Report On
Geology and Mineralization
IGOR 1-16 MINERAL CLAIMS

Mayo Mining Division - Yukon Territory
located at

Lat. 65°03' Long. 134°38'

NTS 106E/2
May 1, 1975

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 $ 1500.00

D. B. Craig

Resident Geologist or
~~Resident Mining Engineer~~

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

Commissioner of Yukon Territory

1500.

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INTRODUCTION

The Igor claims cover a copper showing discovered in mid July, 1974, through regional exploration funded by Ogilvie Joint Venture (Chevron Standard Ltd., Aquitaine Co. of Canada Ltd., Marietta Resources International Ltd, L. & H. Clay) and managed by Archer, Cathro and Associates Ltd. The main area of mineralization was explored by geological mapping, reconnaissance geochemical sampling and chip channel sampling by field geologists D. Hendry and C. Forster under supervision of the writer. A suite of rock samples was examined petrologically in early October by C. Forster.

PROPERTY, LOCATION AND ACCESS

The Igor property consists of 16 contiguous mineral claims recorded in the Mayo Mining District as follows:

Claim Name	Grant Numbers	Expiry Date
Igor 1-16	Y96124-Y96139	20 August, 1975

The property is located between the Wind and Bonnet Plume Rivers at approximately Latitude 65°03' North and Longitude 134°38' West. Access was by helicopter from a camp situated at Kiwi Lake some 11 miles to the north. The Kiwi Lake camp was supplied by float plane from Mayo which is 120 airmiles to the south. The claim outline is illustrated on Figure 16 and the general location on an insert on Figure 11.

GEOLOGY

Chalcopyrite occurs in a complex, highly metamorphosed sequence of hematite-magnetite iron formation in volcanics. The volcanics consist of

greenstones, light coloured siliceous zones (tuff? or volcanic exhalatives?) and fine to coarse volcanic breccias or agglomerates cemented with specular hematite. This sequence is exposed on a 2000 foot long, south trending ridge which is bounded by creeks to the east, west and north. Mineralized talus is abundant on the west flank of the ridge and to a lesser degree on the east flank. Talus on the opposite sides of the bounding creeks is composed of argillite and quartzite with no evidence of mineralization, iron formation or volcanics. The stratigraphic relationship between the various rock types has not been extablished because of the scarcity of outcrop and lack of structural or sedimentary features. Also, it is not certain whether the chalcopyrite occurs as a accessory syngenetic mineral or has been introduced through veining. Figure Il illustrates the position of the rock types found along the ridge and provides a short description of each, including those which were examined petrologically.

MINERALIZATION AND GEOCHEMISTRY

Chalcopyrite is found in minor amounts throughout the entire sequence of volcanics and iron formation. It is concentrated in and/or near zones (beds?) of massive magnetite and chloritic rocks (greenstone) with magnetite porphyroblasts. Minor pyrite occurs with the chalcopyrite and occasionally in separate nearby zones. Both the magnetite and hematite are coarsely crystalline and any evidence of sedimentary origin has been completely destroyed by metamorphism.

Chalcopyrite is most abundant in float found on the west side of the ridge and in a series of small outcrops on the northwest side of the ridge. These

outcrops were chip channel sampled as illustrated in the insert on Figure Il. The chalcopyrite has a tendency to occur in linear hi-grade streaks and clusters of medium size grains replacing both the country rock and magnetite and occasionally rimming magnetite porphyroblasts. Siderite and barite occur in minor quantities but it is not clear if these minerals are a constituent of the host rock or gangue accompanying the mineralization. The sampled outcrops appear to define two west trending zones of copper mineralization separated by a 50 foot width of foliated sericite-magnetite gneiss containing traces of copper. Three 10 foot chip samples from the northern zone average 0.48 per cent copper over an indicated width of 60 feet. Four ten foot chip samples from the southern zone average 0.93 per cent over an indicated width of 20 feet. Both zones are open in two directions.

