

HAM

REPORT ON GEOCHEMISTRY, GEOLOGY  
AND RADIOMETRIC SURVEY

TING 1-50 ) CLAIMS  
NOTING 51-76 )  
PROSPECTING 77-84 )

DAWSON MINING DISTRICT  
CLAIM SHEET 116B/7

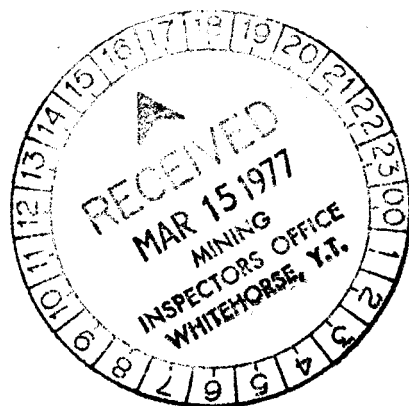
Lat.  $64^{\circ}23'$

Long.  $138^{\circ}36'$

20 January 1977

A. R. Archer  
E. P. Onasick

Consulting Engineer  
Chief Geologist



090183



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

\$ 11,450<sup>00</sup>

A handwritten signature in cursive script, appearing to read "W. Sinclair".

~~Resident Geologist or  
Resident Mining Engineer~~

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

A handwritten signature in cursive script, appearing to read "B.R. Baxter".

B.R. BAXTER  
Supervising Mining Recorder

*f12* / Commissioner of Yukon Territory

**ARCHER, CATHRO**  
AND ASSOCIATES LTD.  
CONSULTING GEOLOGICAL ENGINEERS

Box 4127, WHITEHORSE, Y.T. Y1A 3S9 667-4415

STANDARD BUILDING, VANCOUVER, B.C. 688-2568

1016 STANDARD BUILDING  
510 WEST HASTINGS STREET  
VANCOUVER, B.C.  
V6B 1L8

REPORT ON GEOCHEMISTRY, GEOLOGY  
AND RADIOMETRIC SURVEY

PROSPECTING 77-84 )  
NOTING 51-76 ) CLAIMS  
TING 1-50 )

DAWSON MINING DISTRICT

CLAIM SHEET 116B/7

Latitude  $64^{\circ}23'$

Longitude  $138^{\circ}36'$

20 January 1977

A. R. Archer  
E. P. Onasick

Consulting Engineer  
Chief Geologist

TABLE OF CONTENTS

<u>IN TEXT</u>	<u>PAGE</u>
Introduction .....	1
Property, Location and Access .....	2
Geomorphology and Glaciation .....	3
Regional Geology .....	3
Regional Radiometrics and Geochemistry .....	6
Mineralization .....	10
Ting Showing .....	10
Fawn Showing .....	12
Prospecting Showing .....	14

FIGURE IN POCKET

Figure U-TS1 - Tombstone Area; Radiometrics Scale 1:25,000 .....	
Figure U-TS2 - Tombstone Area; Geochemistry Scale 1:25,000 .....	

## TING PROPERTY

### INTRODUCTION

The Ting property is comprised of three contiguous claim groups, namely the Ting, Noting and Prospecting claims. Ukon Joint Venture (Chevron Canada Limited and Kerr-Addison Mines Limited, managed by Archer, Cathro & Associates Limited) originally investigated the syenitic intrusions, known as the Tombstone Intrusions, during the period 29 May - 1 June 76. The field crew (comprised of geological engineer Eric P. Onasick and prospector W. Doug Eaton), was successful in locating a strong, sharp anomaly at that time, despite extensive snow cover, using airborne radiometric equipment mounted in a Hughes 500 helicopter, and after further local flying and ground examination, the first group of 40 Ting claims were staked on 31 May 76. The next trip to the area (17 - 21 June 76) confirmed the original strong anomaly and discovered uranium mineralization on the claims ('Fawn' showing). Ten more claims were added on 17 July 76, following the discovery of a new showing ('Ting') after flying and ground prospecting during the period 13 - 18 July 76, and an additional twenty claims were added for protection on 4 August 76 after ground and air prospecting favourable geological units during 2 - 5 August 76. Extensive ground prospecting and sampling ensued during 29 August - 12 September 76, resulting in the acquisition of six new claims on 1 September 76 for protection and eight claims to cover a third mineralized showing ('Prospecting') on 11 September 76, bringing the total to eighty-four adjoining claims for the Ting group (see summary below).

Geologist Mike P. Phillips and assistant Arjan Gelling joined the crew during 17 - 21 June 76, and senior supervision was provided at various times by R. J. Cathro and A. R. Archer. Representatives of Kerr-Addison (Messrs. W. Sirola and D. Lowrie) visited the property on 15 July 76, and representatives of Chevron (Messrs. H. Wober and E. Dodson) examined the showings on 1 September 76.

