006751

UNEXPECTED PROPERTY

Surprize 1-95 claims

DECEMBER, 1977

NTS 116B/3 and NTS 1150/14

Latitude 64°01'N, Longitude 139°04'W

INTRODUCTION

The Unexpected property was staked as the Surprize 1-16 claims in 1976 to cover an area where highly anomalous uranium values were obtained from water in streams draining a schist-intrusive contact (see UJV 1976 Final Report, pp. 77-83). Subsequent soil sampling located two specific areas of weakly anomalous uranium response near the creek headwaters.

The 1977 program was done in three stages: (a) May 30 to June 5 - claim staking, grid soil sampling and radiometric surveys, geological mapping and hand pitting; (b) September 13 to 23 - additional claim staking, reconnaissance soil sampling and geological mapping, and bulldozer trenching; and, (c) November 2 to 5 - additional bulldozer trenching.

PROPERTY, LOCATION AND ACCESS

The Unexpected property consists of 95 contiguous Surprize claims that form a sub-rectangular block. The claims are recorded at Dawson as follows:

CLAIM NAME	GRANT NUMBERS	EXPIRY DATE
Surprize 1,3,5,7	YA 9565 - YA 9568	14 April, 1982
Surprize 10,12,14,16	YA 9569 - YA 9572	14 April, 1982
Surprize 2,4,6,8	YA 9573 - YA 9576	14 April, 1982
Surprize 9,11,13,15	YA 9577 - YA 9580	14 April, 1982
Surprize 17-32	YA10204 - YA10219	1 June, 1978
Surprize 33-95		

The property is located at 64°01'N and 139°04'W straddling claim sheets 1150/14 and 116B/3, 21 km (13 miles) by road east of Dawson. Access is via the all-weather Hunker Creek road which crosses the south end of the claim block.

GEOLOGY AND MINERALIZATION

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 district reaches depths of up to 150 m.

The claims cover the western contact of a quartz-feldspar porphyry stock that intrudes a complex metamorphic assemblage called the Schist-Gneiss Unit by D.J. Tempelman-Kluit of the G.S.C. The stock consists of rounded, 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. It is thought to be contemporaneous with stocks elsewhere in the district that have been dated as Eocene (about 50 m y).

The Schist-Gneiss Unit is an undivided mixture of Klondike Schist and Nasina Quartzite. Most outcrops on the Surprize claims consist of dark to pale green or grey chlorite schist with some black carbonaceous phyllites, minor marble and foliated greenstone. These metasedimentary rocks are thought to correlate with less deformed Paleozoic rocks northeast of the Tintina fault in the Finlayson Lake district. The age of the metamorphism is believed to be Early or Middle Triassic.

Geochemical exploration in 1976 located two anomalies. Anomaly A consisted of a 400 m by 500 m area near the headwaters of Surprize Creek with soil values between 8 and 184 ppm U while anomaly B consisted of a small area of scattered anomalous soil values up to 184 ppm U near the headwaters of Tinhorn Gulch. No other evidence of uranium mineralization was found and rock assays of both intrusive and schist returned uranium values of 5 ppm or less.

1977 EXPLORATION PROGRAM

Geology, Geochemical and Radiometric Surveys

The 1977 mapping is illustrated on Figure U-UN4 in the pocket. Outcrop is virtually absent and the contact between the quartz porphyry stock and the Schist-Gneiss Unit has been defined by mapping surface float and rock fragments found in soil sample pits. The claims cover the western contact of the stock, which appears to be quite irregular although this may be merely an apparent irregularity caused by the distribution of float. A narrow linear band of Schist-Gneiss at the headwaters of Tinhorn Gulch is either a roof pendant within the stock or an unusually sharp contact irregularity, perhaps indicating an offset due to faulting.

Figure U-UN4 also illustrates results of reconnaissance geochemical sampling along drainage and claim lines of the Surprize 33-95 claims while Figure U-UN5 illustrates combined results of 1976 and 1977 grid soil sampling on the Surprize 1-32 claims. Figure U-UN3 on the following page shows assays of water samples collected within and around the property in 1976 and 1977. The highest 1977 value (95 ppb) was obtained from Surprize Creek, which drains the swampy bench containing 1976 soil anomaly A. The 1977 soil sampling program located a new area of weak response up to 59 ppm U (called anomaly C), near the headwaters of Catchup Gulch. All anomalies are found near the intrusive-porphyry contact.

