



COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

ASSESSMENT REPORT

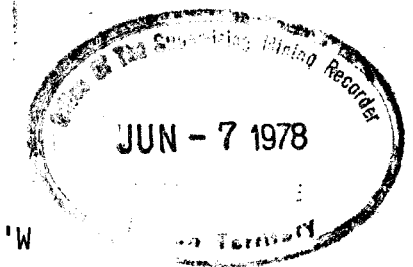
GEOLOGICAL AND GEOCHEMICAL WORK

ON THE

ENT CLAIMS, PELLY MOUNTAINS

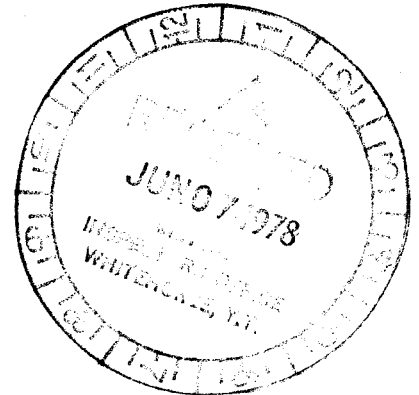


N.T.S. 105 F/10



Latitude: 61°43'N Longitude: 132°57'W

Watson Lake Mining District



Period of work

August 18 - 20, 1977

May 5, 1978

I.A. Paterson

090329

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- (i) Exhibit "A": Statement of Expenditures
- (ii) Statement of qualifications

### List of Figures and Maps

Figure 1: Location - Ent claims

Figure 2: Location and access - Ent claims

Figure 3: Ent claim map

Map 1: Geology and grid location

Map 2: Lead geochemistry

Map 3: Zinc geochemistry

COMINCO LTD.

EXPLORATION  
NTS 105 F/10

WESTERN DISTRICT  
May 5, 1978

ASSESSMENT REPORT  
GEOLOGICAL AND GEOCHEMICAL WORK  
ON THE  
ENT CLAIMS  
PELLY MOUNTAINS, YUKON TERRITORY

SUMMARY

The Ent claims are located 40 km southwest of Ross River in the Pelly Mountains, Yukon Territory. The claims were staked in 1977 to cover sphalerite mineralization in Silurian-Devonian dolomites close to the poorly exposed contact with Cambro-Ordovician phyllites. Trenching of the main occurrence indicated that dolomitic rubble containing smithsonite, sphalerite bearing dolomite breccia, iron oxide cemented breccia and massive sphalerite covered an area of 800 m<sup>2</sup>. A zinc geochemical anomaly (225 m long; >750 ppm Zn) lies close to and parallel to the carbonate/phyllite contact between the main occurrence of mineralization and a second occurrence 500 m to the east.

It is recommended that a low budget trenching programme should be carried out over the zinc geochemical anomaly.

INTRODUCTION

The Ent claims are located 40 km southwest of Ross River in the Pelly Mountains (Figs. 1 and 2), Yukon Territory. The topography is moderately rugged with peaks rising to 6000 feet from a valley elevation of 4000 feet. The claims lie astride a valley and a low spur between elevations of 4750 feet and 6000 feet. Surface access to the property could be provided by construction of 8 km of road to join the South Canal road.

The claims were staked in the course of a reconnaissance programme in 1977. There is no sign that previous work has been done in the area and the property appears to be a new find. The occurrence was discovered as a result of follow-up prospecting of a stream silt geochem anomaly (105 ppm Pb, 565 ppm Zn).

Work in 1977 consisted of mapping, grid soil sampling and some trenching. The work was carried out by D.W. Moore and M. Spurr of 409 Granville St., Vancouver, B.C. V6C 1T8, between 18 and 20th of August, 1977. I.A. Paterson, also of 409 Granville St., spent 1 day on the claims.

