

*revised edition
of sections requested
submitted 2 Feb 79*



GEOLOGICAL AND GEOCHEMICAL REPORT
FOR
TINDIR CREEK AREA
LOCATED AT 65° 17' TO 65° 20' N. LATITUDE
140° 55' TO 140° W. LONGITUDE
IN
THE DAWSON CITY MINING DIVISION

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*witnessed by Janice Farrell
on 12/29/78*

ANCHORAGE, ALASKA
DECEMBER 1978

WGM INC.
MINING & GEOLOGICAL CONSULTANTS

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TINDIR CREEK AREAIntroduction

The following report describes the 1978 exploration work carried out by WGM inc. as operator on behalf of WGM Inc, Doyon Limited, General Crude Oil Company, B.P. Minerals Limited, and Union Carbide Canada Mining Limited. The 1978 program represent the third year of the Joint Venture. The 1976 operator, BP Minerals Limited, staked the PL claims on a lead-zinc occurrence and concluded that there was little likelihood of something of major importance having been missed in the remainder of the project area.

The principal objective of the 1977 program with Union Carbide as operator was to define ore grade material on the PL claims. Their efforts failed to define any potential for ore grade material. Interesting phosphate-hosted uranium was discovered in the VABM Casca area, Alaska, approximately two miles west of the PL claims (Fig. 1). Subsequently, Union Carbide Canada Limited conducted an airborne radiometric survey in the area between the PL claims and the Yukon/Alaska border. As a result of this work, ten airborne radiometric anomalies were defined and the 61 TIN claims were staked in November 1977.

The goal of the 1978 program was evaluation of the TIN claimed area for uranium mineralization.

Summary and Conclusions

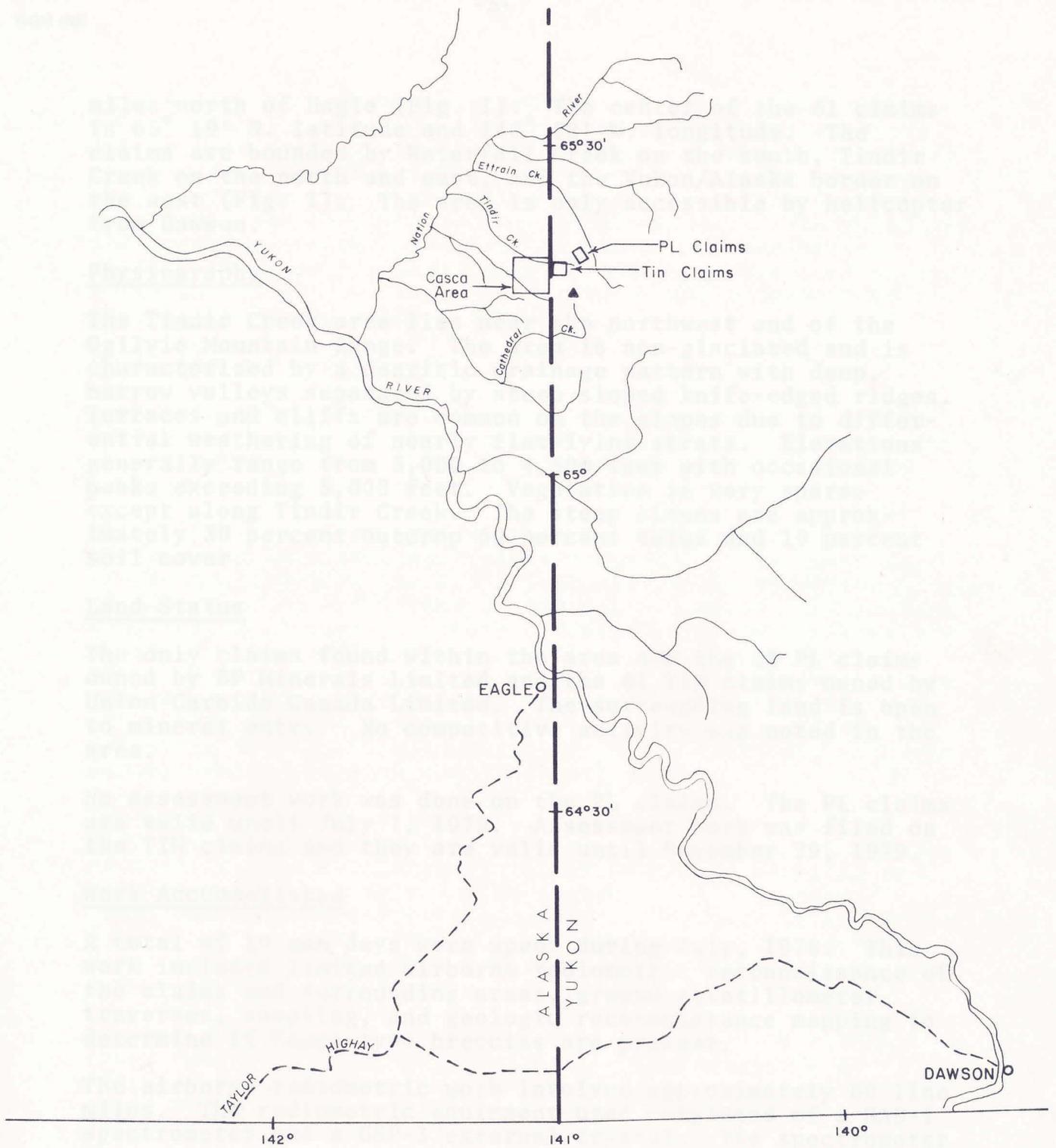
The airborne radiometric anomalies could not be confirmed either by airborne radiometric work or ground scintillometer traverses. Geologic observations and geochemical results do not support the presence of uranium-phosphate such as occurs in the Casca area. It is therefore concluded that no further work for uranium is warranted.

