

COMINCO LTD.

EXPLORATION

N.T.S. 92H/15E

WESTERN DISTRICT

January 30, 1979

ASSESSMENT REPORT

GEOLOGICAL, ROCK AND SOIL GEOCHEMICAL, I.P.,

AND GROUND MAGNETIC WORK ON THE

THALIA PROPERTY

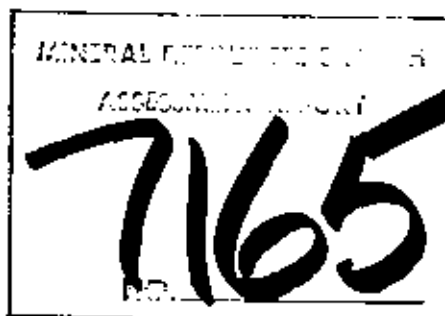
(Claims Thalia 1-7)

MISSEZULA LAKE AREA, NICOLA M.D.

LATITUDE: 49°50'N

LONGITUDE: 120°35'W

REPORT BY:



M.J. OSATENKO

part 2 of 2

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ATTACHMENTS

1. Plate 1 - Location of the Thalia property	(1:50,000)
2. Plate 2 - Compilation of geology, rock geochem and I.P.	(1:10,000)
3. Plate 3 - Ground magnetics map	(1:5,000)
4. Plate 4 - Copper soil geochem	(1:3,048)
5. I.P. report attached.	

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THALIA PROPERTY

(Claims Thalia 1-7)

Missezula Lake Area, Nicola M.D.

SUMMARY

The Thalia property is an alkaline porphyry copper prospect located in the Aspen Grove complex, 13 km south of Aspen Grove, B.C. Mapping, rock and soil geochemistry, ground magnetics and 6 km of I.P. done in 1978 have outlined a sequence of basaltic pyroclastic rocks, intruded by small dioritic and monzonitic dykes and plugs, that is similar to the setting of the Copper Mountain and Afton deposits. The best mineralization exposed is mainly chalcocite and is found associated with calcite, epidote and clay alteration in fractured diorites in two trenches on the East grid (0.38% Cu/15 m and 0.24% Cu/10 m), and in brecciated basalt boulders nearby (boulders 1 m across at 2.6% Cu, 0.3 oz/ton Ag). The trenches are just at the western margin of a 400 x greater than 1500 m north-south trending I.P. anomaly which is of moderate strength but very attractive as it could represent 1-2% chalcocite in this iron-poor area. This anomaly has not been tested by drilling.

In the West grid area, in the central part of the property, chalcocite and chalcopyrite occur in or near diorite dykes. A rock geochemical anomaly 750x greater than 1200 m envelopes these showings and is open southwestward into a large covered area where a single I.P. line shows a 200 m wide anomaly.

It is recommended to do further mapping, soil geochem, ground magnetics and I.P. on the West grid area and to do percussion drilling on the East grid I.P. anomaly after the anomaly is better defined.

INTRODUCTION

The Thalia property was staked in March 1978 to protect an alkaline volcanic center with associated copper showings. Work by M.J. Osatenko and D. Mehner between July 21st - August 11, 1978 consisted of mapping, soil and rock geochemistry and ground magnetics at scales of 1:10,000; 1:5,000 and 1:3,048. The I.P. work was done by G. Niemeyer and crew between August 10th and 13th, 1978.

LOCATION AND ACCESS

The property is located 13 km south-southeast of Aspen Grove, B.C. (Plate 1). Access to this property is provided by the roads off Highway 5 eastward to Missezula and Bluey Lakes, about 12 km south of Aspen Grove.

TOPOGRAPHY AND VEGETATION

The property occurs at an elevation of 1040 to 1340 m along a pronounced northerly trending ridge that forms the core of the Aspen Grove alkaline complex. It is covered by sparse to moderately dense pine and fir forests with parts of it open savannah. Three ponds and one lake provide abundant water for drilling.