Figure U-UN6 illustrates grid radiometric surveys in 1976 and 1977 on the Surprize 1-32 claims while Figure U-UN4 illustrates reconnaissance radiometric survey response along the claim lines of the Surprize 33 to 95 claims. All surveys were conducted with a Scintrex BGS-1SL broadband scintillometer (43 cc crystal). Backgrounds range from 40 to 150 cps over the porphyry and from 30 to 80 cps over the Schist-Gneiss Unit. No strongly anomalous areas were found. A response of twice background was obtained over soil anomalies B and C while soil anomaly A gave a slightly lower response of up to 50 per cent above background. Scintillometer readings of twice background with no associated geochemical response were also obtained from porphyry outcrops along the Hunker Creek road near Baseline A. Radiometric values along the claim lines tend to be slightly above background where the lines cross the porphyry contact.

Trenching

Initial trenching consisted of a hand pit followed by three trenches dug

FIG. U-UN3
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REGIONAL WATER SAMPLING

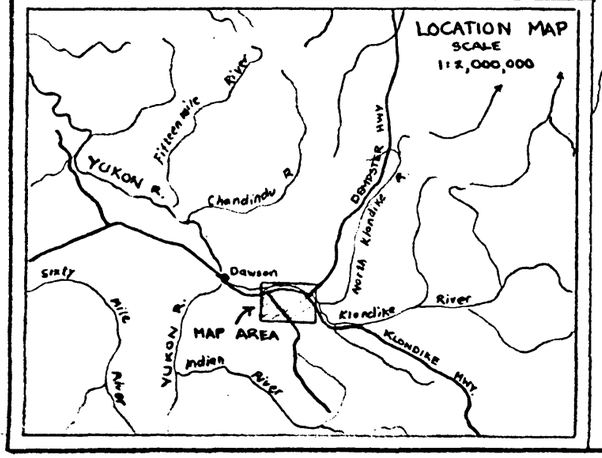
SURPRIZE 1-95 CLAIMS
UKON JOINT VENTURE

LEGEND

- O 0.4 — WATER SAMPLE LOCATION AND GEOCHEM ANALYSIS IN PPB URANIUM
- eTqfp / Psn — GEOLOGICAL CONTACT, APPROXIMATE
- eTqfp — QUARTZ FELDSPAR PORPHYRY
- Psn — SCHIST GNEISS UNIT

KLONDIKE RIVER
KLONDIKE HIGHWAY
Dawson Airfield
HUNKER CREEK
HENRY GULCH
HATTIE G.
GERMAINE G.
GERMAINE CREEK
ALKI CREEK
REEDOO GULCH
UNEXPECTED G.
CATCHUP G.
TINHORN G.
EIGHTY
LAST CHANCE CREEK
SURPRIZE G.
TRIBBY G.
BEE G.
HESTER CREEK
INDEPENDENCE CREEK
COLORADO CREEK
HOT MUCH GOLD CK.
GOLD BOTTOM CREEK
GORING CREEK
SURPRIZE 1-95 CLAIMS
MOUNT LEOTTA
HUNKER CREEK
LITTLE CREEK
SIX BELOW PUP
3 BELOW
23 BELOW
64° 00'
139° 00'

LOCATION MAP
SCALE
1:2,000,000



with a D7 bulldozer, without ripper, at soil anomaly B. Attempts to trench soil anomaly A by hand and with the small bulldozer were unsuccessful because of frozen overburden. A ripper-equipped D8 bulldozer was obtained in early November and three trenches were cut at anomaly A without difficulty.

Figure U-UN7 (on the following page) illustrates the results of trenching at soil anomaly B. The initial hand pit was dug to a depth of 1.5 m and geochemical profiling returned an assay of 55 ppm U from decomposed chlorite schist bedrock at the bottom compared with only 1.5 ppm U from the overlying B soil horizon. Trench UN-B1, dug to a depth of 3 m at the same location with a bulldozer, returned bedrock assays that ranged from 35 ppm to 80 ppm U and averaged 58 ppm U and, as in the hand pit, demonstrated sharp increase in U content with depth. Bedrock appears to be unleached and consists of partially frost-shattered, grey chlorite schist containing minor vuggy, milky white quartz lenses. A second trench, located 30 m north, exposed similar chlorite schists and a sample profile returned assays ranging from 0.5 ppm U at surface to 28 ppm U at the base. Trench UN-B3, situated 60 m north of Trench UN-B1, exposed fresh quartz feldspar porphyry. A sample profile from this trench returned assays ranging from 0.5 ppm U at the top to 5.5 ppm U at the base. None of the trenches show any evidence of sulfides, sulfide leaching or secondary uranium oxides.