Recommendations

On the basis of BP Minerals Limited conclusions that nothing of importance was missed outside of the PL claims, Union Carbide's subsequent evaluation of the claims, and our present evaluation of uranium potential, we recommend that no further work be done and that the claims be allowed to lapse.

Location and Access

The TIN claims are adjacent to the Yukon/Alaska border approximately 100 miles northwest of Dawson City and 42



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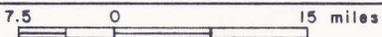
LOCATION MAP

TINDIR PROJECT--YUKON TERRITORY

FIGURE

1

SCALE:



miles north of Eagle (Fig. 1). The center of the 61 claims is 65° 19' N. latitude and 140° 58' W. longitude. The claims are bounded by Waterfall Creek on the south, Tindir Creek on the north and east, and the Yukon/Alaska border on the west (Fig. 1). The area is only accessible by helicopter from Dawson.

Physiography

The Tindir Creek area lies near the northwest end of the Ogilvie Mountain Range. The area is non-glaciated and is characterized by a denritic drainage pattern with deep, narrow valleys separated by steep sloped knife-edged ridges. Terraces and cliffs are common on the slopes due to differential weathering of nearly flat-lying strata. Elevations generally range from 3,000 to 4,500 feet with occasional peaks exceeding 5,000 feet. Vegetation is very sparse except along Tindir Creek. The steep slopes are approximately 30 percent outcrop 60 percent talus and 10 percent soil cover.

Land Status

The only claims found within the area are the 28 PL claims owned by BP Minerals Limited and the 61 TIN claims owned by Union Carbide Canada Limited. The surrounding land is open to mineral entry. No competitive activity was noted in the area.

No assessment work was done on the PL claims. The PL claims are valid until July 7, 1979. Assessment work was filed on the TIN claims and they are valid until November 29, 1979.

Work Accomplished

A total of 10 man days were spent during July, 1978. This work included limited airborne radiometric reconnaissance of the claims and surrounding areas, ground scintillometer traverses, sampling, and geologic reconnaissance mapping to determine if Casca-type breccias are present.

The airborne radiometric work involved approximately 60 line miles. The radiometric equipment used consisted of a GAD-I spectrometer and a GSP-3 external crystal. The spectrometer was set to give total counts for one second periods. The helicopter maintained a speed of 50-60 knots and an altitude of 300 feet.

Regional Geology

The region is underlain by Upper Precambrian to Lower Ordovician sedimentary rocks which have been to the southeast

onto Paleozoic and Mesozoic sedimentary rocks. The thrust is an accurate structure, 25 miles long, that crosses into Canada near Hardluck Creek and back into Alaska near Ettrain Creek. The Upper Precambrian to Lower Ordovician sequence consists primarily of dolomites, shales, basalts, dolomitic sandstones and cherty carbonate conglomerates. The Paleozoic and Mesozoic sequence consists of limestones, dolomites, shales, chert pebble conglomerates and sandstones. A strong northeast structural trend is marked by the alignment of faults, folds and diabase dikes.

Local Geology - TIN Claims

The claim block is underlain by a thick sequence of Cambro-Ordovician dolomites which generally trend east-west and dip to the north at 5° - 20° . In places the dolomite is flat lying.

