

This report has been examined by the Geological Evolution Unit and is recommended to the Commissioner to be considered as representation work under Section 23 (4) Yukon Quaternary Mining Act.

A REPORT ON A SOIL GEOCHEMICAL
AND ELECTROMAGNETIC SURVEY ON THE HAWK CLAIMS

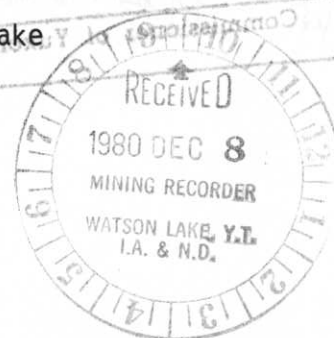
Watson Lake Mining Division
Yukon Territory

Located 100 km north of Watson Lake

Latitude: 61°01' N

Longitude: 129°02' W

Claim Sheet 105-H-3



BY

Gregg A. Jilson

CYPRUS ANVIL MINING CORPORATION

November 1980

090677

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

\$ 1200.00

[Handwritten Signature]

Resident Geologist or
Resident Mining Engineers

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

[Handwritten Signature]
B. R. SAXTER
Supervising Mining Recorder

[Handwritten Signature]
Commissioner of Yukon Territory



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Cyprus Anvil Mining Corporation

330, 355 Burrard Street
Vancouver, British Columbia
V6C 2G8
Telephone (604) 687-2586