Figure U-UN8 (following Figure U-UN7 in the text) illustrates results of trenching at soil anomaly A. Two trenches were cut near the projected location of the quartz feldspar porphyry contact and one about 150 m northwest. All three trenches reached bedrock which consists of weathered, frost-broken chlorite schist with limonite-stained quartz lenses. Overburden ranges up to 2.3 m deep and

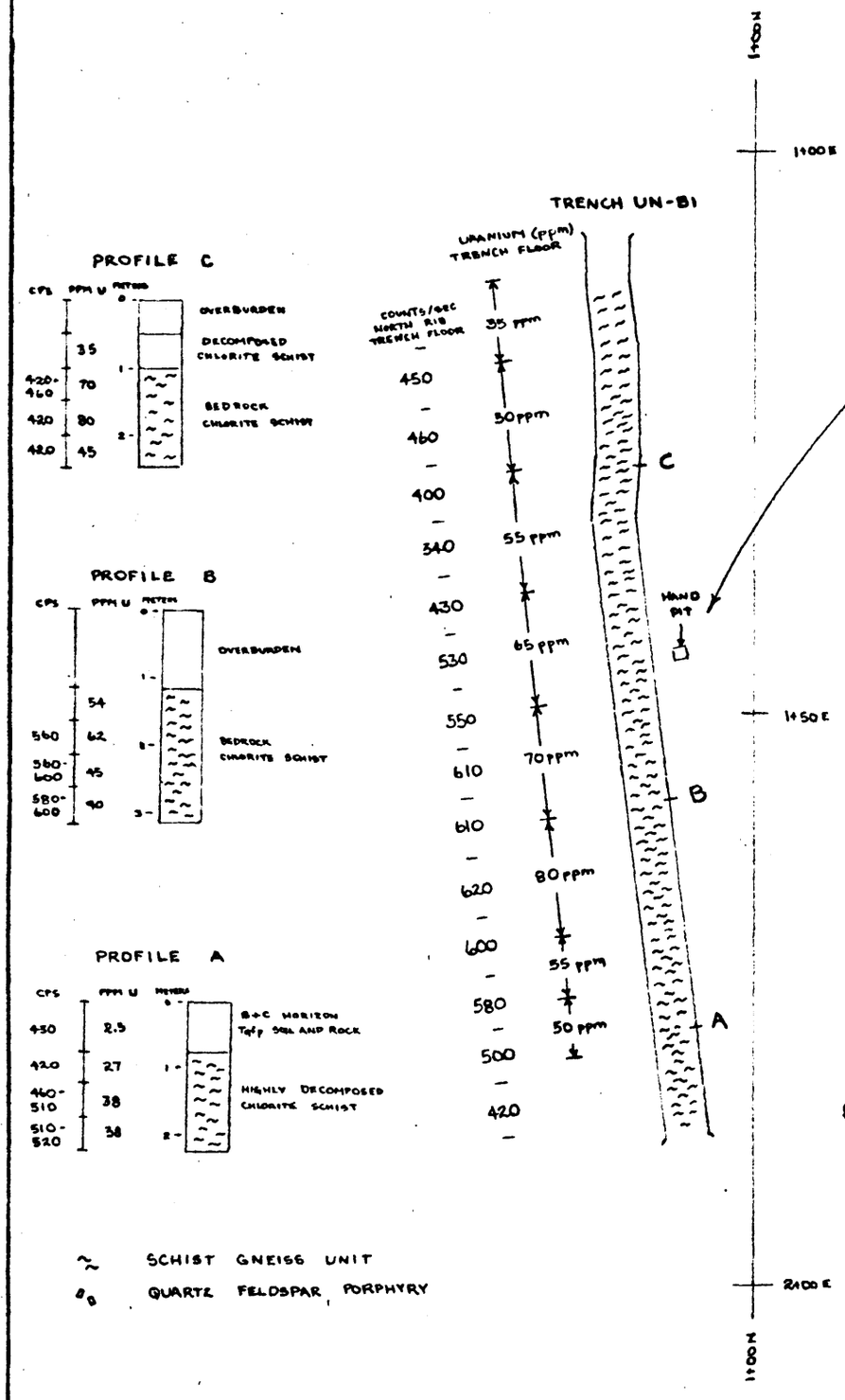


FIG. U-UN 7

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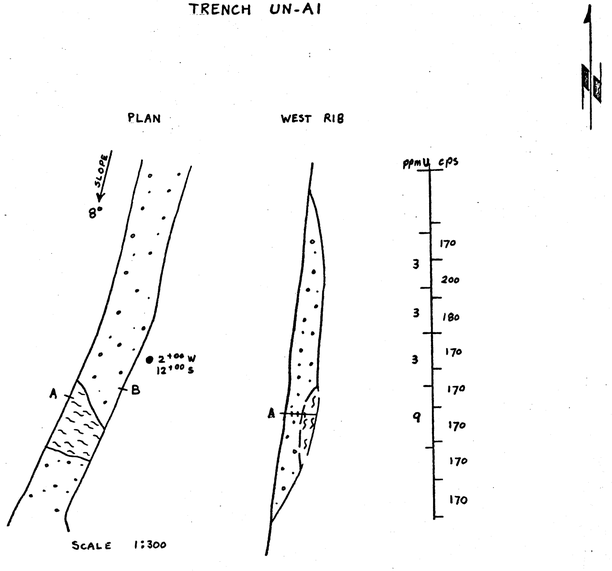
TRENCHING - SOIL ANOMALY B