The best grade mineralization seen on the property occurs in talus low on the west side of the ridge. A representative specimen from high grade float, with no obvious source, forming some 10 per cent of the talus over an area of 100 feet by 20 feet assayed 13.4 per cent copper. This mineralization is surprisingly difficult to recognize because it weathers dull black just like other rock types nearby, and is quite nondescript. Only minor amounts of malachite and limonite were seen. Assaying and spectrographic analysis of copper rich float for other metals indicates trace quantities of silver, cobalt and molybdenum.

Soil samples were collected in prenumbered kraft bags from a "C" soil horizon and shipped air express to Chemex Labs Ltd, North Vancouver, B.C. Here, they were dried, screened to minus 80 mesh , digested in nitric-perchloric acid and analysed for copper, lead and zinc by atomic absorption spectrometry. Soil sampling confirms the prospecting observations that

copper occurs in minor quantities over a fairly large area and is most abundant on the west, talus covered, slope of the ridge. Soil values on the west slope range from 342 to 2600 ppm copper, with an arithmetic average of 1175 ppm, over a length of 2200 feet. The lowest soil values were obtained downhill from the mineralized outcrop that was chip sampled suggesting that even better mineralized zones may lie beneath the talus where soil values are higher.

CONCLUSIONS AND RECOMMENDATIONS

The Igor claims cover an area of chalcopyrite in a complex sequence of Helikian iron formation and volcanics that is at least 2200 feet long and 1000 feet wide. The best outcrop averaged 0.93 per cent copper across a width of 20 feet. Strongly anomalous copper geochemistry and moderately abundant good grade float (up to 13 per cent copper) suggest the potential exists for a large tonnage, low grade deposit. More detailed surface mapping and sampling is required.

Respectfully submitted,

ARCHER, CATHRO & ASSOCIATES LTD.

