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GEOCHEMICAL AND GEOLOGICAL REPORT

H O W R U C L A I M G R O U P

Watson Lake Mining District
Yukon Territory

N.T.S. 105-F-9, 105-G-12

Latitude: 61° 35' N

Longitude: 132° 05' W

Pelmac Project

L. C. Pigage

March, 1981

Field Work Completed in August, 1980

014398

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TABLE I

List of Claims - HOWRU

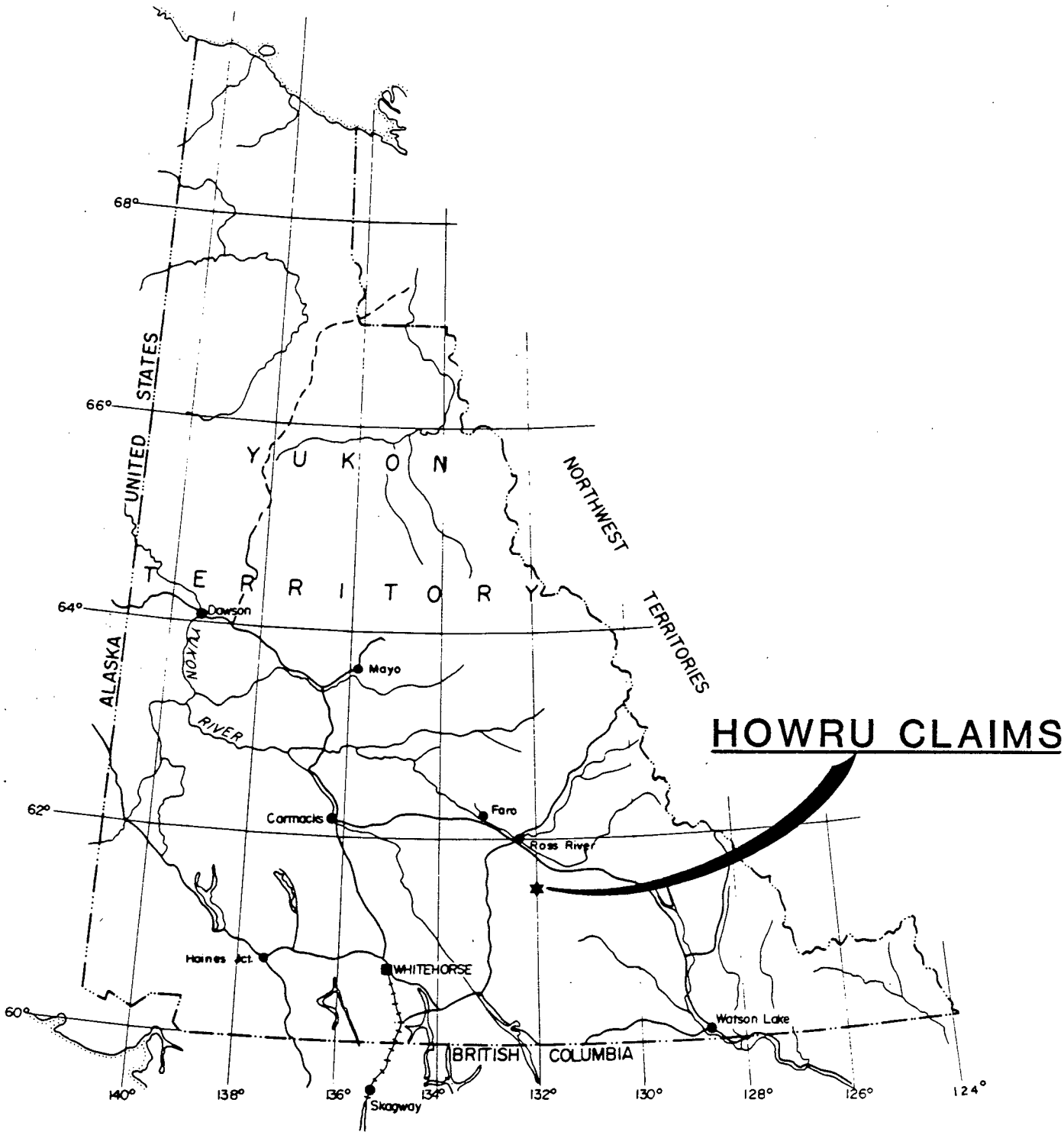
Claim No.	Grant No.	No. of Claims	Recording Date
1 - 40	YA 21413 - YA 21452	40	July 22, 1977
49 - 88	YA 21749 - YA 21788	40	August 16, 1977
41 - 48	YA 25732 - YA 25739	8	September 9, 1977

INTRODUCTION

The HOWRU claim group consists of 88 contiguous claims located in the Pelly Mountains 50 kilometers (32 miles) southeast of Ross River, Yukon (figure 1). The terrain is rugged with a total relief of approximately 700 meters. At present, access is by helicopter. A summer dirt road connecting with the Campbell Highway runs through the Ketza River valley 6 kilometers (3 miles) west of the property.

The claims were staked in 1977 (table 1 - figure 2) as part of a joint venture prospecting program with Hudson's Bay Oil and Gas Company, Limited. The claims cover float occurrences and showings of lead-zinc mineralization. During the 1977 field season reconnaissance geologic mapping and soil/silt sampling were completed using a 1:15840 (1 inch = 0.25 mile) scale topographic base map (Dean 1978a). The resulting maps outlined the major areas of mineralization.

In 1978 detailed geologic mapping and further soil/silt sampling were completed using a 1:5000 topographic base map (Dean 1978c). Sampling was restricted to the general area of the surface showings. In addition, detailed rock geochemical samples were collected at the main showings to determine the extent and grade of mineralization.