Telex 04508594

A REPORT ON A SOIL GEOCHEMICAL
AND ELECTROMAGNETIC SURVEY ON THE HAWK CLAIMS

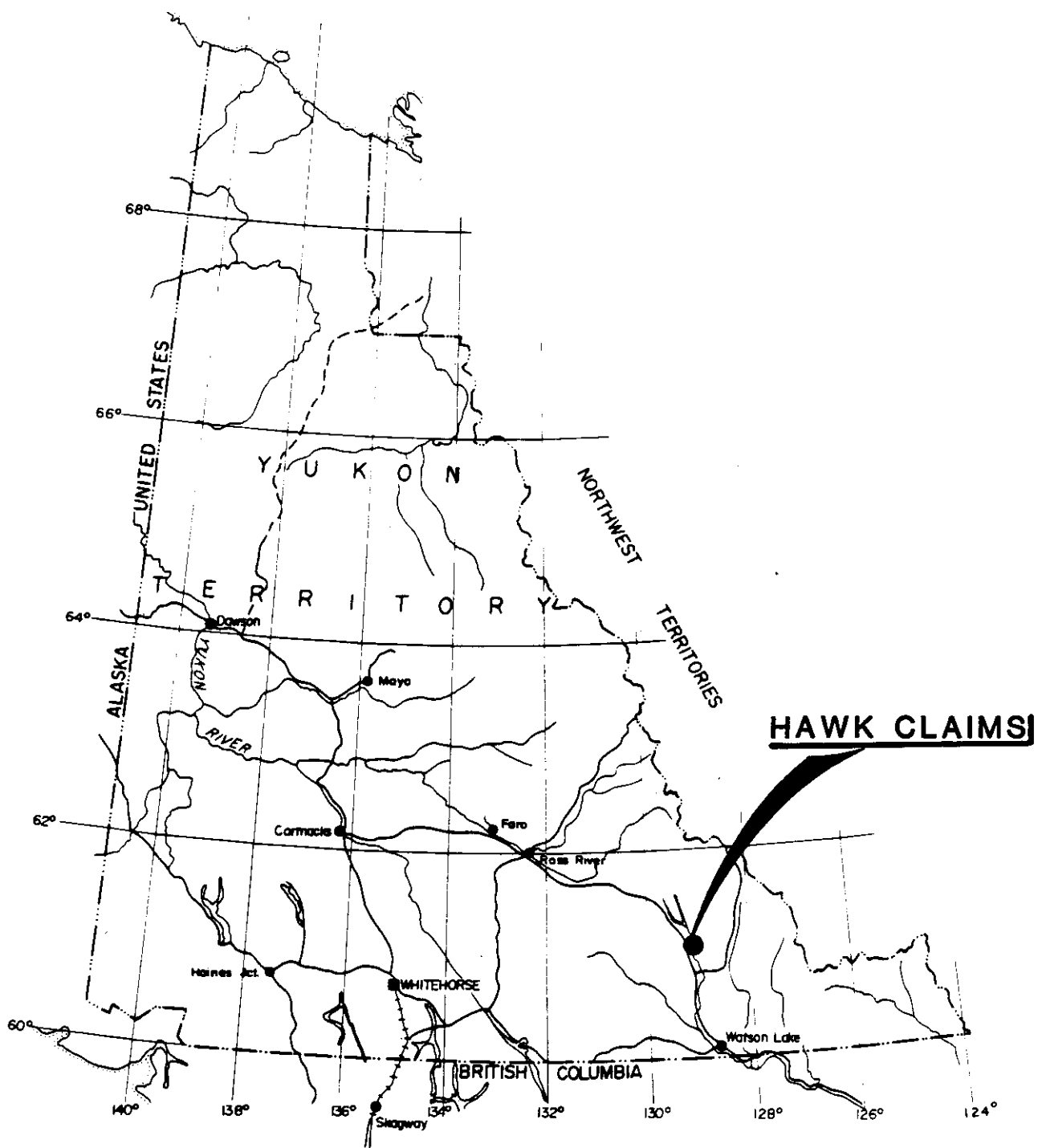
INTRODUCTION

During July 1980 ground electromagnetic and soil surveys were conducted over the Hawk 1 - 4, and 10 and 12 claims, Watson Lake Mining Division, Southeastern Yukon. The property was staked to cover occurrences of scheelite bearing float in a small tributary to Rawhide Creek. The claims are mainly underlain by Ordovician and Silurian Road River formation black shale and limestone, apparently in fault contact with Cambrian and Ordovician calcareous phyllites of the Vangorda formation. The property was evaluated by Cyprus Anvil Mining Corporation for its lead and zinc potential but work done suggests that the area is underlain by barren rocks younger than the expected basal Vangorda formation target making the property no longer of interest. The work described here has not been sufficiently critical to evaluate the claims as a tungsten target, but previous workers have shown that indications of tungsten mineralization are best explained as spurious and caused by surficial geologic processes. While the geologic environment is not unfavourable for Tungsten, stronger indications of mineralization are required to justify the further work required to evaluate this heavily overburden covered property.

