

REPORT ON  
PROSPECTING AND GEOCHEMICAL SURVEY  
AL 1-240 MINERAL CLAIMS  
SNAKE RIVER AREA, YUKON

Mayo Mining District, Y.T.  
Latitude 64° 40' Longitude 132° 30' 32"  
Claim Sheet 106C-9&10

for  
Anvil Mining Corp. Ltd.  
5 August, 1974

Robert J. Cathro

Consultant

This report has been examined by the  
Geological Evaluation Unit and is recom-  
mended to the Commissioner to be consider-  
ed as representation work in the amount of  
\$ 12,300

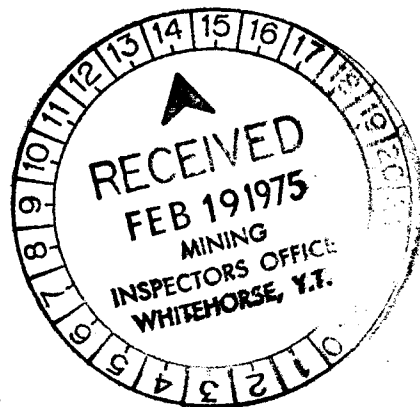
*D.B. Craig*

Resident Geologist or  
Resident Mining Engineer

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

*[Signature]*

Commissioner of Yukon Territory



12,300<sup>n</sup>

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Figure 1 - Geology - Scale 1"=2500'

Figure 2 - Soil and Silt Geochemistry, 1"=2500'

## INTRODUCTION

A program of prospecting and reconnaissance geological mapping and soil geochemistry was carried out by Doug Eaton and Ron Dennett of Archer, Cathro & Assoc. Ltd. on the A1 claim group between July 9 and 23. The work was performed under contract on behalf of Anvil Mining Corp. Ltd., and was conducted from three light fly camp locations that were serviced by helicopter. The writer visited the property on July 16 in company with J.G. Simpson of Anvil.

## CLAIMS

The A1 1-240 claim group (grant numbers Y88104-Y88343) was explored for Anvil under an option to purchase from the owners, Pelly River Staking Syndicate. The claims are registered in Mayo in the names of the stakers and expire on April 16, 1975.

The claims have been poorly staked and only five sets of posts could be found, all of which were smaller than legal size, lying on the ground and unflagged. No marking of the location lines was visible.

## LOCATION AND ACCESS

The claim group is situated 125 airmiles northeast of Mayo on the southwest side of Snake River and about 12 miles from the Northwest Territories boundary. The property lies about 10 miles north of the nearest lake, Goz lake, and about 16 miles northeast

of the Goz zinc deposit of Barrier Reef Resources Ltd. The A1 claims are only accessible by helicopter.

### TOPOGRAPHY AND VEGETATION

The claims are situated in the Bonnet Plume Range of the Selwyn Mountains, in an area of locally rugged relief composed of sheer carbonate cliffs and 40° to 50° scree slopes. Valley bottoms have elevations of about 4,000 feet while the ridges rise to between 6,000 and 7,000 feet. Sparse shrubs and scattered spruce trees occur in only a few of the lowest valleys. Except for two restricted areas of glacial till in the lower valleys (centered on claims A1 78 and A1 19), the entire claim group is underlain by frost shattered outcrop and locally derived talus and can be effectively explored by conventional prospecting.

### GEOLOGY

The geology of the claims, shown on Figure 1 in the pocket, is adapted from GSC Open File Map #205. In summary, a regional fault which strikes diagonally northwest through the south corner of the claim block brings a Cambrian and Hadrynian sequence of slate, quartzite, carbonate and minor conglomerate on the northeast side into contact with Silurian-Devonian limestone and Devonian-Mississippian shale on the southwest side. The major units, from oldest to youngest, are:

Hadrynian-Rapitan Group(Hr) - This unit comprises dark brown to black slate with minor quartzite and its contact with the

overlying Sheepbed Formation is clearly visible from the air. The Rapitan group occurs in the northern corner of the claim block and was not explored.

Hadrynian-Sheepbed Formation (HEsc) - Massive dark grey to black slate with minor quartzite and pinkish pebble conglomerate conformably overlies the Rapitan Group. This unit was only prospected near its contact with overlying Cambrian units.

Lower Cambrian (Ecq) - A thick sequence of quartzite with interbeds of dolomite, limestone, slate and siltstone forms a belt from 1/2 to 2 miles wide which strike  $300^{\circ}$  to  $330^{\circ}$  and dip  $20^{\circ}$  to  $60^{\circ}$  northeast across the centre of the claim block. The contact with the Hadrynian unit to the northeast is not well exposed but appears to be conformable. A small outlier of Lower Cambrian forms a flat-lying cap on a ridge of Hadrynian rocks near the northwest end of the property, with the base of the Lower Cambrian at an elevation of about 6,000 feet. The structural relationship between the belt of Lower Cambrian rocks and the Hadrynian is not clear but the Lower Cambrian may be an overturned limb of a fold whose axis strikes northwest and dips gently northeast within the Hadrynian Sheepbed Formation.