PROPERTY AND OWNERSHIP

The Thalia property (Nicola Mining Division) is 100% owned by Cominco and consists of the following claims:

<u>CLAIM</u>	<u>RECORD NUMBER</u>	<u>NUMBER OF UNITS</u>	<u>DATE RECORDED</u>	<u>DUE DATE</u>
Thalia 1	431	20	March 30, 1978	March 30, 1982
Thalia 2	432	5	March 30, 1978	March 30, 1982
Thalia 3	433	12	March 30, 1978	March 30, 1980
Thalia 4	434	4	March 30, 1978	March 30, 1982
Thalia 5	435	6	March 30, 1978	March 30, 1982
Thalia 6	527	1	Dec. 21, 1978	Dec. 21, 1979
Thalia 7	532	2	Dec. 21, 1978	Dec. 21, 1979
		<u>50</u>		

PREVIOUS WORK

No assessment reports have been filed for this area but old claim posts dating back to 1962 were noted (Plate 2). Trenching, old grids and two diamond drill sites are the only evidence of physical work.

GEOLOGY

The rocks mapped on the property comprise an Upper Triassic volcanic sequence of basaltic fragmental and flow rocks cut by coeval diorite and monzonite dykes and plugs (Plate 2). Rocks of Unit 1 (fragmental group) consist of both red and green crystal, lithic tuffs and tuff breccias with Units 1a and 1b containing both diorite and basalt fragments while Units 1c and 1d contain only diorite fragments. These fragments are typically subrounded to rounded (less than 1 to 8 cm across) and are thought to be mainly pyroclastic in origin but evidence of reworking (winnowing) and transportation (well rounded cobbles) suggests a volcanoclastic component to the sequence. Unit 1e rocks are found in the northeastern, eastern and western parts of the property and are composed of red siltstones, pebbly conglomerates and lahars. It appears that the less oxidized units occur in the central part of the property flanked by more oxidized, reddish sequences. Rocks of Unit 2 are plagioclase, augite basalt flows and are interbedded with rocks of Units 1c and 1e.

The intrusive rocks (Unit 3) comprise medium grained, pink monzonite (Unit 3a), fine grained diorite (Unit 3b) and diorite igneous? breccia (Unit 3c). These rocks are found throughout the property in small plugs and dykes that probably represent the main feeders of the Thalia volcanic center. The diorites of Unit 3b are clearly the genetic host of most of the copper mineralization as most showings are in or near these rocks. Rocks of Unit 3c are igneous or intrusive? breccias with subrounded, diorite fragments (up to one meter across) in a fine to medium grained dioritic matrix.

The amygdaloidal basalt flows of Unit 4 are the youngest rocks on the property, probably less than 15,000 years in age.

MINERALIZATION

Copper mineralization is seen in four principal areas (Plate 2) but usually in or near dioritic dykes or plugs. The first area is in the northern part of the property where boulders of brecciated red basalt (about 1 m across) contain chalcocite, calcite and epidote as a cement between fragments. A chip sample across one of the boulders returned 2.6% copper and 0.3 oz/ton silver. One drill site, positioned to go under these boulders, was noted but no results are available. An I.P. response, from our 1978 work, was found under these boulders but at depth. The second and main area of mineralization is 1000 m to the south-southeast of the first. Here, chalcocite and malachite occur along fractures in highly fractured diorite that exhibits clay, sericite, chlorite and carbonate alteration. Mineralization (only chalcocite no pyrite - grades 0.38% copper/15 m and 0.24% copper/10 m in two trenches 30 m apart) is open to the east into a large covered area and is adjacent to a 400x1500 m weak - moderate I.P. anomaly. The single observed drill hole could not have tested this response.

The third mineralized area is in the central part of the property and shows chalcopyrite, chalcocite? and malachite as disseminations in diorite fragments in tuff breccias and along fractures and in the matrices of these breccias. Significant grades range from 0.06 to 0.29% copper over +2 m widths. This area is enveloped by a copper rock geochem anomaly, about 750 x greater than 1200 m. The last area of interest is in the southern part of the property where a 2 m chip sample gave 0.7% copper (chalcocite?) in a highly fractured, chloritized basalt that is located along a major west-northwest trending fault zone.

GEOPHYSICS

The geophysical work on the property consisted of 5.6 km of I.P. and 9.6 km of ground magnetics. I.P. data are discussed in detail in a separate report by Alan Scott while the ground magnetics are discussed in this report as are brief comments on the I.P. anomalies.

The ground magnetic survey used an MP-2 total field magnetometer, readings +3% at one standard deviation, and covered the airborne magnetic anomaly that was first indicated by a Federal survey in 1973 (map 8532G Aspen Grove 92H/15). This anomaly is up to eight times background and appears to be related to both diorite plugs and magnetic basaltic tuff breccias. (Plate 3).

