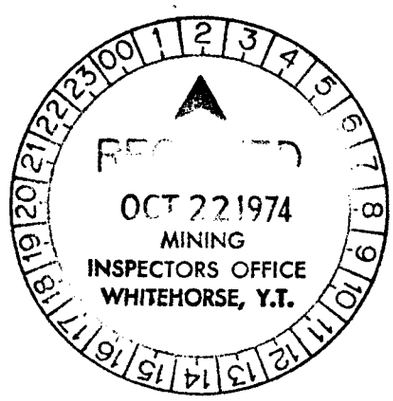
COMINCO LTD.

EXPLORATION
NTS: 106C/14,15

WESTERN DISTRICT



EXPLORATION REPORT

ASSESSMENT REPORT

SUN GROUP

October 2, 1974

M. G. Lomenda

PERIOD OF WORK

July 26,1974 to September 6, 1974

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 $14,000.00

Resident Geologist or
Resident Mining Engineer

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

Commissioner of Yukon Territory

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* * * * *

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

INTRODUCTION

In recent years, lead-zinc exploration in Godlin Lakes area, N.W.T. has proceeded northward into Bonnet Plume River area of the Yukon Territory. This area is located in the northern Selwyn Mountains, about 110 air miles northeasterly of Mayo. In 1973, subsequent to the discovery of extensive zinc with minor lead mineralization by Barrier Reef in this region, numerous companies have acquired ground.

Coast Copper Company Ltd. acquired by option, three claim groups owned by Yukon Revenue Mines Ltd (Plate 1). Of these claims, the Sun Group of 58 contiguous claims lie in NTS 106C-14, 15 at Latitude N64° 45', Longitude W132° 00'. Work on the Sun Group was done by Cominco personnel during the period July 26 to September 6, 1974.

SUMMARY

Work on the 58 contiguous Sun Group claims began on July 26 and ended on September 6, 1974. The claims were geologically mapped at a scale of 1 inch = 1000 feet.

Shallow water carbonate and clastic rocks underlie the Sun Group property. Rocks strike north-northwesterly and dip 35° easterly. Northerly striking and easterly dipping thrust faults are evident. Rocks are divisible into four major units: the Hadrynian Rapitan Group and Keele Formation, the Hadrynian-Cambrian Sheepbed Formation, the Cambrian Backbone Ranges Formation, and the Ordovician-Silurian Mount Kindle Formation. Minor lead-zinc mineralization is located on the property.

A lead-zinc geochemical survey consisted of 573 soil samples collected from a grid and 29 silt samples collected from creeks. Three anomalies of minor significance were outlined.

TOPOGRAPHY AND ACCESS

The Sun Group occupies a north-northwesterly trending alpine valley and bounding ridges at the head waters of Corn Creek. Elevations range from 4500 to 7500 feet above sea level.

Access to the Sun Group property can be made by float-equipped, fixed-wing aircraft from Mayo to Pinguicula Lake or to "Porter Puddle" and then by helicopter to the property.

GEOLOGY

Previous Work and 1974 Program

A general geological map including rocks underlying the Sun Group was prepared by Wheeler (1954) at a scale of 1:243,000. Recently the geology was revised on a refined geological map at a scale of 1:50,000 (G.S.C. Open File 206, June 1974).

In the present study, strata underlying the Sun Group were mapped at a scale of 1 inch = 1000 feet using an expanded and slightly modified form of the G.S.C. (NTS 106C/14,15, Open File 206, June 1974) (Plate 3).

Structural Geology

Rocks underlying the Sun Group claims strike north-northwesterly and dip about 35° easterly (Plate 3).

A thrust fault, striking northeasterly and dipping about 45° easterly, displaces rocks of the Backbone Ranges and Mount Kindle Formations. Other thrust faults probably are present within the Sheep-

bed and Backbone Ranges Formations as is evident from slickensides, minor folds, and substancial thickness variations.