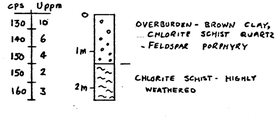
SURPRIZE 1-95 CLAIMS

UKON JOINT VENTURE

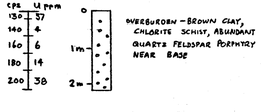
TRENCH UN-A1



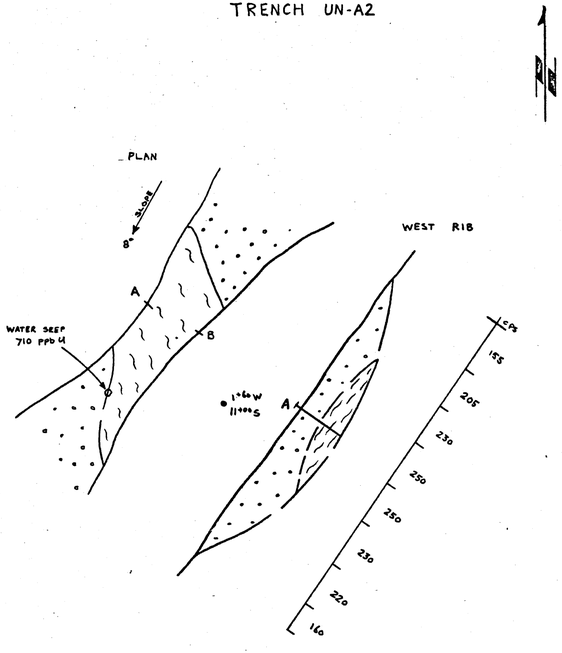
PROFILE A



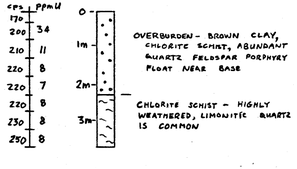
PROFILE B



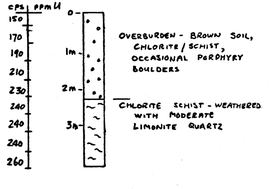
TRENCH UN-A2



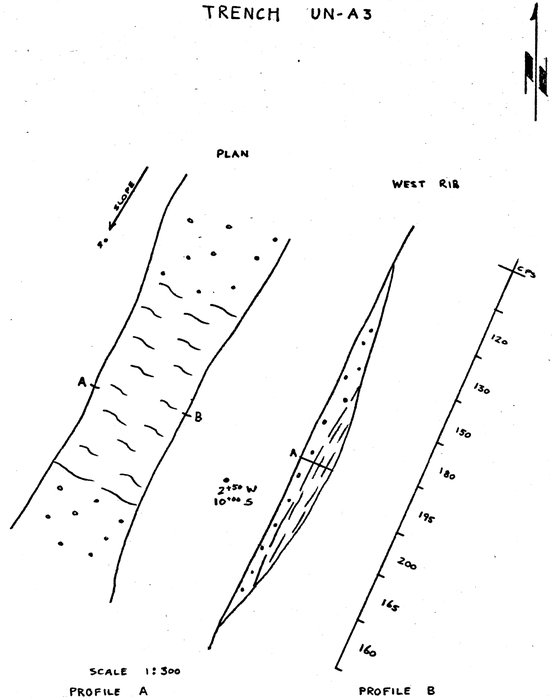
PROFILE A



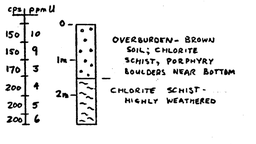
PROFILE B



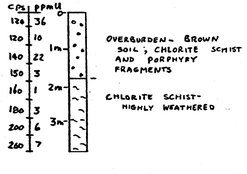
TRENCH UN-A3

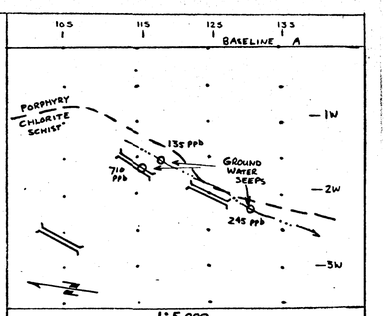


PROFILE A



PROFILE B





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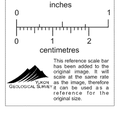

FIG. U-UN8

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TRENCHING - SOIL ANOMALY A

SURPRIZE 1-95 CLAIMS

UKON JOINT VENTURE

consists of partially frozen dark brown soil with chlorite schist and quartz-feldspar porphyry fragments. The porphyry float is most abundant near the bottom, often occurring as boulders up to 15 cm across. Geochemical profiling consistently returned higher uranium values (10 to 70 ppm U) from the near surface organic rich soil than from the base of the overburden (3 to 12 ppm U) or from bedrock (2 to 17 ppm U). A sample of water seeping from the bedrock-overburden contact in Trench UN-A2 assayed 710 ppb U while a surface seepage immediately east assayed 135 ppb U. A second water sample from the same surface seepage about 100 m south, just east of Trench UN-A1, assayed 245 ppb U.

CONCLUSIONS AND RECOMMENDATIONS