The 2,500 feet of section exposed in the claim area can be broken down into two conformable sequences. The lower part of the section from the 2,500 foot elevation, to approximately an elevation of 3,700 feet on the south side of Tindir Creek consists of massive to finely laminated partially silicified dolomite. Fracturing often parallels the laminations. Where the dolomite is extensively silicified laminations have been destroyed. In the lower sequence there are minor thin (1-2 foot) intraformational breccias with a silicified dolomitic matrix. The lower sequence may correlate with the Funnel Creek Formation mapped in Alaska.

The upper sequence of dolomite, from 3,700 feet to 4,600 feet, is distinguished from the lower sequence by an abundance of chert lenses and laminae, intraformational breccias and conglomerates, and by a lesser degree of silification. Chert laminae and lenses are dark gray and vary in thickness from 2 mm to 60 cm. In the upper sequence there are two types of intraformational breccias. One consists of an open framework of broken fragments of chert laminae randomly oriented in a dolomite matrix, the second type consists of an open framework of broken fragments of dolomite within a chert matrix. The intraformational conglomerate is an edgewise conglomerate composed of dolomite clasts within a chert matrix. These intraformational breccias and conglomerates vary in thickness from 0.5 to 10 feet.

The cherty horizons being more resistant to weathering cap a series of terraces and cliffs. The step-like series of cliffs are characteristic of the upper sequence. The contact between the upper and lower sequences is gradational over approximately 100 vertical feet.

The "chert-feldspar breccia" reported last year by Union Carbide Canada personnel was not located in 1978. Some of the breccias described above have a light reddish pink carbonate matrix that weathers to a reddish brown. This pink coloration may be due to traces of iron carbonates or magnesite in the matrix. There is no evidence of phosphate/uranium-bearing breccia similar to Casca.

Gentle open folds with widths of 50 to 80 feet and amplitudes of 2 to 8 feet are common in the upper sequence. The axis of these folds generally trend northwest. In some cases these folds are restricted to a particular horizon and are probably related to soft sediment deformation.

Radiometric Results

The purpose of the airborne work was to re-define the radiometric anomalies discovered last year by Union Carbide Canada, and to test areas adjacent to the TIN claim group. The 1977 airborne results were not corroborated. Fluctuations in background within the claim block do not exceed 2x background. Several 2x background anomalies were detected just outside of the southeast corner of the claim group and extend for approximately 0.5 miles along a low ridge (Fig. 2b). Ground investigation proved these anomalies to be related to a group of northeast-trending diabase dikes.

The disparity between the 1978 airborne results and the 1977 results might be explained by differences in technique and size of crystal, or by an instrumentation error or calculation error.

