ASSESSMENT REPORT TING CLAIM

DAWSON MINING DISTRICT NTS 116B/7

A.R. Archer, P.Eng. February 6, 1979

090443

This report has been examined by the Geological Exploration Unit and is recommended to the Commissioner to be considered as representing work to the amount of $ 8,550.00

J A Mann

Professional Geologist or
Professional Mining Engineer

Considered as representation work under Section 5 of the Quartz Mining Act.

B. R. BAXTER
Supervising Mining Recorder

for 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

ASSESSMENT REPORT

ON

GEOLOGY, RADIOMETRIC AND MAGNETIC SURVEYS

AND TRENCHING

CONDUCTED AUGUST 7 TO 24, 1978

TING PROPERTY

Ting 1-50, 91-94, 95F-101F, Noting 51-76, Prospecting 77-84 claims

DAWSON MINING DISTRICT

CLAIM SHEET 116B/7

Latitude 64°23' north; Longitude 138°38' west

FEBRUARY 6, 1979

ALAN R. ARCHER, B.A.Sc., P.Eng. Consulting Engineer

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INTRODUCTION

The 1978 Ukon Joint Venture (UJV) program on the Ting property consisted of continued exploration of the tinguaite phase of the Tombstone Stock during the period August 7 to 24 by crew chief W. Eaton and field assistants J. Cockell and E. Lyngberg with overall supervision provided by the writer. The principles of UJV are Chevron Canada Ltd. and Kerr Addison Mine. Fifteen new uranium occurrences were found on the Ting property and one of these (Zone S2) was explored with three hand trenches. All assays were done at Chemex Labs Ltd., North Vancouver, B.C.

PROPERTY, LOCATION AND ACCESS

The Ting property is an elongate block of 95 full and fractional claims lying in an arc along the southern margin of the Tombstone Stock. The Ting 85 to 90 claims, which were staked to the northwest of the Teta claims in 1977, were allowed to lapse on their expiry date.

The claims are recorded in the Dawson Mining District as follows:

CLAIM NAME	GRANT NUMBERS	EXPIRY DATE
Ting 1-10	YA5027-YA5036	12 Feb. 1980
Ting 11-26	YA5037-YA5052	12 Feb. 1980
Ting 27-40	YA5053-YA5066	12 Feb. 1980
Ting 41-48	*YA5163-YA5156	12 Feb. 1980
Ting 49-50	YA5140-YA5141	12 Feb. 1980
Noting 51-55	YA5174-YA5178	12 Feb. 1980
Noting 56-59	YA5182-YA5185	12 Feb. 1980
Noting 60	YA5179	12 Feb. 1980
Noting 61-64	YA5190-YA5193	12 Feb. 1980
Noting 65-68	YA5186-YA5189	12 Feb. 1980
Noting 69-70	YA5180-YA5181	12 Feb. 1980
Noting 71-76	YA9509-YA9514	12 Feb. 1980
Prospecting 77-84	YA9525-YA9532	12 Feb. 1980
Ting 91-94	YA10385-YA10388	12 Feb. 1980
Ting 95F-96F	YA10389-YA10390	12 Feb. 1980
Ting 97F-101F	YA31741-YA31745	31 Aug. 1979

* note reverse order

The claims are centered at latitude 64°23'N and longitude 138°38'W within NTS sheet 116B/7, 51 km (32 miles) northeast of Dawson. The nearest road point is Km 53 (mile 33) on the Dempster Highway 13.5 km to the east. Access is by helicopter from Dawson where Trans North Turbo Air (TNTA) maintains a Bell 206 (Jet Ranger) on a year round basis and Trans West Helicopter keeps a Hughes 500 C available for charter during the summer.

GEOLOGICAL SETTING

The Tombstone Stock forms the core of the Tombstone Range, which is characterized by numerous blind valleys heading in steep cirque walls separated by knife-edge, almost vertical, ridges reaching elevations of up to 2100 m. Valleys are wide and well mantled with debris from extinct alpine glaciation while their sides are obscured by talus slopes heading on steep walled rock faces. Local relief ranges from 1000 to 1600 m. Mappable outcrop makes up only a small portion of the total. The claims lie above timberline and vegetation consists only of grasses and scattered stunted buckbrush.