The main mappable units in the Lower Cambrian sequence, from northeast to southwest, are:

<u>Approximate Thickness (feet)</u>	<u>Description</u>
1,500	Slate - grey to black
2,000	Quartzite - white to pink Siltstone - red, brown, green Conglomerate - pink pebble to cobble

100	Shale
1,500	Quartzite - white to grey, microcrystalline
500	Dolomite - orange and red weathering
200	Dolomite - white to grey, microcrystalline
100	Limestone - black, highly jointed

As noted above, this entire sequence may be overturned, with the carbonates occurring near the top of the column.

The Cambrian belt is terminated to the southwest by a major regional fault which appears to dip moderately to the northwest, with an attitude similar to the postulated attitude of the overturned fold. A reasonable interpretation is that this is a thrust fault and that the Cambrian rocks have been dragged under by the movement of the northeasterly thrust plate over the upper Paleozoic rocks to the southwest.

Silurian-Devonian (SDc) - This unit comprises fossiliferous massive white limestone with minor black oolitic horizons. The general attitude is flat-lying with gently northeasterly dips.

Devonian- Mississippian (DMs) - Highly fractured black shales overlying the limestone along the southern edge of the claim block are the youngest rocks seen.

MINERALIZATION

A total of 21 small zinc showings were found by prospecting, all within the SDc unit. Mineralization was generally in the form of zinc oxide in the carbonates, and was detectable only with the aid of a ferricyanide-oxalic acid zinc test solution. Minor sulfide galena and sphalerite was observed in several of the showings. In every case except one, the zinc was found in calcite veinlets cutting a distinctive black calcareous limestone unit lying within the SDc limestone. Mineralized zones weather recessively and few outcrops were found. One showing was found in black calcareous chert with the mineralization once again associated with the calcite. This zone actually lies within the DMs formation a few feet from the SDc contact.

Two weak copper showings were located within the Ecq formation. The mineralization consists of bornite, chalcopyrite and malachite in a zone of vuggy white quartz along the contact between a dolomite and quartzite-siltstone unit.

Traces of disseminated pyrite were observed in minor amounts throughout the claim group.

Two of the best mineralized zones were chip sampled. These were the only zones that contained a significant amount of sulfides.

Zone A - Contains visible sphalerite, galena and possibly a trace of sulfosalts. Mineralization is erratic and visible mineralization is limited to a small area. A selected mineralized specimen from this zone assayed 33.4% zinc, 4.95% lead, 0.80 oz/ton silver, 0.02% copper, 0.01% antimony, and trace arsenic and gold. A 40 foot section of this zone was chip sampled across the strike of the veinlets and yielded the following results:

<u>Feet</u>	<u>Copper(%)</u>	<u>Lead(%)</u>	<u>Zinc(%)</u>	<u>Silver(oz/ton)</u>
0-10	.01	.05	.28	.03
10-20	.01	1.13	3.36	.15
20-30	.01	.03	.32	.09
30-40	.01	.03	.26	.12

Zone B - Contained less visible mineralization than Zone A, with sphalerite the only visible sulphide. Sampling indicated a uniformly low distribution of mineralization. A 40 foot chip sample across strike yielded the following results:

<u>Feet</u>	<u>Copper(%)</u>	<u>Lead(%)</u>	<u>Zinc(%)</u>	<u>Silver(oz/ton)</u>
0-10	.01	TR	.45	.15
10-20	.01	.01	.34	.09
20-30	.01	.07	.10	.03
30-40	.01	.01	.08	.06

#### GEOCHEMISTRY

Soil samples were collected at intervals of about 1,000 feet during prospecting traverses and all major drainages on the periphery of the claim block were silt sampled. Although soil development is poor on the scree slopes, geochemistry was quite effective in outlining all mineralization found by prospecting. No undiscovered showings are indicated.

Zinc response from units SDC and DMs is up to 5,000 ppm near the mineralized areas, compared to a background level of about 350 ppm. Background is much lower in the Cambrian and Hadrynian rocks, averaging about 100 ppm. Lead response is uniformly low throughout the property, except very close to

sulfide showings, with background about 40 ppm. Copper response is also uniformly flat, even near the copper showings, with background level about 30 ppm.

