

# ARCHER, CATHRO

AND ASSOCIATES LTD.

CONSULTING GEOLOGICAL ENGINEERS

WHITEHORSE, Y.T. 667-4415

685, TWO BENTALL CENTRE, VANCOUVER, B.C. 688-2568

POST OFFICE BOX 4127  
WHITEHORSE, Y.T.

Geological and Geochemical Report

On

ALP 3-73 Claims

Latitude  $61^{\circ}37'N$  , Longitude  $136^{\circ}11'W$

Whitehorse Mining District, Yukon Territory

for

B.A. Copper Mines Ltd.

June 21, 1973

Alan R. Archer

Consulting Engineer

## TABLE OF CONTENTS

<u>In Text</u>	<u>Page</u>
Introduction .....	1
Property .....	1
Location and Access .....	1
History .....	2
Geology	
Regional .....	3
Alp Claims .....	3
Geochemistry .....	4
Conclusions and Recommendations .....	5

### Illustrations

Figure 1 - Location Map, Scale 1"=1/2 mile .....	in text
Figure 2 - Geology and Claim Location -Scale 1"=500' .....	in pocket
Figure 3 - Geochemical Map, Scale 1"=500' .....	in pocket

## INTRODUCTION

The Alp 3-73 claims surround the Mack's copper prospect, which is covered by six leased mineral claims owned by Mrs. I. Goulter. The Mack's showing was found prior to 1908 and has been explored on numerous occasions through to 1966. The Alp claims, which are 90 per cent overburden covered, were explored by grid soil sampling under the writers direction during 1972.

Information for this report is derived from the writers personal observations aided by Geological Survey of Canada publications (Summary Report, 1908, pp 29-30 and Paper 66-31, pp 44-46) and assessment data from previous operators on open file at the Department of Indian Affairs and Northern Development, Whitehorse, Yukon Territory.

## PROPERTY

The Alp property consists of a sub-rectangular block of 71 mineral claims surrounding six leased mineral claims. The Alp claims are recorded in the Whitehorse Mining Division, Yukon Territory, as follows:

<u>Claim Name</u>	<u>Grant Number</u>	<u>Expiry Date</u>
Alp 3, 5, 7, 9, 11	Y61109-Y61113	16 July, 1974
Alp 4, 6, 8, 10, 12	Y61116-Y61120	16 July, 1974
Alp 13 to 27	Y61123-Y61137	16 July, 1974
Alp 28, 30	Y61121-Y61122	16 July, 1974
Alp 29, 31	Y61114-Y61115	16 July, 1974
Alp 32 to 60	Y61138-Y61166	16 July, 1974
Alp 61 to 73	Y66034-Y66046	18 Jan., 1975

## LOCATION AND ACCESS

The Alp claims are located at Lat. 61°37'N and Long. 136°11'W in NTS mapsheet 115H/9. They lie eight miles southwest of Mile 72 on the Klondike