The Tombstone Stock consists of a sub-circular, 11 km wide, middle Cretaceous syenite intrusion cutting lower Cretaceous quartzite with limy and argillaceous sections. Contact metamorphism has produced a hornfels halo up to 1000 m from the contact and has selectively bleached the quartzites. There was no faulting associated with emplacement of the stock or post-intrusion.

The geology with a brief description of the geologic unit, including four intrusive phases, is illustrated on Figure U-TG5 in the pocket. The distinctive tinguaite phase (a variation of nepheline syenite related to phonolite) is found along the southwestern margin of the stock. In previous UJV reports, it was believed that the tinguaite was the final intrusive phase. However, the 1978 mapping by UJV has clearly shown the tinguaites to be the earliest phase of the alkaline magmas. For example, the tinguaite in the Spotted Fawn Creek and Teta Creek valleys is cut by syenite dykes which are mineralogically and texturally similar to the syenites which surround the tinguaite. Furthermore, a large number of xenolithic

blocks of tinguaite were found in the syenite. Figure U-TG5 shows the location of some of the larger xenoliths, as well as the larger of the syenite dykes intruding the tinguaite. Further support for this interpretation is a narrow chill margin that is locally present in the syenite adjacent to its contact with the tinguaite.

Three phases of tinguaite have been recognized by UJV: (1) subhedral to euhedral pseudoleucite tinguaite; (2) sheared or foliated tinguaite; and, (3) fine grained to aphanitic tinguaite. Individual phases tend to have gradational contacts although the aphanitic variety usually forms sharp dyke-like contacts. Most of the tinguaite is composed of the pseudoleucite phase while the sheared tinguaite is best developed in a 200 m wide band adjacent to the inner (northern) syenite-tinguaite contact. Here, foliation strikes sub-parallel to the contact and dips steeply. The aphanitic phase is best exposed in the Ting Creek valley.