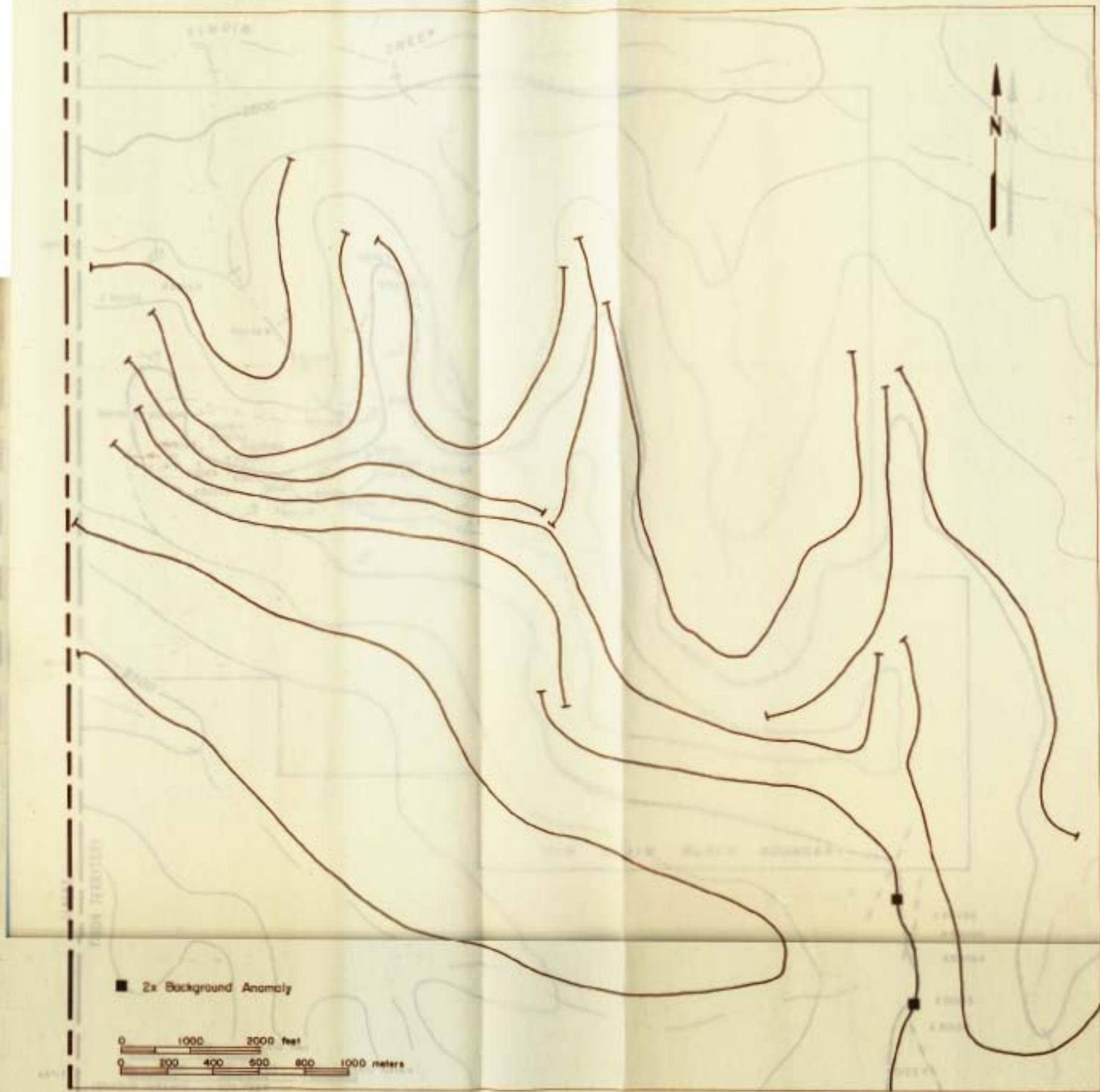
Whatever the reason, the 1978 results are correct based on the following evidence:

- 1) The 1978 airborne system was checked out over VABM Casca and clearly duplicated all of the anomalies.
- 2) Areas that are apparently anomalous based on 1977 airborne data could not be confirmed by ground scintillometer traverse. A particular effort was made to confirm the 5x background 1977 anomaly.

Ground results showed average background readings of 20 to 40 cps.

Geochemistry

A total of 37 rock samples were collected from the anomalous area as defined by last year's airborne radiometric survey. These samples were analyzed for Cu, Pb, Zn, Ag, U, and P₂O₅. The analytical results are included in the appendix. The



