods -----	4
Survey Results -----	5
Radon Survey -----	5
Radiometric Surveys -----	6
Tin and Gold Exploration -----	6
Conclusions -----	7

LIST OF ILLUSTRATIONS

<u>Fig. No.</u>		<u>Pocket Letter</u>
Fig. U-UN 26	Unexpected Property: Base Map: Geology, Radiometrics and U Geochemistry	B
Fig. U-UN 27	Unexpected Property: Radon Survey Results, Anomalies A, G and I	C
Fig. U-UN 28	Unexpected Property: Radon Survey Results, Anomalies B, J and K	D
Fig. U-UN 29	Unexpected Property: Radon Survey Results, Anomaly D	E
Fig. U-UN 30	Unexpected Property: Radon Survey Results, Anomaly E	F
Fig. U-UN 31	Unexpected Property: Radon Survey Results, Anomaly F	G
Fig. U-UN 32	Unexpected Property: Radon Survey Results, Anomaly H	H

INTRODUCTION

The Unexpected property was staked in 1976 following the discovery of anomalous uranium contents in the water of several creeks draining a Tertiary quartz porphyry stock. Uranium soil geochemical and radiometric surveys conducted from 1976 to 1978 located a number of anomalies peripheral to and within the stock. The strongest and best defined anomalies were obtained using soil radon surveys. The 1979 program consisted of continued radon soil gas surveys on the western portion of the claim block and geological mapping, soil panning and radiometric surveys on the north-western side of the claims where cassiterite has been reported.

Work in 1979 was conducted between May 13 and June 30 under the direction of W. Eaton and D. Wickham with overall supervision provided by the writer. The field crew included J. Cockell, D. Hillier, M. Payne, R. Raynor and I. Talbot.

PROPERTY, LOCATION AND ACCESS

The Unexpected property consists of 225 Surprise claims lying in a contiguous, irregular block that are recorded in the name of Archer, Cathro and Associates Ltd. on behalf of Ukon Joint Venture (Chevron Canada Ltd. and Kerr Addison Ltd.) as follows:

<u>CLAIM NAME</u>	<u>GRANT NUMBERS</u>	<u>EXPIRY DATE</u>
Surprise 1,3,5,7	YA9565-YA9568	12 April, 1986
Surprise 10,12,14,16	YA9569-YA9572	12 April, 1986
Surprise 2,4,6,8	YA9573-YA9576	12 April, 1986
Surprise 9,11,13,15	YA9577-YA9580	12 April, 1986
Surprise 17-32	YA10204-YA10219	14 April, 1983
Surprise 33-95	YA10681-YA10743	14 April, 1983
Surprise 96-158	YA29544-YA29606	28 Feb. 1984
Surprise 159-205	YA31420-YA31466	26 Jan. 1984
Surprise 206-210	YA31468-YA31472	26 Jan. 1984
Surprise 211	YA31467	26 Jan. 1984
Surprise 212-219	YA31473-YA31480	26 Jan. 1984
Surprise 220-225	YA31900-YA31905	1 Feb. 1980

The property is located at 64°01'N and 139°04'W straddling claim sheets 1150/14 and 15, and 116B/2 and 3, some 27 km by road east of Dawson. Access is via the all-weather Hunker Creek road which crosses the south end of the claim block and the Klondike Highway which parallels the north side of the claim block.

GEOLOGY

General Setting

The topography is typical of unglaciated terrain throughout the Dawson Range. Rounded subdued hills rise to elevations of 1200 m with local relief of up to 500 m. Streams occupy V-shaped valleys which have been modified by late Tertiary rejuvenation. Outcrop is rare and most hillsides are modified by a thin cover of residual till, soil and humus. Vegetation is characterized by open pine and aspen on south facing slopes, and thick moss with black spruce on north facing slopes where permafrost extends to surface. Surface leaching in similar terrain at the Casino property and the Keno Hill mine district reaches depths of up to 150 m. A thin layer of glacial till blankets a portion of the NE side of the claim block.

The claims cover a Tertiary quartz-feldspar porphyry stock (eTqfp) that intrudes a complex metamorphic assemblage called the Schist-Gneiss Unit (Psn) by Tempelman-Kluit of the GSC, as shown in Figure U-UN 26 in the pocket. The porphyry consists of rounded and sometimes smoky quartz eyes up to 4 mm wide and subhedral feldspar phenocrysts up to 1 mm long in a white to buff felsic groundmass. Purple fluorite, topaz and miarolitic zeolites are trace accessory minerals. The eastern side of the stock contains areas of strong brecciation and intense argillic alteration. This stock is thought to be contemporaneous with intrusive elsewhere in the district that have been dated as Eocene (about 50 m.y.). A small, poorly

exposed, altered felsic stock (eTfs) located near the head of Germaine Creek, may be related to the quartz-feldspar porphyry.

The Schist-Gneiss Unit is an undivided mixture of Klondike Schist and Nasina Quartzite. Most outcrops on the Surprise claims consist of dark to pale green chlorite schist with some black carbonaceous phyllites and minor marble. All rock types contain numerous discontinuous lenses and/or veinlets of milky white quartz. Drilling has shown that the schist also contains abundant (up to ten per cent) pyrite below the level of oxidation which is approximately 50 m deep. These metasedimentary rocks are thought to correlate with less deformed Paleozoic rocks in the Finlayson Lake district, on the opposite (northeast) side of the Tintina Fault. The age of metamorphism is believed to be early to middle Triassic.