LOCATION AND ACCESS

The Hawk claims are located 100 km north of Watson Lake and 18 km northwest of Mt. Murrary in southeastern Yukon. The centre of the claim group is at latitude 61°01'N longitude 129°02'W. The claims are located in Watson Lake Mining Division in the southeast corner of claim sheet 105 H 3.

CYPRUS ANVIL



CYPRUS ANVIL MINING CORPORATION LOCATION MAP

YUKON
SCALE: 1" = 100 MILES

Access is easily gained by helicopters which are available for charter year round at Watson Lake. Access can also be gained by foot from the Nahanni Range Road which passes 8 km to south.

Claims

The property consists of 6 full sized claims registered with the Mining Recorder in Watson Lake.

<u>Claim Name</u>	<u>Record Number</u>	<u>Record Date</u>	<u>Expiry Date</u>
1-4 inclusive	YA26737-40 inclusive	Oct. 11/77	Oct. 11/83
10	YA28134	Nov. 14/77	Nov. 14/83
12	YA28136	Nov. 14/77	Nov. 14/83

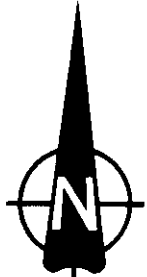
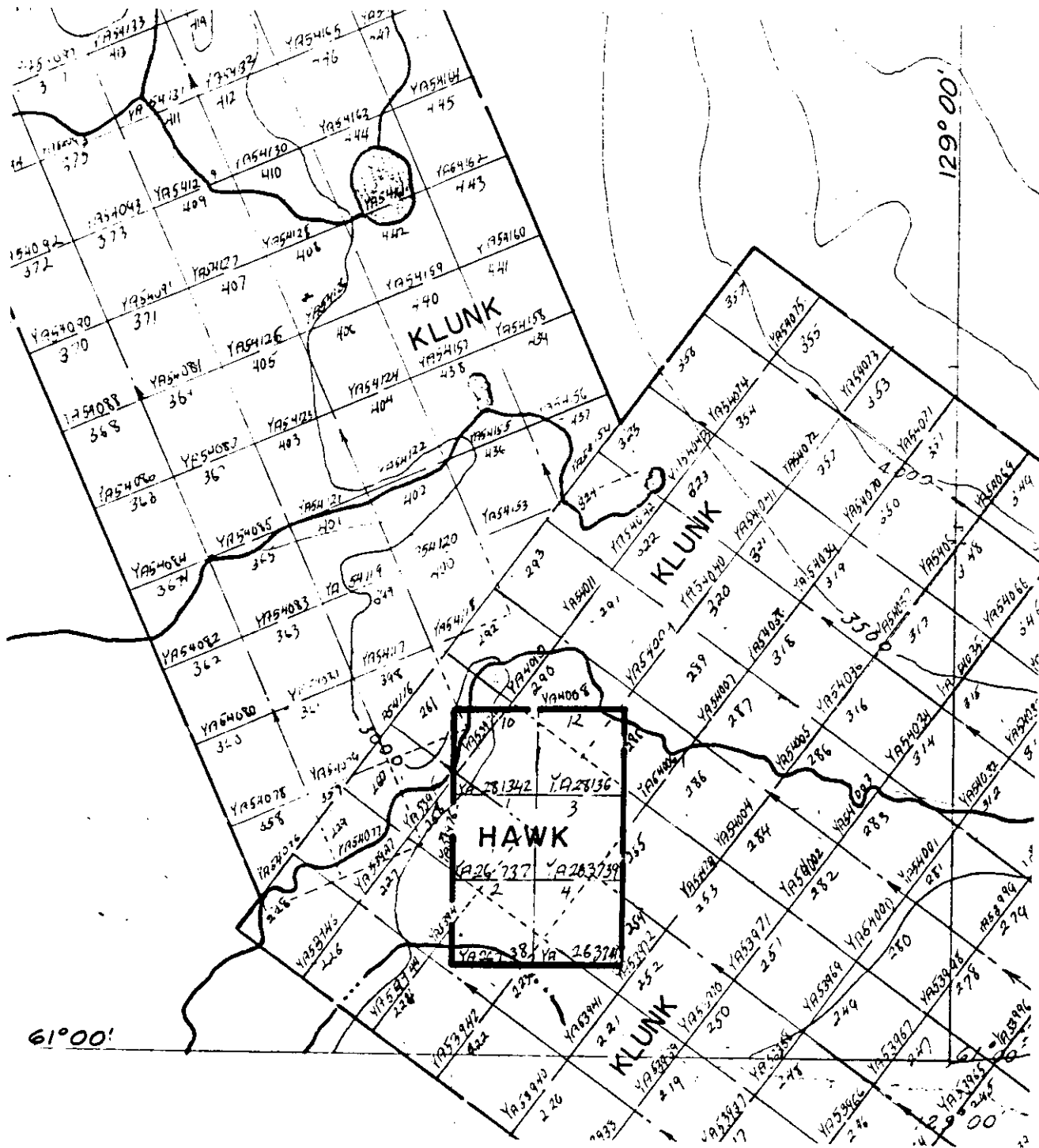
The claims are surrounded by the Klunk claims. This report is in support of applications for certificates of work for 2 years on each claim filed with the Mining Recorder in October 1980.