CYPRUS ANVIL MINING CORPORATION

LOCATION MAP

YUKON

SCALE : 1" = 100 MILES

FIGURE 1

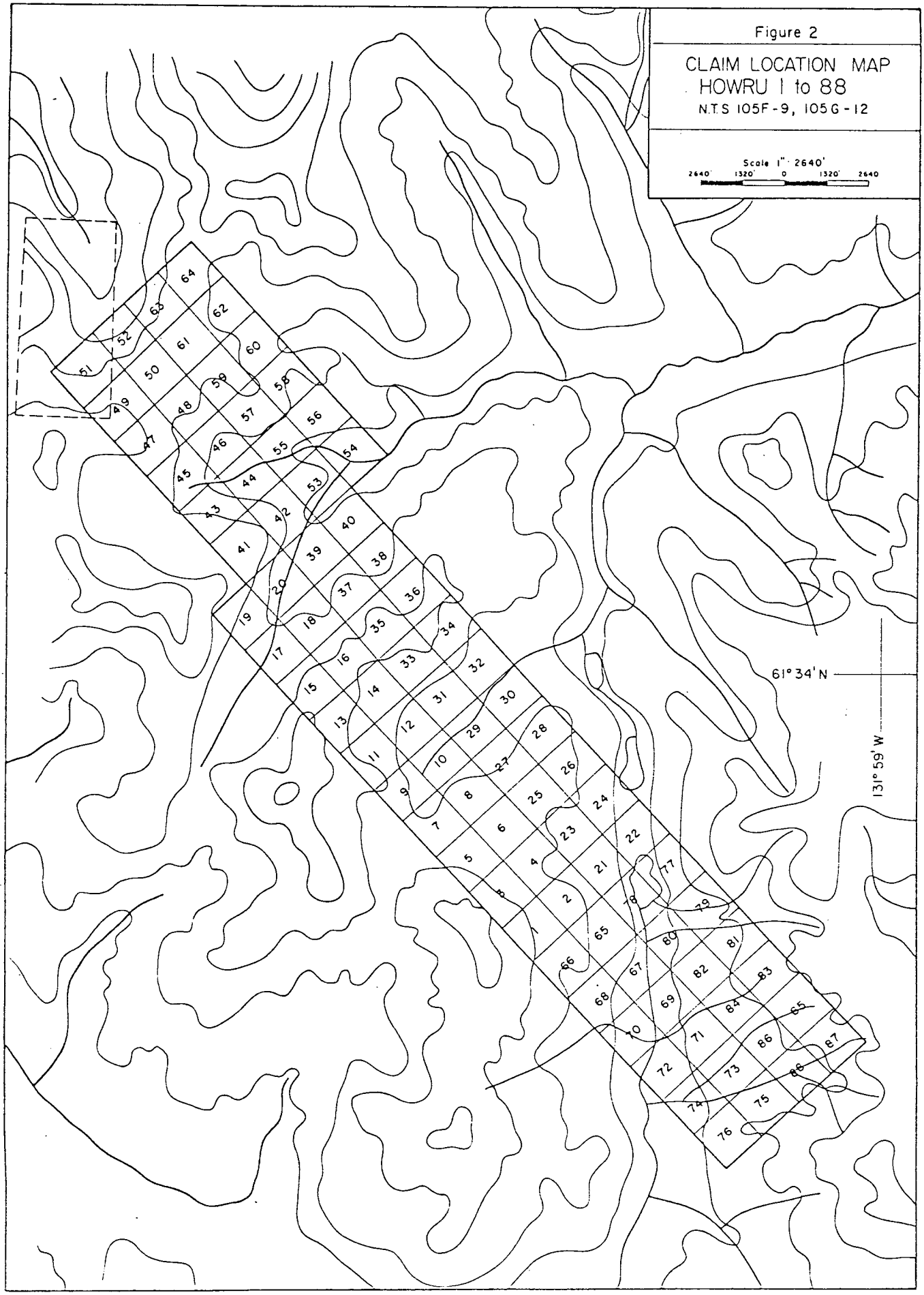


Figure 2
CLAIM LOCATION MAP
HOWRU 1 to 88
N.T.S 105F-9, 105G-12
Scale 1" = 2640'
2640' 1320' 0 1320' 2640'
61° 34' N
131° 59' W

In 1980 a grid soil sampling survey was conducted to systematically determine the areal extent of mineralization and look for any high grade mineralized regions without surface showings. A total of 507 soil samples were collected on the southern portion of the claims and analyzed for Cu, Pb, Zn and Ag (Acme Analytical Laboratory, Vancouver, B.C.). Control for sample locations was established by using cut lines around the perimeter of the claim group (see figure 4). Results of the soil survey are presented in this report.

The geology of the HOWRU claims was re-interpreted (figure 4) using information from detailed geologic mapping conducted in 1980 in the Pelly Mountains just west of the claim group. The new interpretation will also be discussed in this report.

Claims 41-64 (figure 2) were allowed to lapse after the 1980 field season. Mineralization on these claims was restricted to a small klippe of orthoquartzites (figure 3). The low grade and small areal extent of the mineralization were instrumental in the decision to not renew the claims.

GENERAL GEOLOGY

Stratigraphy

Stratigraphic units on the HOWRU claim group range in age from Cambrian through Triassic. Table II lists the regional stratigraphic column for the Pelly Mountains (including HOWRU).

TABLE II — STRATIGRAPHIC COLUMN

LATE TRIASSIC

$u\bar{R}_1$	BUFF TO GREY SILTY LIMESTONES. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

PALEOZOIC

Pzu	SERPENTINITES, ULTRAMAFICS, CHLORITIC PHYLLITES OF PALEOZOIC (?) AGE.