CLAIMS

The six Ent claims are 100% owned by Cominco. Tag numbers and tenure data are as follows:

<u>Claim</u>	<u>Tag #</u>	<u>Date Recorded</u>	<u>Due Date</u>
Ent 1	YA 2641	August 5, 1977	August 5, 1978
Ent 2	YA 2642	August 5, 1977	August 5, 1978
Ent 3	YA 2643	August 5, 1977	August 5, 1978
Ent 4	YA 2644	August 5, 1977	August 5, 1978
Ent 5	YA 2645	August 5, 1977	August 5, 1978
Ent 6	YA 2646	August 5, 1977	August 5, 1978

### GEOLOGY

The claims are located astride the tectonic contact between Cambro-Ordovician grey argillaceous phyllites lying to the south and a Silurian to Devonian sequence of carbonates, siltstones to the north (Map 1). Tempelman-Kluit (1977) mapped a unit of Devono-Mississippian slate between the carbonates and grey phyllites but this unit is not exposed on the claim group. The contact between the slates and the carbonates is probably an unconformity and the phyllite contact appears to be an easterly trending, northerly directed thrust.

The carbonate unit is a grey to brown weathering massive recrystallized dolomite with abundant medium brown patches of sparry dolomite. Some phases are brecciated with fragments up to 1 cm. Close to the mineralized area similar breccias contain disseminated pyrite. The dolomite overlies a purplish or tan, laminated to well bedded platey siltstone, 50 m in exposed thickness and dipping to the southeast.

At two localities between the dolomite and the phyllites are outcrops of grey-black, massive, quartzite which is fractured and veined by white quartz. This unit may represent a resistant member of the Devono-Mississippian shale unit mapped by Tempelman-Kluit which is not exposed on the claim group.

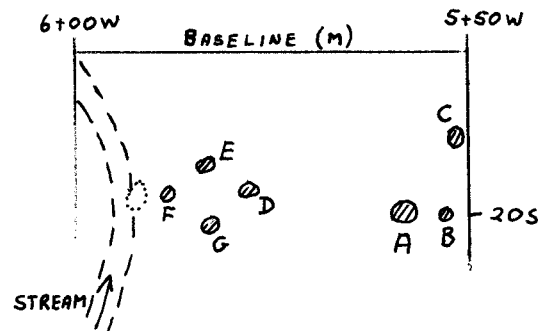
The Cambrian-Ordovician grey, argillaceous, phyllite contains irregular lenses of gabbro and pale greenstone, locally containing vesicles. Platey red-grey limestone occurs as intercalations. The unit contains abundant veins of quartz + buff carbonate which may contain minor galena and chalcopyrite.

### MINERALIZATION

There are two occurrences of mineralization on the claim group. The main occurrence is located on the western bank of a stream between 5+50W and 6+00W. Over an area of 40 m x 40m, there is rubble consisting of boulders of smithsonite, calcareous tufa, dolomite and massive sphalerite. A selected sample of one of the sphalerite bearing boulders assayed 34% Zn and 0.8% Pb. At one area, within 5 m of a few massive sphalerite boulders there is a rubble of pyritic dolomite breccia with 1 cm fragments. This rubble is considered to be close to bedrock.

The second occurrence lies 15 m north of the baseline at 0+80W. Minor patches of sphalerite and smithsonite occur in a small outcrop (<4 sq. m) of brecciated, silicified dolomite close to the southern contact of the carbonate. The distance between the two occurrences is 500 m.

Trenching was carried out on the main occurrence. In all, seven trenches were dug totalling 14.2 cu. m. in volume. None of the trenches reached bedrock. Details of the trenches are given in the following sketch map and table.



### Trench

- A: Dimensions:  $2 \times 1.6 \times 1 = 3.32$  cu. m.  
 Contents: abundant boulders containing sphalerite in brecciated dolomite. The dolomite is cemented by sphalerite or sparry dolomite.
- B: Dimensions:  $1.6 \times 1.3 \times 1 = 2.2$  cu. m.  
 Contents: dolomite float - contains weak sphalerite mineralization.
- C: Dimensions:  $2.6 \times 2.3 \times .6 = 3.6$  cu. m.  
 Contents: brecciated dolomite float, no mineralization: abundant iron oxide cemented rubble.
- D: Dimensions:  $1 \times 1 \times 1 = 1$  cu. m.  
 Contents: Mud.
- E: Dimensions:  $1.6 \times 1.3 \times 1 = 2.1$  cu. m.  
 Contents: brecciated unmineralized dolomite.
- F: Dimensions:  $1 \times 1 \times 1 = 1$  cu. yd.  
 Contents: Mud.
- G: Dimensions:  $1 \times 1 \times 1 = 1$  cu. m.  
 Contents: Mud.

