



REPORT ON SOIL GEOCHEMISTRY, GEOLOGY AND
RADIOMETRIC SURVEY

IGOR 1-26 CLAIMS

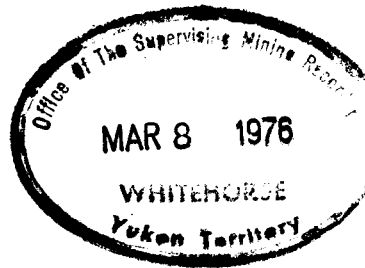
Mayo Mining District, Y.T.
Claim Sheet 106E/2

Lat. 65°03' North Long. 134°38' West


4 February, 1976

Alan R. Archer

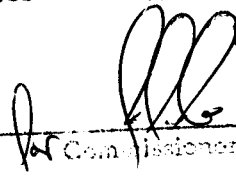
Consulting Engineer

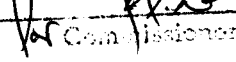


This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of \$ 9850.00


Resident Geologist or
~~Resident Mining Engineer~~

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


B.R. BAXTER
Supervising Mining Recorder


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

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Yukon Territory
Claim Sheet 106E/2

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Scale 1"= 200'
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Scale 1"= 200'

INTRODUCTION

The Igor claims cover a copper occurrence found by Ogilvie Joint Venture (Chevron Standard Ltd., Marietta Resources International Limited, Aquitaine Co. of Canada Limited, and L. & H. Clay) in July, 1974 and explored by reconnaissance soil sampling, geological mapping and channel sampling. Uranium mineralization was located on the claims in late August after the property work was completed. The 1975 Ogilvie Joint Venture (OJV) program described in this report consisted of picket line surveys, soil sampling, geological mapping and a radiometric survey.

The Igor field exploration was performed on a part time basis during the period 21 June to 3 September, 1975 by a field crew based at Kiwi Lake for Wernecke Joint Venture managed by Archer, Cathro & Associates Ltd. Work was supervised by geologist U. Schmidt and the writer and performed by geologists J. Slater and A. Gregson and field men D. Eaton, J. Dickinson, M. Buttle and R. Dennett. Rock samples were examined microscopically by A. Gregson in Vancouver from the 7th to 10th October, 1975.

PROPERTY, LOCATION AND ACCESS

The Igor property consists of 24 full size and 2 fractional mineral claims in a sub-rectangular contiguous block recorded in the Mayo Mining District as follows:

<u>Property</u>	<u>Claim Names</u>	<u>Grant Numbers</u>	<u>Expiry Date</u>
IGOR	Igor 1-2	Y96124-Y96125	20 April, 1976
	3	Y96126	20 April, 1977
	4	Y96127	20 April, 1976
	5-6	Y96128-Y96129	20 April, 1977
	7-16	Y96130-Y96139	20 April, 1976
	17-22	Y98050-Y98055	28 July, 1976
	23-24	YA1194-YA1195	4 Sept, 1976
	25F, 26F	YA1196-YA1197	4 Sept, 1976

The property is located at the headwaters of Slats Creek, an east flowing tributary of the Bonnet Plume River. As illustrated on the insert of Figure I2 in the pocket, the Igor claims are twelve miles south of Kiwi Lake at approximately Latitude 65°03' North and Longitude 134°38' West on NTS claim sheet 106E/2. Access was by Jet Ranger helicopter based at the Kiwi Lake camp which was serviced by float equipped aircraft from Mayo, 120 miles to the southwest.

GEOLOGY

The Igor claims cover a sequence of Proterozoic rocks which are faulted against Cambrian clastics and carbonates to the southwest. The property lies above timberline in an area that has received weak alpine glaciation. Slopes are talus covered and outcrop is only abundant on ridge tops.

Rock units on the Igor claims have been separated according to units differentiated regionally by Wernecke Joint Venture. Property mapping is illustrated on Figure I-2 in the pocket. Three of six Proterozoic units identified regionally are present. The following descriptions are based on field and microscopic examination.

Unit 3 - is a fine grained siliceous and tuffaceous metavolcanic. Colours vary from light olive green to maroon brown and weathered surfaces are orange brown to maroon to green. Green varieties are usually quartzitic to cherty with thin laminae whereas the maroon types have phyllitic to silty textures. Unit 3 on the west side of the property consists of vertically dipping thinly banded (up to one inch thick) green and brown cherty to phyllitic metavolcanics. The quartzitic green weathering metavolcanics are most common to the south and contain minor interbedded buff and brown weakly banded quartzites. Sub unit 3a, a major rock type at the Igor Property, is a moderately to highly foliated

metavolcanic intraformational breccia. Fragments are angular to sub-rounded, up to 1/2 inch across, and are composed mainly of green cherty varieties of Unit 3. The breccia cement is usually dark grey and siliceous but is occasionally dolomitic and recessive weathering. The Unit 3a rocks are typically medium to dark brown, although the more schistose varieties are grey brown with a porphyroblastic texture. This sub unit is extensively replaced by specular hematite and contains thin shear zones of massive pyrite, chalcopyrite, siderite, magnetite and barite. It also hosts most of the uranium mineralization. A second sub unit, Unit 3b, consists of specular hematite and chlorite replacing Unit 3a intraformational breccia and resembles a dark massive greenstone. It commonly contains disseminated magnetite, siderite and barite. A third sub unit, Unit 3c, is a distinctive 5 to 10 foot thick unfoliated fault breccia with angular fragments of pale green cherty metavolcanics that appears to be conformable with the surrounding stratigraphy and can be traced discontinuously for several hundred feet on the south part of the grid.