Unusually anomalous levels of uranium are found in water from some of the streams that drain a contact between quartz-feldspar porphyry and chlorite schist. Soil sampling located two anomalies, called A and B, which were explored by bulldozer trenching. Anomaly A proved to be caused by uranium concentrating in soil in an area where ground water seeps return intensely anomalous uranium values ranging from 135 to 710 ppb U. Anomaly B proved to be a tongue or linear roof pendant of unmineralized chlorite schist with a uranium content ranging between 35 and 80 ppm U. It has not been determined whether the uranium in the schist is a background component or has been precipitated from ground water.

The source of the uranium is uncertain. Rock samples of porphyry return normal background values (2 to 5 ppm U) and not all streams draining the

porphyry have anomalous water values. The implication is that only specific zones within the porphyry are liberating uranium into the geochemical cycle. These zones could be related to compositional differences, structures or unexposed uranium occurrences that are being actively leached. If such occurrences exist, they will be difficult to locate as leaching in similar unglaciated terrane elsewhere in Yukon reaches up to 150 m in depth.

Further work is warranted and should consist of a 300 m diamond drill hole across the tongue of chlorite schist at soil anomaly B. The hole should be angled in order to cut through the porphyry contact at a depth of 150 m or more below surface. Several days of bulldozer trenching should be concurrently conducted at soil anomaly A in attempt to expose the schist-porphyry contact.