Work by UJV included extensive airborne radiometric reconnaissance, complemented by numerous ground traverses emphasizing geochemical sampling and prospecting with scintillometers. Flight lines and anomalies, and geochemical sampling are illustrated on Figures U-TS1 and U-TS2 (in the pocket) respectively. Reports concerning UJV-owned claim blocks 'Sumting' and 'Nebulous', also shown on these figures, are under separate cover.

PROPERTY, LOCATION AND ACCESS

The Ting property consists of eighty-four contiguous mineral claims recorded in the Dawson Mining District as follows:

<u>PROPERTY</u>	<u>CLAIM NAME</u>	<u>NUMBER OF CLAIMS</u>	<u>GRANT NUMBERS</u>	<u>EXPIRY DATE</u>
Ting	Ting 1-40	40	YA5027-YA5066	7 June 77
Group	Ting 41-48	8	*YA5163-YA5156	26 July 77
	Ting 49-50	2	YA5140-YA5141	23 July 77
	Noting 51-55	5	YA5174-YA5178	12 August 77
	Noting 56-59	4	YA5182-YA5185	12 August 77
	Noting 60	1	YA5179	12 August 77
	Noting 61-64	4	YA5190-YA5193	12 August 77
	Noting 65-68	4	YA5186-YA5189	12 August 77
	Noting 69-70	2	YA5180-YA5181	12 August 77
	Noting 71-76	6	YA9509-YA9514	7 September 77
	Prospecting 77-84	8	YA9525-YA9532	16 September 77

\* note reverse order

The claims are located at latitude  $64^{\circ}23'$  north and longitude  $138^{\circ}36'$  west, on claim sheet 116B/7, 30 miles (49 km) northeast of Dawson, at the headwaters of the North Klondike River and Tombstone River (an eastern tributary of the Chandindu River).

Access to the area was by helicopter from a camp 10 to 15 miles (16 to 24 km) away, located at Mile 45 (Km 72) of the Dempster Highway, which joins the main Dawson-Whitehorse Highway 25 miles (40 km) east of Dawson.

#### GEOMORPHOLOGY AND GLACIATION

The Tombstone intrusions form the cores of the Cloudy and Tombstone Ranges, subdivisions of the Southern Ogilvie Mountains, and are characterized by long, branching, sharp-crested ridges that rise to elevations of more than 7,000 feet (2100 m), with local relief between 3,000 - 5,000 feet (1000 - 1600 m), often as sheer cliffs. The area escaped Pleistocene ice-sheet glaciation but was strongly dissected by alpine glaciation. Glacial drift now mantles the lower hillsides and small stagnating glaciers occupy some north-facing cirques. Till desposits of local derivation as thick as 15 metres are found in the North Klondike Valley. Tree line is about 3,500 feet (1067 m) and vegetation above is mainly grasses, lichens and buckbrush.

#### REGIONAL GEOLOGY

Middle Cretaceous syenite and quartz monzonite stocks in the Tombstone area intrude Cambrian through Lower Cretaceous strata of argillaceous sediments, volcanics, limestone, phyllitic slate, quartzite and diabase/gabbro.

The syenite is well exposed and the Tombstone stock outcrops over 35 square miles (90 sq. km). The intrusions range from a central core of alkali syenite, which comprises about 75 percent of the pluton, to quartz monzonite and quartz diorite at the margins. The syenite is medium grained and commonly porphyritic, and shows trachytoid textures. A few trachyte dikes up to 5 metres wide cut the country rocks. Composition of the syenitic rocks varies from 40 to 95 percent orthoclase, up to 35 percent plagioclase, and up to 20 percent quartz. Pyroxene is the most common mafic but hornblende and minor biotite are sometimes present. Accessories include sphene, zircon, apatite, melanite garnet, magnetite, fluorite and opaques. The trend from peralkaline, silica-deficient syenite at the centres of the stocks to calcic, silica-saturated quartz diorite at their margins probably reflects differentiation of the intrusive magma. Granodiorite and diorite occur at the northern margins of the larger stocks.

Tempelman-Kluit of the G.S.C. has identified a distinctive phase along the southern margin of the Tombstone stock and in a smaller area near its core as pseudoleucite tinguaite, a variation of nepheline syenite related to phonolite (see G.S.C. Bulletin 180). The best uranium occurrences are associated with this phase of the stock, which was found by UJV to cover an area about four times as large as mapped by Templeman-Kluit (see Figure U-TS2). The tinguaite is closely related in age to the main stock, which has been dated at 80 to 90 m.y. or early Late Cretaceous. It is a fresh porphyritic rock with medium to coarsely crystalline white phenocrysts, to a foliated rock with flattened phenocrysts, to an unfoliated crowded porphyry. Phenocrysts consist of up to 30 percent euhedral, equant, white pseudomorphs after leucite up to 4 cm across, and up to 10 percent subhedral, tabular orthoclase. The pseudoleucite phenocrysts

consist of 60 percent potassium feldspar, 20 percent nepheline, 10 percent cancrinite, 5 percent calcite and minor plagioclase, biotite and melanite garnet. Aside from a higher Na/K ratio, this is approximately the same whole rock analysis that can be accounted for by combining orthoclase and nepheline in the ratio 94:6. Common accessory minerals are disseminated calcite, sphene and zircon, and purple fluorite on fractures.