### GEOCHEMISTRY

A geochemical survey was initiated in order to assess the continuity of the mineralization along the carbonate/phyllite contact. An easterly trending base-line was constructed and 108 soil samples were taken at 20 m intervals on the cross lines and analysed by ACME Analytical of Ross River. All samples were sieved at -80 mesh, dried at 75°C and analysed using standard aqua regia digestion and atomic absorption techniques. Lead values were background corrected.

Threshold values in the geochemical data were selected after preparation of frequency-distribution histograms and partitioning of cumulative probability plots after the method of Sinclair (1974). They are as follows:

4.

<u>Zinc</u>	Range:	5 - 2050 ppm
	Background:	< 270 ppm
	Possibly anomalous:	270 - 750 ppm
	Anomalous:	> 750 ppm
<u>Lead</u>	Range:	3 - 290 ppm
	Background:	< 120 ppm
	Possibly anomalous:	120 - 240 ppm
	Anomalous:	> 240 ppm

Zinc analyses delineated an easterly trending anomalous area, 225 m long and 50 m wide (Map 3). The southwestern lobe of the anomalous area and the highest value (2050 ppm) are situated over known mineralized float. The length of the anomaly is approximately parallel and 80 m to the north of the inferred position of the southern contact of the carbonate. The northern displacement of the anomaly may be attributed to glacial dispersion. The possibly anomalous area occurs as a halo to the above anomaly and extends the length of the grid towards the east.

Lead analyses (Map 2) indicate spot anomalies or broad diffuse possibly anomalous areas which are not coincident with the zinc anomaly. The possibly anomalous area in the eastern part of the grid may be related to the occurrence of galena in quartz + carbonate veins in the phyllite unit. Galena is not present in the samples of massive sphalerite in the main mineralized area.

#### CONCLUSIONS

The sphalerite mineralization on the Ent occurs in a brecciated dolomite close to the carbonate-phyllite contact. The contact zone is poorly exposed and only two mineral occurrences, 500 m apart have been noted. The main occurrence contains rubble of smithsonite, dolomite, calcareous tufa, sphalerite bearing dolomite breccia, iron-oxide cemented breccia and massive sphalerite over an area of 800 sq. m. A zinc geochemical anomaly, 225 m long, lies close to and parallel to the carbonate/phyllite contact between the two occurrences.

The preferred origin of the mineralization is by epigenetic void filling of spaces created by tectonism or karst development. The metal rich Devonian-Mississippian black shales may have provided the metal source.

#### RECOMMENDATIONS

Immediate follow-up work on the Ent is unwarranted because of the limited potential for tonnage, the fracture controlled patchy nature of similar (?) well exposed occurrences elsewhere and the "zinc-only" nature of the mineralization.

Report by:

I.A. Paterson  
I.A. Paterson  
Project Geologist

IAP/pcd

cc Watson Lake  
Mining Recorder (2)  
Western District Files

Endorsed by:

D.W. Heddle  
D.W. Heddle  
Assistant Manager

Approved for  
Release by:

G. Harden, Manager  
G. Harden, Manager  
Exploration, Western District

References

- Sinclair, A.J.,: Selection of threshold values in geochemical data using probability graphs. J. Geochem Explor., 3, p. 129-149.
- Tempelman-Kluit, D.J.: 1977, Quiet Lake (105 F) and Finlayson Lake (105 G) map areas, Geological Survey of Canada Open File 486.

IN THE MATTER OF THE YUKON QUARTZ MINING ACT AND IN THE MATTER OF A  
GEOLOGICAL AND GEOCHEMICAL SURVEY CARRIED OUT ON THE ENT GROUP OF MINERAL  
CLAIMS

Located in the Watson Lake Mining District of the Yukon Territory

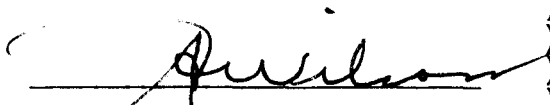
N.T.S. 105 F/10

AFFIDAVIT

I, I.A. Paterson of the City of Vancouver in the Province of British  
Columbia, geologist, make oath and say:

1. that I am employed as a geologist by Cominco Ltd. and, as such,  
have a personal knowledge of the facts to which I hereinafter depose:
2. that annexed hereto and marked as "Exhibit A" to this my Affidavit  
is a true copy of expenditures on a geological and geochemical survey  
carried out on the ENT mineral claims;
3. that the said expenditures were incurred between the 18th and 20th  
day of August, 1977.