A few bodies of altered ultrabasic rocks (Pum) of uncertain age occur within the schists. These range from dark green serpentinites to brown weathering, mariposite bearing quartz carbonates.

Mineralization

Uranium has only been found in geochemically anomalous quantities. The highest value is 400 ppm in organic soil near the mouth of Bordeleau Gulch. The best rock assay obtained on surface is 90 ppm U from leached schists in the bottom of 1977 bulldozer Trench UNB1 and the best assay obtained in drilling was 48 ppm U from six feet of leached schist in 1978 Hole S5. No uranium mineral has been identified, and a trace of green fluorescence on schist from a hand pit near Trench UNB1 is the only uranium oxide seen under either normal or ultraviolet light.

Cassiterite, which has been found by placer miners in both Germaine and Hunker Creeks, is presumed to have weathered from the porphyry stock. This is

supported by an assay of 100 ppm Sn obtained by the GSC (Economic Geology Report #28, p. 70) from a sample of altered porphyry outcropping near Germaine Creek.

1979 SURVEYS

Survey Methods

All surveys were conducted on lines spaced at 100 m intervals on the grid established in 1976 to 1978 and on extensions of the grid into new areas in 1979.

Radiometric readings were taken at waist height and 25 m intervals using a Scintrex BGS-1SL (43 cc crystal) broadband scintillometer. The radon survey was conducted using 30 alphaMeters, which are manufactured by alphaNuclear, Mississauga, Ontario and were rented to UJV from Chevron Canada Limited. The alphaMeter is a cylinder, 34.5 cm long and 5 cm in diameter that is inserted in an augered hole in the soil. Alpha particles derived from radon gas in the soil are detected by a silicon-diffused junction with an active area of 400 square mm, referred to as a solid ionization chamber. The top of the alphaMeter has a 5 decade LED numeric display which sequentially displays elapsed time (to one hundredth of an hour) and alpha particle count on command. The alphaMeters were left in the ground for 24 hours.

The tin potential of the northeastern portion of the property was explored by soil panning. Individual samples consisted of approximately 5 kg of soil dug from a B + C or C soil horizon. Samples were panned down to 3 cc of concentrate and examined with a hand lens and ultraviolet light. Concentrates suspected to be tin bearing were tested with a tin testing procedure using zinc powder and hydrochloric acid and a representative suite of panning concentrates was geochemically analyzed for tin in parts-per-million.

Results

Radon Survey - Results of both the 1978 and 1979 radon soil gas surveys are combined and illustrated on Figures U-UN27 to 32 in the pocket. The 1979 survey expanded coverage in the area of 1978 Anomalies A to H and extended into new areas along the contact of the stock. Three additional anomalies (lettered I to K) were located. A single survey line was run across 1978 geochemical Anomaly C but it appears to have missed the area of interest.

Radon gas background is approximately 300 counts-per-hour (cph) over the schist-gneiss unit and 600 cph over the porphyry stock. Those areas exceeding 1000 cph are considered anomalous. A summary of the 1978 and 1979 anomalies is tabulated below.

<u>ANOMALY</u>	<u>LOCATION</u>	<u>UNDERLYING ROCK TYPE</u>	<u>CONTROL</u>	<u>APPROXIMATE DIMENSIONS</u>	<u>SHAPE</u>	<u>TREND</u>	<u>MAXIMUM ALPHAMETER READING</u>
A & G	BA to BG 1000S	eTqfp Psn	faults and contact	1700m x 200m	arcuate	100°	18,761 cph
B	100N 200E	eTqfp	contact	500m x 300m	irregular	--	11,211 cph
D	1800N 100W	eTqfp	fault?	>700m x 400m	multiple elongate	030°	3,713 cph
E	2700N 1000W	eTqfp	fault?	>1000m x 300m	multiple irregular	--	4,418 cph
F	1900N 3300W	eTqfp	contact	--	point	--	1,436 cph
H	2800S 1700E	Psn	uncertain	500m x 200m	cluster of anomalies	--	5,995 cph
I	500S 1100E	eTqfp	contact?	600m x 300m	elongate	045°	7,541 cph
J	100S 1200E	Psn	contact?	100m x 50m	oval	--	6,031 cph
K	100N 300E	eTqfp Psn	contact?	600m x 150m	elongate	090°	2,591 cph

Radiometric Surveys - Figure U-UN26 in the pocket is a plot of all radiometric surveys to date. The only new areas surveyed in 1979 were grids near the mouths of Germaine and Alki Creeks on the northeast side of the property. Readings from the new grids range from 60 counts-per-second (cps) over schist-gneiss to 150 cps over the stocks. No anomalies were located.

Tin and Gold Exploration - A total of 112 soil panning samples were collected on grids at the mouth of Germaine Creek and from a small area at the mouth of Bordeleau Creek, as illustrated on Figure U-UN26 in the pocket. No tin minerals were recognized in any of the panning concentrates and only one out of 18 panning concentrates analyzed geochemically exceeded 110 ppm. The most common accessory minerals recognized in the panning concentrates were topaz, tourmaline, goethite, magnetite and ilmenite. Examination under ultraviolet light shows traces of a yellow-orange fluorescent mineral thought to be zircon.