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

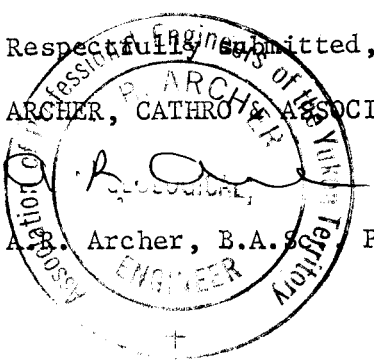


FIG. 16
ARCHER, CATHRO & ASSOCIATES LTD.
GEOLOGY & COPPER
LEAD, ZINC GEOCHEMISTRY
ILLTYD CREEK AREA
OGILVIE JOINT VENTURE
SCALE IN MILES
1/2 0 1/2 1
To accompany report dated May, 1975
061203
LEGEND
MESOZOIC
CRETACEOUS
Ku Sandstone and conglomerate
PALEOZOIC
CARBONIFEROUS-PERMIAN
CP Thin bedded dolomite, sandstone and shale
DEVONIAN
UPPER DEVONIAN
uDfc FORT CREEK FORMATION Black shale, rusty weathering, often pyrite
MIDDLE DEVONIAN
mDn NAHANNI FORMATION Grey, reefoidal limestone, abundant 2 hole crinoids, corals, brachiopods and strongly fetid.
mDh HEADLESS FORMATION Brown weathering, argillaceous silty platy limestone
mD includes ARNICA and LANDRY FORMATIONS:- Light to dark grey bedded dolomite.
LOWER DEVONIAN
lD includes SOMBRE, CAMSELL and DELORME FORMATION Bedded limestone and laminated dolomite.
ORDOVICIAN-SILURIAN
OSmk MOUNT KINDLE FORMATION Massive grey, cliff forming dolomite. Often brecciated, silicified and fossiliferous.
CAMBRIAN
CAMBRO-ORDOVICIAN.
€Ofm FRANKLIN MOUNTAIN FORMATION Yellow-brown weathering, thin bedded, recessive, light grey dolomite.
UNCONFORMITY
m€x Brecciated white dolomite marking the unconformity between the upper and middle Cambrian.
m€d 1. bedded, coarse grained, white dolomite. 2. thin bedded, limy dolomite - intercalated chert bands, calcareous shale, abundant intraclasts, ripple marks and mud cracks. 3. thin bedded orange to brown weathering dolomite. 4. massive, light grey, structureless dolomite - algal mounds?
m€l Dark grey, algal limestone with oncolites and/or oolites.
LOWER CAMBRIAN
l€fs Flunk shale - dark grey, purple or green dolomite shale, recessive and generally found as talus.
l€fd Flunk dolomite - red-brown weathering, thick bedded, white to grey reefoidal dolomite. Generally porous, vuggy, brecciated and tertiary dolomitized, the unit hosts a major portion of the Pb-Zn-pyrite mineralization found at Flunk.
l€ld Limy dolomite with intercalated:- 1. dark grey dolomite with pseudo brecciation. Chert bands and quartz veins. 2. reefoidal dolomite with bitumen and porosity. 3. thin bedded limestone with clastics, trilobites, oolites and oncolites. 4. light grey, cliff-forming dolomite - structureless and possibly represents algal mounds. 5. oncolite dolomite 6. orange weathering, thin bedded dolomite.