CARBONIFEROUS (?)

C_{sl}	BUFF TO BROWN SILTSTONE AND SHALE. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

MISSISSIPPIAN

My	FINE TO COARSE-GRAINED HORNEBLENDE SYENITE.
Mt	TAN TO PALE GREY BEDDED CHERTS. MINOR DARK GREY CHERT, BLACK SHALE AND LIMESTONE.
Mvt	PALE GREY, BROWN OR GREENISH FELSIC TO INTERMEDIATE TUFFS AND LAPILLI TUFFS. COMMONLY WEATHERS BROWN TO ORANGE BECAUSE OF DISSEMINATED PYRITE. MINOR DYKES, SILLS AND FLOWS. THIN INTERBANDS OF CHERT AND BLACK SHALE.

LATE DEVONIAN - MISSISSIPPIAN

'BLACK CLASTIC UNIT'

uDM_s	BLACK SHALE WITH CHERT GRANULE GRIT INTERBANDS. TYPICALLY SHALE CONTAINS THIN INTERBANDS OF MEDIUM GREY, SLIGHTLY PYRITIC SILTSTONE. MINOR INTERCALATED CHERT (Mt) AND FELSIC TO INTERMEDIATE TUFFS (Mvt).

SILURIAN - DEVONIAN

ASKIN GROUP

SDa	PALE GREY TO BUFF SANDY DOLOMITE TO DOLOMITIC OR CALCAREOUS ORTHOQUARTZITE. MINOR INTERBANDS OF DARK BROWN TO BLACK SHALE.

ORDOVICIAN - SILURIAN

ROAD RIVER FORMATION

OS_{rr}	BROWN TO BLACK SILTSTONE AND SHALE. LOCALLY UNIT IS SLIGHTLY TO MODERATELY CALCAREOUS. TYPICALLY PYRITIC.

LATE CAMBRIAN - ORDOVICIAN

KECHIKA FORMATION - VOLCANICS

ϵO_{kv}	FOLIATED BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS WITH MINOR INTERCALATED CALCAREOUS, SILVERY PHYLLITES. SOME FLOWS ARE HIGHLY AMYGDALOIDAL.

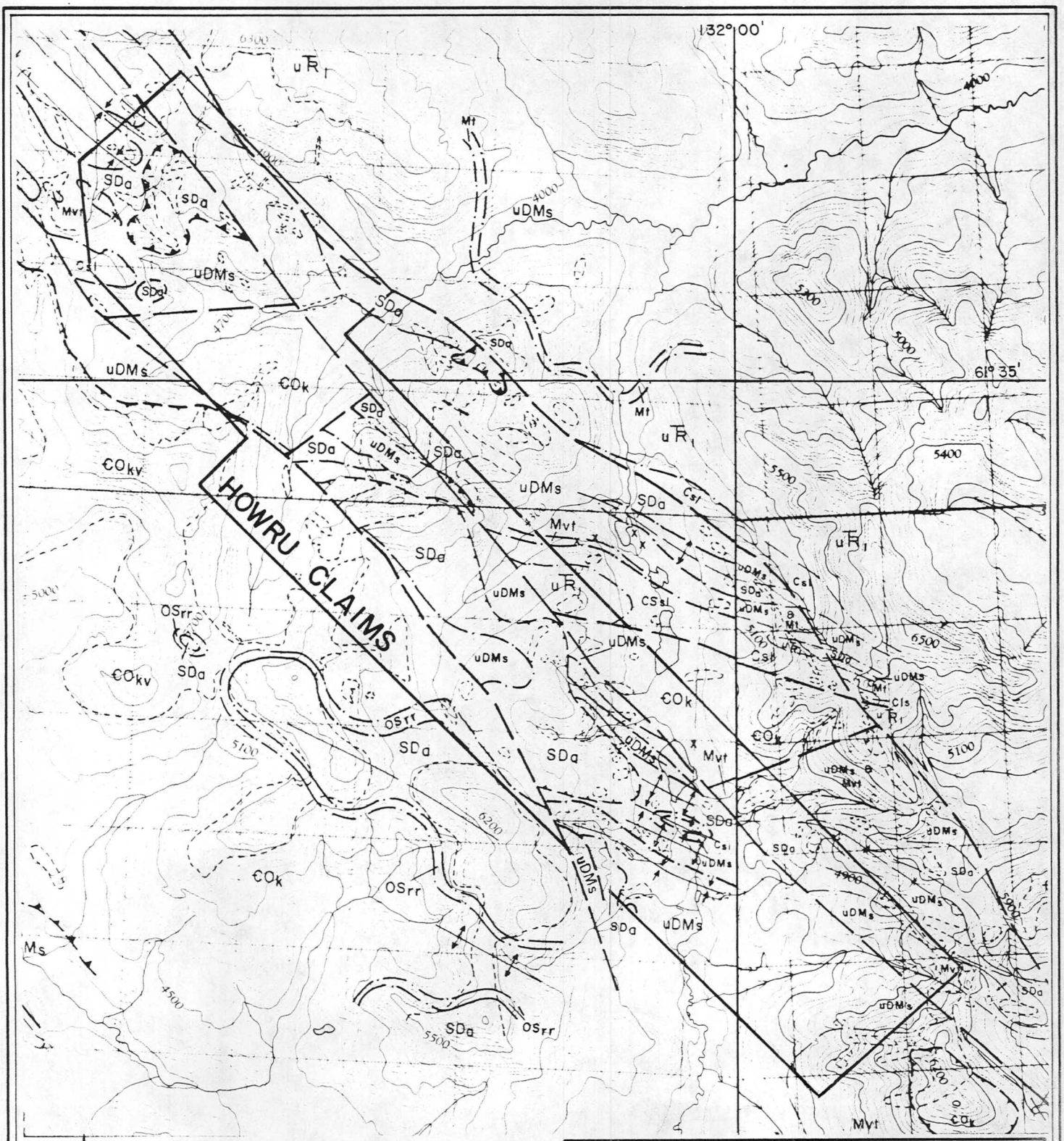
KECHIKA FORMATION

ϵO_k	CALCAREOUS PHYLLITE AND SILTY LIMESTONE WITH MINOR BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS. UNIT TYPICALLY WEATHERS TO A BUFF OR SILVERY COLOUR.