Sworn Before Me at the City  
of Vancouver in the Province  
of British Columbia this 15<sup>th</sup>  
day of May, 1978

  
A Notary Public In and For the  
Province of British Columbia


  
I.A. Paterson

EXHIBIT "A"

STATEMENT OF EXPENDITURES

ENT CLAIMS

Salaries

I.A. Paterson (1 day)	\$ 124.00
D.W. Moore (3 days)	330.00
M. Spurr (3 days)	195.00

Transportation

G3B2 Helicopter 3.5 hours at \$175.	612.00
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Domicile

7 man days (food and equipment)	154.00
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Geochemistry

108 soil samples analysed for Pb and Zn	142.00
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Trenching

14.2 cu. m. at \$6.00	<u>85.20</u>
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TOTAL	\$1,642.20
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This is Exhibit "A" to the Affidavit of Ian Arthur Paterson declared  
before me this <sup>15<sup>th</sup></sup> day of May, 1978.

  
NOTARY PUBLIC IN AND FOR THE  
PROVINCE OF BRITISH COLUMBIA

Signed:

  
I.A. PATERSON

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, I.A. Paterson with business address at 409 Granville Street, Vancouver, B.C., do hereby certify that I have supervised the field work and have assessed and interpreted the data resulting from the geological and geochemical surveys on the ENT claim group.

I also certify that:

1. I graduated from the University of Aberdeen with a B.Sc. (Hons.) in Geology in 1967.
2. I graduated from the University of British Columbia with a Ph.D. in Geology in 1973,
3. I am a Fellow of the Geological Association of Canada.
4. I have worked with Cominco Ltd. since 1974.

Respectively submitted:



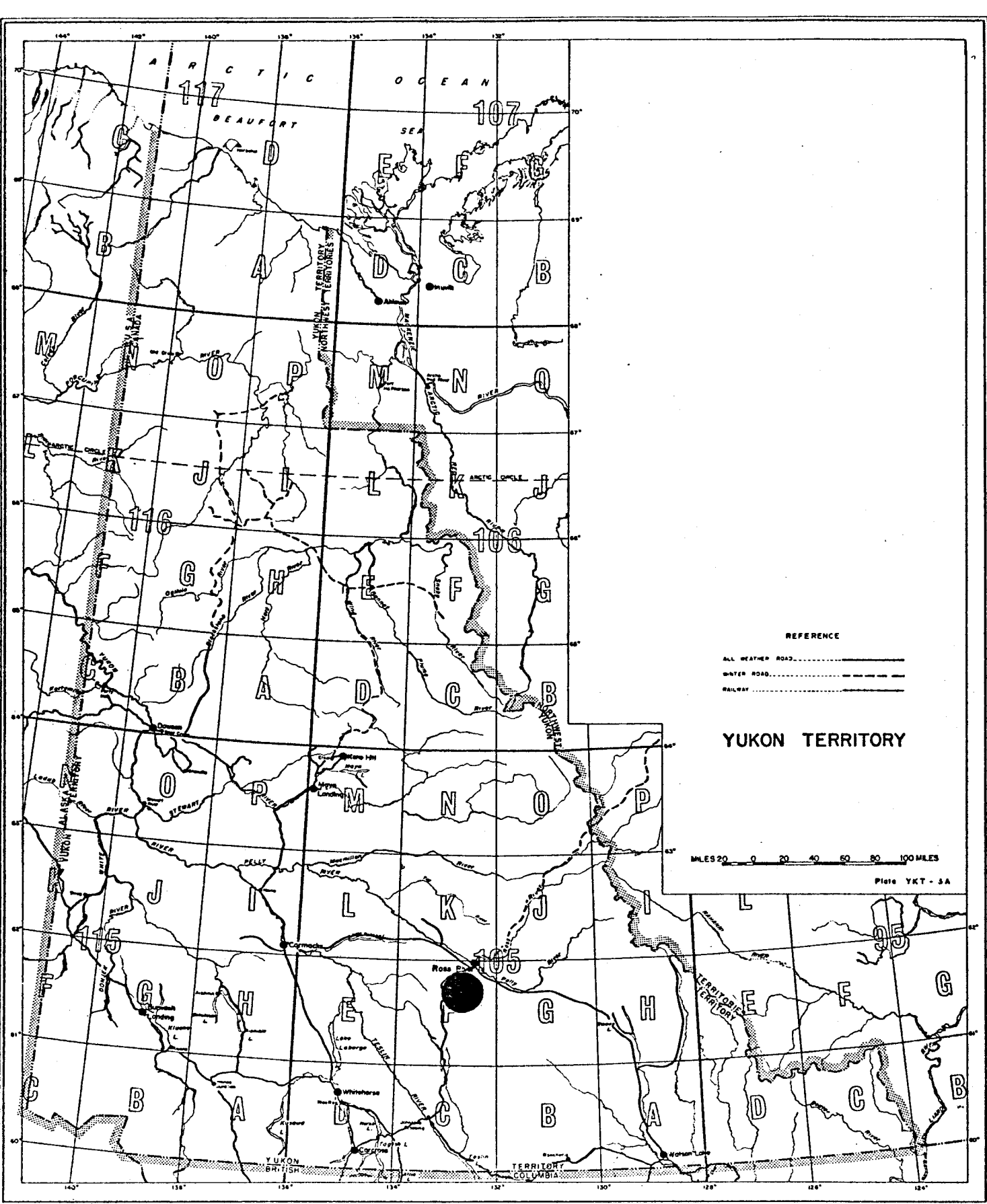
Dr. I.A. Paterson

Vancouver, British Columbia

I.A. Paterson was responsible for supervising the geological and geochemical surveys described herein. Dr. Paterson received his B.Sc. degree in geology from the University of Aberdeen in 1967 and his Ph.D. degree in geology from the University of British Columbia in 1973. I consider him a competent geologist.

Signed: \_\_\_\_\_

D.W. Heddle, P. Eng.



ENT CLAIMS



Drawn by:		Traced by:	
Revised by	Date	Revised by	Date

ENT PROPERTY

Scale:

Date: NOV. 1977

Plate: E-1

133°00'

Tay River 105 K

45'

30'

Normal Height  
Approximate  
570 f.

ROSS RIVER

CANOL ROAD

ENT CLAIMS

KE MINING DISTRICT

Drawn by	9AP.	Traced by	
Checked by		Checked by	
Scale	1 inch = 4 miles	Date	Jan., 1978
Sheet		Page	2