HISTORY

The area was first staked in September 1965 by P. Risby as the MR claims but there is no record of any work having been done at that time. The Hawk claims were staked in October 1977 by the present owner to cover concentrations of coarse scheelite and magnetite in a tributary to Rawhide Creek noted while prospecting for gold in the area.

Union Carbide Canada Ltd. optioned the claims in 1978 and conducted geological and geochemical investigations leading to the conclusion that the scheelite was concentrated from glacial till and that there was little chance of finding its source nearby (Liverton, 1978).

The surrounding area was staked in early 1980 by Cyprus Anvil as the Klunk claims following regional mapping and airborne geophysical investigations directed at searching for lead zinc mineralization in lower Cambrian rocks equivalent



SCALE 1" = 1/2 Mi.

CYPRUS ANVIL MINING CORPORATION

HAWK CLAIMS - Y.T.

WATSON LAKE M.D.

CLAIM MAP

NTS: 105-H-3
 SURVEY BY: G.J.
 DRAWN BY: F.W.T

DATE: NOV., 1980
 FIG. 2

to the ore hosts in the Anvil District. Cyprus Anvil conducted the present geophysical and geochemical investigations as part of its investigation of the larger Klunk block.

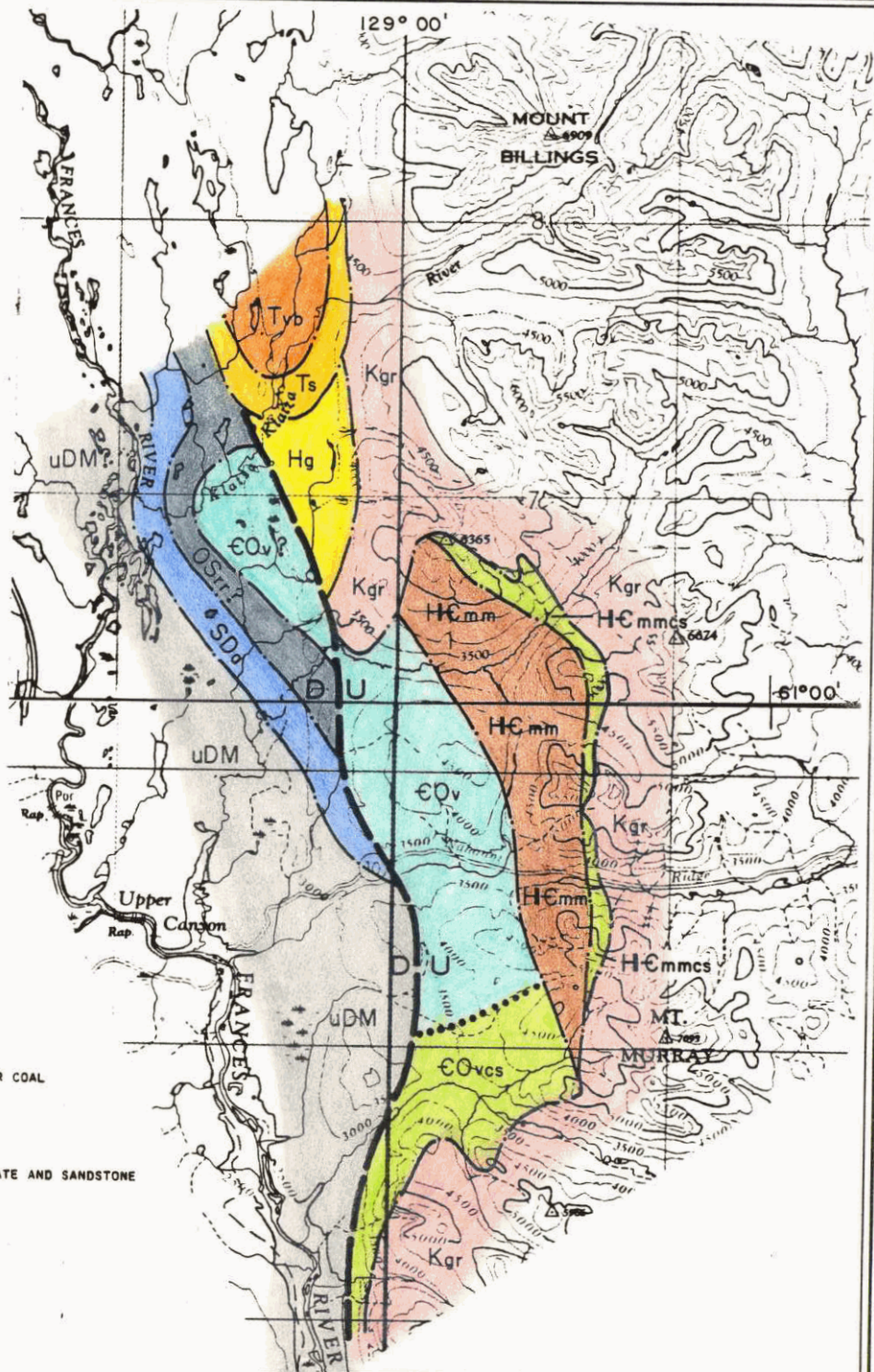
GEOLOGY

The geology of the claims area is shown on Figure 3 which is an interpretive map based on extensive regional mapping in the area and both ground and airborne electromagnetic surveys.

A major fault is inferred to run northsouth through the centre of the claim group separating Cambrian and Ordovician Vangorda formation calcareous phyllites on the east, from Ordovician and Silurian black shale and limestone overlying the Vangorda formation on the west. Granitic rocks crop out about 1 km north of the property. The fault is thought to be a normal fault with the west block down dropped. It is one of a class of faults that are common in the region and bound uplifts cored by granitic bodies. They appear to be related to the final emplacement of the granitic rocks, thus are probably approximately coeval with them and should be considered as possible conduits for hydrothermal fluids related to the granitoid masses. On a more local scale little can be said of the geology since there is only one outcrop known within this heavily overburden covered area. The single outcrop, along Rawhide Creek (see Map 1), consists of about 70% black, thin to medium bedded micrite and 30% black, silty, non-calcareous phyllite. These lithologies are typical of Road River formation in the area as is the strong and areally extensive conductive response on the EM survey near this outcrop. The fault noted above appears to run northsouth about 150 m east of the centre of the claim block. The granitic outcrop noted above consists of massive medium to coarse grained sub-porphyrific biotite quartz monzonite.



Scale 1 : 250,000



LEGEND

TERTIARY

- Tyb** BASALT
- Ts** SANDSTONE, CONGLOMERATE, MINOR COAL

CRETACEOUS

- Kgr** GRANODIORITE

UPPER DEVONIAN-MISSISSIPPIAN

- uDM** SHALE, CHERT PEBBLE CONGLOMERATE AND SANDSTONE

SILURIAN-MIDDLE DEVONIAN

ASKIN GROUP

- SDa** DOLOMITE, QUARTZITE

ORDOVICIAN-SILURIAN

ROAD RIVER FORMATION

- OSrr** BLACK SHALE, LIMESTONE

CAMBRIAN-ORDOVICIAN

VANGORDA FORMATION

- EOv** CALCAREOUS PHYLLITE
- EOvcs** CALC-SILICATE SCHIST

HADRYNIAN-LOWER CAMBRIAN

Mt. Mve FORMATION

- HCmm** NON-CALCAREOUS PHYLLITE AND SCHIST
- HCmmcs** CALC-SILICATE SCHIST

HADRYNIAN

- Hg** GREEN PHYLLITE, GRIT, MARBLE "GRIT UNIT"

SYMBOLS

- APPROXIMATE GEOLOGICAL CONTACT
- FAULT
- METAMORPHIC, FACIES BOUNDARY

NOTE: INTERPRETATION BASED ON MAPPING DONE BY JILSON, JENNINGS, PIGAGE AND MORTENSON IN 1979 AND JILSON AND JENNINGS 1980.