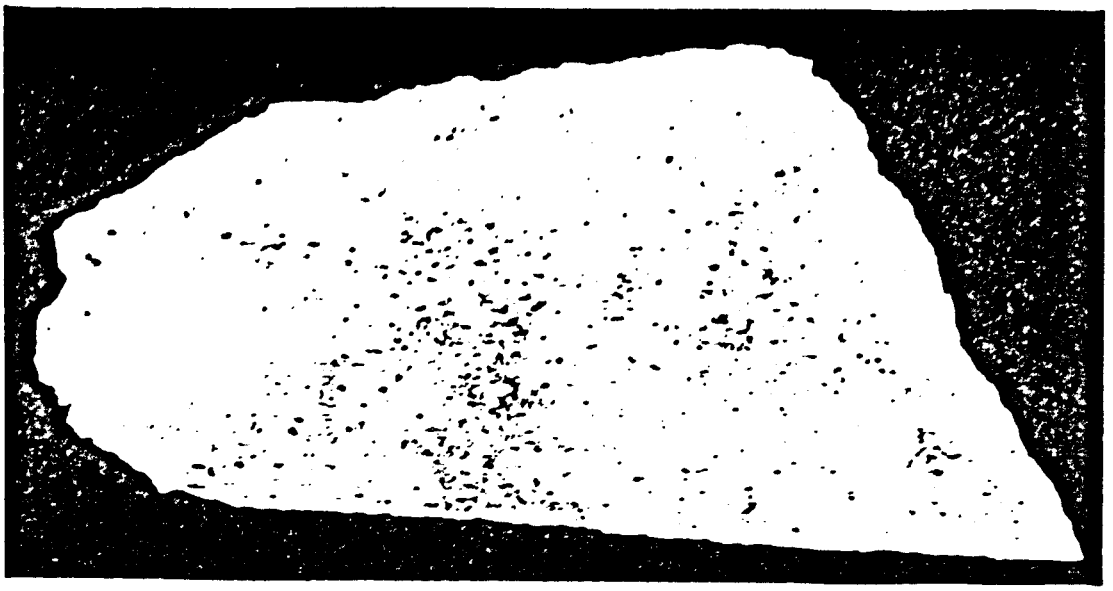
MINERALIZATION

General

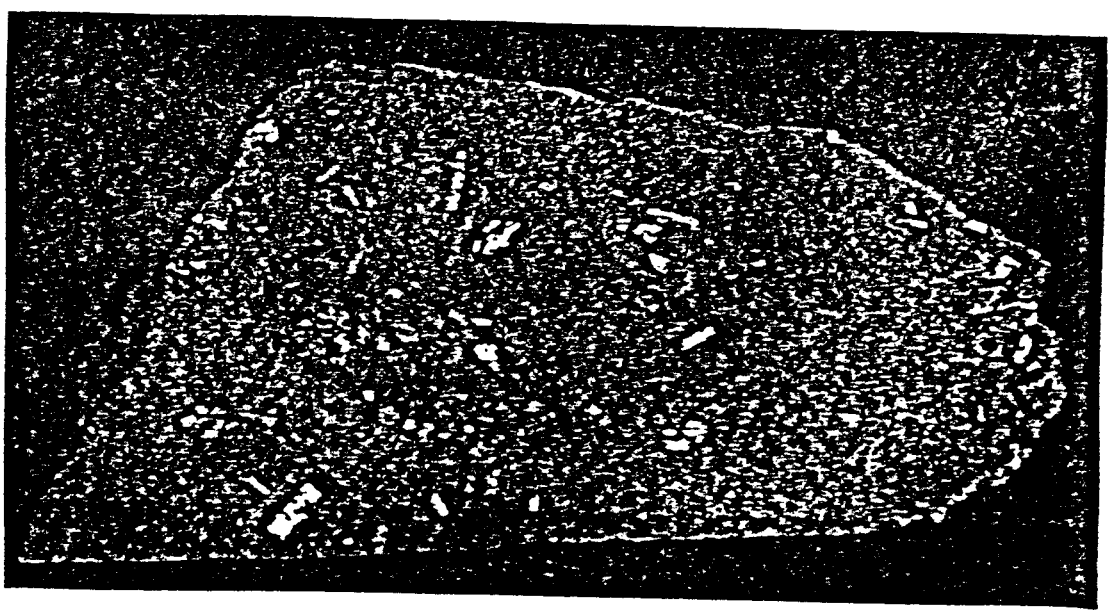
All potentially economic uranium occurrences in the Tombstone Stock are related to the tinguaite and can be grouped into five modes: (1) in dyke-like aphanitic zones (Zones T1-5, S8-10, S14, H1); (2) in sheared tinguaite (UG1-3, S1, S11, S15); (3) irregular concentrates in pseudoleucite tinguaite (S2 to S7, S12, S17); (4) contact controlled (P2, H2, UG4, S13, S16); and, (5) in xenoliths (P1 and a small occurrence in the syenite near UG4). Figure U-TG5 shows the location of these occurrences and the year of their discovery as well as assay data for zones discovered in 1978. With the exception of Zone P1, which has been reinterpreted as a xenolith, the 1976 and 1977 UJV report descriptions of zones found in those years remain unchanged. The following is a description of UJV and Urangesellschaft occurrences examined in 1978.

Zones in Dyke-Like Aphanitic Tinguaite

Zone S8 and 9: both consist of moderate (1000-2000 cps) to highly radioactive (2000-10,000 cps) tinguaite float in talus. The extent and number of boulders suggests the source of each float train is a zone about 2 m in width and 20 m in length. The tinguaite float is fine grained to aphanitic with minor orthoclase phenocrysts up to 1 cm in length. It is very dark due to abundant fine grained biotite and often exhibits a "burnt" appearance similar to the aphanitic tinguaite hosting 1977 Zone T1. Selected strongly radioactive specimens from Zones S8 and S9 yielded assays of 0.559% and 0.470% U_3O_8 respectively while moderately radioactive specimens assayed 0.014% and 0.081% U_3O_8 respectively. The mineralization occurs as blebs and veinlets of uraninite with minor yellow secondary uranium minerals on weathered surfaces as illustrated in the autoradiograph in Photograph 1



Autoradiograph of uraniferous "aphanitic"
tinguaite from Ting Zone S8
(note right-left reversal)



Photograph 1: Uraniferous "aphanitic"
tinguaite from Ting Zone S8

on the following page. A 1 m deep hand trench in talus at Zone S8 failed to reach bedrock.

Zone S10: straddles the border of the UJV and Urangesellschaft claim blocks and can be traced more or less continuously in talus and outcrop for a length of 300 m. This showing appears to be confined to a dyke-like zone of fine to medium grained tinguaite up to 10 m wide. Although the zone is not strongly radioactive (1500-4000 cps), representative grab samples assayed a surprisingly high 0.031% and 0.081% U_3O_8. Based on the radiometric response and assays, an average grade of 250 to 300 ppm U seems possible. There is no evidence of strong surface leaching. The mineral species has not been identified but is presumably disseminated uraninite.