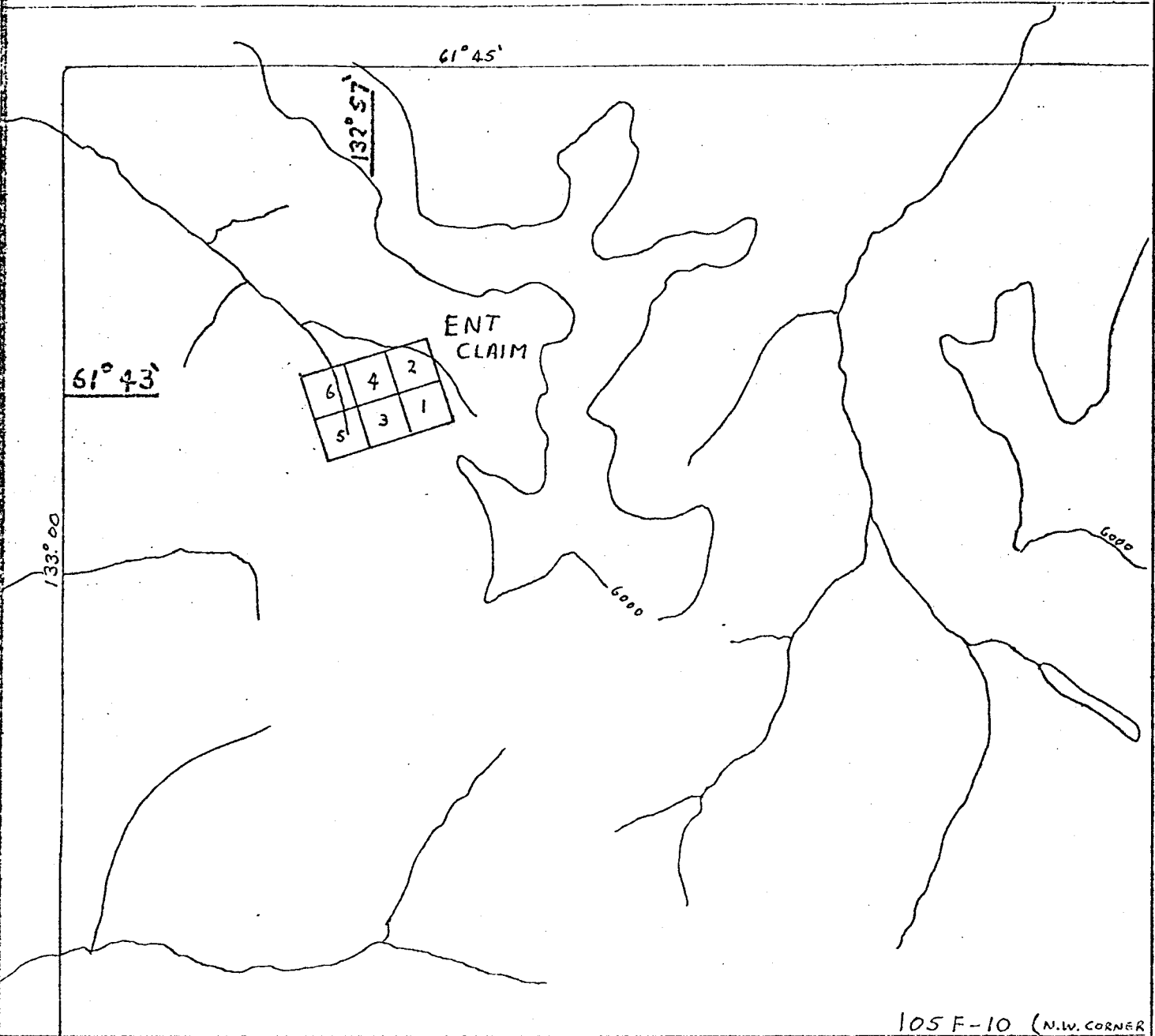
ENT CLAIMS - PELLY MOUNTAINS

LOCATION & ACCESS


Scale: 1 inch = 4 miles

Date: Jan., 1978

Page: 2



105 F-10 (N.W. CORNER)

 105 F-10

Drawn by: <b>YAP.</b>		Traced by:	
Checked by:	Date:	Reviewed by:	Date:

ENT CLAIMS - PELLY MOUNTAINS, YT  
LOCATION MAP, CLAIM MAP

Scale: 1" = 1 mile      Date: JAN, 1978      Plate: 3



**LEGEND**

- CAMBRIAN TO ORDOVICIAN**
- 1 Grey argillaceous phyllite, minor green phyllite, platy red-grey lst, vesicular greenstone and gabbroic intrusives, abundant quartz ankerite segregations
- SILURIAN TO DEVONIAN**
- 2a Grey to buff weathering dolomite, locally fossiliferous reddish weathering brecciated zones
- SILURIAN TO MISSISSIPPIAN**
- 2b Grey black massive quartzite veined by white quartz
- SYMBOLS**
- 2c Purple laminated to well bedded platy siltstone
  - Approximate contact
  - Bedding
  - Thurst
  - Trench
  - Zn geochem anomaly >750 ppm Zn

**ENT CLAIMS – PELLY MOUNTAINS, YUKON**



Drawn by: DWM		Traced by:	
Revised by	Date	Revised by	Date
I.A.P.			