Unit 5 - is a monotonous and unmineralized sequence of medium grained, white, to buff or grey quartzites on the west side of the property and grey, banded argillites exposed in a creek bank on the east side. Unit 4, a calc-silicate that occurs between Units 3 and 5 regionally, is not seen at the Igor Property.

Unit 6 - called "Breccia" in WJV regional mapping, appears to be a fanglomerate or regolith. At the Igor Property, Unit 6 is dark brown and contains assorted metavolcanic and metasedimentary fragments varying in size from grits up to ten inches across. The matrix is usually dark grey to black and commonly contains from a few percent up to 50 per cent specular hematite. Minor radioactivity was found in thin pink to white veins of barite with chalcopyrite cutting Unit 6 at the junction of the two creeks on the west side of the property.

The general attitude of Units 3 and 5 is NNE strikes (000 to 040) with westerly to vertical dips on the west side of the ridge and easterly dips on the east side of the ridge. Outcrops of Unit 3 on the Igor ridge are cut by many steep dipping, east trending faults with one major north trending fault on the north end of the ridge. A fault on the east side of the ridge has moved Unit 3a into contact with Unit 5. East trending fault zones on the west side of the ridge form strongly gossaned porous zones up to ten feet wide that weather recessively into shallow, steep walled gullies. There is no obvious association of mineralization with the fault zones although weak, sub-parallel shears usually contain minor radioactive material.

MINERALIZATION

Hematite is the most common metallic mineral and forms one 300 foot by 600 foot outcrop of cryptocrystalline to medium grained material on the west side of the ridge. Similar, but smaller, outcrops are found immediately to the north and east. The hematite only occurs within Units 3a or 3b and appears to have gradational contacts. It contains minor magnetite, the quantity of which increases to the north. Euhedral crystals of hematite pseudomorphs of magnetite are found in the main outcrop suggesting that much of the hematite could have altered from magnetite. Barite, chalcopyrite, and pyrite are common accessory minerals and the south end of the main hematite outcrop is weakly radioactive.

Barite is the next most common mineral, occurring as fine disseminations, as massive lenses and pods of coarsely crystalline white to pale pink material in Units 3a and 3b and in hematitic zones, or as part of the cementing material in Unit 3a breccia. Individual lenses of barite are up to 10 feet wide and perhaps 50 feet in length. All uranium mineralization is associated with red

or pink barite, although not all barite is radioactive or red or pink in colour.

Chalcopyrite is the most abundant mineral of economic interest and is the only copper mineral other than malachite and azurite. It occurs as blebs and disseminations in Units 3a and 3b and in the hematitic zones, as narrow high grade veins cutting Unit 3a, and as a minor constituent in discontinuous quartz-barite veins cutting Unit 6. Magnetite, hematite, barite and siderite are common gangue minerals occurring with chalcopyrite. The best area of outcropping mineralization was channel sampled in 1974 with the best sample assaying 2.5 per cent copper across 10 feet. Several high grade chalcopyrite float trains are found on the northwest side of the ridge and appear to be derived from discontinuous vein zones 1 to 2 feet wide and perhaps 50 feet long cutting Unit 3a. The float grades in the range of 4 to 18 per cent copper (see Figure I-3) and is invariably weakly radioactive. No other metals of interest are associated with the copper. Silver assays are less than 1 oz/ton and gold less than 0.01 oz/ton.

Radioactive material is found in narrow barite rich veins cutting the hematite, in the high grade chalcopyrite float described above, as minor disseminations in the hematite and as traces in the copper-barite-siderite veins cutting Unit 6. Figures I-3 and I-5 illustrate assays of radioactive float and chip sample locations over three areas of radioactivity associated with barite veins. The radioactive minerals present have not been identified. The only mineral seen is black and vitreous with a hardness of 6 to 7 and is probably uraninite. Weathering occasionally produces minor yellow and green secondary oxides. The highest assay obtained from radioactive hematite is

.081 per cent U_3O_8 . Assays of copper rich float range from trace to 0.274 per cent U_3O_8 . The highest assay from mineralized barite is 2.21 per cent U_3O_8 across 1 foot from the richest part of a discontinuous vein zone (see insert on Figure I-3). Sampling in the area of barite veins shows large discrepancies between counts-per-second obtained with a scintillometer and chemical assays for uranium. Thorium content of float specimens is less than the detection limit of 100 ppm, as shown on a spectrographic certificate on the following page. A copper rich sample that assayed 0.2 per cent U_3O_8 returned 10 ppm thorium and 0.35 per cent rare earths on chemical analysis. Specimens of radioactive material in barite and chalcopryrite have been forwarded to the Geological Survey of Canada for mineralogical examination. All assaying and spectrographic analyses was done at Chemex Labs Ltd., North Vancouver, B.C.