SURPRIZE 33-95

SURPRIZE I-32
(see Figs. U-UN5 and U-UN6)

CAMP

BASELINE A
BASELINE B
BASELINE C
BASELINE D
BASELINE E
BASELINE F

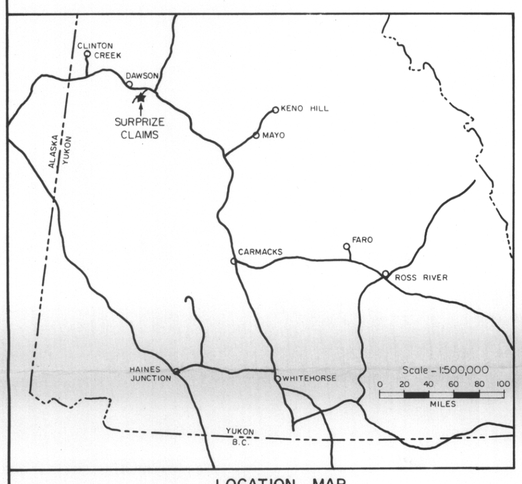
Psn
eTqfp

Australian Hill
Gulch
Bordeleau
Preido
Unexpected
Catchup
Tinhorn
Surprize
Hunker Creek
Aiki Creek
Hunker Road
powerline
marble
tuff breccia
SOIL ANOMALY A
SOIL ANOMALY B
SOIL ANOMALY C
UN-A1
UN-A2
UN-A3
UN-B1
UN-B2
UN-B3
Pit
TO DAWSON

1400
1600
1800
2000
2200
2400
2600

64° 00'
139° 04'

LOCATION MAP



LEGEND

eTqfp quartz feldspar porphyry, rounded smoky quartz eyes

Psn Schist-Gneiss Unit — dark green to grey chlorite schist, minor carbonaceous phyllite, marble and foliated greenstone

approximate geological contact

claim post location and claim numbers

bulldozer trench

(110) • 2·5 — (110)-total count at waist height using a Scintrex BGS-1SL broadband scintillometer (43 cc crystal)
2·5-soil sample value in ppm uranium
T -trace

water sample value in ppb uranium

area of soil values in excess of 8 ppm uranium

• 7·5 rock sample value in ppm uranium

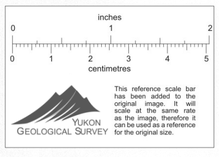


Fig. U-UN4

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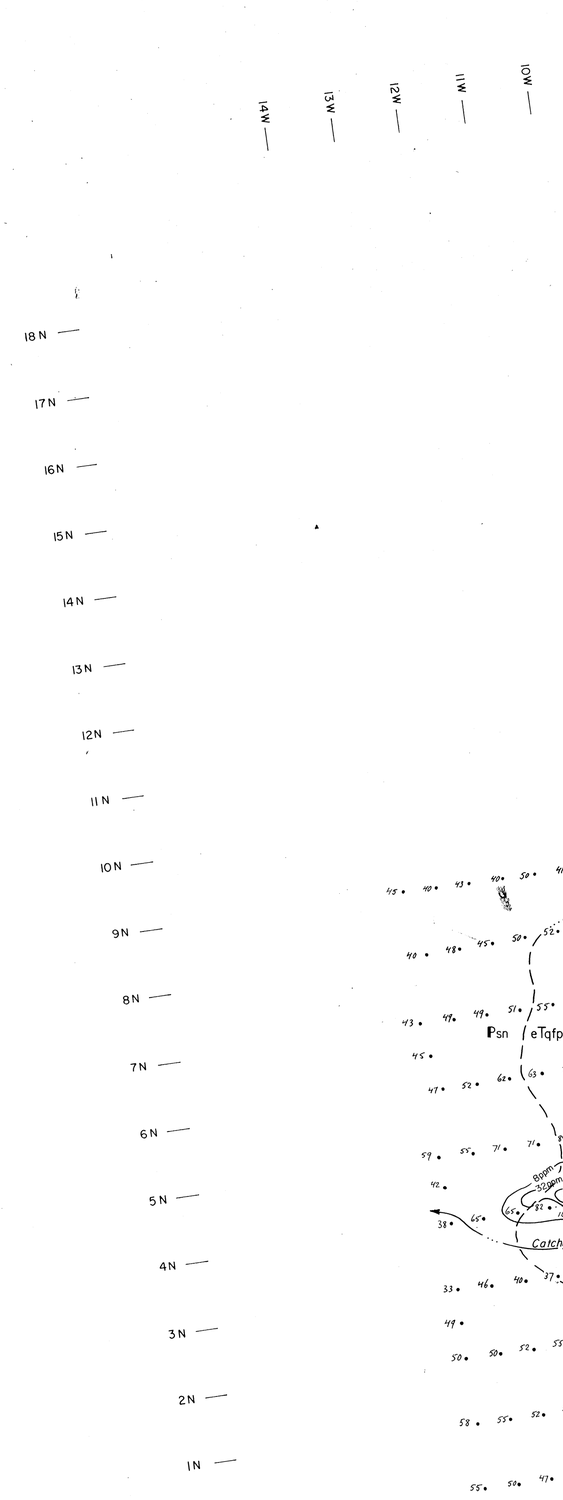
GEOLOGY, RECONNAISSANCE GEOCHEMISTRY AND RADIOMETRICS