The I.P. survey located two weak to moderate responses. The first is located on the West grid and is defined by only one line. This anomaly is covered by overburden but the magnetic survey and photo interpretation indicates that it is in the area of two fault intersections. The second (400 x greater than 1500 m) is on the East grid adjacent to mineralized trenches and boulders. Previous drilling was limited to two holes both of which are unlikely to have tested the I.P. anomaly.

GEOCHEMISTRY

Rock geochemical results¹ for copper and zinc are shown in Plate 2 while copper soil geochemistry¹ over the small grid in the southern part of the property is given in Plate 4. Values above 150 ppm copper and 100 ppm Zn in rocks are considered anomalous. Copper values greater than 150 ppm define an area 750 x greater than 1200 m in the central part of Thalia 1 and 2 that envelopes numerous small copper showings (Plate 2). Zinc values are anomalous over large parts of the property, especially near the fringes of the copper anomalies, and suggest that the present erosional surface is very high level. Copper soil geochemistry (sampled B horizon, 0.7 line km) was done over the projected intersection of a northeasterly trending lineament with a west-northwesterly, mineralized fault on Thalia 3. Three weakly anomalous zones (greater than 50 ppm) were detected (Plate 4).

CONCLUSIONS

1. The Thalia property shows the right geological environment and style of mineralization to host alkaline porphyry copper deposits.
2. Two I.P. anomalies were detected, both of which show evidence of nearby copper mineralization but do not appear to have been tested by drilling.

RECOMMENDATIONS

1. To do further mapping, soil geochem, ground magnetics and I.P. in the West grid area and I.P. in the East grid area to define percussion drill targets.
 2. To begin percussion drilling with the I.P. anomaly on the East grid (5 holes).
1. All results from Cominco Laboratory using aqua regia digestion followed by atomic absorption (coefficient of variation 15%)

Report by: M. Osatenko
M.J. Osatenko
Project Geologist

MJO/pc1

Endorsed by: F.L. Wynne
F.L. Wynne
Senior Geologist

Approved for
Release by: G. Harden
G. Harden, Manager, Exploration

APPENDIX "A"

STATEMENT OF EXPENDITURES FOR
GEOLOGICAL, ROCK AND SOIL GEOCHEMICAL, I.P. AND GROUND MAGNETIC WORK ON
THE THALIA CLAIMS (1978)

SALARIES

M.J. Osatenko (July 21-August 11; 12 days @ \$161/day)	\$1,932.
(report writing and drafting; 2 days @ \$161/day)	322.
D. Mehner (July 21 - August 11; 12 days @ \$93/day)	1,116.

DOMICILE

24 man days at \$40/day	960.
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TRANSPORTATION

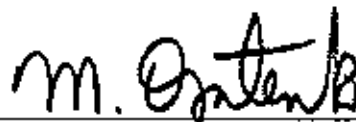
Truck for 12 days at \$30/day	360.
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GEOPHYSICS

I.P. crew for 4 days (August 10-13)	4,669.
Magnetometer rental	140.

ASSAYS

46 soil samples for copper at \$1.60/sample	74.
69 rock samples for copper and zinc at \$3.35/sample	<u>231.</u>
	\$9,804.



M.J. OSATENKO

APPENDIX "B"

IN THE MATTER OF THE

B.C. MINERAL ACT

AND

IN THE MATTER OF A GEOLOGICAL, ROCK AND SOIL GEOCHEMICAL,

I.P. AND GROUND MAGNETIC PROGRAM

CARRIED OUT ON THE THALIA MINERAL CLAIMS

Located in the Nicola Mining Division

of the Province of British Columbia

More Particularly N.T.S. 92 H/15E

A F F I D A V I T

I, MYRON J. OSATENKO OF THE CITY OF VANCOUVER IN THE PROVINCE OF BRITISH COLUMBIA, MAKE OATH AND SAY:

1. THAT I AM EMPLOYED AS A PROJECT 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 "APPENDIX A" TO THIS MY REPORT IS A TRUE COPY OF EXPENDITURES OF A GEOLOGICAL, ROCK AND SOIL GEOCHEMICAL, I.P. AND GROUND MAGNETIC PROGRAM CARRIED OUT ON THE THALIA MINERAL CLAIMS;
3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE TWENTY-FIRST DAY OF JULY 1978 AND THE THIRTEENTH DAY OF AUGUST 1978 FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIMS.