GEOCHEMISTRY

A baseline controlled system of cross lines was established with chain and compass. Chainages were slope corrected and elevations were measured with an aneroid barometer to produce a topographic base. Three foot lath pickets with the appropriate co-ordinate location were set up at 200 foot intervals on all lines. Soil samples were obtained from a C soil horizon by digging a shallow pit with a grub hoe and were analysed at Chemex Labs Ltd., North Vancouver, B.C. for copper, lead, zinc, uranium, vanadium and molybdenum. The uranium analysis was done using a standard fluorometric method on an ashed and double acidified, minus 32 mesh fraction. The remaining five elements were determined using atomic absorption spectrometry of a nitric-perchloric extraction of a minus 80 mesh fraction.

The uranium , copper and molybdenum analyses are illustrated in Figure I-3 in the pocket. Regional background for these metals in Proterozoic stratigraphy is less than 0.5, 90 and less than 1 ppm respectively. As shown on Figure F3, a large area centred on the west side of the ridge is strongly anomalous with copper in excess of 500 ppm, molybdenum greater than 10 ppm and uranium erratically in excess of 5 ppm. A comparison with surface geology shows the strongly anomalous response coincident with exposure of hematite and sub units 3a and 3b. Unit 6 is less anomalous in copper and molybdenum and returned only background uranium values. Units 3 and 5 and sub unit 3c returned background values. No new areas of interest in copper or uranium were indicated. No molybdenum bearing minerals have been recognized and its mode of occurrence is not known.

Lead, zinc and vanadium analyses are illustrated on Figure I-4. Except for a few erratic highs, all values are below threshold for the district.

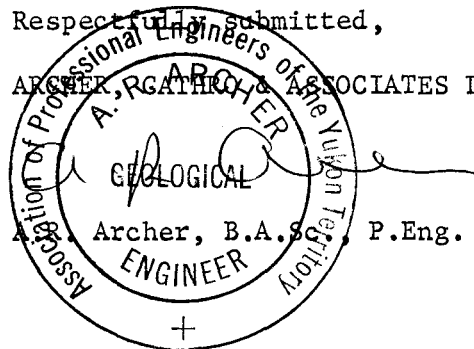
RADIOMETRIC SURVEY

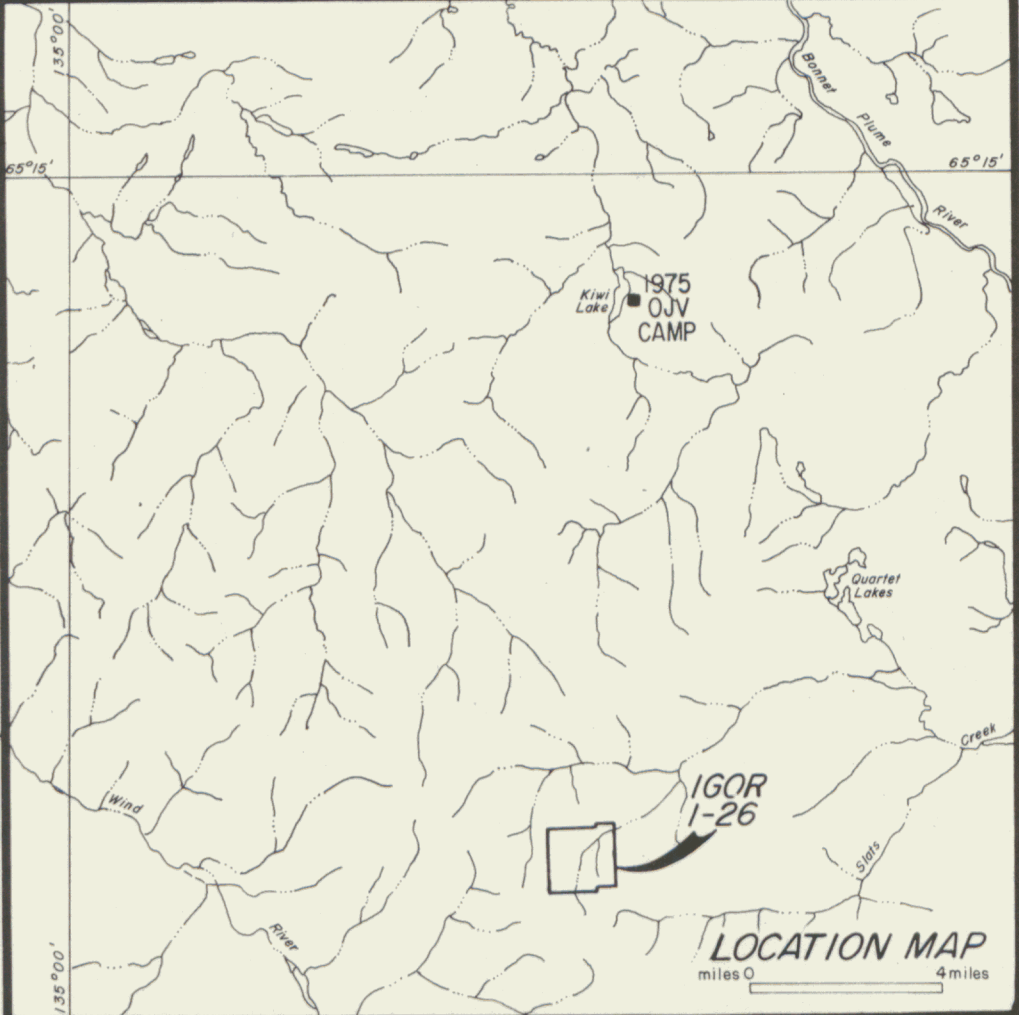
Radioactivity was measured at 50 foot intervals along the chained lines using a Scintrex BGS-1S broadband scintillation counter (Serial No. 501303). This model is equipped with a 1 inch by 1 inch thallium activated, sodium iodide crystal detector. The readings, which are recorded in counts-per-second (cps), were taken at waist level (about 3 feet above the ground), and are plotted on Figure I-5. Background readings range from 30 cps over the Paleozoic rocks on the south end of the grid to 70 cps over Unit 5. The zone with readings greater than 75 cps more or less conforms to the area of interest for uranium as determined by geology and geochemistry.