FIG. 1

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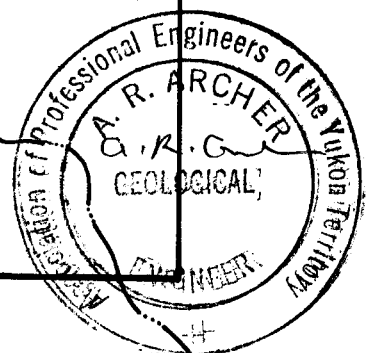
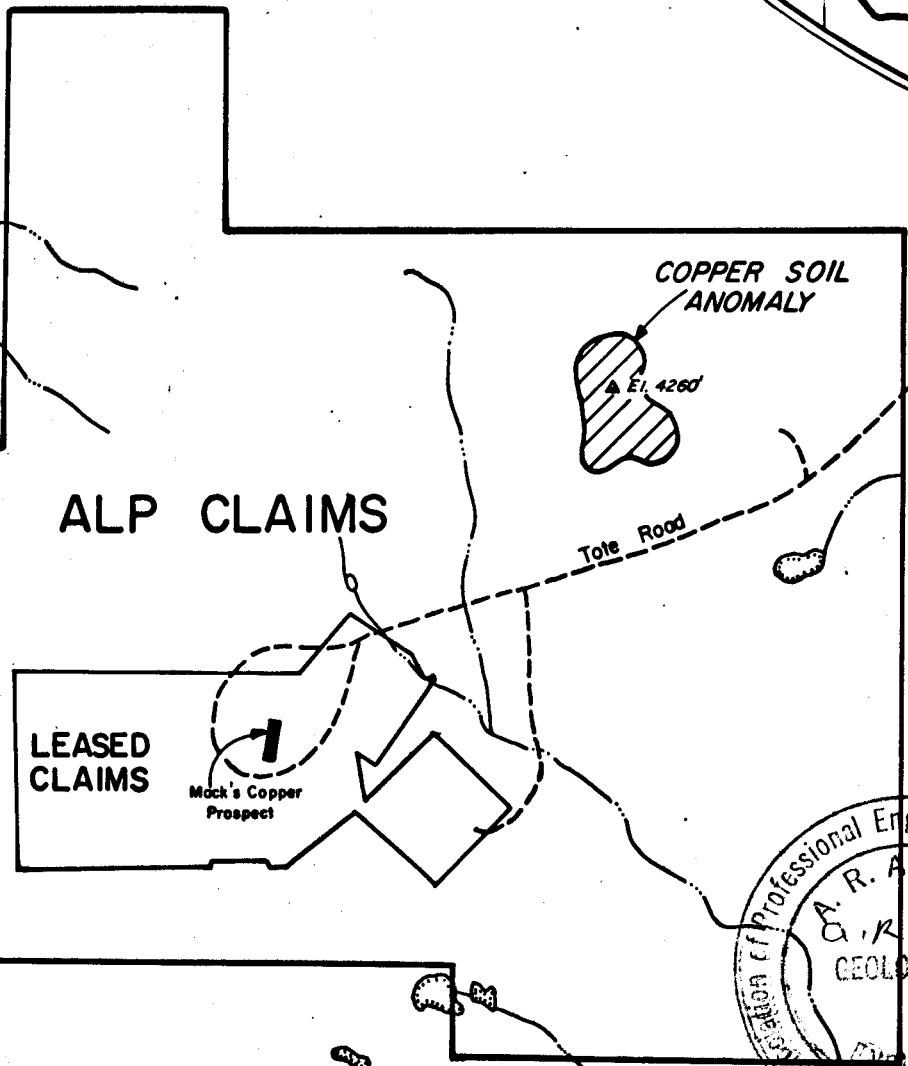
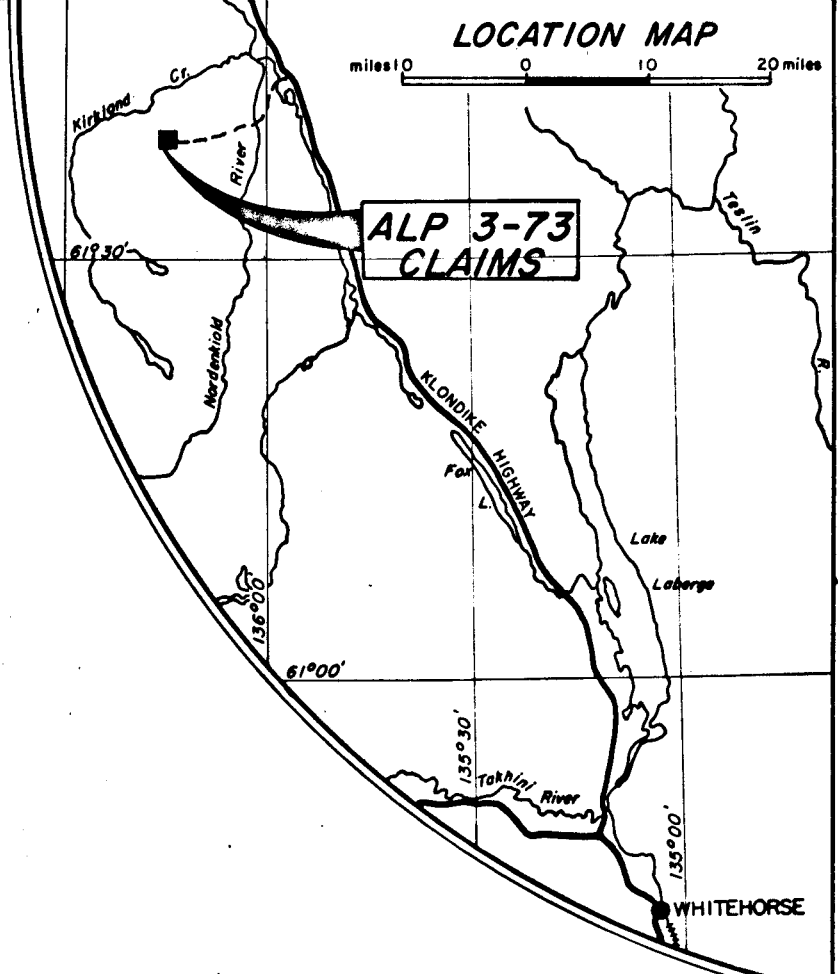
# LOCATION MAP