Zone S14: consists of highly radioactive aphanitic tinguaite boulders in talus at the base of a cliff. An examination was impossible because the source is inaccessible. The volume of the radioactive material suggests a structure less than 1 m in width. A representative specimen assayed 0.240% U_3O_8.

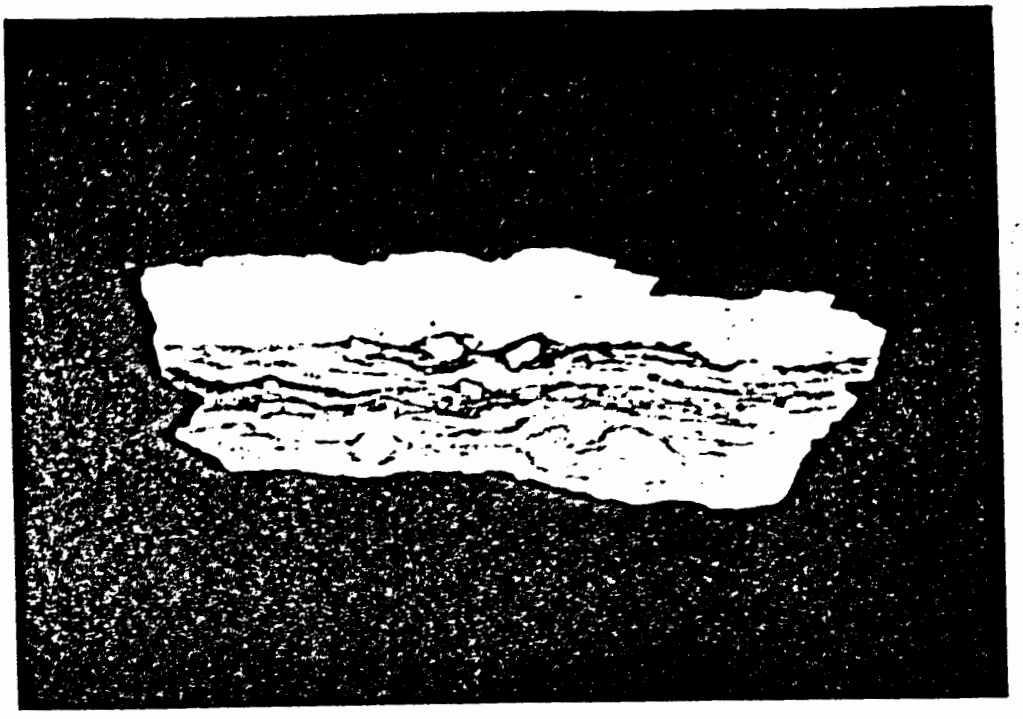
Zones in Sheared or Foliated Tinguaite

Zone UG1: this is the most promising prospect on the Urangesellschaft claims. It forms a steep dipping, linear zone up to 6 m wide that can be traced from a ridge top outcrop for at least 150 m along strike in talus. The zone parallels the foliation of the sheared tinguaite which hosts it. A radiometric examination of the outcrop gave moderate to high response (1000-5000 cps). A chip sample across the 6 m width assayed 0.030% U_3O_8 but deeper sampling could return better values as the outcrop is gossanous and leached. Three hand trenches were cut on UG1 by Urangesellschaft after the UJV examination but none reached fresh rock.