MYRON J. OSATENKO

APPENDIX "C"

COMINCO LTD.

EXPLORATION

WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, MYRON J. OSATENKO, OF THE CITY OF VANCOUVER, BRITISH COLUMBIA, HEREBY CERTIFY:

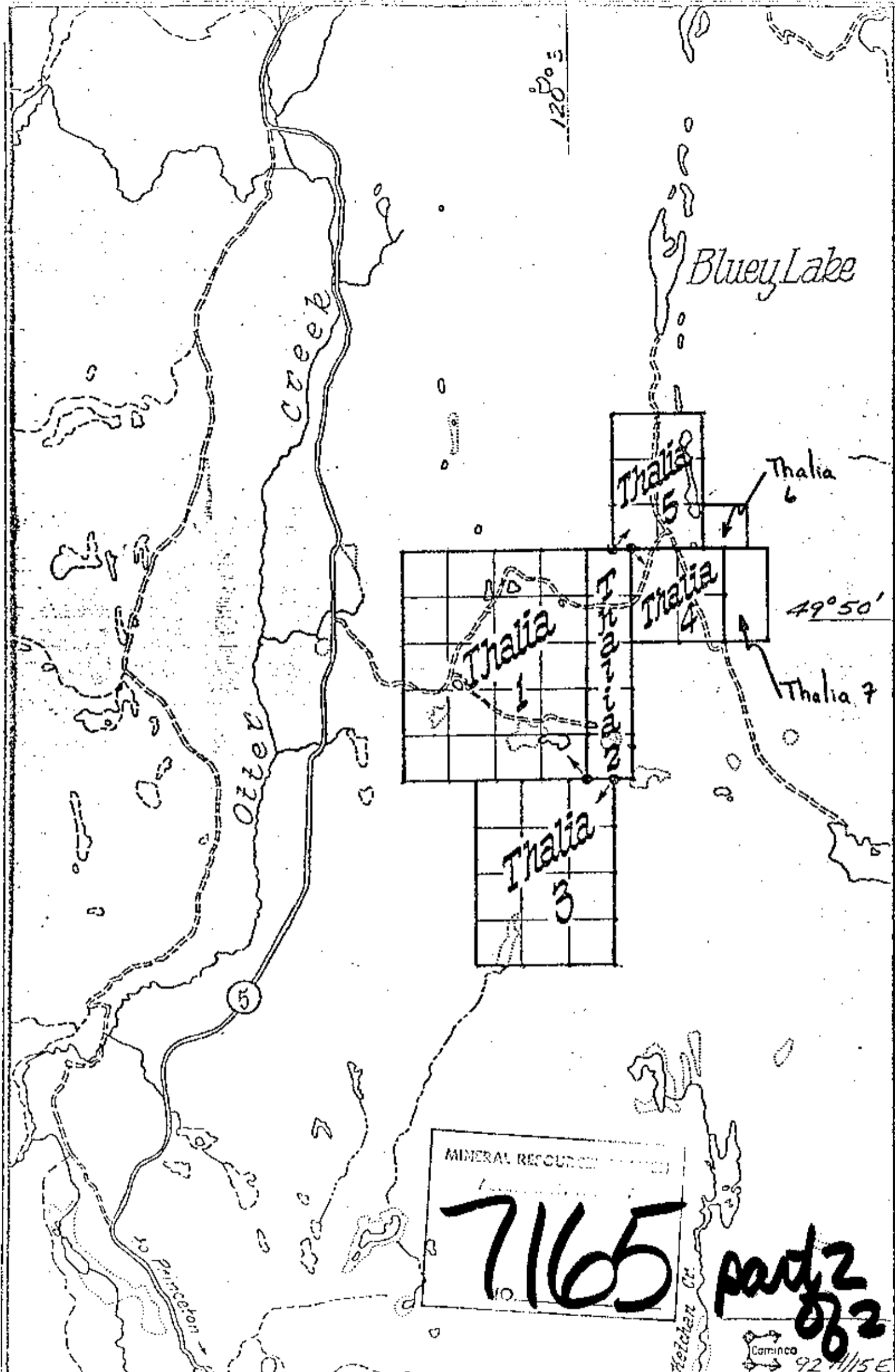
1. THAT I AM A GEOLOGIST, RESIDING AT 6437-116th STREET DELTA, BRITISH COLUMBIA WITH A BUSINESS ADDRESS AT 700-409 GRANVILLE STREET, VANCOUVER, BRITISH COLUMBIA.
2. THAT I GRADUATED WITH B.Sc. AND M.Sc. DEGREES IN GEOLOGY FROM THE UNIVERSITY OF BRITISH COLUMBIA IN 1965 AND 1967 RESPECTIVELY.
3. THAT I HAVE PRACTISED GEOLOGY WITH COMINCO LTD. FROM 1967 TO PRESENT.