The tinguaitite is possibly the most permeable rock type in the Tombstone stock, partly because it is strongly foliated and cut by two strong joint sets, and partly because the breakdown of leucite to pseudoleucite is accompanied by a 3.8 percent volume decrease. Since up to 30 percent of the rock is composed of phenocrysts, this results in a porosity of up to 1 percent, although if the rock was in a semi-fluid or plastic state during this change, the porosity may have been destroyed by squeezing. Observed textural relationships suggest that the tinguaitite may be the last phase of intrusive activity, possibly being emplaced as a rapidly cooling extensive dike system. The uranium and thorium may have been mobilized from earlier phases of the stock by heat from the cooling tinguaitite, or they may simply be a minor constituent of the tinguaitite itself.

The stock is mainly bounded by Lower Cretaceous orthoquartzite (Keno Hill quartzite) and diabase which have been deformed by thrust faulting and folding. They have not been noticeably disrupted by the intrusions, which probably crystallized from a magma emplaced in stages (see GSC Bulletin 180). Contacts are steeply dipping, sharp and markedly discordant, truncating stratigraphic and structural features. Besides textural and lithological gradations, the most prominent structures in the intrusions are system of moderately radioactive dikes at the eastern margin of the Tombstone stock near Mt. Monolith,

and fairly ubiquitous steeply-dipping jointing. A few northeast- and northwest-trending vertical tension faults cut and offset the surrounding strata, but they have no associated radioactivity. Xenoliths of all sizes up to 100 metres across occur randomly throughout the stocks and are commonly stained by limonite.

Shearing is locally important and may be a result of movement in the crystal mush between more solid phases of the intrusive magma during emplacement. Apparent flow-banding is especially evident in the tinguaita phase, where pseudoleucites have stretched or flattened, sometimes beyond recognition. These zones of weakness may be significant in the Tombstone stock as channels for mineralization since uranium is theoretically strongly partitioned into a late residual liquid phase (i.e. tinguaita) during igneous fractionation. In general, however, the syenitic rocks are tough and competent, and shears and fractures are not well developed; talus is usually composed of fairly large, angular blocks up to several metres in size with very little fine fraction. On the other hand, tinguaita is much more foliated and fractured and forms finer talus. Secondary uranium minerals are often seen as yellow coatings on fractures at the showings in the Tombstone stock, suggesting that the primary uranium mineralization originates in the tinguaita.

#### REGIONAL RADIOMETRICS AND GEOCHEMISTRY

Extensive airborne radiometric surveying generated over 70 anomalies in the Tombstone area in 1976, of which 50 are covered by UJV claims, and four occur on claims owned by competitors (see Figure U-TS1). Almost all of the anomalies are associated with the intrusive rocks, some of which are unmapped and occur near the main stocks. Exploration over the surrounding sediments failed to

locate any response.

The airborne surveys were carried out using a Scintrex Model GAM-1 spectrometer with 1853 cc NaI(Tl) crystal (Scintrex Model GSA-61), coupled to a Hewlett-Packard Model 7155A stripchart recorder. Lines were flown at about 100 km/hr at 50 to 75 m terrain clearance (wherever possible - the high relief necessitated a lateral clearance in some cases). The spectrometer was usually set in the total-count mode with three-second time constant, although anomalies were checked spectrally (i.e. on U, Th, K channels).

Airborne reconnaissance is a successful tool in the Tombstone area although genuine anomalies are difficult to separate from the high background. Extensive snow cover hindered the initial surveys in late May, although sufficient information was gathered to justify staking the south margin of the Tombstone stock (Ting 1-40 claims), which includes the Fawn anomaly. Subsequent airborne work was responsible for the detection of the Ting anomaly, whereas the Prospecting showing was discovered by ground scintillometry.

Typical radiometric response varies from moderate to very strong, and backgrounds of up to 2000 cps are not uncommon over the intrusions. In addition to uranium, both thorium and potassium contribute significantly to this response. In the vicinity of the Fawn, Ting and Prospecting showings, spectral ratios on the airborne spectrometer showed that uranium is higher than thorium. For example, a flight over the Fawn showing gave 140/50 cps on the uranium channel compared with 50/50 cps on the thorium channel and at the Ting showing, uranium and thorium responses were 95/52 and 50/50 cps respectively. Mass effect from the vertical cliffs with their large exposure of radioactive rock also contributed to the strong airborne response in many parts of the Tombstone area.

Several prominent airborne anomalies occur in the vicinity of Mt. Monolith, but ground examination indicated that they are reflecting high background from aplite and pegmatite dikes that assay low in uranium. Other anomalies over unclaimed ground east of Tombstone Mountain were also investigated on the ground but they failed to produce significant uranium assays from rock, silt or soil samples. A strip of minor anomalies along the Axeman Creek Fault is attributed to contrast from exposure of unmapped syenitic float, and an anomaly east of Lake Cockell in the Grizzly Creek Valley was traced to radioactive boulders that give low values in uranium.