CONCLUSIONS

Mapping, soil sampling and radiometric survey has outlined a semi-coincident area of copper and uranium mineralization, about 1500 feet long and 500 feet wide, along the west side of a north trending ridge. High copper soil values suggest that an average grade in excess of 0.5 per cent copper is possible. Radioactive float is scattered throughout the talus in minor amounts and appears to be derived from narrow discontinuous veins. An outcrop of barite-rich rock with radioactive zones near the crest of the ridge returned much lower uranium assays than the level of radioactivity suggests should be present. This is probably due to concentrations of radium which has a strong geochemical affinity for barium, that could be caused either by (a) uranium leaching from the outcrop and radium remaining behind, or (b) groundwater containing leached uranium from other sources being stripped of radium as it passed over the barite.

Respectfully submitted,
ARCHER, PGATHRO & ASSOCIATES LTD.



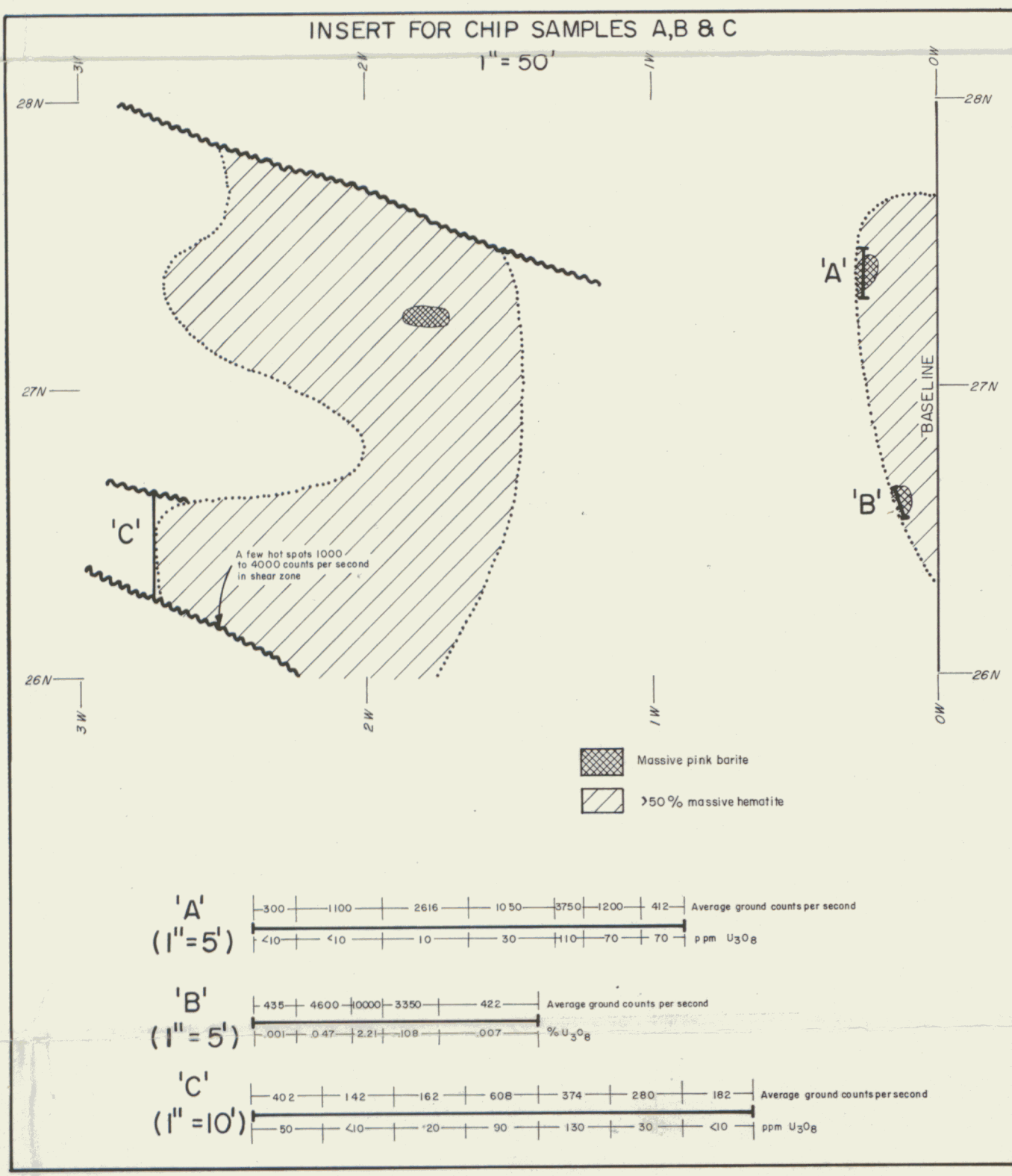
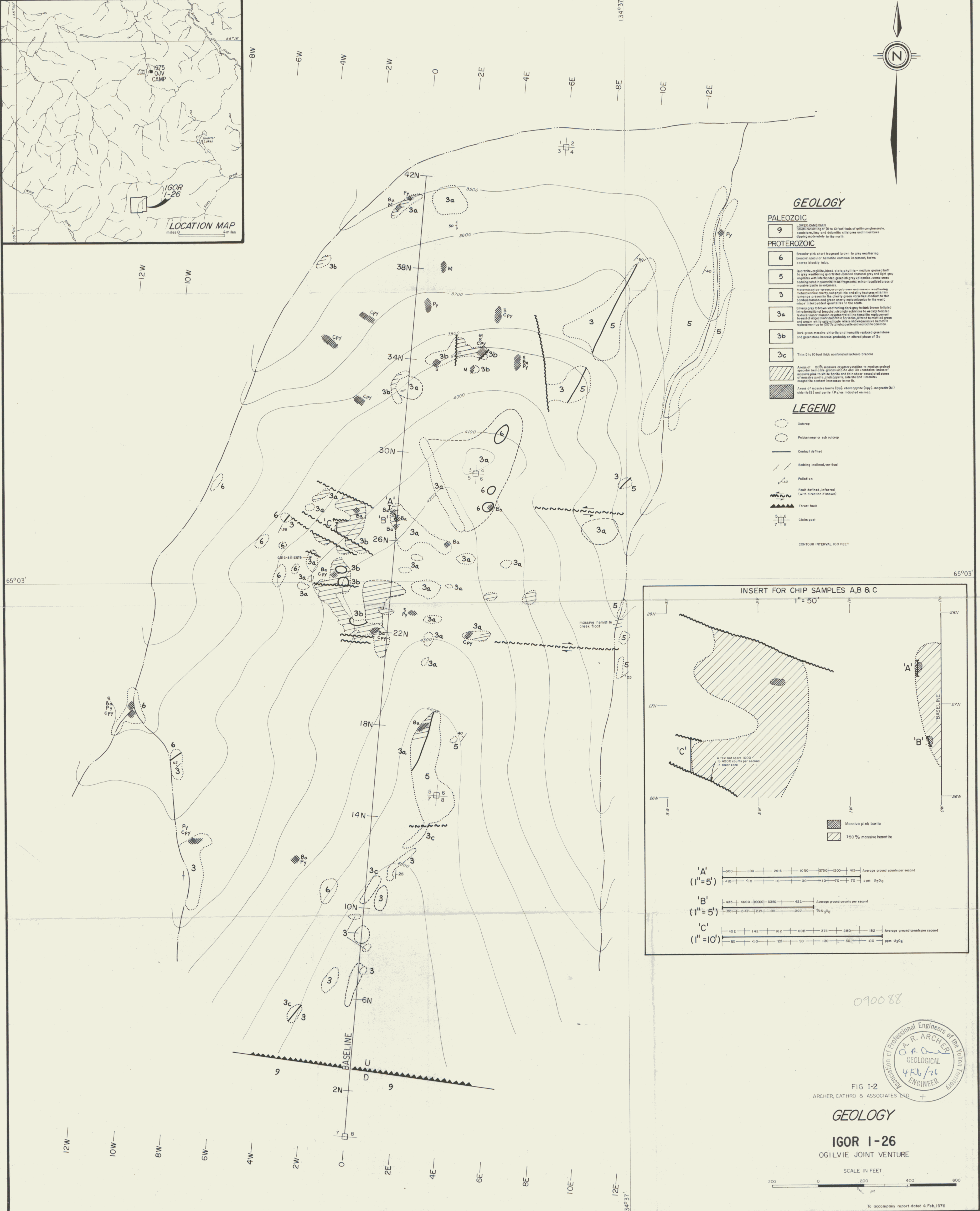