TABLE II(CONT.)

HADRYNIAN - CAMBRIAN

$H\epsilon_a$	ATAN GROUP INTERLAYERED LIMESTONE, DOLOMITE, ORTHOQUARTZITE, AND PHYLLITE. NOT MAPPED IN DETAIL.



CYPRUS ANVIL MINING CORPORATION

HOWRU CLAIMS

WATSON LAKE M.D.-Y.T.

REGIONAL GEOLOGY

Scale 1:50,000 Échelle

Miles 1 0 1

Metres 1000 0 1000

NTS: 105-F-9 SURVEY BY: LCP DRAWN BY: rwr	DATE: MAY 1981 FIGURE 3

Figure 3 shows the regional geology for the Ketza River area. Detailed property geology for the property is presented in figure 4.

Cambrian-Ordovician volcanics and volcaniclastics ($\mathcal{C}O_{kv}$) form a thick sequence on the western margin of the HOWRU claims. To the west this unit thins rapidly; in the vicinity of the McConnell River (26 kilometers west) it consists of thin flows and tuffs within the calcareous phyllites of the Kechika Formation ($\mathcal{C}O_{k}$). The volcanic sequence is thrust over Devonian-Mississippian units (Mvt and uDM_{s}) south and west of HOWRU.

Regional mapping west of HOWRU in 1980 has shown that the Road River Formation (OS_{rr}) consists of black phyllites and siltstones which are less than 30 meters thick. In many instances this sequence is absent. The thick succession of Road River shales previously mapped on Mount Misery (east of EROS claims) was remapped as a thin section of Road River Formation conformably in contact with the underlying Kechika Formation ($\mathcal{C}O_{k}$) and the overlying Askin Group (SDa).

Therefore the Road River Formation was considered to be present in only minor amounts on the HOWRU claims. The only black phyllite succession interpreted as Road River occurs on

the western margin of the claim group (see figure 4). All other black phyllite units were considered to belong to the 'Black Clastic' Unit (uDMs). This re-interpretation simplified the map pattern for the central portion of the claims; a sequence of stacked thrust plates was re-interpreted as a single thrust panel of Askin Group (SDa) overlying a folded sequence of Askin Group (SDa) and 'Black Clastic' unit (uDMs).

Mississippian intrusions (My) do not occur in the vicinity of the HOWRU claims. Conversely, the Carboniferous (C_{sl}) and Triassic (u_{1}) units are present only in the vicinity of the HOWRU.

Structural Geology

Deformation on the HOWRU is polyphase with at least two recognized phases of folding and two faulting episodes. This section describes the recognized deformation patterns. Regional geologic mapping near the ANISE claims in 1980 (west of HOWRU) has allowed the construction of a relative structural history for the area around Seagull Valley; results of that regional program will be related to the deformation pattern previously recognized at HOWRU.

All pelitic units on HOWRU contain a pervasive axial plane schistosity or slaty cleavage (S_1) which was formed by the earliest recognized deformation D_1. This S_1 schistosity is most

strongly developed in the calcareous phyllites of the Kechika Formation ($\mathcal{C}O_k$). Since the Kechika Formation is an upfaulted tectonic block, the well developed S_1 schistosity most probably represents the greater depth of burial of this unit during the D_1 deformation.

Tight to isoclinal, northwest-trending, macroscopic folds on the HOWRU are tentatively correlated with the D_1 deformation. These folds are especially noticeable on the southeast to central part of the property. Axial planes for the D_1 folds are near-vertical.

Based on regional geologic mapping in the Pelly Mountains, Mortensen (1979) suggested that the D_1 deformation was confined to the interval between Early Jurassic and Late Cretaceous.

The pelites on HOWRU also locally contain minor folds and associated axial plane crenulation cleavage caused by a later D_2 deformation. No major structures on the HOWRU have been recognized as being associated with this deformation. Measured orientations of the D_2 crenulation cleavage are highly variable. Timing of the D_2 deformation is unknown.

The HOWRU claims contain several klippe of Askin Group (SDa) overlying stratigraphically younger units (figures 3 and 4). These different klippe are considered to be erosional remnants of a single thrust surface. Development of the thrust surface post-dates the D_1 deformation since tightly folded Askin (SDa) and Black Clastic (uDMs) units are structurally overlain by the relatively undeformed thrust plates (figures 3 and 4). A similar relative timing between thrusting and D_1 deformation was also ascertained for the ANISE claims (west of HOWRU) (Pigage 1981). This suggests that the different mapped thrust faults may be related to the same deformation episode. Relative timing for formation of the thrust faults and the D_2 folds is unknown.

Geologic mapping on the ANISE claims (Pigage 1981) has delineated the occurrence of numerous northwest-trending, steeply dipping, normal faults. These faults are the latest structural feature in the area; they transect all other structures. Movement along the faults is generally east side down with up to 170 m of displacement.