A total of 29 rock and soil samples were collected from an altered felsic intrusion at the head of Germaine Creek and unaltered ultramafics at the mouth of Goring Creek. These were analyzed for gold in ppb and silver in ppm, as illustrated on Figure U-UN26 in the pocket. All samples returned 10 ppb or less in gold and 0.4 ppm or less in silver.

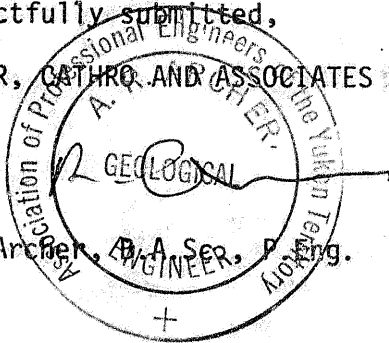
The location of a silver rich panning concentrate reported on Leotta Creek, 10 km east of the Surprise claims, by the GSC (Bulletin 173, figure 17) was resampled by UJV but only background values of 0.1 ppm silver were obtained.

All geochemical analyses were conducted by Chemex Labs Ltd., North Vancouver, B.C.

CONCLUSIONS

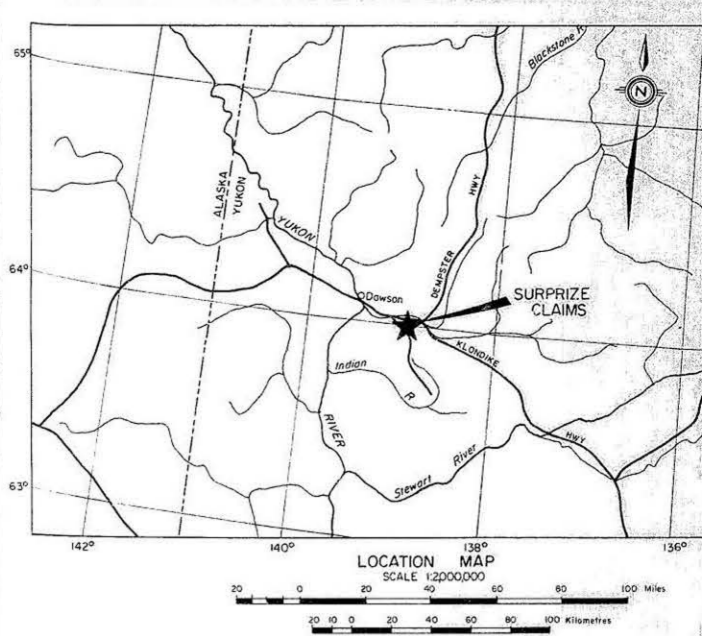
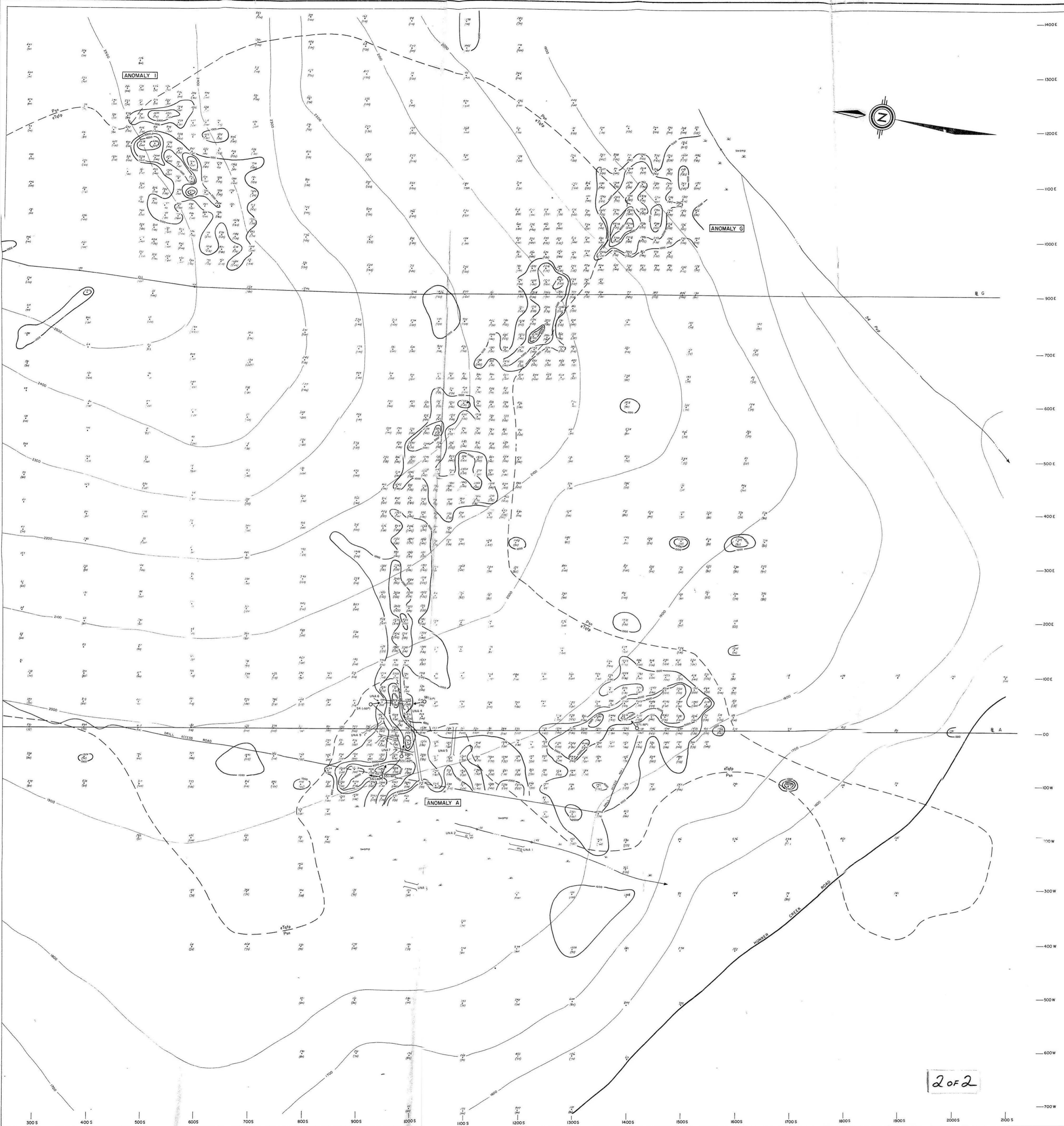
Although several new radon soil gas anomalies have been located, none are as large or intense as radon Anomalies A, G and B previously outlined in 1978. No new areas of interest for uranium were located with scintillometer surveys and grid soil panning failed to locate any areas of interest for tin.