GEOLOGY

- PALEOZOIC**
- 9 LOWER CAMBRIAN**
Shale consisting of 25 to 30 foot beds of gritty conglomerate, sandstone, limy and dolomitic siltstones and limestones dipping moderately to the north.
- PROTEROZOIC**
- 6** Breccio-pink chert fragment brown to grey weathering breccia; specular hematite common in cement; forms coarse blocky lens.
- 5** Quartzite, argillite, black slate, phyllite - medium grained buff to grey weathering quartzites; banded charcoal grey and light grey argillites with interbedded greenish grey volcanics; some areas bedding noted in quartzite lull fragments; minor localized areas of massive pyrite in volcanics.
- 3** Metaxenolite: green, orange brown and maroon weathering metaxenolite; cherty, subpyritic and silty textures with thin laminae present in the cherty green varieties; medium to thin banded maroon and green cherty metaxenolite to the west; minor interbedded quartzites to the south.
- 3a** Silvery grey to brown weathering dark grey to dark brown foliated interbedded breccia; strongly schistose to weakly foliated feature; minor maroon cryptocrystalline hematite replacement toward edge; minor dolomitic horizons, altered to reddish green and cream white calc. silicified where shown; massive hematite replacement up to 100% chlorophyllite and magnetite common.
- 3b** Dark green massive chlorite and hematite replaced greenstone and greenstone breccia; probably an altered phase of 3a.
- 3c** Thin 5 to 10 foot thick nonfoliated tectonic breccia.
- Areas of 50% massive cryptocrystalline to medium grained specular hematite grades into 3a and 3b (constitute lenses of massive pyrite, chlorophyllite, siderite and limonite; magnetite content increases to south).
- Areas of massive barite (Ba), chalcophyllite (Cpy), magnetite (M) siderite (S) and pyrite (Py) as indicated on map.

LEGEND

- Outcrop
 - Fold nose or sub outcrop
 - Contact defined
 - Bedding inclined, vertical
 - Foliation
 - Fault defined, inferred (with direction if known)
 - Thrust fault
 - Claim post
- CONTOUR INTERVAL 100 FEET



090088

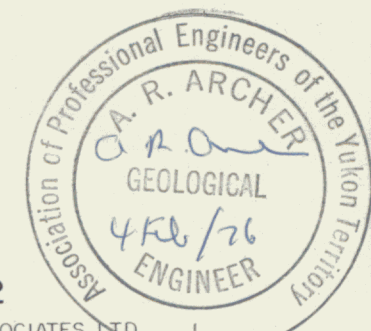
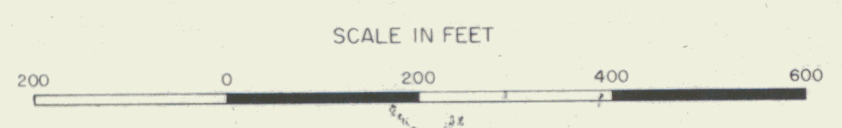
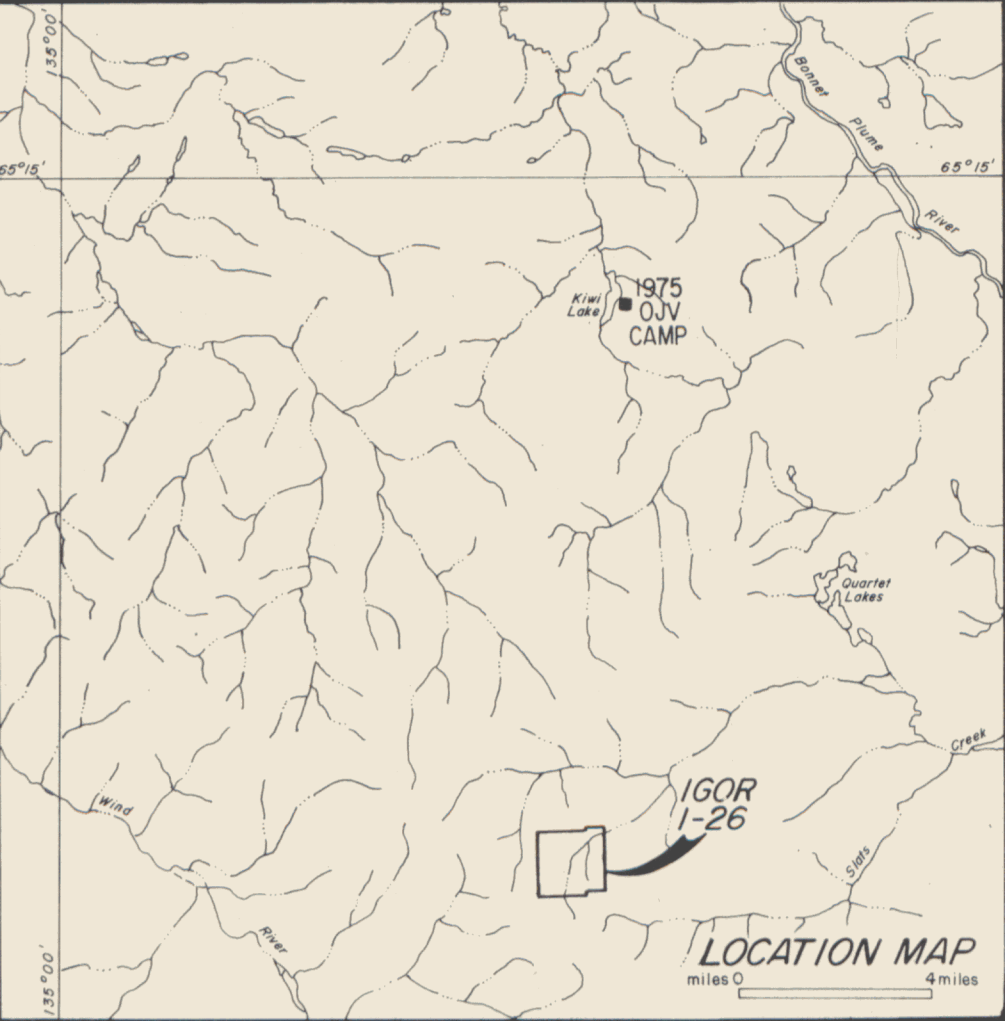