Samples collected during the 1976 field season were comprised of soils, silts, waters, rock chips and whole rocks. Waters were collected in 250 ml plastic bottles and were filtered and acidified with 8M nitric acid the same day to prevent uranium adsorption onto the sides of the sample container. Soils were collected by using a geological pick or mattock to dig to the B & C horizons (wherever possible). Soil and silt samples were placed in prenumbered kraft paper bags, dried and packaged. After radioactivity measurements, whole rocks were split and stored for reference. Samples were shipped by air freight to Chemex Labs Ltd. in North Vancouver where they were analyzed as follows: rocks were crushed beforehand and then treated as silts and soils: subsequently, all samples were dried at 550°C and screened to -80 mesh, split and weighed, dried twice in 4M nitric acid, picked up in acidified water, fused with a standard sodium fluoride-based flux and assayed in ppm with a G. K. Turner fluorometer. Water samples were preconcentrated by evaporation and then analyzed by a similar method. Detection limits were 0.5 ppm for soils and rocks and 0.25 ppb for waters.

Over 500 rock, soil, silt and water samples were collected in the Tombstone area. Traverses were designed to follow-up areas of high radiometric response to locate source mineralization, to investigate geochemical anomalies from previous traverses, and to explore intervening areas with background airborne response.

Typically, values for soils and silts ranged from trace to 50 ppm U and rocks to 300 ppm, although background geochemical values in the intrusive area can be very high, with soil and silt assays up to 160 and 175 ppm U and rock assays of up to 0.155 percent  $U_3O_8$ . Water response was erratic and difficult to interpret. Creeks draining the Fawn and Ting showings gave only background assays of 0.3 ppb U. GSC samples collected in 1975 confirm the low concentrations of uranium in water, with the highest assay 1.0 ppb from a creek draining into Talus Lake. No anomalies were obtained from creeks draining the area where they cross the Dempster Highway.

Scintillometer readings (Scintrex broadband model BGS-1SL, with 43 cc NaI(Tl) crystal) indicate a typical background of 500 cps for the syenitic rocks with local variations up to 1200 cps. The sediments surrounding the intrusions invariably count low, 30 to 75 cps, and rarely exceed 100 cps. Radiation from creek boulders varies with the amount of intrusive float present. The pseudoleucite tinguaitite unit usually counts and assays low, particularly when the phenocrysts are rounded and undeformed, although in the vicinity of the showings non-porphyrific tinguaitite has been found to count very high. As mentioned above, dikes in the Mt. Monolith area were found to be more radioactive than the intrusive host, and typically count from 500 to 800 cps above background. Minor radioactive float found just south of Lake Cockell (not associated with the dike swarm) counts as

high as 6000 cps and assays up to 0.115 percent  $U_3O_8$ . The source of this float was not found.

Some uranium in the Tombstone area seems to be out of equilibrium since several rock samples with low radiometric counts have returned high assays. For example, a specimen from a large slab of porphyritic syenite near the head of Spotted Fawn Gulch counting 1200/500 cps, which is quite common in the intrusive area, assayed 0.056 percent  $U_3O_8$ , whereas another sample counting 200/600 cps in place and 210/30 cps in hand returned an assay of only 46 ppm U. This demonstrates that neither radiometric nor geochemical methods in the Tombstone area are completely reliable by themselves and that a great deal of assay control is necessary. Nevertheless, careful prospecting by scintillometer has been successful in tracing individual boulders to mineralized outcrop, as in the case of the Prospecting showing.

#### MINERALIZATION

The mineralization seems to be associated with the emplacement of the pseudoleucite tinguaite unit and is characterized by primary uranium minerals (probably uraninite) disseminated in a fine grained host with secondary yellow precipitation on fractures. This type is found at the UJV showings in the Tombstone stock: Ting, Fawn and Prospecting.

#### Ting Showing

The Ting showing lies near the centre of the southeast-facing  $35^\circ$  slope of the ridge between Spotted Fawn Gulch and Ting Creek, at latitude  $64^\circ 23'$  north and longitude  $138^\circ 39'$  west (see Figure U-TS2). Strongly radioactive float discovered downhill from a sharp airborne anomaly on the south margin of the

Tombstone stock was traced uphill to a small exposure of frost-heaved subcrop, and subsequent examination delineated a mineralized zone about 40 m long and 1 m wide striking  $020^{\circ}$ .

Radioactive float assaying as high as 0.41 percent  $U_3O_8$  was also found some distance uphill, but no other mineralization was located in outcrop in the immediate vicinity of the Ting showing. A significant amount of radioactive float has accumulated below the main zone, of which an assay of 0.538 percent  $U_3O_8$  and 0.015 percent  $ThO_2$  was returned for a hand specimen counting 2000 cps on the scintillometer. Analyses of non-radioactive float and outcrop in the vicinity typically return assays less than 50 ppm, and chip samples of unmineralized tinguaitite assay 20 to 35 ppm U.