Respectfully submitted,
ARCHER, CATHRO AND ASSOCIATES LTD.



A.R. Archer, B.A. Sc., P. Eng.

/m



- LEGEND**
- EARLY TERTIARY**
 - Tefo Quartz-feldspar porphyry
 - PALEOZOIC (P)**
 - Pin Schist-gneiss unit
 - Fault
 - - - Approximate geological contact
 - Drill hole, number and orientation
 - UNA 5 Trench
 - Radon gas counts/m³ with alpha-meter
 - αPM alpha-meter station
 - Radioactivity in counts/second with BGS-GL-143 or crystal scintillation at ground level
 - ¶ Permafrost
 - Radon gas survey contour line
 - Topographic contour line
 - W Water sample in post U

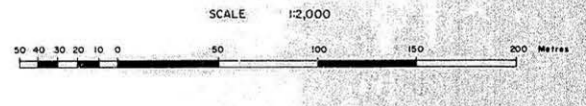
1 OF

1400 E
1300 E
1200 E
1100 E
1000 E
900 E
800 E
700 E
600 E
500 E
400 E
300 E
200 E
100 E
00
100 W
200 W
300 W
400 W
500 W
600 W
700 W

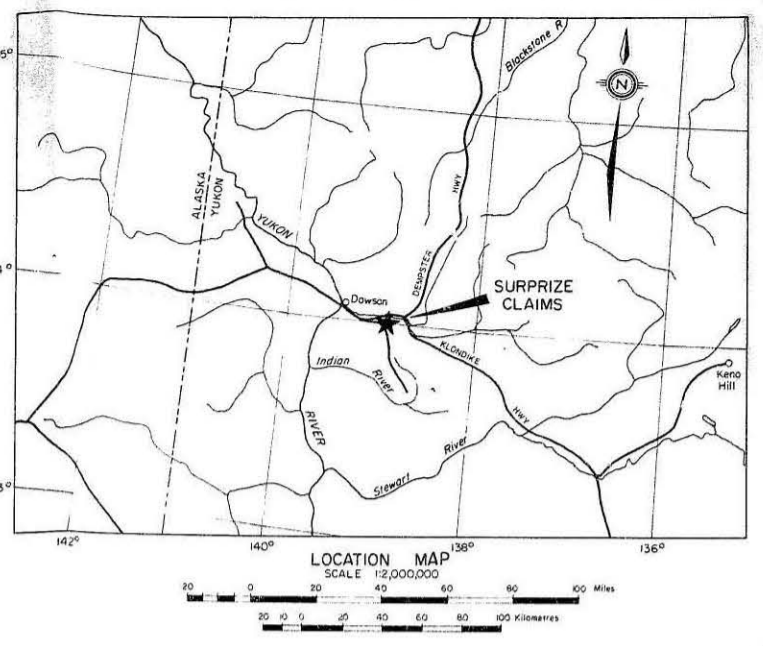
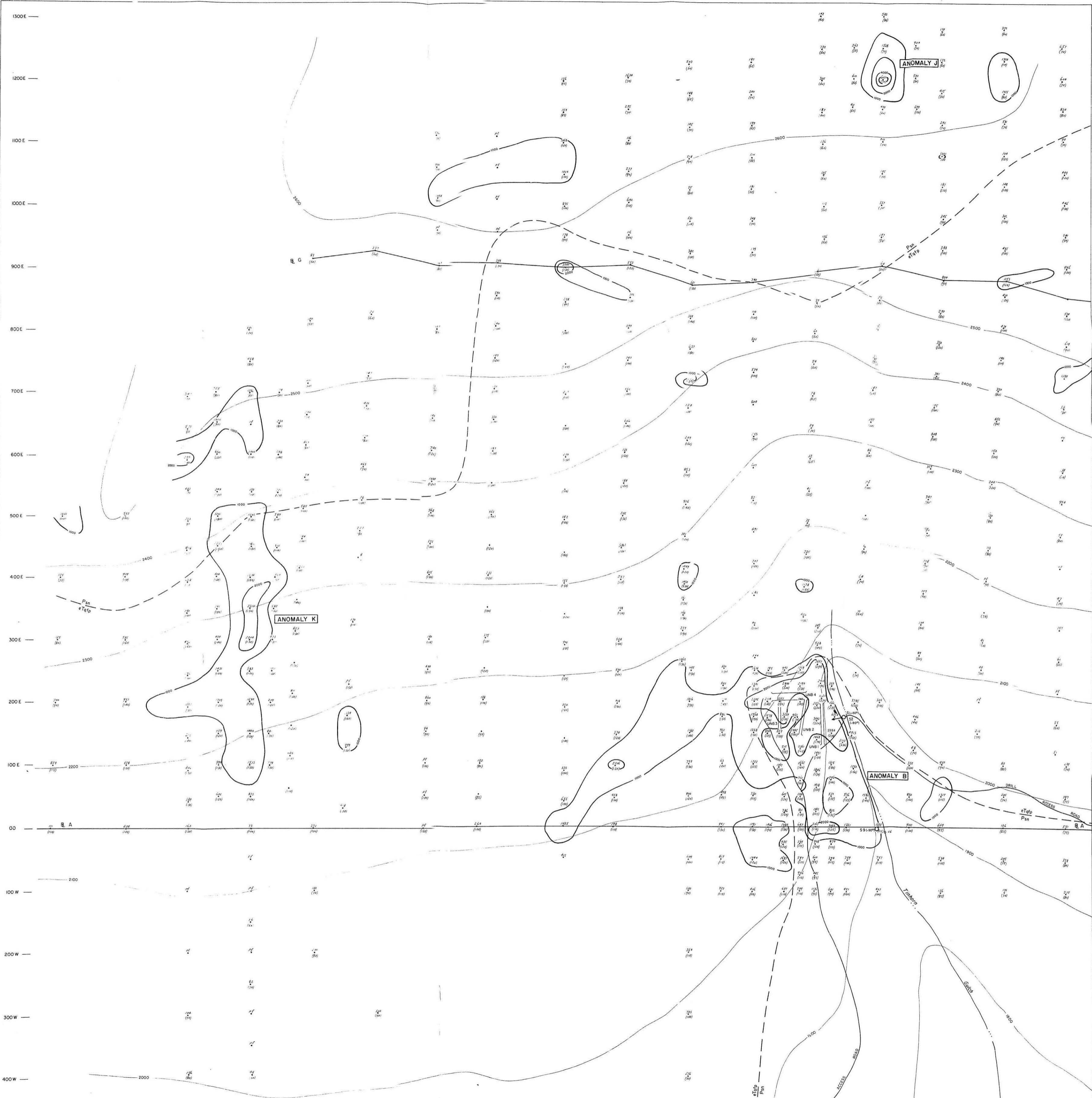


FIGURE U-UN27
ARCHER, CATMO & ASSOCIATES, LTD.
**GEOLOGY, RADIOMETRICS,
RADON, TRENCHES, DRILL HOLES**
DETAIL ZONES A, G, I
SURPRIZE 1-225 CLAIMS
UKON JOINT VENTURE