FIG I-2
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GEOLOGY

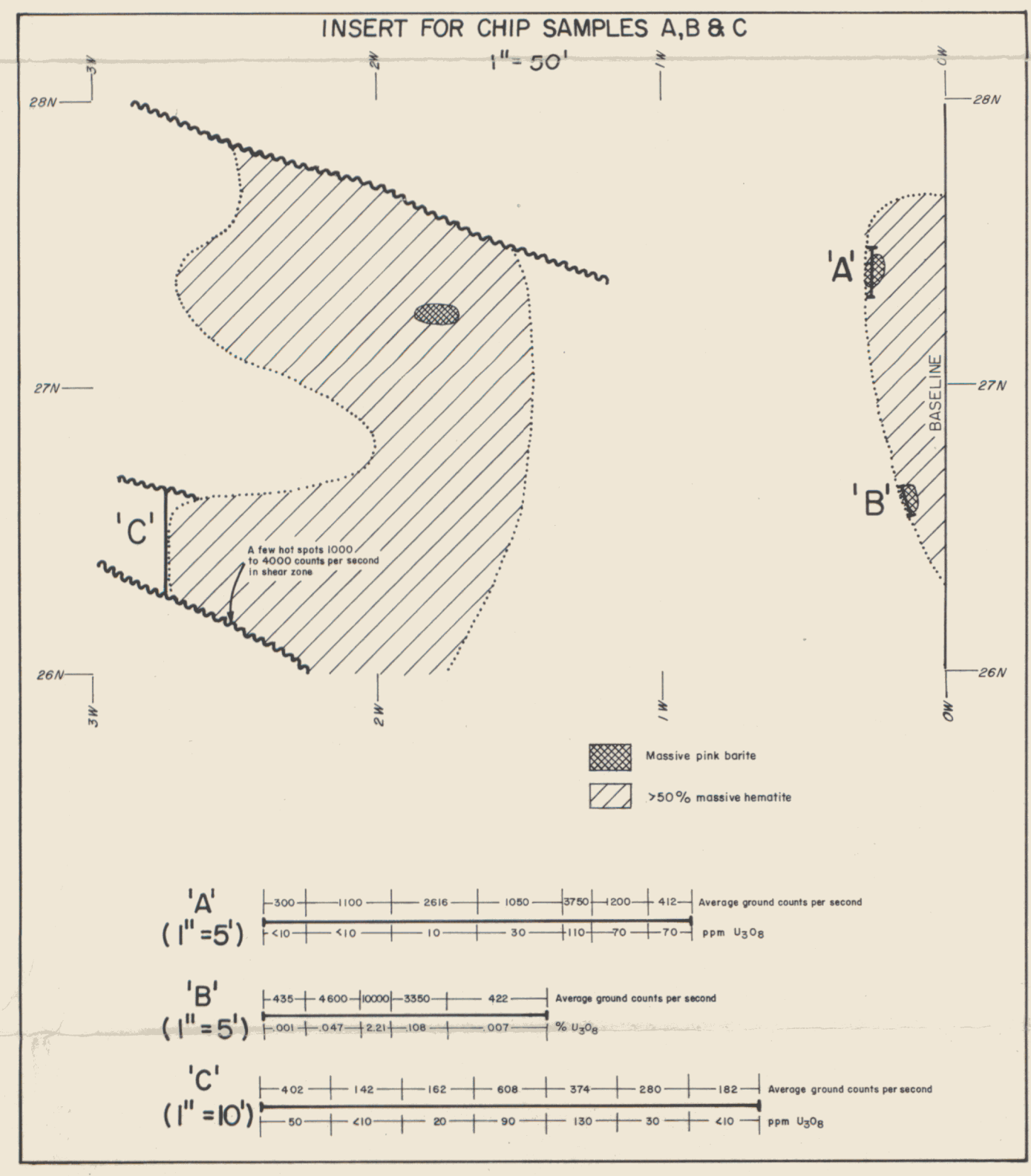
IGOR I-26
OGILVIE JOINT VENTURE





LEGEND

- 10,134, 5 Soil sample with U, Cu, Mo assays in ppm by Chemex Labs Ltd.
- 2.20% U₃O₈ Rock (grab) sample with U₃O₈ and Cu in % by Chemex Labs Ltd.
- 0.52 or Ag, 0.005 or Au, 0.20% U₃O₈, 7.92% Cu. 1974 O.V. rock (grab) sample
- SP151-432 Reference to spectrographic analysis certificate number and sample number included in appendix in the report.
- 'A' Chip sample in outcrop
- 5/7/8 Claim post
- N.A. Not analysed
- CONTOUR INTERVAL 100 FEET