B.A. COPPER MINES LTD.  
ALP 3-73 CLAIMS

miles 1/2 0 1/2 miles

## LOCATION MAP

miles 0 10 20 miles



Highway which is 80 road miles from Whitehorse. A winter road built to the Mack's property in 1965 is presently accessible to within five miles of the claims.

### HISTORY

The Mack's showing was found in the early 1900's and was developed by surface trenching and a 38 foot adit before 1908. The six remaining original claims were surveyed and taken to lease about 1910. These were optioned in 1964 to Arctic Mining and Exploration Ltd. which constructed the tote road from the Klondike Highway and drilled 860 feet in four holes in 1965. During the period 1960 to 1966 several companies, including Arctic Mining and Explorations Ltd., Newmont Mining Corporation and Alice Lake Mines Ltd., acquired claims around the Mack's copper prospect and on at least two occasions explored these by ground magnetic and reconnaissance geochemical surveys. This work was directed mainly toward locating extensions of the Mack's zone and, although a few anomalies were bulldozer trenched, no extension was found.

The Alp claims were staked by A. Arsenault and associates in late 1971 and early 1972. The property was optioned on 30 March, 1972 to South Yukon Joint Venture (financed by Chevron Oil Company, Landon T. Clay and Harris Clay, Union Oil Co. of Canada Ltd. and Straus Exploration Inc.) and were explored by geological mapping and grid soil sampling before the option was dropped in August of the same year.

GEOLOGY

Regional

The Alp claims are situated along the western margin of the Whitehorse Trough near a contact between Triassic andesitic volcanics and Mesozoic granitic rocks of the Coast Crystalline Belt. The Whitehorse Trough defines the northern end of the Intermontane Tectonic Belt. Other rock units in the area include early Paleozoic metasediments, Tertiary granitic stocks and Tertiary and Recent volcanics. The Triassic andesites, which are the predominant rock type on the Alp claims, are correlative to the Mt. Nansen volcanics, which appear to be important geological controls further north at the recently discovered copper properties in the Williams Creek and Minto areas. The Mt. Nansen volcanics have been dated as Jurassic by previous workers but recent (unpublished) mapping by Dirk Tempelman-Kluit of the Geological Survey of Canada indicates that this unit is actually pre-Jurassic (probably Triassic) and forms the base of the Whitehorse Trough.

The Alp claims lie on the western margin of Pleistocene continental glaciation where ice levels reached a maximum of 5000 feet above sea level. Here, ice action resulted mainly in deposition of glaciofluvial material rather than active valley cutting or erosion.

Alp Claims (See Figure 2 in Pocket)

The Alp claims lie along a thinly timbered, north-trending ridge on which two small hills reach elevations of 3300 feet and 4260 feet above sea level. Except on the two hills, there is little outcrop and overburden consists of

a mixture of residual and glaciofluvial material. The leased claims on the Mack's showing, which the Alp claims surround, lie on the south end of the ridge at an elevation of 4100 feet above sea level. The ridge is bounded by flat valleys between 2000 and 3200 feet in elevation that are thickly covered by glaciofluvial deposits.

The Alp claims are mainly underlain by Triassic andesitic volcanics that are dark green, structurless, and weakly altered with minor disseminated magnetite. On the western edge of the property, the volcanics contact medium grained, non-foliated and unaltered quartz monzonite of Cretaceous age. Several small stocks of similar composition intrude the volcanics on the Alp claims near the contact. The main effect of the intrusions is weak development of northwest trending foliation in the volcanics.