The HOWRU claims also contain a number of near-vertical northwest-trending faults. These faults transect both the D_1 folds and the thrust fault surfaces. They represent the latest recognized structural feature in the area. In contrast to the faults on the ANISE claims, the faults on the HOWRU contain both a right-lateral strike slip and a normal component of move-

ment. The extent of strike-slip movement can be approximated for the fault located in the center of the property (figures 3 and 4). Right lateral displacement of approximately 3500 meters is indicated by offset of the fault-bounded Kechika Formation (CO_k) and a klippe of Askin Group located on the northern part of the property. This fault also contains an east-side down normal component of movement since Triassic metasediments are preserved on the northeast side of the fault and are absent on the southwest side.

These faults are subparallel to the Tintina Fault and have the same sense of offset. It is reasonable to assume that they form an integral part of the Tintina system. Movement along the Tintina and Northern Rocky Mountain trench systems is described as late Cretaceous to Eocene (Gabrielse and Dodds 1977; Tempelman-Kluit et al. 1976).

ECONOMIC GEOLOGY

Mineralization on the HOWRU is similar in nature to several sandstone-hosted lead-zinc deposits in Europe (Largentiere, Vassbo, Laisvall) (Dean 1978a, c). The HOWRU showings consist of disseminated galena in orthoquartzites of the Silurian-Devonian Askin Group (SDa). The major showing occurs in the large thrust panel of Askin quartzite located in the center of the property (figure 4). Several small showings also occur in the underlying autochthonous Askin quartzites just southeast of this main showing.

HOWRU mineralization is controlled by primary sedimentary structures. Galena is typically concentrated in cross-bedding laminae or scour channels. The degree of mineralization is erratic; grade varies rapidly both vertically across S_0 bedding and laterally along S_0 bedding.

All major showings at HOWRU were chip sampled normal to S_0 bedding (where visible) to determine grade and extent of mineralization (Dean 1978c). Although small intervals contained up to 10% combined (Pb+Zn), overall grade for each of the composite samples was less than 1% (Pb+Zn). For the main showing (in the thrust panel) this low grade mineralization extended across the S_0 bedding for an interval of some 45 meters. Silver content of the assays was reasonably high (Dean 1978c).

Recent studies of the European deposits have shown that mineralization is closely related to percolation of one or more metalliferous solutions through the host sandstones (Christofferson, et al. 1979; Rickard et al. 1979; Foglierini et al. 1980). Ore grade is largely controlled by permeability and porosity of the sandstone. Mineralization is each case was post-depositional but was generally considered to closely follow deposition.

HOWRU mineralization fits well with this model. Presumably ore formations occurred shortly after deposition of the Askin Group quartzites and preceded the onset of D_1 deformation and thrusting. The source of the metalliferous solutions is uncertain. Location of possible provenances is complicated by the proximity of the Tintina Fault with the possibility of large scale offset of the source terrane.

1980 FIELD SEASON

A grid soil sampling survey was conducted in 1980 to ascertain the areal extent of mineralization and look for high grade mineralized regions without surface showings. A total of 507 soil samples were collected on the southern portion of the HOWRU claims and analyzed for Cu, Pb, Zn, and Ag. Results of the sampling program are presented in figures 5 through 8.

Cu results do not form any consistent distribution pattern. Instead the samples show only a series of spot highs which do not correlate well with the detailed HOWRU geology. Consequently the Cu values were not contoured.

Pb, Zn, and Ag all show a systematic distribution. Pb has the strongest anomalies. Zn and Ag anomalies are similar to the Pb anomalies with increasingly spotty high values. Contours for these different elements are shown in figures 6 (Pb), 7 (Zn), and 8 (Ag).

For Pb the soil anomaly forms a narrow band extending from line 27+37N south to line 23+50S. Comparison of the contoured anomaly map (figure 6) with the geology map (figure 4) indicates that the anomaly closely corresponds to the distribution of the Askin Group (SDa).

The strongest anomaly (27+37N to 15N) is associated with the major showing in the thrust plate. The lesser high (1+50S) is correlated with the smaller showings in the autochthonous Askin Group. The anomaly does not end abruptly to the south, but rather tails off into the deeper soils in the river valley at 23+50S. Streams draining regions of Askin outcrop give spot highs in this southern valley area. The southern part of the grid is underlain by felsic volcanics (Mvt) and black shales (uDMs) and is not anomalous.

The Zn distribution (figure 7) is similar to that for Pb. Again the anomalous high zones correspond to the general area of major and minor showings on the property. Zn anomalies tend to form a slightly broader band than the Pb anomalies. Zn was not countoured above 1000 ppm because of the erratic distributions of the higher values.

Two small anomalies are present in Zn values which do not show with the Pb contours. The first is a narrow northwest trending band extending from line 27+37N to 21N. This anomaly is located within the Cambrian-Ordovician basic volcanics (CO_{kv}) and does not correspond to any observed mineralization. The second is a small number of anomalous values on the southeast corner of the sampling grid. This anomaly appears to correspond to slightly higher background values associated with the underlying felsic metavolcanics (Mvt) and black phyllites (uDMs).

Ag distribution (figure 8) is not highly anomalous. The pattern is spotty and more restricted than the Zn and Pb distributions. Yet the Ag values do show a small high associated with the area of Askin orthoquartzites containing the strong Pb and Zn anomalies.

The Ag pattern also mirrors the small Zn anomalies band within the Cambrian-Ordovician basic volcanics ($€O_{kv}$) (27+37N to 21N). The south part of the sampling grid only shows spot highs.

In summary, Pb, Zn, and Ag soil geochemical anomalies have almost a perfect correspondence with the outcrop distribution of the mineralized Askin Group orthoquartzites (SDa). The highest anomalies in all cases correlate with known surface showings. Cu distribution only has spot highs with no systematic anomalies.