l€cl Clastics including:- 1. calcareous grits 2. conglomerate 3. siltstone 4. dark grey shale.
l€ls Basal Cambrian Limestone - thin bedded nodular, oncolitic, black limestone
PROTEROZOIC
HADRYNIAN
Hk KEELE FORMATION Orange weathering algal dolomite, siltstone
Hr RAPITAN GROUP Shale, siltstone, conglomerate, iron formation.
Hsfe Slate, sandstone and basal conglomerate
HELIKIAN
Hsc Dark slates, argillites, quartzites and limestone
Hasc Argillite, chlorite-sericite schists, pyroclastics and acid lavas (exhalites?) quartzites and iron formation.
P€ UNDIFFERENTIATED
S Geochemical anomaly described in text
x Silt
• Soil
Cu,Pb,Zn in ppm
Pb,Zn gn,sp,cpy py,fe Outcrop of lead, zinc oxides, sulphates and/or carbonates Outcrop of galena, sphalerite, chalcopyrite, pyrite and iron respectively
6 Float - number indicates mineral occurrence described in text.
Oncolites and/or oolites
Reef and/or breccia
Outcrop
Defined contact
Assumed contact
Approximate contact
Defined fault
Assumed fault
Foliation
Dip and strike
Greater than 75°
Greater than 45°
Greater than 25°
Anticline
Syncline
Vein
A–A Stratigraphic sections FIG. F2
Association of Professional Engineers of the Yukon Territory
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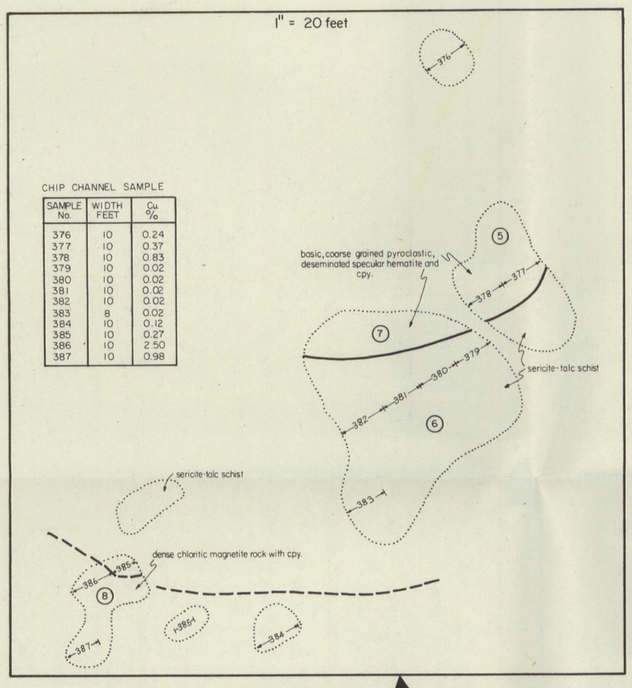
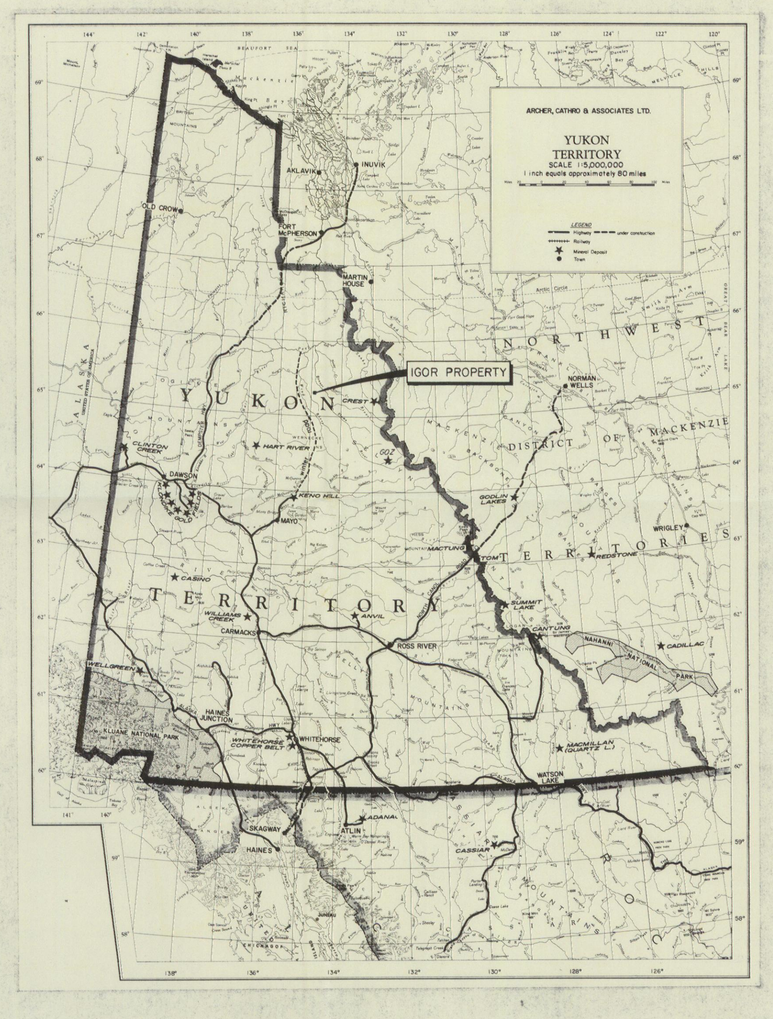
May/75
OJV CAMP 3
KIWI LAKE
MST 1-40 SEE FIG. MI
RAD 1-48 (Wharf Res)
WINDY 1-14 (Great Plains)
FLUNK 141-164
FLUNK 1-140
YOGI 1-16 (Great Plains)
JEANETTE 1-12 (Great Plains)
SEE FIG. FI
IGOR 1-16
SEE FIG. I1
IGOR 2
MAGIC 1-12 (Dynasty)
SEE FIG. I8
Royal Mtn 6567'
WIND RIVER TRAIL (WINTER ROAD)
WIND RIVER
Illtyd Creek
Flunk Creek
Royal Creek
Louis Creek
6b traces deseminated sphalerite, galena associated with fluorite, calcite and quartz stockwork along breccia zone.
6a Zn
bryozoan corals crinoids brachiopods
crinoidal limestone
sp with qtz. vein.
chlorite schists as creek float
quartz vein
slates, argillites, phyllites
graphitic schist rusty weathering surfaces
cpy in light green tuff.
volcanic agglomerate
chlorite-sericite shists
diorite with py along fractures
sphalerite galena
chert banded dolomite
chlorite sericite schists
graphitic schist and py.
chloritized iron formation
trace cpy in siderite vein
purple quartzite
limestone float
argillite
Quartzite
argillite phyllite
slates and argillites
quartzite
135°30'
135°15'
135°00'
134°45'
134°30'
65°10'
65°05'
65°00'
64°55'