Other than the minor mineralization described under the next heading, there are no known mineral showings on the Alp claims. The Mack's showing is a magnetite-diopside skarn containing small amounts of Chalcopyrite. The skarn has developed in a thin carbonate horizon within the volcanic sequence and has limited lateral extent. The showing has no obvious economic potential and no extension beyond the leased claims has been indicated.

#### GEOCHEMISTRY (See Figure 3 in Pocket)

During 1972, the Alp claims were soil sampled at 200 foot intervals on east-trending lines 400 feet apart. Samples were analysed for copper, molybdenum and silver at Chemex Labs. Ltd., North Vancouver, B.C., by atomic absorption spectrometry of a nitric-perchloric extraction of a minus 80 mesh fraction. With the exception of a few swampy areas, most of the samples were obtained from a B or B plus C horizon. Other than a few erratic highs, all samples

assayed below the detection limit of 1.0 parts-per-million (ppm) and 0.5 ppm for molybdenum and silver respectively. Copper background over the volcanics and intrusives was found to range from 10 to 30 ppm with threshold about 30 ppm. This value range compares to that found in similar geological settings to the north and south. There is no geochemical indication of the Mack's copper mineralization extending onto the Alp claims.

Soil sampling outlined an elliptical area approximately 1700 feet long and 1000 feet wide with copper soil values ranging from 21 to 541 ppm copper with an arithmetic average of 163 ppm or about five times threshold. This anomaly is centred on the 4260 foot hill, on the Alp 14 and 18 claims, about 5000 feet northeast of the leased claims. The anomalous area exhibits about 50 per cent outcrop and most of the soil samples were from a B plus C horizon. Erratic, above threshold copper values were obtained in soil samples up to 1500 feet away from the anomaly in all directions. Two random chip samples were taken from the volcanic outcrops within the anomalous area and these returned 108 and 122 ppm copper. Both showed traces of disseminated chalcopyrite under the microscope. One feature that was only noted within the anomalous area is the occasional occurrence of bleached, pyritized and weakly leached zones up to 50 feet wide and 200 feet long. A chip sample from one of these geochemically assayed 183 ppm copper.

#### CONCLUSIONS AND RECOMMENDATIONS

A copper geochemical anomaly about 1700 feet long and 1000 feet wide, on the Alp 14 and 18 claims, appears to be directly related to trace amounts of chalcopyrite in Triassic andesitic volcanics. The occurrence of associated

bleached and pyritized zones may indicate an uncapped feature of interest. This possibility should be explored by a single 1000 foot diamond drill hole. The hole should be collared near the base of the hill, on the southeastern side, at an angle of 50° northwest into the hill as illustrated on Figure 3. Core should be geochemically assayed for copper at 20 foot intervals to determine if any significant trends can be established.

The following budget is for a two stage program. The first stage covers the single 1000 foot long drill hole and the second stage budgets for continued drilling, contingent on favourable results in the initial hole. Costs are estimated at-

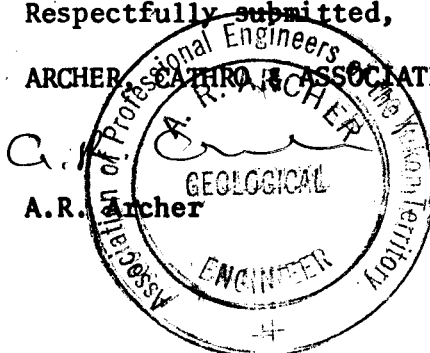
Stage 1

1000 feet BQ drilling @ \$11/ft .....	\$ 11,000.00
Helicopter support, includes moving drill in & out of property .....	6,000.00
Camp equipment and supplies .....	1,500.00
Assays, supervision and engineering .....	<u>1,500.00</u>
Total ---	\$ 20,000.00

Stage 11

2000 feet BQ drilling @ \$11/ft .....	22,000.00
Repair and upgrade access road .....	5,000.00
Camp supplies .....	1,500.00
Assays, supervision and engineering .....	<u>1,500.00</u>
Total ---	\$30,000.00

Respectfully submitted,  
 ARCHER, THROTTLE & ASSOCIATES LTD.