SUMMARY AND CONCLUSIONS

Although occurring over a stratigraphic interval of at least 45 meters, Pb-Zn mineralization in the Askin Group orthoquartzites on the HOWRU claims is low grade (less than 1% combined Pb+Zn). The 1980 soil sampling survey showed that the soil geochemical anomalies for Pb, Zn and Ag correspond almost exactly with known mineralized showings and outcrop pattern of the Askin Group. Furthermore, the soil survey did not delineate any new anomalies not associated with previously know mineralized areas.

Consequently one can reasonably expect subsurface mineralization to have similar grades to mineralization in the surface exposures. A drilling program to delineate subsurface mineralization is not recommended for this property.

One problem that remains to be looked at is the possibility of right lateral strike-slip displacement of the mineralized Askin orthoquartzite to the northwest and southeast along the steep northwest-trending faults. The 1980 soil survey covers the displaced Askin Group on the fault running through the center of the property; in this particular instance the orthoquartzites northeast of the fault are not mineralized or geochemically anomalous. Looking at the known showings and regional silt surveys east and southeast of the HOWRU claims also fails to reveal any significant Pb+Zn anomalies associated with Silurian-Devonian metasediments (Dean 1977).

To the northwest, the IGLE claims consist of the same type of mineralization (disseminated galena in Askin Group) noted on the HOWRU claims (Dean 1978b). It seems reasonable to assume that the Askin outcrops on the IGLE claims represent the same mineralized thrust panel mapped on the HOWRU. With this assumption displacement along the steep northwest-trending fault on the southwest margin of the HOWRU would be approximately 7600 meters. As on the HOWRU, mineralization on the IGLE is low grade and erratic in occurrence.

FURTHER WORK

Although no further work is recommended for the HOWRU claims, it would be worthwhile to spend about one week looking at the geology of selected problem areas on both the HOWRU and IGLE claims. Geologic mapping would be completed with a view towards delineating the steep northwest-trending faults and ascertaining whether the right-lateral displacements suggested in this report are reasonable. Figure 9 indicates areas that need to be looked at to clarify the regional geology.

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PROPERTY GEOLOGY - HOWRU CLAIMS

1980 GEOCHEMICAL SOIL SURVEY

HOWRU CLAIMS - Cu, Pb, Zn, Ag

1980 GEOCHEMICAL SOIL SURVEY

HOWRU CLAIMS - Pb Contours

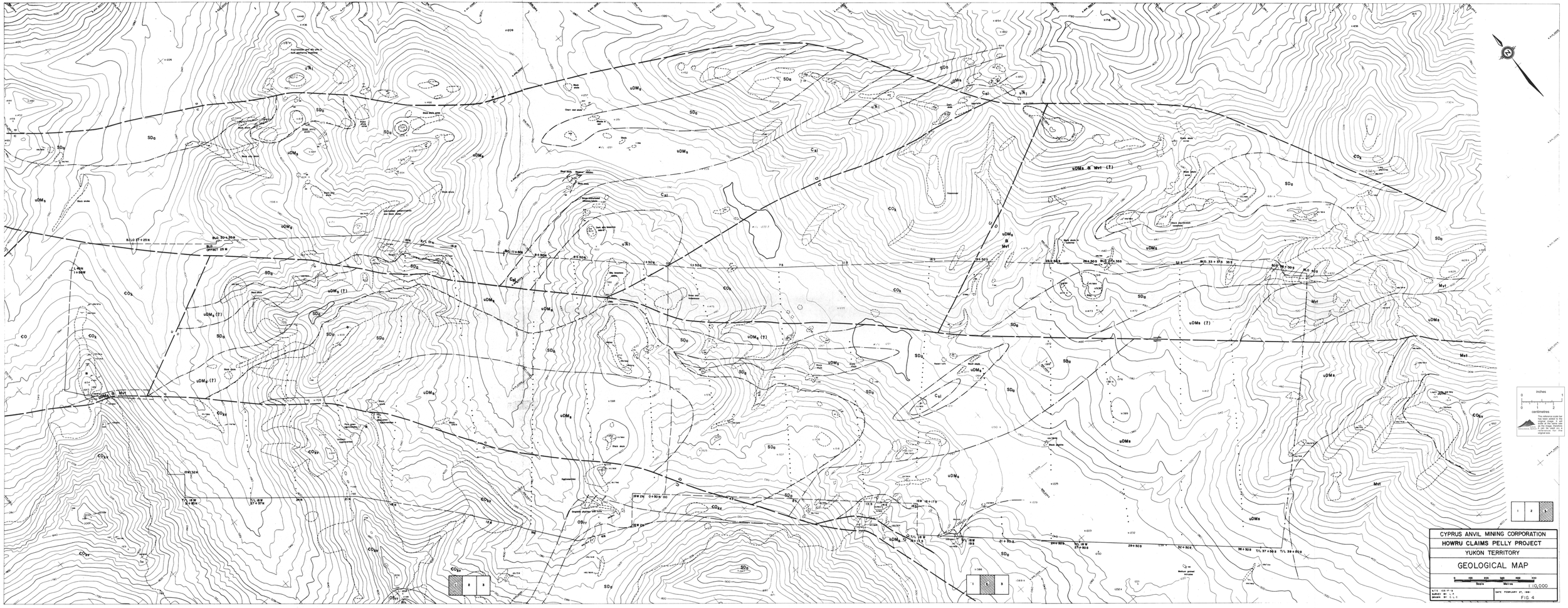
1980 GEOCHEMICAL SOIL SURVEY

HOWRU CLAIMS - Zn Contours

1980 GEOCHEMICAL SOIL SURVEY

HOWRU CLAIMS - Ag Contours

PROBLEM AREAS - FURTHER GEOLOGY SUGGESTED - HOWRU CLAIMS



CYPRUS ANVIL MINING CORPORATION

HOWRU CLAIMS PELLY PROJECT

YUKON TERRITORY

GEOLOGICAL MAP

Scale 1:10,000

N.T.S. 105-F-16
SURVEY BY: T. P.
DRAWN BY: S. L. C.