2 of 2

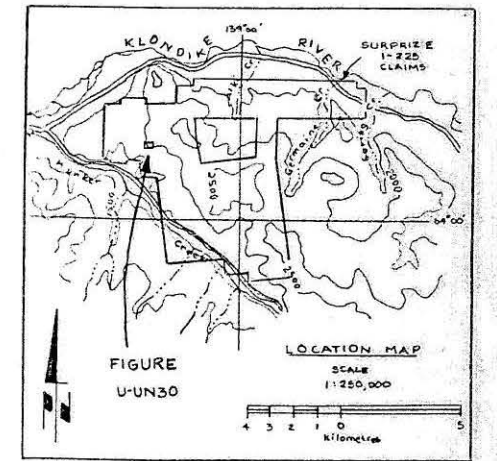
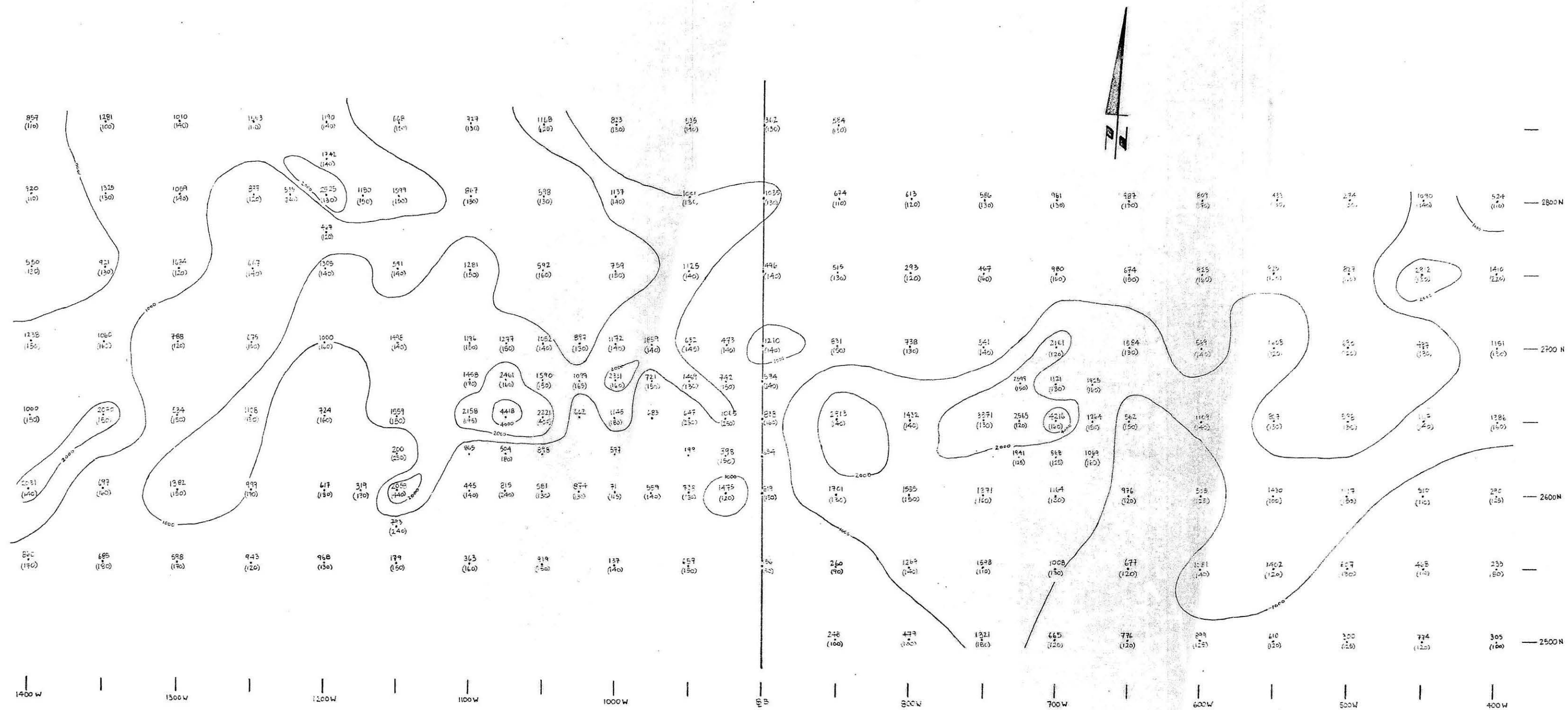


300 S 400 S 500 S 600 S 700 S 800 S 900 S 1000 S 1100 S 1200 S 1300 S 1400 S 1500 S 1600 S 1700 S 1800 S 1900 S 2000 S 2100 S



LEGEND

- EARLY TERTIARY**
- eTalp Quartz-tuffiferous porphyry
- PALEOZOIC (?)**
- Psn Schist-gneiss unit
- Fault
- Approximate geological contact
- Drill hole, number and orientation
- TRENCH
- Radon gas counts/m with alphaMeter
- alphaMeter station
- Radiometric in counts/second with BGS-15L (43 cc crystal) scintimeter at ground level
- Pematolite
- Radon gas survey contour line
- Topographic contour line
- Water sample in ppb U



LEGEND

- 1125 ← counts/hour with alphameter
- 170 ← counts/second with scintrex BAS-15L (43cc crystal) broadband scintillometer
- 1000 ← alphameter contour lines