DATED THIS 30th day of January 1979 at Vancouver, British Columbia.

SIGNED



Myron J. Osatenko, M. Sc.



Drawn by:		Traced by:	
	Date		Date

LOCATION MAP
 THALIA CLAIMS 1-5
 NICOLA M.D. B.C.

1:50,000 Jan 26/79 1



LEGEND

TERTIARY

4 Valley amygdaloidal basalts.

UPPER TRIASSIC

3 Porphyritic monzonite and diorite dykes and plugs.

3a Medium grained monzonite.

3b Fine grained diorite.

3c Diorite, igneous breccia.

2 Basalt flows.

1 Fragmental rocks.

1a Green, crystal lithic tuffs and tuff breccias with diorite and basalt fragments (pyroclastic and volcanoclastic).

1b Red equivalent of 1a.

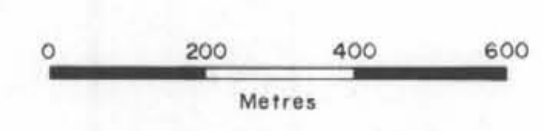
1c Green, crystal lithic tuffs and tuff breccias with diorite fragments (pyroclastic).

1d Pink equivalent of 1c.

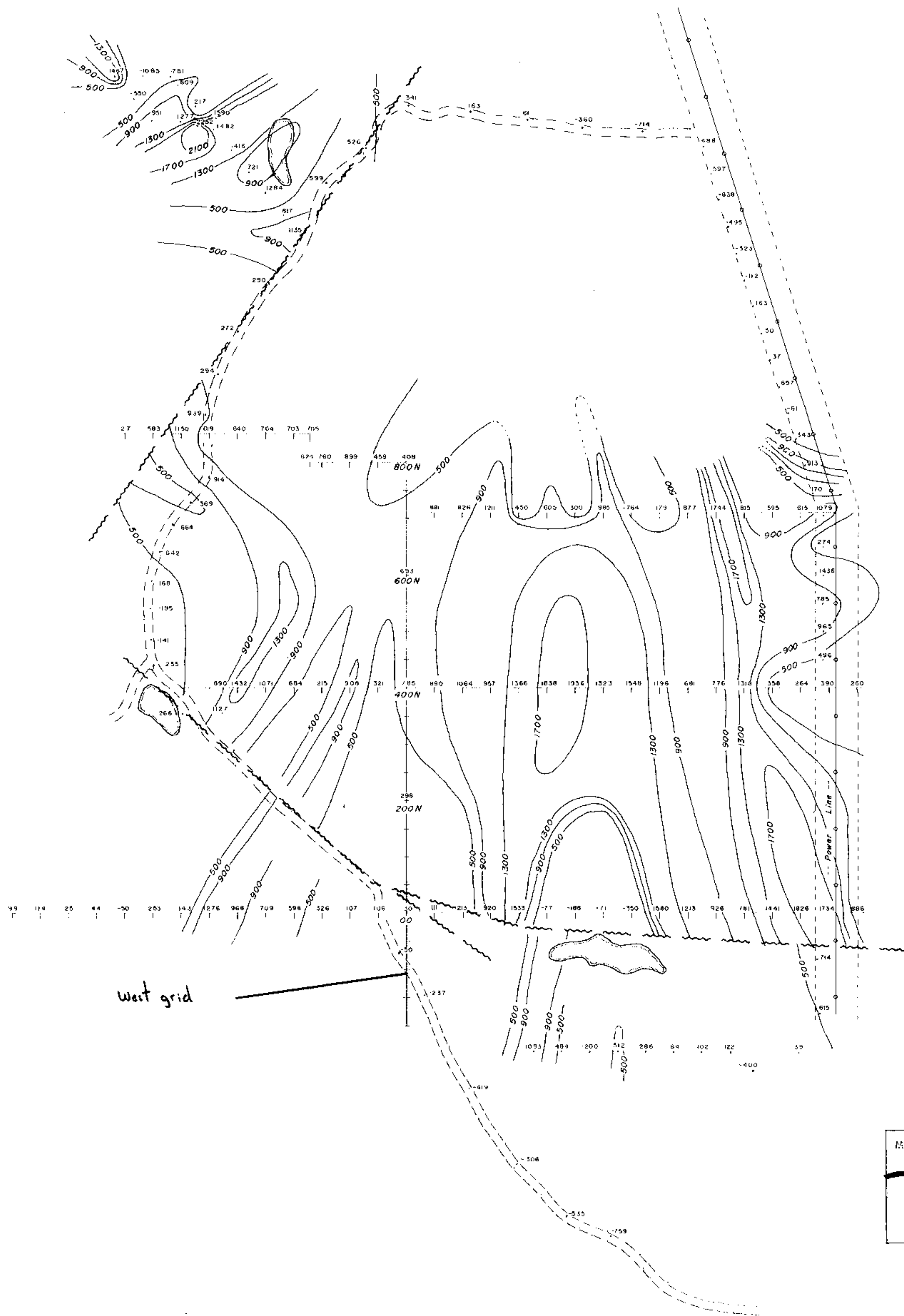
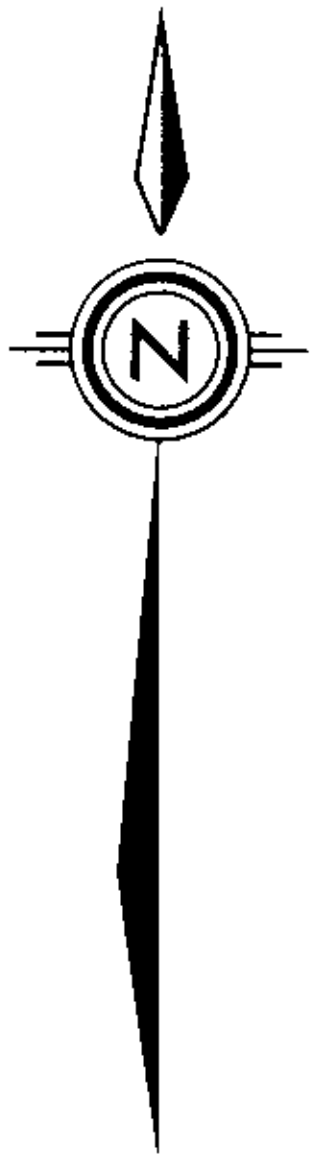