DATE: FEBRUARY 27, 1981

FIG. 4

HOWRU CLAIMS Cu,Pb,Zn,Ag GEOCHEMISTRY IN PPM 1:5000m 105-F-9

HOWRU CLAIMS Cu,Pb,Zn,Ag GEOCHEMISTRY IN PPM 1:5000m 105-F-9

23 + 50 S | 26 + 50 S | BLO 27 + 35 S | 32 S | BLO 33 + 37 S | 35 S | BLO 38 + 00 S | BLO 40 S

139•70,53,860,0.2
140•11,6,105,0.5
141•32,21,620,0.9
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22•10,83,13,0.3
23•7,53,6,0.5
24•4,29,130,0.7
25•4,1,4,0.1
26•55,30,210,0.7
27•46,28,165,0.7
28•58,26,215,0.7
29•35,34,78,0.2
30•52,49,84,0.4
31•48,56,115,0.3
32•52,44,300,0.1
33•12,13,65,0.1
34•29,30,155,0.3
35•13,8,72,0.4
36•28,24,195,0.1
37•18,28,85,0.1
38•29,68,875,0.3
39•20,61,40,0.9
40•42,41,225,0.7
41•19,22,62,21
42•14,30,58,0.2
43•26,35,140,0.3
44•38,101,270,1.1
45•20,31,92,0.5
46•6,5,11,0.1
47•38,33,78,0.7
48•85,27,175,0.4
49•55,37,115,0.4

24 + 50 S | T/L 18 W 27 + 50 S | 29 + 50 S | 32 + 50 S | 36 + 50 S | T/L 37 + 50 S | T/L 39 + 50 S

inches
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the original drawing. It can be used as a reference for the original size.

1 | 2 | 3

CYPRUS ANVIL MINING CORPORATION

HOWRU CLAIMS PELLY PROJECT

YUKON TERRITORY

Cu,Pb,Zn,Ag GEOCHEMISTRY IN PPM

0 100 200 300 400 500
Scale (1:5,000) Metres

N.T.S 105-F-9
SURVEY BY L.C.P.
DRAWN BY v.f.

DATE FEB.1981

FIG. 5-1


BLO 30+30N
BLO OFFSET 25 N
BLO 27+35S
BLO 33+37S
BLO 36+00S
BLO 40S
T/L 18 W
32+80N
T/L 18 W
27+37N
T/L 18 W
27+50S
T/L 18 W
24+50S
T/L 18 W
29+50S
T/L 37+00S
T/L 39+00S
inches
centimeters
LEGEND
CYPRUS ANVIL MINING CORPORATION
HOWRU CLAIMS PELLY PROJECT
YUKON TERRITORY
Cu, Pb, Zn, Ag GEOCHEMISTRY
IN PPM
1:10,000
DRAWN BY LCP/rwr
DATE FEB 1981
FIG. 6


CYPRUS ANVIL MINING CORPORATION
HOWRU CLAIMS PELLY PROJECT
YUKON TERRITORY
Cu,Pb,Zn*,Ag GEOCHEMISTRY IN PPM
0 100 200 300 400 500
Scale Metres
1:10,000
N.T.S 105-F-9
SURVEY BY: L.G.P.
DRAWN BY: V.F.
DATE FEB.1981
FIG. 7
LEGEND

CYPRUS ANVIL MINING CORPORATION
HOWRU CLAIMS PELLY PROJECT
YUKON TERRITORY
Cu,Pb,Zn,Ag* GEOCHEMISTRY IN PPM
0 100 200 300 400 500
Scale Metres 1:10,000
N.T.S 105-F-9
SURVEY BY L.G.P.
DRAWN BY V.F.
DATE FEB.1981
FIG. 8

STRATIGRAPHIC COLUMN

LATE TRIASSIC

- uTR1 — BUFF TO GREY SILTY LIMESTONES. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

PALEOZOIC

- Pzu — SERPENTINITES, ULTRAMAFICS, CHLORITIC PHYLLITES OF PALEOZOIC (?) AGE.

CARBONIFEROUS (?)

- Csl — BUFF TO BROWN SILTSTONE AND SHALE. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

MISSISSIPPIAN

- My — FINE TO COARSE-GRAINED HORNEBLENDE SYENITE.
- Mt — TAN TO PALE GREY BEDDED CHERTS. MINOR DARK GREY CHERT, BLACK SHALE AND LIMESTONE.
- Mvt — PALE GREY, BROWN OR GREENISH FELSIC TO INTERMEDIATE TUFFS AND LAPILLI TUFFS. COMMONLY WEATHERS BROWN TO ORANGE BECAUSE OF DISSEMINATED PYRITE. MINOR DYKES, SILLS AND FLOWS. THIN INTERBANDS OF CHERT AND BLACK SHALE.

LATE DEVONIAN - MISSISSIPPIAN

- uDMs — 'BLACK CLASTIC UNIT' BLACK SHALE WITH CHERT GRANULE GRIT INTERBANDS. TYPICALLY SHALE CONTAINS THIN INTERBANDS OF MEDIUM GREY, SLIGHTLY PYRITIC SILTSTONE. MINOR INTERCALATED CHERT (MT) AND FELSIC TO INTERMEDIATE TUFFS (MVT).