ARA:st

**ARCHER, CATHRO**  
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BOX 4127, WHITEHORSE, Y.T. 667-4415

BENTALL CENTRE, VANCOUVER, B.C. 688-2568

685  
~~XXX~~ TWO BENTALL CENTRE  
955 BARRARD ST.  
VANCOUVER 1, B.C.

June 21 , 1973

CERTIFICATE

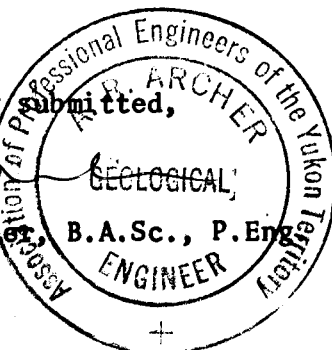
I, Alan R. Archer, with business addresses in Whitehorse, Yukon Territory, and Vancouver, British Columbia, and residential address in South Burnaby, British Columbia, do hereby certify that:

1. I am a consulting geological engineer.
2. I graduated from the University of British Columbia with a B.A.Sc. in Geological Engineering in 1957.
3. I am a registered Professional Engineer in British Columbia and Yukon Territory.
4. From 1957 to 1966 I was engaged in mineral exploration in Canada as a geologist for a number of companies. I was Chief Geologist for United Keno Hill Mines Ltd. when I retired to private practice in 1966.
5. I have examined all publications and reports referred to in this report and have personally examined the Alp claims.
6. I have not received, nor do I expect to receive, any interest, directly or indirectly, in the properties or securities of B.A. Copper Mines Ltd.

Respectfully

*A.R.A.*

Alan R. Archer



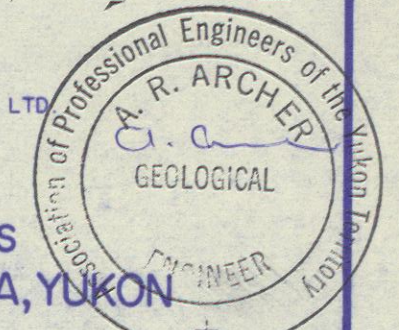


- GEOLOGY**
- COMELGOMERATE - could be related to Jurassic Loberge Group or Tertiary Comstock Series, consists of rounded, poorly-sorted pebbles & cobbles of chert & vesicular volcanics cemented by crumbly sandstone, large vesicular boulders occasionally present.
  - ANTRIM STONE - biotite-hornblende quartz monzonite to granite, weakly fractured, unaltered & unfoliated.
  - METAVOLCANICS - (family Mt. Nansen Group) dark green, moderately metamorphosed, locally contains disseminated magnetite and locally contains disseminations and tiny veins of pyrite and chalcopyrite.
- LEGEND**
- Outcrop
  - Areas containing numerous small outcrops of similar rock
  - Adit
  - Old hand pits
  - Bulldozer trenches
  - Bulldozer trails
  - Claim posts located in field

FIG. 2  
 ARCHER, CATHRO & ASSOCIATES LTD.  
**GEOLOGY**  
 ALP 3-73 CLAIMS  
 KIRKLAND CREEK AREA, YUKON

SCALE IN FEET  
 0 500 1000 1500

To accompany report by A.R. Archer dated June 21, 1973





- LEGEND**
- Adit
  - Old hand pits
  - Bulldozer trenches
  - Bulldozer train
  - Claim posts located in field
  - Collar and direction of proposed skinned drill hole
- GEOCHEM**
- Soil
  - × Silt
  - ▲ Rock
  - 10 Assays in ppm: Copper, Molybdenum, Silver
- NOTE**
1. Molybdenum and silver are only plotted when they exceed 2ppm and 1ppm respectively except for rock samples and soil profiles
  2. Areas with no sample points are swampy
- Area of fairly consistent anomalous copper values

SAMPLES COLLECTED BY ARCHER, CATIRO & ASSOC. LTD.  
IN MAY TO JUNE, 1972. ANALYZED BY CHEMEX LABS LTD.,  
NORTH VAN, B.C.

FIG. 3  
ARCHER, CATIRO & ASSOCIATES  
**SOIL GEOCHEMISTRY**  
ALP 3-73 CLAIMS  
KIRKLAND CREEK AREA, YUKON

SCALE IN FEET  
0 500 1000 1500

To accompany a report by A.R. ARCHER dated June 21, 1973