#### ADJOINING CLAIMS

During the course of this program, prospecting crews from Harman Management Ltd. were at work to the south and west. Adjoining ground in this area was staked by Harman crews between June 15 and July 5 and these claims, the Got, Wall and Algal groups, were recorded on July 24. Harman's claims appear to be staked over the mineralized SDc unit at the south end of the A1 group and have been carefully staked. Since no A1 posts have been found in this vicinity, the exact position of the A1 group is unknown and the ownership of the showings is in some doubt.

#### SUMMARY AND RECOMMENDATIONS

The A1 claim group cover what appears to be a northeast dipping thrust fault, which has moved Hadrynian and Cambrian rocks southwestward over Silurian-Mississippian strata. The Cambrian rocks have apparently been dragged into the overturned nose of a fold along the base of the upper thrust plate and subsequent erosion has removed the crest of the fold.

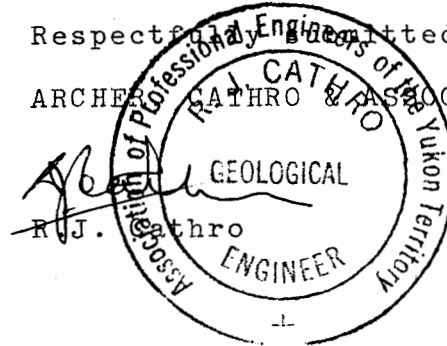
The only mineralization found on the claims consists of small amounts of sphalerite and galena in calcite veinlets in zones up to 40 feet wide which cut Silurian-Devonian limestone (SDc) and traces of chalcopyrite and bornite in Cambrian rocks.

(Eqc). The best chip sample assayed 3.36 percent zinc and 1.13 percent lead across a width of 10 feet

The only dolomite, which is normally the best rock for carbonate lead-zinc deposits, occurs in the Cambrian unit and it is unmineralized, without any appreciable brecciation or porosity.

The lead-zinc mineralization found on the A1 claim group does not have any features to suggest that a significant tonnage is present which would grade better than 1 percent combined. The excellent rock exposure and lack of vegetation have allowed effective conventional prospecting and little exploration potential remains. No further work is recommended.

Respectfully,  
ARCHER CATHRO & ASSOCIATES LTD.



RJC:ka



PERIMETER OF AL 1-240 CLAIMS AS SHOWN ON CLAIM SHEET 106 C/10

**ZONE A**  
Chip Sampling Results

Depth	oz./ton Ag.	%Pb.	%Zn.	%Cu.
0'-10'	.03	.05	.28	.01
10'-20'	.15	.113	3.36	.01
20'-30'	.09	.03	.32	.01
30'-40'	.12	.03	.26	.01

**ZONE B**  
Chip Sampling Results

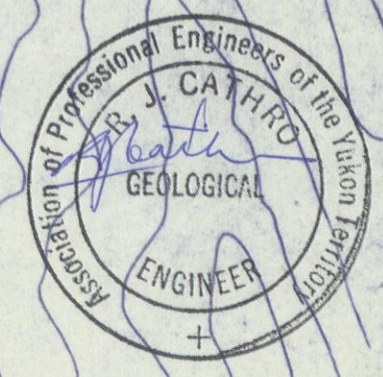
Depth	oz./ton Ag.	%Pb.	%Zn.	%Cu.
0'-10'	.15	TR.	.45	.01
10'-20'	.09	.01	.34	.01
20'-30'	.03	.07	.10	.01
30'-40'	.06	.01	.08	.01

**SYMBOLS**

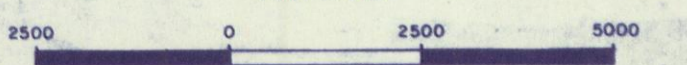
- Formation Contact (Defined)
- - - Formation Contact (Inferred)
- - - Qzt - Qzt & Siltst. Contact
- - - Unit Contact (Defined)
- ~ Fault