The Zone itself is abruptly terminated at the north end by a change in lithology and is obscured at the south end by a talus chute. The linear shape of the radioactive zone is probably an expression of structural control although extensive scree cover on this hillside prevents better observation.

The main zone occurs in pseudoleucite tinguaitite consisting of white phenocrysts up to one centimetre in diameter in a fine grained, charcoal-grey groundmass. Large, slabby talus is produced by two joint sets, one striking  $050^{\circ}$  and forming a dip slope at  $40^{\circ}$  SE, and the other striking  $025^{\circ}$  and dipping  $80^{\circ}$  NW, which is approximately parallel to the trend of anomalous radioactivity. Near the zone, the weathered surface displays a light buff colouration and the most radioactive talus has a reddish to dark brown, scorched appearance, with occasional limonitic patches and streaks from oxidation and leaching of associated pyrite. Microscopic examination has shown that the zone contains pitchblende (or uraninite) associated with pyrite on fractures. The mineralization appears to be contained

within a fine-grained, brecciated, sheared tinguaitite that gives the appearance of weak faulting during the final stage of tinguaitite emplacement.

A representative chip sample of frost-heaved float at the southwest end of the zone was collected over an area about ten metres in diameter and after extraction of the best piece for future reference, the sample returned a value of 0.104 percent  $U_3O_8$  and 0.010 percent  $ThO_2$ . A selected specimen counting over 10000 cps assayed 4.68 percent  $U_3O_8$ , 0.005 percent  $ThO_2$ , 3.0 percent K, 500 ppm Ce, 200 ppm Nd, 20 ppm Tb, 5 ppm Yb and 50 ppm Y. A soil sample from a particularly hot section of the zone (about 30 metres north of the chip sample) also counting greater than 10000 cps returned a value of 0.095 percent  $U_3O_8$ .

Scintillometer readings vary along the length of the zone, depending on the amount of talus cover. At waist height, counts range from a background of about 650 cps to local maxima of up to 3000 cps. At ground level, several locations have been found which exceed 10000 cps.

Very little detail prospecting has been done uphill or farther than about 300 metres along strike, and more mapping and scintillometry are required. Airborne work does not indicate any other strong anomalies. Background tends to rise on approach to the "Hot" claims fringe-staked by Mountain Minerals Ltd. at the head of the gulch to the east; refer to Figure U-TS2 for location of these claims. Blasting and hand trenching is recommended to expose the zone in place and determine the nature and grade of the mineralization. If this work is unable to probe below surface leaching or does not indicate sufficient grade to account for radioactive response, drilling will be required.

#### Fawn Showing

The Fawn showing lies near the head of Spotted Fawn Gulch on the southeast-

facing slope about 100 m uphill from Fawn Lake, at latitude  $64^{\circ} 23.5'$  north and longitude  $138^{\circ} 40'$  west (see Figure U-TS2). Earlier work in this area on silver-lead mineralization is evidenced by old posts and hand trenches, one of which was coincidentally weakly radioactive.

The Fawn zone, a strong, sharp anomaly located by UJV during the first routine radiometric reconnaissance flight, was ground checked at a later date when examination by scintillometer outlined a small zone of high radioactivity about three or four metres in diameter.

The country rock near the showing consists of fine to coarse grained, weakly foliated and occasionally porphyritic syenite containing minor magnetite and up to one percent purple fluorite, and charcoal-grey, sugary textured to gneissic, fine grained tinguaites, commonly with small pseudoleucite and feldspar phenocrysts. Non-radioactive, rusty shears were noted in outcrop near the mineralized area, although outcrop is very scarce.

All of the strongly radioactive specimens occur as angular, blocky talus fragments, developed by a combination of frost action and prevalent jointing. High-grade float is not abundant and its distribution suggests a linear zone about ten metres long and less than a metre wide. The mineralization occurs in fine grained, pale or dark brown, weakly foliated syenite or tinguaites and is associated with minor pyritic and limonitic mafic-rich phases. Leaching is moderate and is probably caused by a breakdown of the pyrite. Yellow stain is prominent on several fracture planes and is associated with a black mineral, probably pitchblende or uraninite, that occurs as disseminations and stringers. A green mineral, possibly a secondary uranium mineral, was also seen. Examination of mineralized specimens under ultraviolet light reveals a bright green fluorescence on fracture planes and foliations.

Average scintillometer background is moderately stronger in the vicinity of the showings and counts of 600 to 800 cps are common over a lateral distance of several hundred metres. Individual specimens of high grade float count as high as 6000 cps in the hand and readings over the showing at ground level approach 10000 cps.

The highest grab sample obtained from this zone assayed 0.726 percent  $U_3O_8$ , 190 ppm Th, trace rare earths and about 10 percent K. Several other specimens assayed greater than 0.08 percent  $U_3O_8$ . Analysis of non-mineralized country rock returned values between 10 and 125 ppm U, and silts, soils and waters returned background values.