SURPRIZE 1-95 CLAIMS
UKON JOINT VENTURE

SCALE - 1:10,000

200 100 0 200 400 600 800
METRES

NTS 116 B/3



LEGEND

- **eTqfp** — quartz feldspar porphyry, rounded smoky quartz eyes
- **Psn** — Schist-Gneiss Unit – dark green to grey chlorite schist, minor carbonaceous phyllite, marble and foliated greenstone
- • 110 — total count at waist height using a Scintrex BGS-1SL broadband scintillometer (43 cc crystal)
- ANOMALY A — location of geochemical anomaly (see Fig. U-UN5)
- approximate geological boundary
- claimpost location and claim numbers
- bulldozer trench

Fig. U-UN6

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RADIOMETRICS, GEOLOGY

UNEXPECTED PROPERTY

SURPRIZE 1-32 CLAIMS

UKON JOINT VENTURE

SCALE – 1:5000

100 0 100 200 300 400

Metres

inches 0 1 2

0 1 2 3 4 5 centimetres

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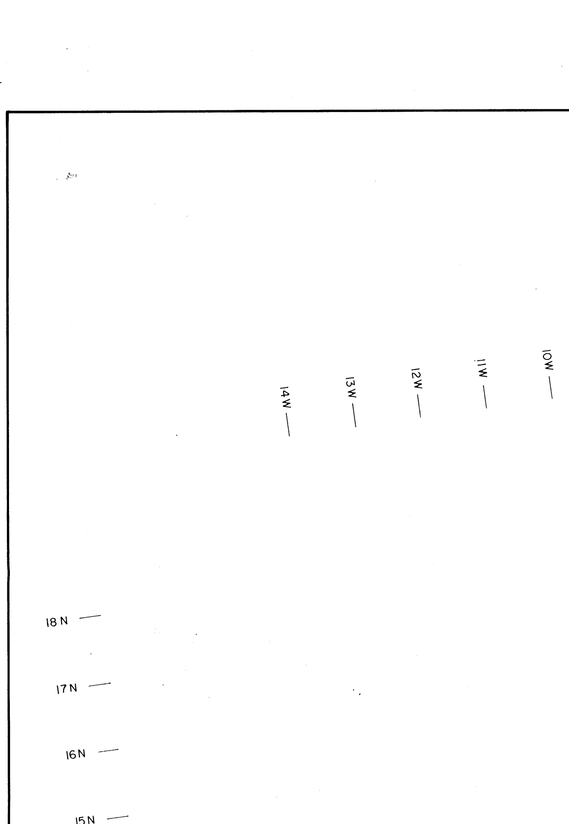
YUKON GEOLOGICAL SURVEY



LEGEND

eTqfp	quartz feldspar porphyry, rounded smoky quartz eyes
Psn	Schist-Gneiss Unit – dark green to grey chlorite schist, minor carbonaceous phyllite, marble and foliated greenstone
•2·5	soil sample value in ppm uranium
▪6·5	rock sample value in ppm uranium
⊙32	water sample value in ppb uranium
— · · —	approximate geological contact
2 1 4 3	claimpost location and claim numbers
	bulldozer trench

Fig. U-UN5

ARCHER, CATHRO & ASSOCIATES LTD

GEOCHEMISTRY, GEOLOGY

UNEXPECTED PROPERTY

SURPRIZE 1–32 CLAIMS

UKON JOINT VENTURE

SCALE – 1:5000

100 0 100 200 300 400

Metres

inches 0 1 2

centimetres 0 1 2 3 4 5

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YUKON GEOLOGICAL SURVEY