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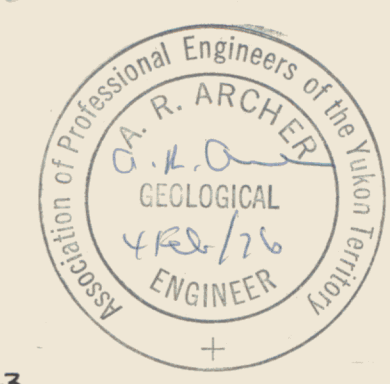
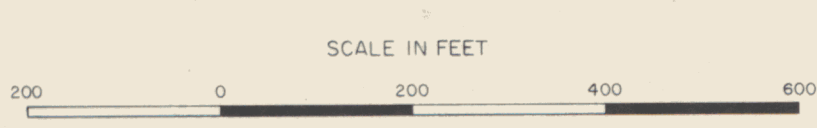
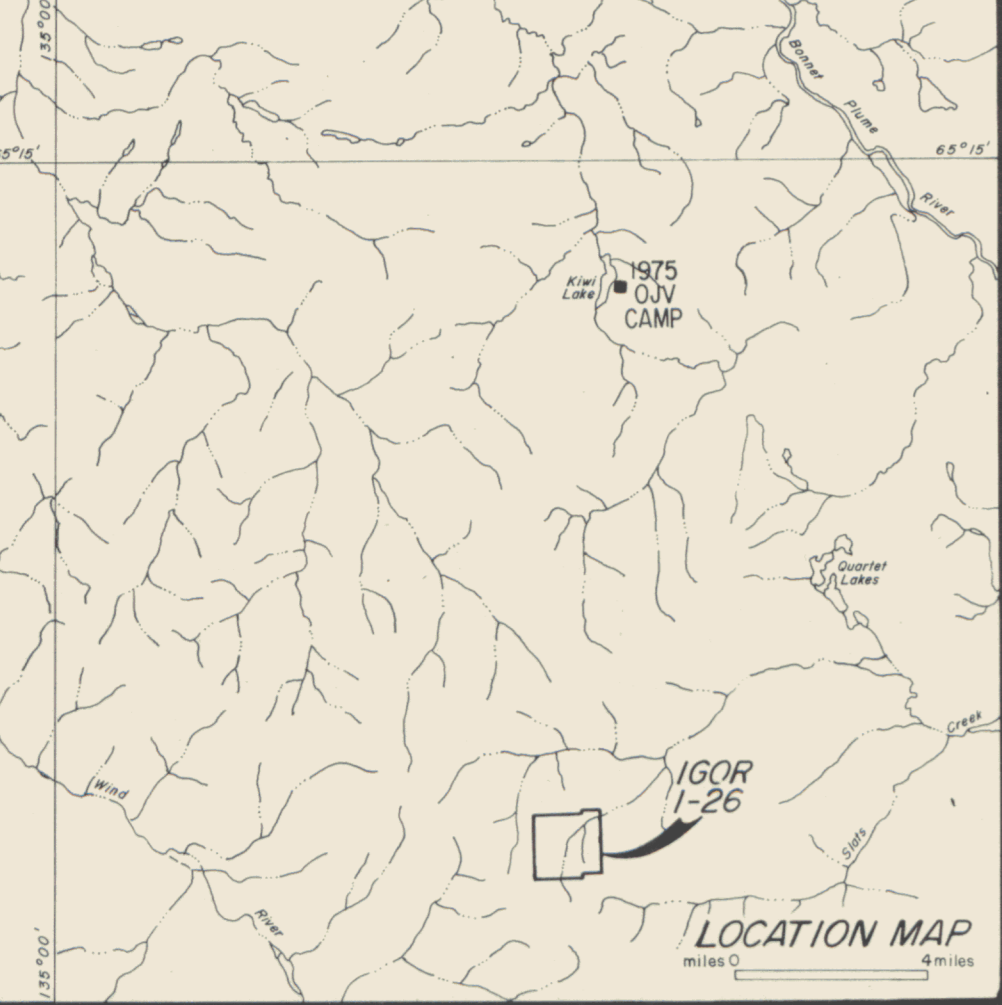


FIG I-3
 ARCHER, CATHRO & ASSOCIATES LTD
URANIUM, COPPER, MOLYBDENUM
GEOCHEMISTRY

IGOR I-26
 OGILVIE JOINT VENTURE





LEGEND

- 8,28,40 Soil sample with Pb,Zn,V assays in ppm by Chemex Labs Ltd.
- SP 151-432 Reference to spectrographic analysis certificate number and sample number included in appendix in the report
- ┌─┐ 'A' Chip sample in outcrop
- ┌─┐ 5 1 6 Claim post
- └─┘ 7 1 8
- N.A. Not analysed
- CONTOUR INTERVAL 100 FEET

09008

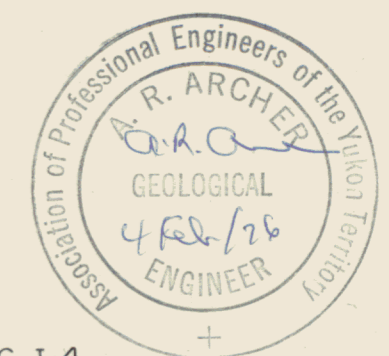


FIG I-4
 ARCHER, CATRO & ASSOCIATES LTD
**LEAD, ZINC, VANADIUM
 GEOCHEMISTRY**
IGOR I-26
 OGLVIE JOINT VENTURE