**CYPRUS ANVIL MINING CORPORATION
KLUNK & HAWK CLAIM AREA
WATSON LAKE M.D. Y.T.**

GEOLOGICAL MAP

NTS: 105-H-3, A-14
SURVEY BY: G.J.
DRAWN BY: r.w.f.

DATE: NOV. 19, 1980

FIG. 3

Overburden cover on and northwest of the Hawk claims is extensive. Flat topped benches on either side of Rawhide Creek probably represent veneers of glacial till and possibly glaciolacustrine deposits averaging about 50 feet thick. These benches are probably nearly cut through by the creek over much of its length.

GEOCHEMICAL SURVEY

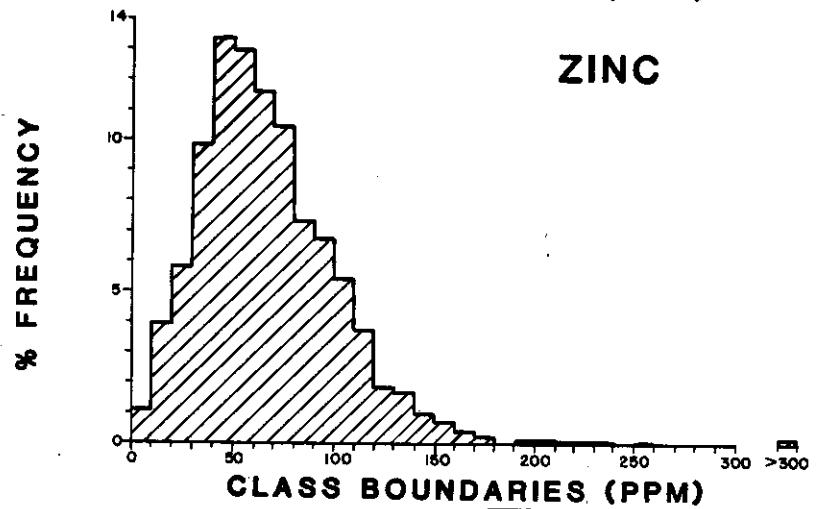
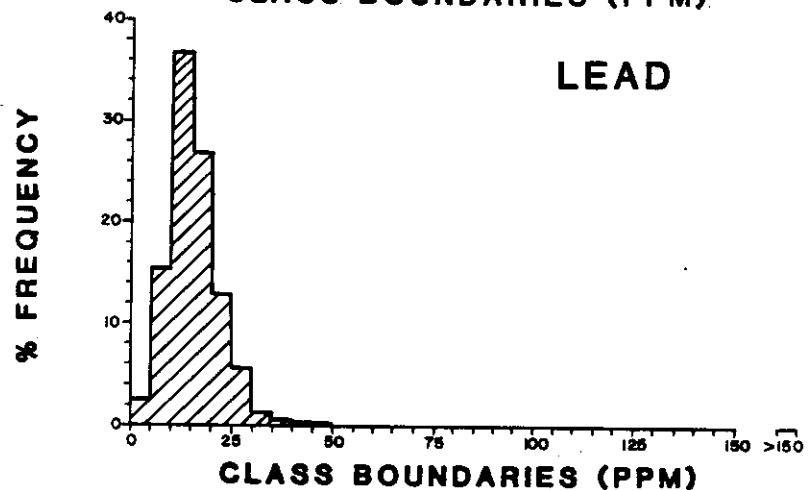
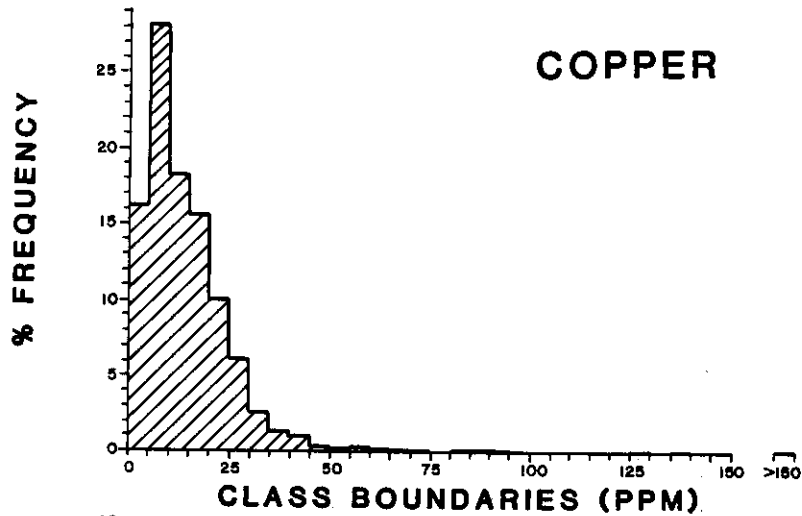
Methods and Procedure

Samples were collected at 60 meter intervals along lines spaced 250 meters apart. The samples were collected from the B horizon where possible though in practice this was not always achieved. The samples were dug with a mattock and placed in a wet strength kraft paper bag. The samples were partially air dried in camp at the prevailing outside temperature then shipped to the Vancouver laboratory of Acme Analytical Laboratories Ltd.