As for the Ting previously described, detail mapping and scintillometry, combined with blasting and hand trenching to expose outcrop, are recommended for the Fawn zone. In particular, more information concerning structural control is required and a microscopic examination of mineralized rock may suggest a model for uranium deposition.

#### Prospecting Showing

The Prospecting showing lies near the eastern limit of the pseudoleucite tinguaitite body on a southwest-facing slope of a valley at the head of Wolf Creek. It is situated about 1.8 miles (3 km) east of the Fawn showing, at latitude  $64^{\circ}23.5'$  north and longitude  $138^{\circ}36'$  west. The radioactive zone was discovered on the last 1976 traverse in the Tombstone area while prospecting for extensions of the tinguaitite unit on unstaked ground and, consequently, very little is known about it.

A moderately radioactive boulder was traced to an area of scattered, strongly radioactive float and an assumed source outcrop was located nearby. No airborne surveying was flown directly over this location, although the regional background was determined from nearby flights to be about 1500 to 2000 cps on the 1853 cc crystal.

The radioactivity is associated with fine grained, gritty to sugary textured, pale grey, occasionally gneissic or foliated tinguaita. Gradational changes were observed in outcrop which strongly support the hypothesis that the tinguaita is a marginal phase of fine grained syenite, since no sharp contacts were evident between it and nearby buff to orange syenite. The observed foliation suggests flow-banding derived from movement of a semi-crystallized magma, and patchy radioactivity in the outcrop may be indicative of partial mixing with late uraniferous fluids. Coarse grained, leucocratic, pegmatitic to porphyritic syenite with traces of magnetite occurs locally, but its radioactivity and rock assays are at background levels.

The mineralization occurs in the fine grained, grey tinguaita and in crumbly, rusty-weathering, pyrite-rich, fine grained syenite float. Yellow stain is prominent in some of the float and a black mineral (probably uraninite) is associated with it as disseminations and stringers. Assays of this float returned values between 0.372 percent and 1.20 percent  $U_3O_8$  and one sample assayed 520 ppm Th, trace rare earths and 7.5 percent K. However, the likely source outcrop assayed only 61 ppm U, although the surface was difficult to sample and better grades may exist at shallow depth. Local soil samples returned less than 14 ppm U.

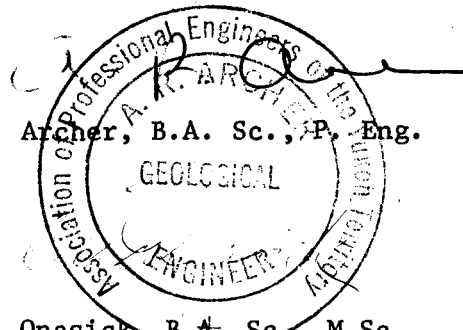
The anomalous float counted 3000 to 5000 cps over a background of 350 to 400 cps, and the richest specimen (1.20 percent  $U_3O_8$ ) counted 6500 cps in the hand. The assumed source outcrop was not strongly radioactive, however, with counts of only 100 to 200 cps above background, suggesting that the source may still be undiscovered. The opposite sides of the ridge from this zone were briefly prospected but neither tinguaitite nor anomalous radioactivity were found.

This zone deserves a thorough evaluation with scintillometer and geochemical sampling, with particular emphasis on locating the source of the float and prospecting the tinguaitite. Despite the high grades obtained from the float discovery, there is insufficient information to warrant trenching or drilling at present.