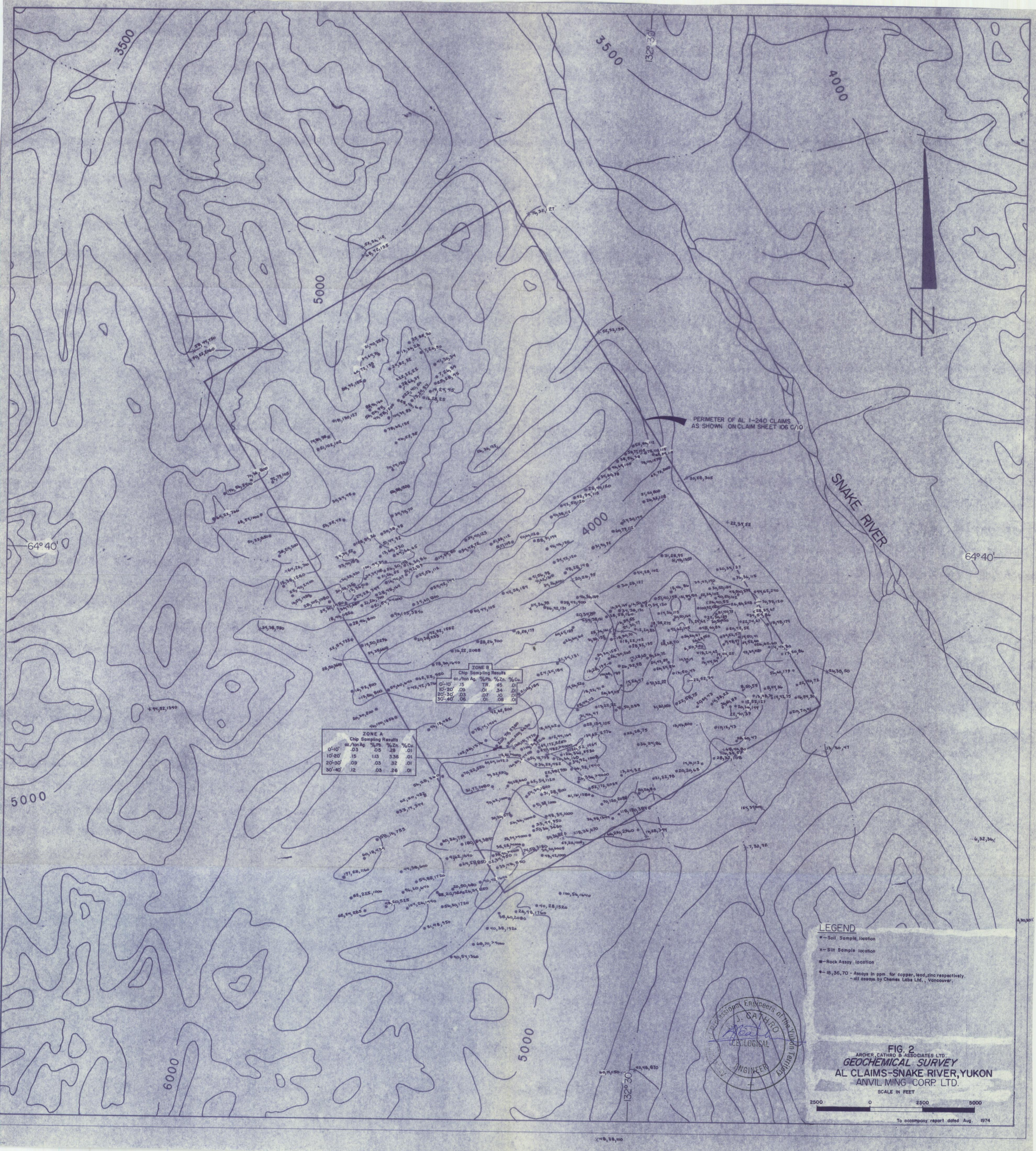
**GEOLOGICAL LEGEND**  
(Geology modified from G.S.C. Open File map 205)

- DMs - Devonian & Mississippian Bevo River Formation
- SDc - Silurian & Devonian
- Ecq (Ec & Eq) - Lower Cambrian Backbone Ranges Formation
- HEsc - Helderberg Sheppard Formation
- Hr - Helderberg part of Rippon Group
- Mineralized Zone



**FIG. 1**  
ARCHER, CATHRO & ASSOCIATES LTD.  
**GEOLOGY**  
AL CLAIMS-SNAKE RIVER, YUKON  
ANVIL MINING CORP. LTD.  
SCALE IN FEET





PERIMETER OF AL 1-240 CLAIMS AS SHOWN ON CLAIM SHEET 106 C/10

**ZONE A**  
Chip Sampling Results

Depth	gr./ton Ag	% Pb	% Zn	% Cu
0'-10'	03	05	28	01
10'-20'	15	143	336	01
20'-30'	09	03	32	01
30'-40'	12	03	26	01

**ZONE B**  
Chip Sampling Results

Depth	gr./ton Ag	% Pb	% Zn	% Cu
0'-10'	15	TR	45	01
10'-20'	09	01	34	01
20'-30'	23	07	30	01
30'-40'	06	01	08	01

- LEGEND**
- - Soil Sample location
  - x - Silt Sample location
  - - Rock Assay location
  - ① - 18,36,70 - Assays in ppm for copper, lead, zinc respectively.
  - all assays by Chemex Labs Ltd., Vancouver



**FIG. 2**  
ARCHER, CATHRO & ASSOCIATES LTD.  
**GEOCHEMICAL SURVEY**  
**AL CLAIMS-SNAKE RIVER, YUKON**  
**ANVIL MING CORP. LTD.**  
SCALE IN FEET

2500 0 2500 5000  
To accompany report dated Aug. 1974