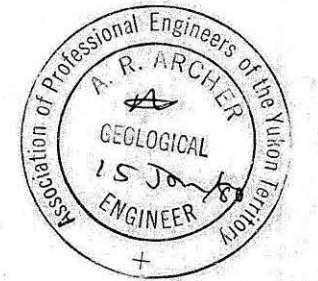
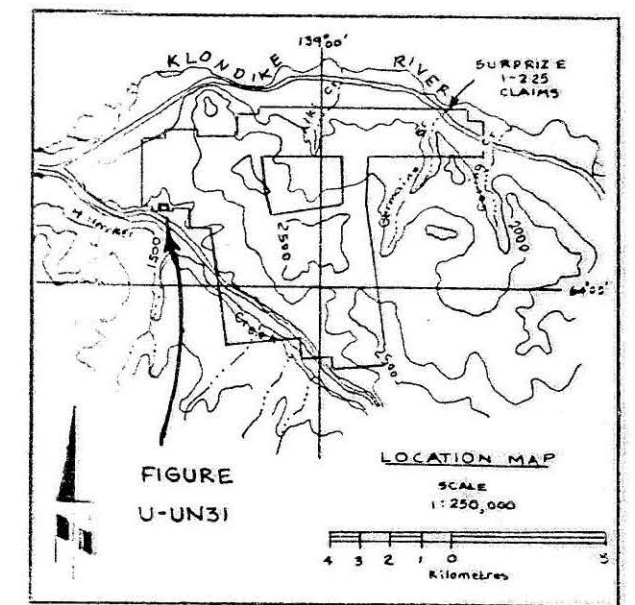
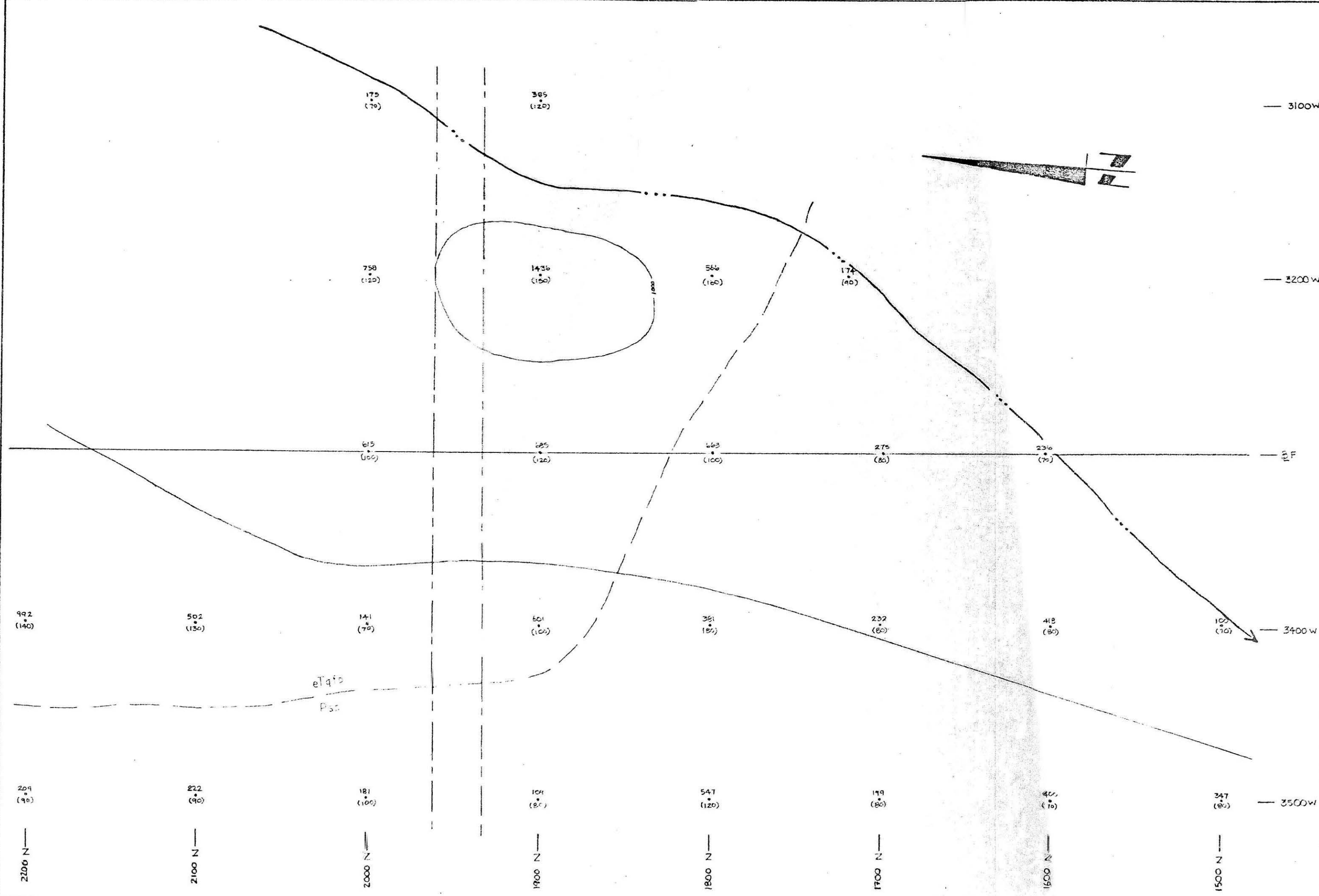


FIG. U-U-30
 ARCHER, CATHRO AND ASSOCIATES
 DETAIL RADIOMETRICS: ANOMALY E
 SURPRIZE 1-225 CLAIMS
 UKON JOINT VENTURE

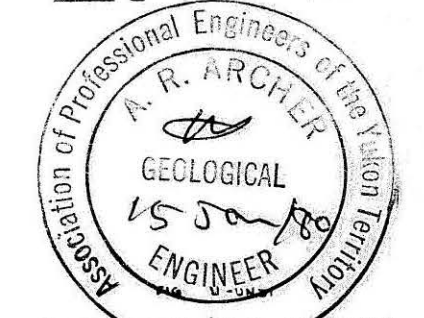
SCALE
 1:2000





LEGEND

- eTqfp / Psn approximate geologic contact
- 1125 ← counts/hour with alphaMeter
- 170 ← counts/second with Scintrex BBS-15L (43cc crystal) broadband scintillometer
- 1000 alphaMeter contour lines
- creek
- ~ bush road
- abandoned power line

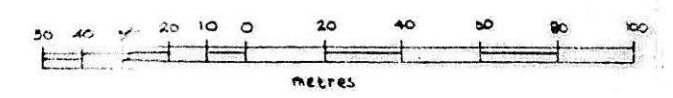


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DETAIL RADIOMETRICS ANOMALY F