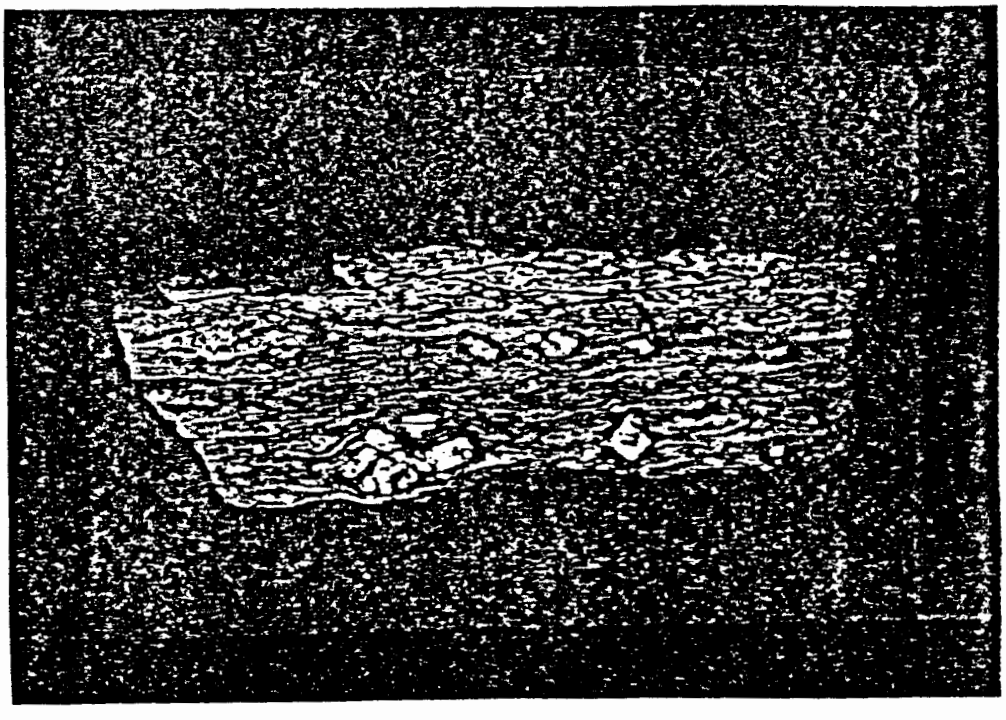
The zone exhibits patchy high grade mineralization and a specimen from a 10,000 cps boulder assayed 0.403% U_3O_8. The uranium mineralization is present as uraninite and yellow secondary uranium oxides associated with purple fluorite, magnetite, minor pyrrhotite, and traces of molybdenite.

Zone UG2 and 3: are both float zones on the Urangesellschaft claims and have limited extent but good grade. A representative specimen of UG2 float exhibiting uraninite and yellow secondary uranium minerals assayed 1.015% U_3O_8. Purple fluorite, some magnetite and minor molybdenite occur as accessory minerals. Heavy overburden makes evaluation difficult but, based on the distribution and volume of mineralized rock in the overburden, a high grade zone approximately 15 m long and 1 to 2 m wide is suggested. A small possibility exists that UG2 is gravity transported from UG1. Zone UG3 is an area of frost heaved bedrock mixed with debris from a rock slide. If the surface material is representative of bedrock, the zone has a maximum extent of 1 m by 25 m. No specimens were assayed but grades are radiometrically estimated to be similar to UG2.

Zone S11: is a UJV float zone occurring on strike from the Urangesellschaft UG1 zone. The mineralization is confined to a steep talus slope and does not outcrop. It appears to be related to strongly foliated, gossanous, sheared tinguaite striking almost directly downhill. It is estimated to be between 1 and 2 m wide and possibly 100 m long. Mineralized float from this zone is highly radioactive (2000 to 8000 cps) and representative specimens assayed 0.355% and 0.268% U_3O_8. Some of the float contains as much as 5 to 10% visible uraninite. A photograph of such a specimen with an accompanying autoradiograph is shown in Photograph 2 on the following page.



Autoradiograph of uraniferous sheared tinguaite from Ting Zone S11
(note right-left reversal)



Photograph 2: Uraniferous sheared tinguaite from Ting Zone S11

Zone S15: this zone can be traced discontinuously along a sheared tinguaite outcrop for approximately 50 m over a width of up to 1 m. A specimen of the best grade material assayed only 0.151% U_3O_8.

Zones Occurring as Irregular Concentrations in Pseudoleucite Tinguaite

Zone S2: is the best exposed zone discovered in 1978, occurring on the northwest side of Spotted Fawn Creek where a small tributary has cut a channel through glacial debris. Figure U-TG8 on the following page illustrates geological, radiometric and assay data. The main exposure is roughly oval shaped with a length of 30 m and a maximum width of 20 m. Within this boundary, the radioactivity continuously exceeds 1000 cps and frequently ranges between 3000 and 10,000 cps, compared to a background of 450 to 550 cps over the glacial till.

A total of three hand trenches were cut on the zone. Trenches S2a and S2b were cut 0.5 to 1 m into bedrock using an Atlas Copco Cobra plugger and blasting powder. The third trench, S2c, had to be dug by hand because of water seepage, and could only be sampled at bedrock surface. All three trenches were chip sampled, usually at 1 m intervals, and were radiometrically mapped as illustrated on Figure U-TG8. The start of Trench S2a is shown on Photograph 3.