1e Red or maroon, locally well bedded siltstones, pebbly conglomerates and lahars.

- Outcrop.
- Geological contact; defined, inferred.
- Inferred fault.
- Linear.
- Rock geochemical anomaly.
+ 150 ppm Cu.
+ 300 ppm Cu.
- Trench.
- Claim post.
- Power line.
- mal, cc, cpy Mineralization
mal - malachite.
cc - chalcocite.
cpy - chalcopyrite.
- I.P. anomaly (+7 m.volts, Background - 4-5 m.volts.).
- Proposed grid extension.
- Proposed percussion drill hole.
- Old drill hole.
- ⊗ Old claim post.
- Alteration:
chl - chlorite.
ep - epidote.
mag - magnetite.
cal - calcite.
ab - albite.
- A-24 (82/66) Rock sample number. (Cu ppm / Zn ppm)

part 2 of 2
MINERAL RESOURCES BRANCH
ASSESSMENT REPORT
7165



THALIA PROPERTY		92H/15E
Drawn by: MJO	Traced by: FJF	GEOLOGY, COPPER ROCK GEOCHEM, AND I.P.
Revised by: RAR	Revised by: JAR	
Date: Jun 18 / 79	Date:	Scale: 1:10,000
Date:	Date: Oct. 26, 1978	Plate: 2