SURPRISE 1-225 CLAIMS
UKON JOINT VENTURE

SCALE 1:2000



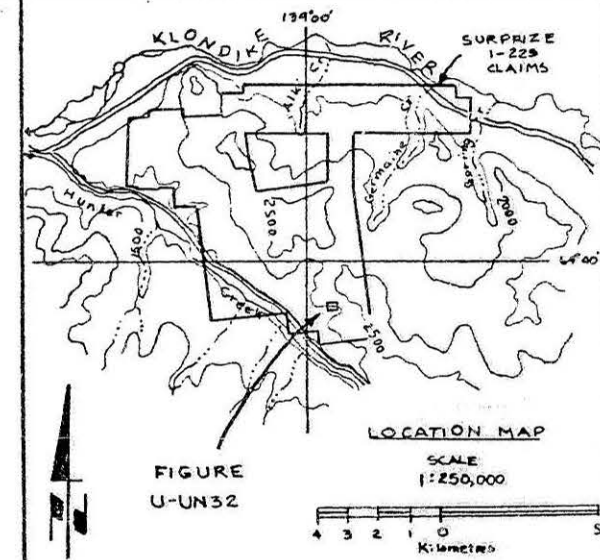
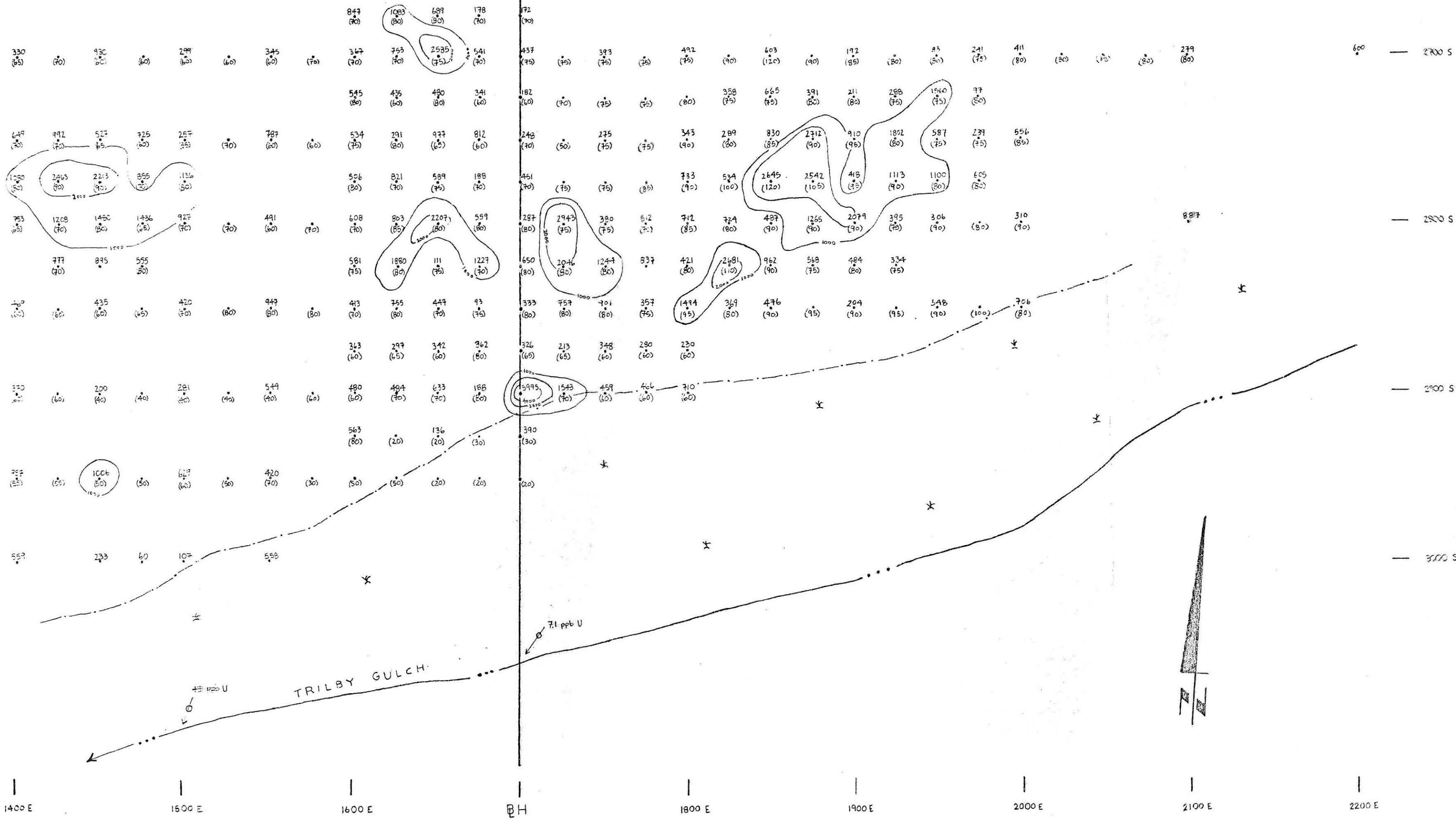


FIGURE U-UN32

SCALE 1:250,000

LEGEND

- 1125 ← counts/hour with alphaMeter
- 170 ← counts/second with Scintrex BGS-15L (43cc crystal) broadband scintillometer
- 1000 — alphaMeter contour lines
- 7ppbU Water sample location with analysis in ppb U
- ⋯ creek
- - - break in slope
- * * Swamp

Association of Professional Engineers of the Yukon Territory
A. R. ARCHER
GEOLOGICAL ENGINEER
 1570 U-UN32

DETAIL RADIOMETRICS ANOMALY H

SURPRISE 1-225 CLAIMS

UKON JOINT VENTURE

SCALE 1:2000

20 10 0 20 40 60 80 100 metres