Zone S2 is classed as an irregular concentration within the pseudoleucite tinguaite since there is no obvious structural control to the mineralization. Pseudoleucite phenocrysts appear to be partially absorbed in the matrix, which together with weak sericite formation, could be evidence that hydrothermal activity is associated with the uranium mineralization.

The best assays were obtained from Trench S2b where a 1 m chip sample returned 0.238% U_3O_8 and chip samples of the entire 10 m length arithmetically averaged 0.080% U_3O_8. The uranium appears to be occurring as disseminated

PHOTOGRAPH 3 - Start of Trench S2a.

uraninite and minor coloured uranium minerals on joint surfaces. There is no evidence of strong leaching and no accessory minerals were found.

Zones S3 to 7: most of the hillside adjacent to Zone S2 is obscured by glacial debris but a few isolated outcrops and thin patches with bedrock float can be found. Some of these exhibit moderate to high radioactivity and have returned encouraging assays. Zone S3 is located 170 m north of S2 and 30 m higher in elevation. It occurs as a 3 m by 5 m radioactive window of pseudoleucite tinguaite through the glacial till. Radiometric response of 2000 to 10,000 cps can be traced only a few metres downhill before being lost under glacial cover and a 4 m deep talus slope is encroaching on the outcrop from the uphill side. The only other outcrop in the immediate area lies 30 m to the southwest and is only weakly radioactive (800-1700 cps). Two grab samples from Zone S3 outcrop assayed 0.298% and 0.210% U_3O_8. The mineralization and host rocks are similar to Zone S2. Zone S4 is a 10 m by 10 m window of frost shattered pseudoleucite tinguaite exposed through glacial till. Radiometric response ranges from 900 to 10,000 cps. A better than average specimen assayed 0.318% U_3O_8 while a moderately radioactive specimen assayed 0.175% U_3O_8. The entire outcrop is estimated to average at least 0.05% U_3O_8 based on these assays and the radiometric response. Zone S5 is an area of some 20 m by 5 m containing abundant radioactive pseudoleucite tinguaite boulders mixed with glacial material. A specimen from a boulder counting 5000 cps assayed 0.738% U_3O_8 and a specimen from a 2000 cps boulder assayed 0.122% U_3O_8. Zone S6 is a 15 m by 10 m outcrop 300 m to the southwest of S2. Most of the exposure exhibits only background to slightly anomalous radioactivity (600 to 1000 cps). A few irregular shaped pods of moderately radioactive (2000 cps) rock were sampled and these assayed 0.035% U_3O_8.

This occurrence has little economic promise but is worth mentioning since the pseudoleucite tinguaite host rock is indistinguishable from the surrounding tinguaite. Zone S7 is a 25 m by 25 m area of mixed talus and glacial debris containing abundant boulders of radioactive pseudoleucite tinguaite ranging from 2000 cps to greater than 10,000 cps. A sample from a 10,000 cps boulder exhibiting minor yellow secondary uranium minerals on fractures assayed 0.540% U_3O_8 while a sample from one of the more abundant 2000 cps boulders assayed 0.043% U_3O_8. Both boulders were weakly foliated pseudoleucite tinguiate with traces of purple fluorite.

Zone S17: lies 250 m upstream from Zone S2 and consists of an area in excess of 50 m by 50 m containing abundant moderately (1500 to 2500 cps) to highly (2500 to 10,000 cps) radioactive boulders. There is no outcrop in the zone and the extent of the mineralization is unknown. Anomalous radioactivity is found in tinguaite with orthoclase phenocrysts as well as altered pseudoleucite tinguiate similar to Zone S2. Some of the more strongly radioactive boulders exhibit a bleached appearance. The zone also contains abundant boulders of rusty, fine to medium grained syenite, presumably derived from dykes. The rusty appearance is due to both disseminated pyrite and mafic weathering. Many of these syenitic rocks are slightly radioactive (1000 to 1500 cps). A specimen from a 4500 cps boulder of tinguaite assayed 0.156% U_3O_8 while a specimen running 2500 cps assayed 0.148% U_3O_8. No specific uranium mineral was seen in either specimen.