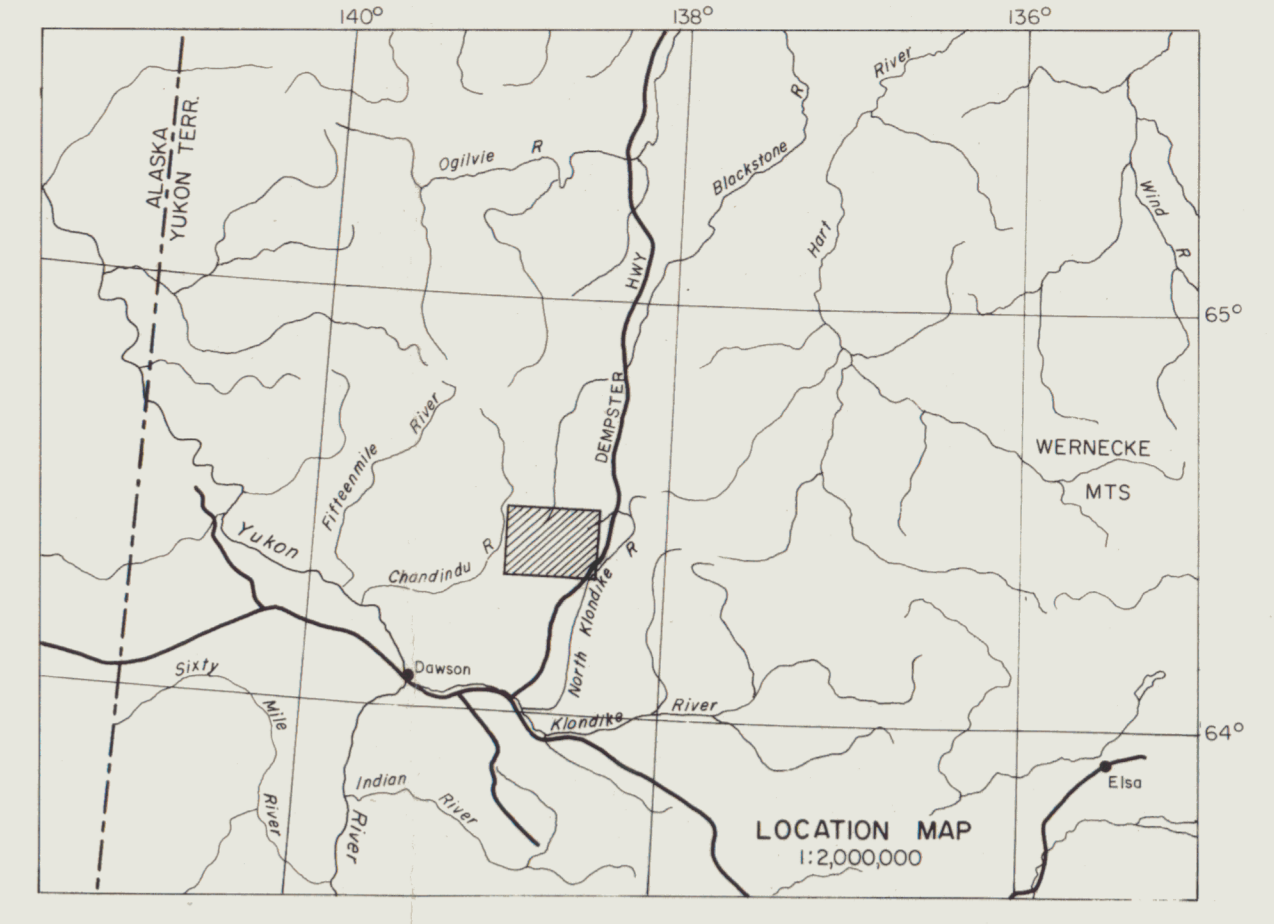
Respectfully submitted

ARCHER, CATHRO & ASSOCIATES LIMITED

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



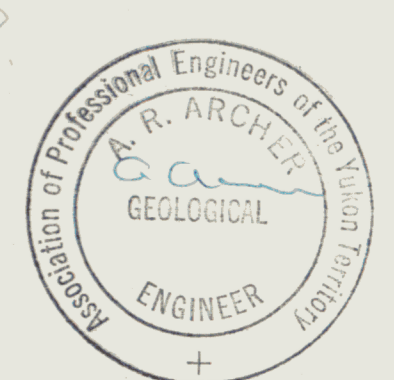
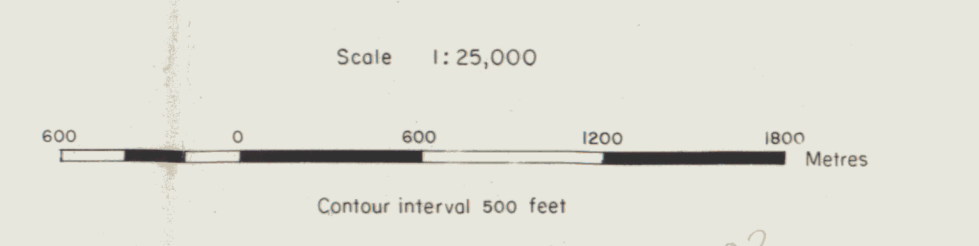
E. P. Onasick, B.A. Sc., M.Sc.