**GEOLOGY and GRID LOCATION**

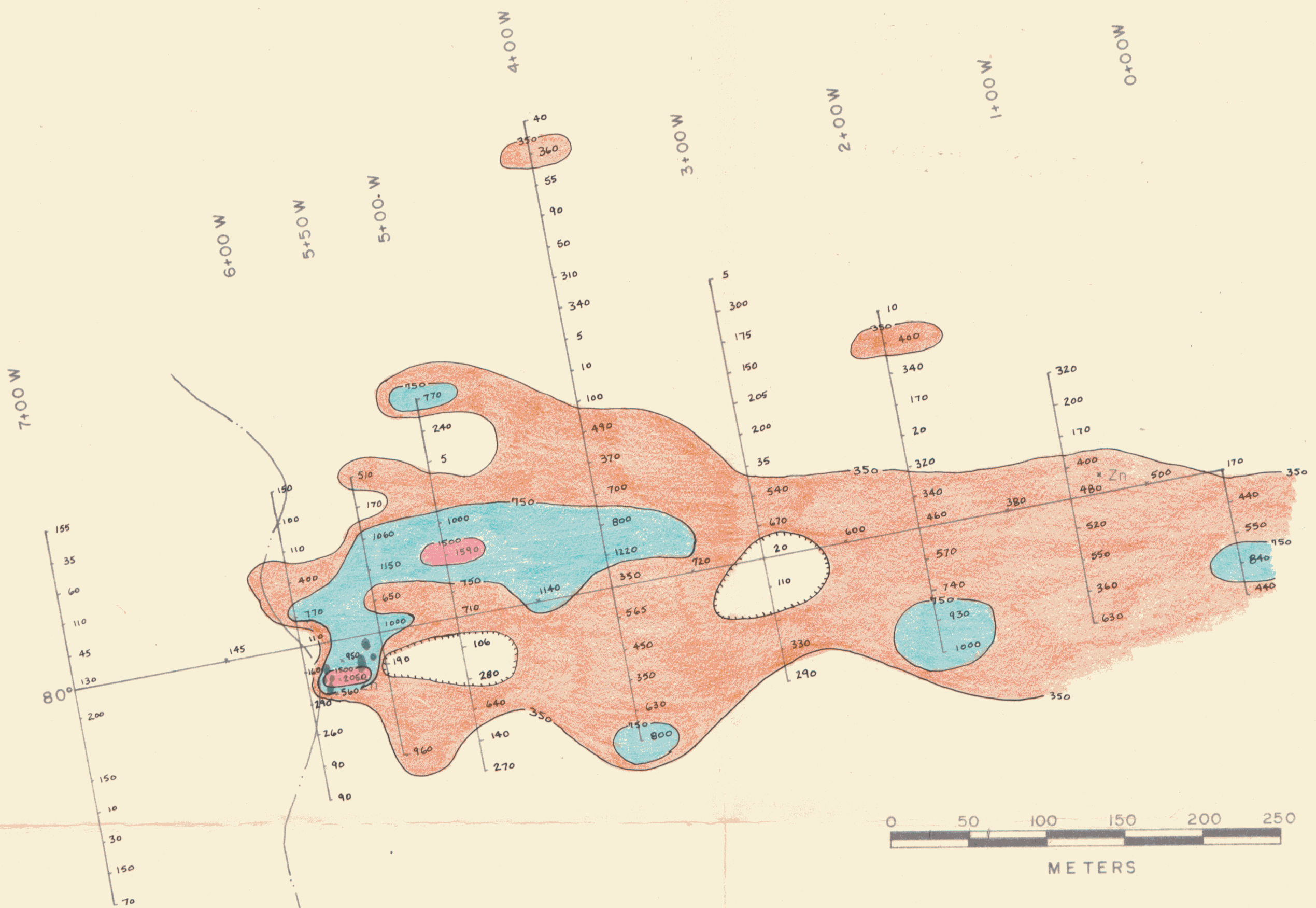
To Accompany Report By I.A. Paterson

Scale: 1:5000      Date: March 1978      Plate: 1

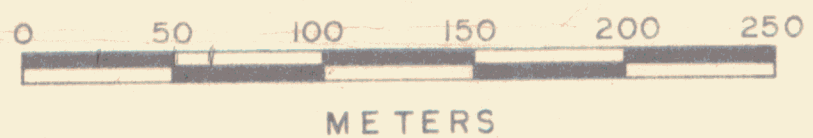


- LEGEND**
- \* 20 Lead(ppm)
  - Trench
  - ⊗ Zn Zinc showing
  - 120 >120 ppm lead
  - 240 >240 ppm lead

<b>ENT GROUP</b>				<b>105 F 10</b>	
Drawn by: DWM		Traced by:		<b>SOIL GEOCHEMISTRY LEAD</b>	
Revised by	Date	Revised by	Date		
Scale: as shown		Date: Oct. 1977		Plate: 2	



- LEGEND
- \* 130 Zinc (ppm)
  - Trench
  - Zn Zinc showing
  - >350 ppm zinc
  - >750 ppm zinc
  - >1500 ppm zinc



ENT GROUP				 105 F10	
Drawn by: DWM		Traced by:		<h2 style="margin: 0;">SOIL GEOCHEMISTRY</h2> <h3 style="margin: 0;">ZINC</h3>	
Revised by	Date	Revised by	Date		
Scale: as shown		Date Oct 1977		Plate: 3	