1" = 20 feet

CHIP CHANNEL SAMPLE

SAMPLE No.	WIDTH FEET	Cu %
376	10	0.24
377	10	0.37
378	10	0.83
379	10	0.02
380	10	0.02
381	10	0.02
382	10	0.02
383	8	0.02
384	10	0.12
385	10	0.27
386	10	2.50
387	10	0.98





ROCK DESCRIPTION

1. Foliated, fine grained, light green laminated rock with waxy lustre on foliation planes. Hardness variable and dependent on degree of alteration and weathering. T.S.- foliated, fine grained sericite (40%), quartz K feldspar (40%), diopside (15%) and magnetite (5%). Bands of coarser grained quartz, K- feldspar, sericite material cross cuts magnetite phenocryts parallel bedding.
2. Strongly foliated, gneissic rocks with magnetite, sericite, chlorite and diopside.
3. Similar to No. 2 but less foliated and made up of round clasts of fine grained quartzite, sericite-quartz- diopside, plus veinlets of barite, calcite and albite.
4. Pinkish, granular crystalline rock with chlorite along fractures. T.S.- composition of coarse grained albite (secondary) strongly sericitized plus tremolite and calcite.
5. Basic rock with ± 20% magnetite, 15% pyrite, ±2% chalcopyrite plus siderite, K-feldspar, chlorite gangue. T.S.- shows chlorite replacing pyroxene suggesting original rock to be a diabase (dyke?)
6. Strongly foliated sericite-magnetite gneiss, similar to No. 2
7. Dense, heavy fine grained dark green rock with phenocrysts (1-2 mm) of siderite and specularite along poorly defined fractures and/or veinlets.
8. Dense, chloritic magnetite rich rock with clots of fine grained diopside, similar to No. 4
9. Grey fine grained phyllitic rock. T.S.- fine grained sericite rich with oriented, flat, angular fragments resembling shards feldspar altered to montmorillonite (?), possibly a tuff.
10. One foot thick barite vein.
11. Pyroclastic- rounded clasts of varying composition including magnetite phenocrysts; fine grain sericite- K feldspar clasts, and quartzite clasts, matrix of sericite, calcite and diopside.
12. Foliated, coarse clastic rock composed of clasts of fine grained sericite in a K-feldspar, sericite matrix, strong secondary calcite and barite veining plus disseminated chalcopyrite.
13. Basic rock with disseminated magnetite, chalcopyrite, pyrite plus barite veins.
14. Light green rhyolitic (?) rock with coarse magnetite phenocrysts plus minor disseminated chalcopyrite. T.S.- composition is fine grained diopside in a sericite, K feldspar matrix plus magnetite.
15. Andesite breccia with massive pods (±5') pyrite and magnetite. T.S.- strong chlorite replacement of pyroxene in a coarse grained quartz, K feldspar, chlorite matrix.
16. Massive magnetite in a jasperoid matrix plus 0.5% chalcopyrite.
17. Basic rock with ±50% hematite and magnetite plus trace chalcopyrite.
18. Coarse grained agglomerate- volcanic breccia.
19. Fine grained quartzite.
20. Fault breccia- angular quartz clasts in fine grained siliceous matrix.
21. Leucocratic, light green rhyolite medium hardness but variable depending on degree of alteration (sericitic)
22. Laminated, fine grained tuffaceous rock with waxy lustre similar to No. 1

LEGEND

- Soil sample } Cu, Pb, Zn in ppm
- X Silt sample }
- Outcrop
- Contact defined, assumed.
- Fault
- Assay location- float
- Assay location- outcrop
- Claim post
- Strike and dip
- cpy Chalcopyrite
- py Pyrite
- Fe fm Iron formation (magnetite and/or hematite)
- ser. Sericite alteration
- arg Argillite
- sch. Schist
- (9) See rock description.

T.S = Thin section

NOTE:- SEE FIG. 16 FOR CLAIM BOUNDARY

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ENGINEER

FIG. 11

ARCHER, CATHRO & ASSOCIATES LTD.

GEOLOGY & COPPER, LEAD, ZINC GEOCHEMISTRY

IGOR PROPERTY

OGILVIE JOINT VENTURE

SCALE IN FEET

200 0 200 400 600

061203

To accompany report dated May, 1975