At Acme's laboratory the samples were dried at 75°C and sieved to -80 mesh. For analysis of Cu, Pb and Zn a 0.50 gram portion of the sample was digested with dilute aqua regia in a boiling water bath and diluted to 10 ml with demineralized water. All the above elements were determined from this solution by atomic absorption spectrometry.

Results

The results are plotted on Map 1. Figure 4 is a histogram of results for approximately 4000 samples from the Klunk (and Hawk) groups and shows that the values on Map 1 are all within background ranges. The highest zinc value of 240 ppm is not anomalous for soils developed over Road River formation. The fact that the overburden cover is so extensive and that the zinc values are so low, over an area of Road River black shales, suggests that the soil sampling has not provided meaningful data about metal values of the underlying bedrock. Line 42+50 S which runs down Rawhide Creek where it has cut through most of the overburden is most likely to detect mineralization if any is nearby, but it is notably barren.



CYPRUS ANVIL MINING CORPORATION	
KLUNK CLAIMS	
WATSON LAKE M.D.-Y.T.	
HISTOGRAMS Cu, Pb, Zn	
NTS: 106-A-14, 16 / 106-H-2, 3 SURVEY BY: G.J. DRAWN BY: V.F.	DATE: Nov. 1980 FIGURE <u>4</u>

ELECTROMAGNETIC SURVEY

Methods and Procedure

The claims and surrounding area was covered with a ground electromagnetic survey on flag lines spaced 250 meters apart. The lines run from cut baselines at 0W to 10W which provide control. On the claims, 4.5 km of line was surveyed.

The instrument used was a Cone CEM in its horizontal loop shootback configuration at a frequency of 1830 hz with local checking of anomalies at 390 hz; coil separation used was 120m. A brief description of the shootback method used is given in Appendix I.

Results

The profiles of the resultant dip angle are plotted on Map 2. The results in the immediate vicinity are ambiguous because of highly variable overburden cover, however it is clear that the rocks on the west half of the property are highly conductive and the east half are less so. These units correspond to the Road River and Vangorda formations respectively. The responses obtained on this survey are typical of EM results over those units in the Anvil Range.

No features of obvious economic significance are indicated by the survey, however the presence of Road River and upper Vangorda formation only on the claims eliminates the area from further consideration of Anvil type Pb Zn deposit potential.

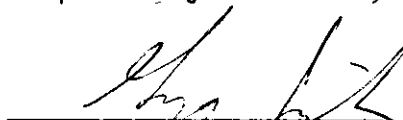
CONCLUSIONS AND RECOMMENDATIONS

Combined geological and electromagnetic results strongly suggest that the claims are underlain by rocks younger than the horizon that hosts the Anvil Range Pb-Zn deposits. This being the case, the claims are no longer of interest from the Anvil type deposit exploration model. The generally negative geochemical results suggest the area has no potential for any other Pb-Zn deposit, however this conclusion must be tempered somewhat in the immediate vicinity of the claims because of extensive glacial overburden. The 1980 work was not designed to explore for Tungsten and thus is not sufficiently critical to eliminate the potential for deposits of that metal. The geological setting of the Hawk claims is not completely unfavourable for Tungsten mineralization, however since a granitic body is located just north of the property and a probably coeval fault passes through the claims providing a potential conduit for hydrothermal fluids. The country rock in the vicinity contains much carbonate, however large, fairly pure carbonate units would be unexpected.

Previous workers have shown that scheelite concentrations probably represent base of slope lag deposits which concentrate scheelite in glacial till. The coarse grain size and angularity of the scheelite containing float may be due to disintegration of larger cobbles or boulders in the till and need not indicate proximity to the source. Because of the heavy overburden cover in the area, an expensive program of geophysics and probably drilling would be required to evaluate the tungsten potential of this area and the present indications are not sufficiently encouraging to warrant such expenditures.

No additional work is recommended and Cyprus Anvil should terminate its letter of intent to provide assessment work.

Respectfully submitted,


G.A. Gilson

November 1980

References

- Telford, W. M.; Goldart, L. P.; Sheriff, R. F. and Keys, D. A. (1976)
Applied Geophysics: Cambridge University Press, London 860 pp.
- Liverton, T. (1978) Geological Examination, Soil and Sediment Sampling
Around the Hawk Scheelite Prospect, Yukon Territory: unpublished
assessment report, Union Carbide Canada Ltd.