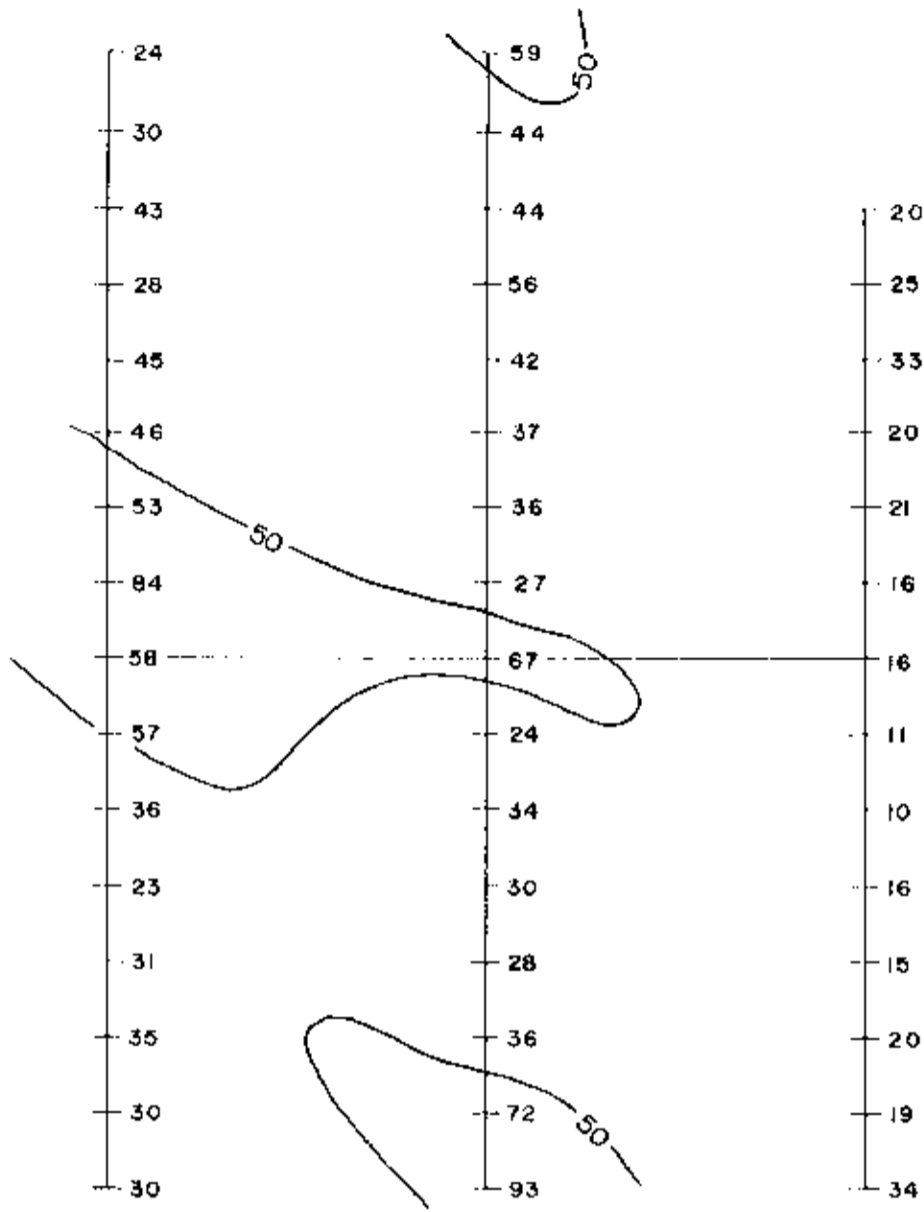
----- assumed fault

7165 part 2 of 2

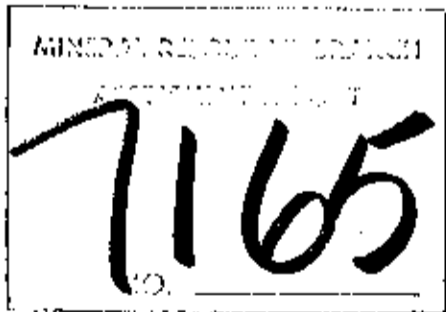


m. Ostent

THALIA PROPERTY			
Drawn by: MJO	Traced by:		
Revised by: _____	Date: _____	Revised by: _____	Date: _____
		GROUND MAGNETICS (readings in gammas)	
Scale: 1:5000	Date: January 16, 1979	Plate: 3	



Background < 50 ppm



part 2 of 2



Feet

See plate 2 for location of grid

m. Orlenk



92H/15E

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

THALIA PROPERTY SOIL GEOCHEM

Scale: 1:3048

Date: January 16, 1979

Plate: 4