Zone S12: occurs in an area of heavy glacial cover and consists of a cluster of moderately radioactive pseudoleucite tinguaite boulders from which assays of 0.130% and 0.099% U_3O_8 were obtained. Nothing is known of the underlying rocks as the closest outcrop is 300 m away. It is possible that the boulders are glacially transported from an unknown source.

Contact Controlled Zones

Zone S13: is a 2 m long pod of extremely radioactive rock in a 0.5 m wide aphanitic tinguaite dyke at the syenite-tinguaite contact. When a specimen assayed much lower than expected (0.078% U_3O_8), it was assayed for thorium and returned a surprisingly high 11.4% ThO_2. This is the only area of thorium rich mineralization known to UJV in the Tombstone tinguaites.

Zone S16: is a 25 m long area of moderate radioactivity (1500-2500 cps) in a 2 m wide coarse grained syenite dyke which intrudes the foliated tinguaite. The dyke strikes parallel to the foliation and is traceable over a distance in excess of 1000 m, lying a consistent 15 m from the tinguaite-syenite contact. A specimen of the best material assayed 0.074% U_3O_8.

Zone UG4: occurs along a tinguaite-syenite contact exposed on an almost vertical inaccessible cliff in the Urangesellschaft claims. Abundant fist sized radioactive specimens are found in talus immediately below the cliff. Two specimens of average grade assayed 0.380% and 0.263% U_3O_8 while a sample of the most radioactive rock found in the talus assayed 5.580% U_3O_8. The zone appears to occur at the tinguaite-syenite contact as both fine grained, altered syenites and tinguaites host the uranium mineralization. Some of the radioactive rocks are brecciated. Approximately 50 m away, a strongly radioactive 1 m by 1 m tinguaite xenolith in the syenite assayed 0.211% U_3O_8.

RADIOMETRIC AND MAGNETOMETER SURVEYS

A grid radiometric survey using a Scintrex BGS-1SL (43 cc crystal) broadband scintillometer was done in the Spotted Fawn Creek valley as shown on Figure U-TG6 on the following page. Even though a heavy mantle of glacial debris obscures most of the underlying bedrock, eight radiometrically anomalous zones (S2 to 7, S12, S17) were found as previously described. Most of the radiometric readings on the grid reflect the background of the glacial transported syenite cover rocks rather than underlying tinguaites or mineralized zones. Where relief was too steep for accurate grid lines, altimeter controlled, ground radiometric surveys were done across the hillsides with vertical intervals of 65 m between lines. Detailed radiometric prospecting was conducted in areas where anomalies were discovered.

A test magnetometer survey using a Scintrex MF-2 Fluxgate Magnetometer was conducted over the Spotted Fawn grid area, as illustrated on Figure U-TG7 (follows U-TG6 in text). Although there is no relection of known zones or uranium mineralization, the survey did prove useful in outlining the contact between the tinguaite and the more magnetic syenite in areas of overburden cover.

CONCLUSIONS AND RECOMMENDATIONS

Continued radiometric prospecting of the tinguaite phase of the Tombstone Stock has located 15 mineralized zones in addition to the 9 mineralized zones outlined in 1977. The 1978 zones were found in all phases of the tinguaite whereas the best zones outlined in 1977 were restricted to aphanitic, dyke-like phases and to the tinguaite-quartzite contact. One of the 1978 zones (S2) was

explored by three hand trenches over a 10 m by 25 m area. One metre wide chip samples from the trenches ranged from a low of 0.005% U_3O_8 to a high of 0.238% U_3O_8. The best trench (S2b) averaged 0.135% U_3O_8 across 5 m followed by .025% U_3O_8 across an additional 5 m. This zone is one of seven crudely linear zones that are poorly exposed through glacial till over a length of 800 m on the west side of Spotted Fawn Creek as shown in Photograph 4 on the following page. The abundance of mineralized occurrences in this area, which has less than 5 per cent outcrop, suggests the possibility of a large overall zone with sufficient small high grade centres to allow bulk mining.