LIST OF PERSONNEL

G. A. Jilson	Geologist	409-1111 Pacific St. Vancouver, B.C.
R. Power	Soil Sampler	1969 Kings Ave. Vancouver, B.C.
L. Burnard	Soil Sampler	936 Clarke Rd. Port Moody, B.C.

Contractors

Acme Analytical Laboratories Ltd.

852 East Hastings Street
Vancouver, B.C.

G. R. Craft (Linecutting)

13027 - 106th Ave.
Surrey, B.C.

P. E. Walcott and Associates Ltd. (Geophysics)

605 Rutland Crt.
Coquitlam, B.C.

STATEMENT OF COSTSSalaries and Wages

Samplers	3 days @ \$50.00 per day	\$250.00
Geologist	1 day @ \$100.00 per day	

Camp Costs

3 man days @ \$20.00 per day	\$60.00
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Geochemical Analysis

80 samples @ \$2.38 per sample	\$190.40
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Geophysics

4.5 km = 2 days @ \$635.00 per day	\$1270.00
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Linecutting

1 km @ \$285.00 per km	\$285.00
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TOTAL SURVEY COST	<u>\$2055.40</u>
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Cyprus Anvil Mining Corporation

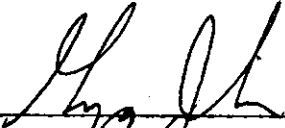
330, 355 Burrard Street
Vancouver, British Columbia
V6C 2G8
Telephone (604) 687-2586

Telex 04508594

Appendix III

AFFIDAVIT SUPPORTING SUMMARY OF COSTS

I, G. A. Jilson, Geologist, Cyprus Anvil Mining Corporation, of Vancouver, British Columbia, do hereby state that, to the best of my knowledge and belief, the statement of costs presented in this report (A Report on a Soil Geochemical and Electromagnetic Survey on the Hawk Claims) is both correct and true. I am a member in good standing of the Geological Association of Canada.



G. A. Jilson

3 Dec 1980

Date



Notary Public in and for the
Province of British Columbia

CYPRUS ANVIL

Appendix V

From Sherrif et al (1976)

(d) *Shoot-back method.* In very hilly terrain it is difficult to maintain correct alignment of the transmitter and receiver coils and as a result false dip angles are often obtained. The *shoot-back method* developed by Crone Geophysics, was intended to overcome this problem. The coil configuration resembles a modification of an early method of Mason (1927; see also Eve and Keys (1956, p. 176)) rather than the present dip-angle sets.

The field procedure is the same as that described above for reconnaissance with the portable transmitter. However, the shoot-back system requires a receiver and transmitter at each station; for this purpose the coils are convertible. The spacing

is usually 200 ft and the axis, rather than the plane, of the transmitter coil is pointed towards the receiver station.

Consider the situation shown schematically in fig. 7.20a. With unit 1 transmitting, the axis of coil 1 is directed towards coil 2 but dipping 15° below horizontal. Coil 2 is then rotated about a horizontal axis normal to the traverse line to get a minimum. Then a second reading is taken for the same station with transmitter and receiver interchanged. Coil 2, now the transmitter, is oriented so that its axis is directed at coil 1, but inclined 15° above the horizontal, while coil 1 is tilted for a minimum. In both set-ups, the possibility of misalignment and of obtaining an incorrect dip angle are eliminated by the relative orientation of the two coils; the axis of the transmitter coil, rather than its plane, determines the rotation of the receiver coil about an axis normal to, rather than coaxial with, the T-R line.

In homogeneous ground the difference between the two tilt angles will be zero. This will be true regardless of the relative elevations of the two coils. However, with a conductor present, the secondary field will affect the tilt angles at the two receiver positions in the opposite sense, as can be seen better from the distorted field lines in fig. 7.20b. A profile obtained over a sheet-like conductor is also illustrated in 7.20c. Normally the difference between the two dip angles is plotted at the midpoint of the two coils.

The equipment uses two frequencies, 480 and 1800 Hz. The latter is used alone for reconnaissance work. The profile in fig. 7.20c shows the resultant ($\alpha_2 - \alpha_1$) positive over the conductor. A dipping sheet results in an asymmetric profile which is positive over the upper end and crosses zero to a negative maximum downdip. Flat-lying conductors produce a negative anomaly symmetric about the midpoint.