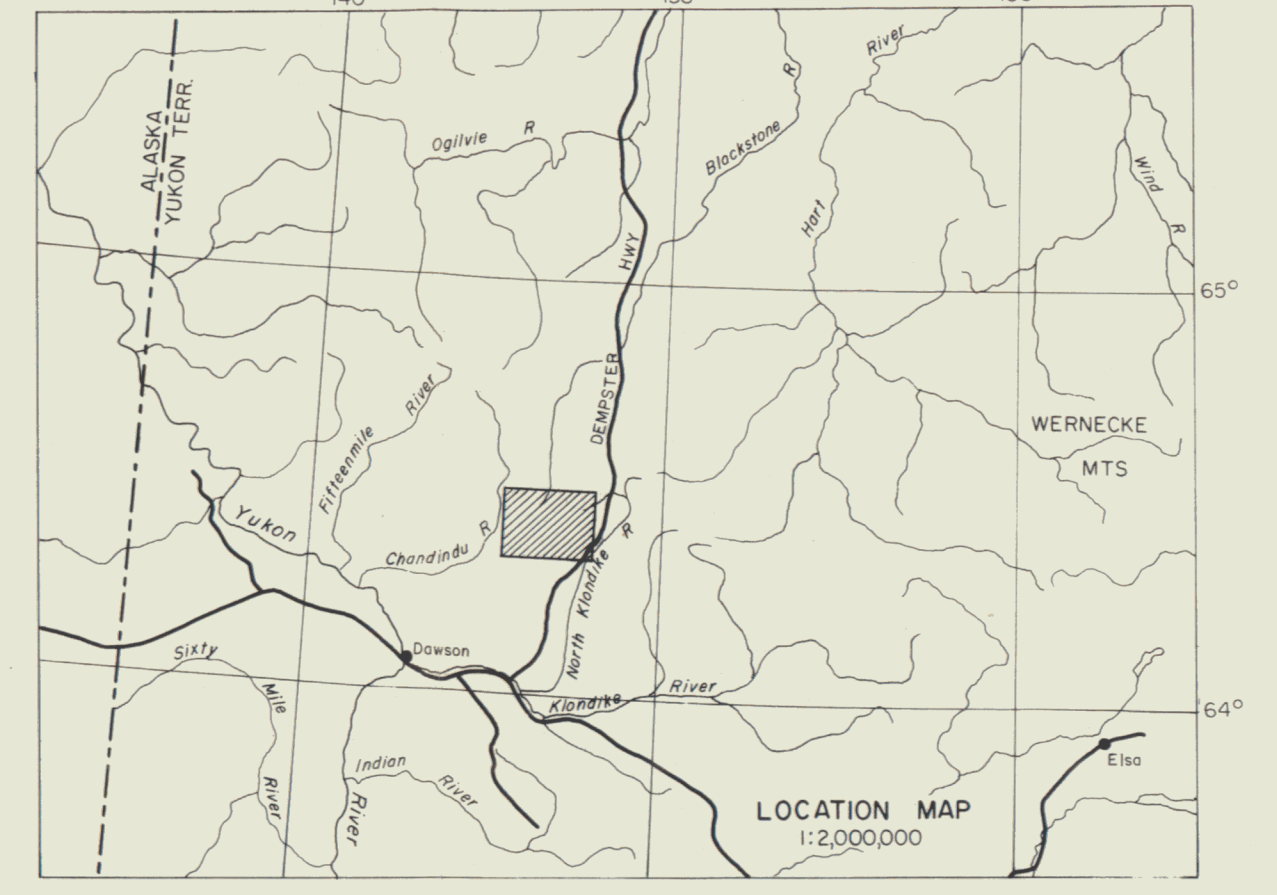


**LEGEND**

- Anomaly (peak / background)
- indicates U channel only
- Flight path and number
- UJV claim groups
- Other claim groups
- Geological contact of syenite with sediments (known, inferred, assumed)
- Pseudoleucite linguaitite
- Sedimentary xenoliths within stocks
- Tear faults
- Showings

Fig U-TS1  
 ARCHER, CATHER & ASSOCIATES LTD  
**RADIOMETRICS**  
 TOMBSTONE AREA  
 UKON JOINT VENTURE

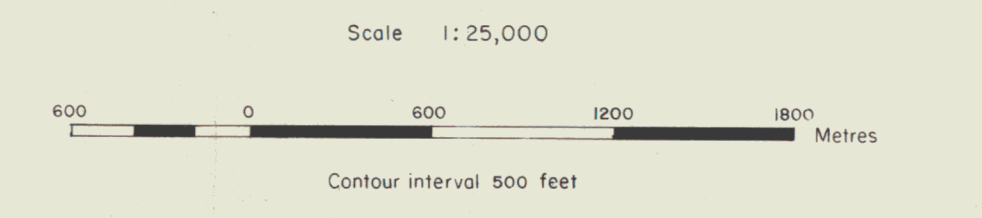




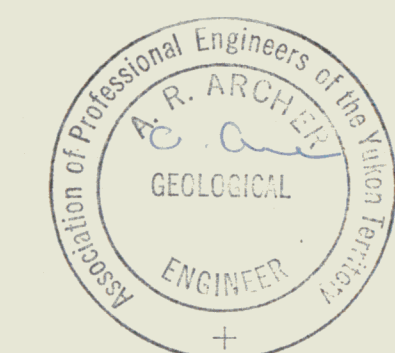
**LEGEND**

- Soil ppm U
- x Silt ppm U
- o Rock ppm U or % U<sub>3</sub>O<sub>8</sub>
- o Water ppb U
- o Trace
  
- UUV claim groups
- Other claim groups
- Geological contact of syenite with sediments (known, inferred, assumed)
- Pseudoleucite linguite
- Sedimentary xenoliths within stocks
- Tear faults
- Showings

Fig U-TS2  
 ARCHER, CATHRO & ASSOCIATES LTD.  
**GEOCHEMISTRY**  
 TOMBSTONE AREA  
 UKON JOINT VENTURE



690183



This document is a report by E. Orosick and R. Archer dated Dec. 1976.