SILURIAN - DEVONIAN

- SDa — ASKIN GROUP: PALE GREY TO BUFF SANDY DOLOMITE TO DOLOMITIC OR CALCAREOUS ORTHOQUARTZITE. MINOR INTERBANDS OF DARK BROWN TO BLACK SHALE.

ORDOVICIAN - SILURIAN

- OSrr — ROAD RIVER FORMATION: BROWN TO BLACK SILTSTONE AND SHALE. LOCALLY UNIT IS SLIGHTLY TO MODERATELY CALCAREOUS. TYPICALLY PYRITIC.

LATE CAMBRIAN - ORDOVICIAN

- €Okv — KECHIKA FORMATION - VOLCANICS: FOLIATED BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS WITH MINOR INTERCALATED CALCAREOUS, SILVERY PHYLLITES. SOME FLOWS ARE HIGHLY AMYGDALOIDAL.
- €Ok — KECHIKA FORMATION: CALCAREOUS PHYLLITE AND SILTY LIMESTONE WITH MINOR BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS. UNIT TYPICALLY WEATHERS TO A BUFF OR SILVERY COLOUR.

HADRYNIAN - CAMBRIAN

- H€a — ATAN GROUP: INTERLAYERED LIMESTONE, DOLOMITE, ORTHOQUARTZITE, AND PHYLLITE. NOT MAPPED IN DETAIL.

Outcrop
x Small outcrop
Geological contact; defined, approximate
Normal fault
Thrust fault
Anticline
Syncline
Diamond drill hole location

CYPRUS ANVIL MINING CORPORATION

PELLY PROJECT

YUKON TERRITORY

GEOLOGY

////// **PROBLEM AREAS REQUIRING FURTHER GEOLOGICAL WORK**

N.T.S. 105 F/10
SURVEY BY: L.C.P.
DRAWN BY: C.L.C.

DATE: MARCH 25, 1981
FIG. 9-1

Stratigraphic Column

LATE TRIASSIC

uTR 1 — BUFF TO GREY SILTY LIMESTONES. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

PALEOZOIC

Pzu — SERPENTINITES, ULTRAMAFICS, CHLORITIC PHYLLITES OF PALEOZOIC (?) AGE.

CARBONIFEROUS (?)

C_{sl} — BUFF TO BROWN SILTSTONE AND SHALE. UNIT OCCURS ONLY IN THE VICINITY OF THE HOWRU CLAIMS.

MISSISSIPPIAN

My — FINE TO COARSE-GRAINED HORNEBLENDE SYENITE.

Mt — TAN TO PALE GREY BEDDED CHERTS. MINOR DARK GREY CHERT, BLACK SHALE AND LIMESTONE.

Mvt — PALE GREY, BROWN OR GREENISH FELSIC TO INTERMEDIATE TUFFS AND LAPILLI TUFFS. COMMONLY WEATHERS BROWN TO ORANGE BECAUSE OF DISSEMINATED PYRITE. MINOR DYKES, SILLS AND FLOWS. THIN INTERBANDS OF CHERT AND BLACK SHALE.

LATE DEVONIAN - MISSISSIPPIAN

uDM_s — 'BLACK CLASTIC UNIT'
BLACK SHALE WITH CHERT GRANULE GRIT INTERBANDS. TYPICALLY SHALE CONTAINS THIN INTERBANDS OF MEDIUM GREY, SLIGHTLY PYRITIC SILTSTONE. MINOR INTERCALATED CHERT (MT) AND FELSIC TO INTERMEDIATE TUFFS (MVT).

SILURIAN - DEVONIAN

ASKIN GROUP

SDa — PALE GREY TO BUFF SANDY DOLOMITE TO DOLOMITIC OR CALCAREOUS ORTHOQUARTZITE. MINOR INTERBANDS OF DARK BROWN TO BLACK SHALE.

ORDOVICIAN - SILURIAN

OS_{rr} — ROAD RIVER FORMATION
BROWN TO BLACK SILTSTONE AND SHALE. LOCALLY UNIT IS SLIGHTLY TO MODERATELY CALCAREOUS. TYPICALLY PYRITIC.

LATE CAMBRIAN - ORDOVICIAN

$€O_{kv}$ — KECHIKA FORMATION - VOLCANICS
FOLIATED BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS WITH MINOR INTERCALATED CALCAREOUS, SILVERY PHYLLITES. SOME FLOWS ARE HIGHLY AMYGDALOIDAL.

$€O_k$ — KECHIKA FORMATION
CALCAREOUS PHYLLITE AND SILTY LIMESTONE WITH MINOR BASIC TO INTERMEDIATE VOLCANIC FLOWS AND TUFFS. UNIT TYPICALLY WEATHERS TO A BUFF OR SILVERY COLOUR.

HADRYNIAN - CAMBRIAN

$H€_a$ — ATAN GROUP
INTERLAYERED LIMESTONE, DOLOMITE, ORTHOQUARTZITE, AND PHYLLITE. NOT MAPPED IN DETAIL.

- Outcrop
- Small outcrop
- Geological contact; defined, approximate
- Normal fault
- Thrust fault
- Anticline
- Syncline
- Diamond drill hole location

CYPRUS ANVIL MINING CORPORATION

PELLY PROJECT

YUKON TERRITORY

GEOLOGY

PROBLEM AREAS REQUIRING FURTHER GEOLOGICAL WORK

NTS. 105 F/10 SURVEY BY: L.C.P. DRAWN BY: C.L.C.	DATE: MARCH 25, 1981 FIG 9-2