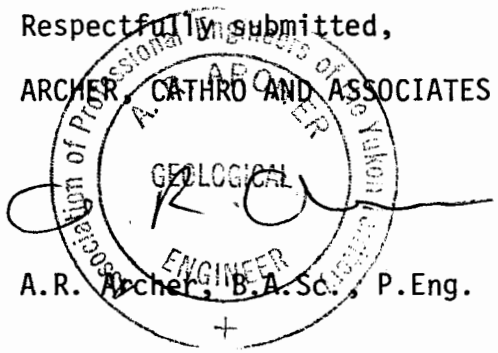
Two newly recognized features of the tinguaite may have economic implications. (1) The 1978 mapping has shown that the tinguaite was emplaced first, possibly as a high level ring dyke. Younger syenite dykes related in age to the Tombstone Stock contain areas of uranium enrichment where they cut the tinguaite. This uranium may have been scavenged from the tinguaite but could also represent enrichment from volatiles accompanying the syenite phase of the intrusive. The weak hydrothermal-like alteration seen in some of the zones may be evidence of addition and/or remobilization of uranium during emplacement of the syenite. This could have been the process which separated uranium from thorium and rare earths, a feature which appears to be unique worldwide to the Tombstone tinguaite. (2) Most of the mineralized zones are located near the valley floors. This is not a function of prospecting density since the valleys contain less than 5 per cent outcrop whereas the ridges have up to 100 per cent outcrop. This suggests that the uranium is more concentrated toward the base of the tinguaite nearer the syenite heat source.

PHOTOGRAPH 4 - Zones on Spotted Fawn valley floor

Further work is justified. While additional detailed prospecting may result in the discovery of more zones, further surface surveys should be deferred until the better known zones have been evaluated with drilling to determine their size and grade potential. The initial drilling should be directed towards Zone S2 as well as 1977 Zone T1.

Respectfully submitted,

ARCHER, CATHRO AND ASSOCIATES LTD.



ARA/mc

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

PROSPECTING REPORT

FRED Claim Group

Sheet 105-G-14

June 1978 - September 30 1978

by

A. CARLOS

(See main report- 090442 by Aerodat Limited Magnetic and Electromagnetic Survey, "EAGLE, FRED, SHALE")

Recommend Approval
D.B. Stewart
Resident
Mining Engineer

Approved
Supervising
Mining Recorder

PROSPECTING REPORT

on

The FRED Claim Group

The FRED Claim Group and adjacent areas were prospected at various times throughout the summer of 1978.

Following is a listing of rock types observed; the enclosed map shows their respective locations:

A: Chlorite phyllite, non-calcareous, E-W strike, dip to north $< 5^{\circ}$. Minor SiO_2 except locally in quartz carbonate.
Phyllite distorted adjacent to quartz carbonate and small section of volcanic.
Constituent minerals of volcanic decomposed to an orange-brown limonite.
Non-magnetic.

B: Chlorite phyllite, strike E-W, dip steeply north. Non-calcareous.
More fissile than location A.

C: Quartz chlorite phyllite, no attitude determined. Visually similar to location K, within which a Pb-Zn showing was discovered.

D: Chlorite phyllite, strike E-W, dip north $\sim 10^{\circ}$. Note: Boulders of SiO_2 rich mariposite rock occur approximately 100' E of phyllite outcrop; minor pyrite.

E: Mottled quartz-chlorite phyllite, occupies eastern side of ravine.
Note: This unit identified by Kerr Addison personnel and labelled as such. Its genesis appears to be volcanic.
The west side of the ravine consists of chlorite phyllite, flat-laying.
This ravine area may indicate a N-S fault linear.

F: Chlorite phyllite, strike N50°W, dip ~ 20°N; some areas of this phyllite have minor chlorite.

G: Quartz veining - observed 4' wide; length undetermined. Striking ~N45°W. A buff alteration of phyllite in proximity to veins.

H: Grey phyllite; strike N45°W; dip north $< 5^{\circ}$. Non-calcareous; nicely developed F_1 foliation.

I: Quartz carbonate, minor FeS_2; forms 200' E-W ridge.

J: Quartz carbonate - $> 3\%$ FeS_2.

K: Quartz chlorite phyllite - non-calcareous - local pyrite $< 3\%$. A small occurrence of Zn-Pb discovered at this location.

Limited rock exposures make it difficult to definitely determine the geology of the FRED claim group. However, our observations, when combined with the Aerodat results, lead us to conclude that rock types underlying the FRED claims consist essentially of an east-west trending unit of chlorite phyllite within which occur concordent bodies of magnetic volcanics.

Of keen interest, however, is the discovery of Zn-Pb in proximity to a major contact of intensely conductive and non-conductive units at location K. The showing itself is not a major one, but it may be a shadow of an important sulphide occurrence in close proximity.

Respectfully submitted,

A. Carlos.

February 1979