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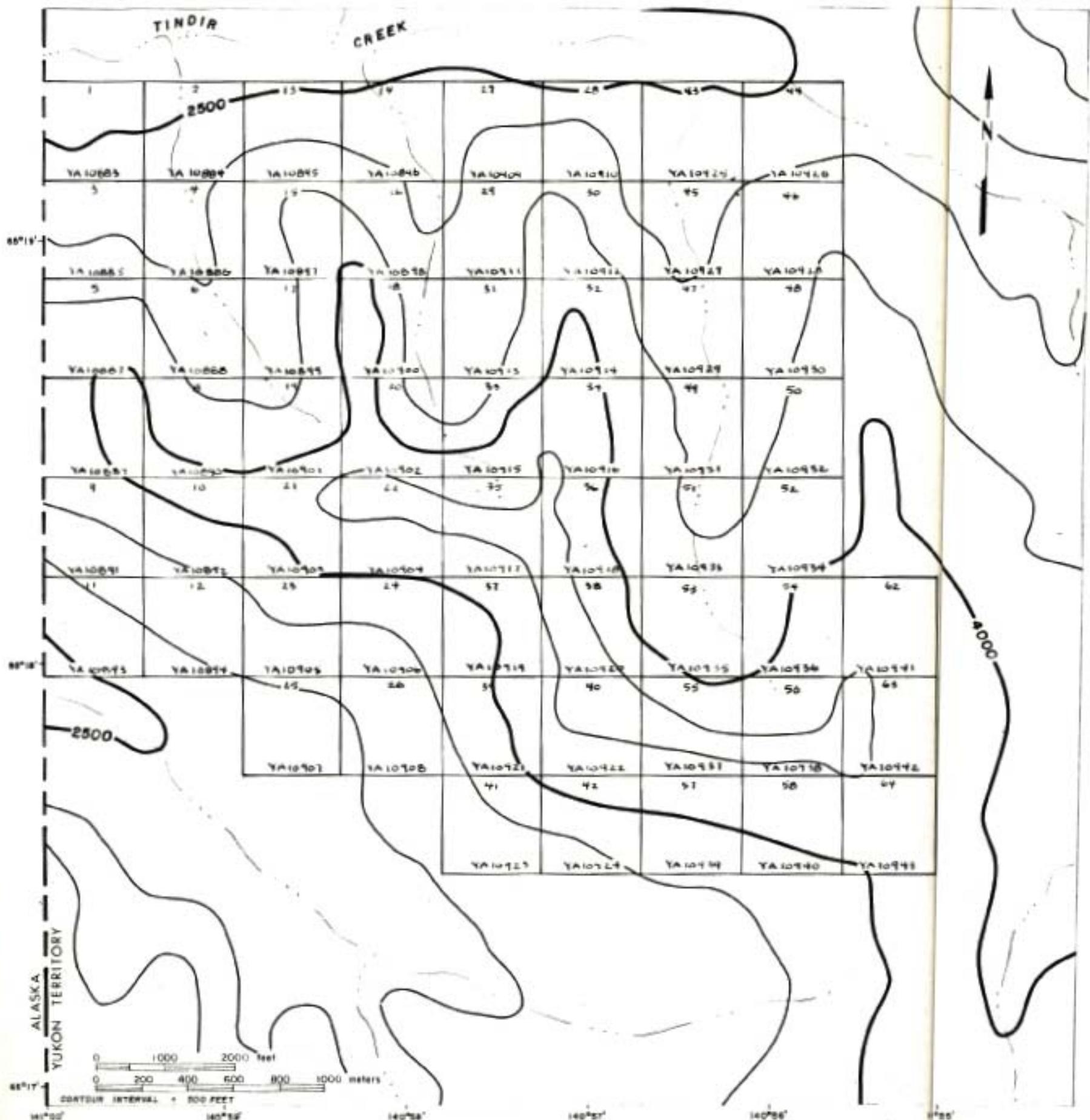
TINDIR PROJECT -- YUKON TERRITORY
FLIGHT LINES
AIRBORNE RADIOMETRIC SURVEY

FIGURE

2b

SCALE: 1:20,000

only anomalous rock sample (Fig. 1, 50123) contains 184 ppm lead and 500 ppm zinc. This sample represents a contact metamorphosed edgewise dolomite conglomerate with a chert matrix collected adjacent to a 10 foot wide diabase dike. The highest uranium values is 8 ppm (50101). No mineralization was seen within the TIN claim block.



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TINDIR PROJECT -- YUKON TERRITORY

TIN CLAIMS

FIGURE

3

SCALE 1:1-20,000

APPENDIX

Geochemical Results

Geochemical Results

<u>Sample</u>	<u>Type</u>	<u>Cu</u> <u>ppm</u>	<u>Pb</u> <u>ppm</u>	<u>Zn</u> <u>ppm</u>	<u>U</u> <u>ppm</u>	<u>P₂O₅</u> <u>%</u>
50024	RX	6	6	17	5	0.34
50025	RX	11	4	7	3	0.36
50026	RX	12	8	20	3	1.20
50027	RX	13	5	24	3	0.33
50028	RX	9	13	23	2	0.45
50029	RX	10	12	28	2	0.07
50030	RX	20	14	71	2	0.12
50101	RX	15	35	34	8	0.56
50102	RX	15	50	45	2	0.20
50103	RX	7	13	33	0.4	0.05
50104	RX	7	8	18	1	0.05
50105	RX	11	11	26	2	0.13
50106	RX	6	10	17	1	0.05
50107	RX	5	17	19	1	0.04
50108	RX	7	38	71	3	0.12
50109	RX	8	33	25	2	0.09
50110	RX	9	7	15	0.2	0.20
50123	RX	8	104	500	4	0.50
50124	RX	9	18	59	2	0.25
50125	RX	9	8	36	6	0.25
50126	RX	6	8	39	2	0.04
50127	RX	8	16	54	5	0.06
50128	RX	9	10	28	2	0.03
50129	RX	9	21	36	1	0.05
50130	RX	5	2	28	0.8	0.01
50131	RX	10	6	27	1	0.04
50132	RX	10	11	36	4	0.04
50155	RX	8	2	15	1	0.10
50157	RX	5	2	11	0.4	0.05
50158	RX	11	23	59	0.2	0.07

RX - rock geochem.