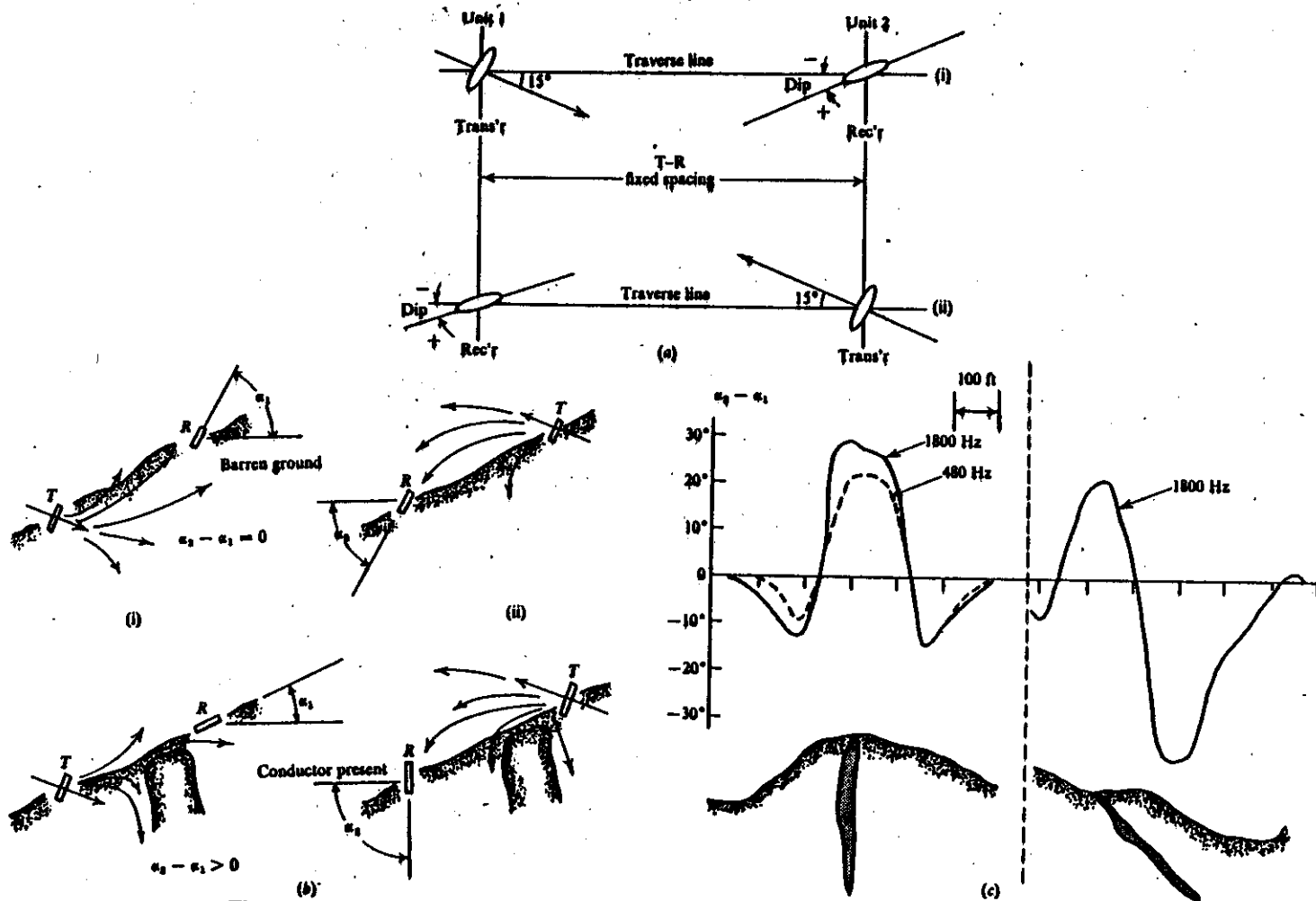
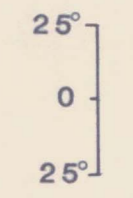


Fig. 7.20 Crone shootback system. (After Grant and West, 1965.) (a) Transmitter-receiver arrangements, (i) and (ii) representing interchanged positions of the transmitter and receiver for successive measurements at the same station; (b) operation in rugged terrain; (c) typical profiles with T-R spacing of 100 ft.



CYPRUS ANVIL MINING CORPORATION	
HAWK CLAIMS Y.T.	
WATSON LAKE M.D.	
COPPER, LEAD, ZINC	
GEOCHEMISTRY	
N T S 105-H-3 SURVEY BY G.J. DRAWN BY V.F.	SCALE 0 50 100 200 METRES DATE: NOV. 1980 MAP I



—●— 1830 Hz Profile
 - - - 390 Hz Profile

CYPRUS ANVIL MINING CORPORATION	
HAWK CLAIMS Y.T.	
WATSON LAKE M.D.	
ELECTROMAGNETIC SURVEY	
PROFILE OF RESULTANT DIP ANGLE IN DEGREES	
N T S 105-H-3 SURVEY BY G.J. DRAWN BY V.F.	SCALE 0 50 100 200 METRES DATE: NOV. 1980 MAP 2