Stratigraphic Sequence

General Statement

Rocks underlying the Sun Group claims are grouped into four main units: the Hadrynian Rapitan Group and Keele Formation, the Hadrynian - Cambrian Sheepbed Formation, the Cambrian Backbone Ranges Formation, and the Ordovician - Silurian Mount Kindle Formation (Plate 3). These units are subdivided where possible.

Rapitan Group - Keele Formation

In the Sun Group property, Rapitan Group shale (Unit Hs) wedges between lower (Units Hd1-3) and upper Keele Formation (Units H cgl, Hd4). These units are described in ascending order.

Lower Keele Formation Dolomite (Hd1-3): The ridge on the west side of the Corn Creek valley consists mainly of grey dolomite. Dark grey, fine-grained, wavy-laminated, stromatolitic, weakly brecciated dolomite (Unit Hd1) comprises the lower 1200 feet. Three hundred feet of yellowish-orange weathering, flaggy, stromatolitic dolomite with minor shale (Unit Hd2) gradationally overlies the dark grey dolomite. In turn, the central dolomite grades up into 200 feet of light grey weathering, pisolitic, porous, massive-bedded dolomite with minor fine-grained, thin-bedded dolomite (Unit Hd3)

Rapitan Group Shale (Hs): Contact between the lower Keele Formation and the overlying Rapitan Group shale is obscure. About 560 feet of this poorly exposed, dark grey shale occupies the base of the valley at the headwaters of Corn Creek.

Upper Keele Formation Dolomite (Hd4): The basal contact between the 100-foot thick upper Keele Formation and underlying Rapitan Group shale is covered. Brown, pyritic, quartzose conglomerate (Unit H cgl) with lenses of coarse-grained, cross-bedded quartzite comprises the lower 60-70 feet. Poorly exposed, yellowish-green thin-bedded dolomite (Unit Hd4) forms the remainder of this formation.

Sheepbed Formation

Approximately 1500 feet of recessive, dark grey shale and argillite (Unit Hϵs) overlie the upper Keele Formation with a concealed contact. Minor siltstone and limestone are intercalated with shale in the upper part.

Backbone Ranges Formation

The Backbone Ranges Formation is 1700 feet thick, thickening southerly to 2400 feet due to thrust faulting. This formation is divisible into several carbonate and clastic lithologies, of which some display intertonging.

Dolomite (ϵd1): Contact between the Sheepbed Formation shale and this dolomite is concealed. The dolomite is 130 feet thick, black, fine grained, sugary, and thin bedded. Brecciation is intense, with spary dolomite and quartz crystals wedging apart dolomite beds, but disturbing bedding orientations only slightly. Brown, fine-grained, massive quartzite and grey, quartz arenaceous dolomite compose the uppermost beds.

Shale (ϵs1): Contact between this shale and the underlying dolomite is concealed. The shale ranges in thickness from 200 to 800 feet due to intertonging with younger dolomite units. Brown, medium-grained quartzite with shale intercalations form the upper 20 feet. Mud cracks and ripple laminations are present within these upper beds.

Dolomite (Ed2): Approximately 100 feet of dolomite is wedged from the south into shale (Unit Es1). The dolomite is black, quartz arenaceous, and pisolitic.

Dolomite (Ed3): Overlying shale (Unit Es1) is 500 feet of dolomite, which thins and disappears to the north into this same shale. The dolomite is yellow and purple weathering, fine grained, thick bedded, and in part quartz arenaceous and pisolitic.

Dolomite (Ed4): Conformably overlying thick-bedded dolomite (Unit Ed3) and shale (Unit Es1) is mainly 250 feet of yellow to purple weathering, crytograined to fine-grained, thin-bedded dolomite. About 60 feet below the top is 15 feet of black, fine-grained, quartz arenaceous, thin-bedded, platy, and recessive dolomite. The uppermost beds are fine to coarse-grained, sugary, vuggy, and concretionary dolomite, which has replaced thin-bedded dolomite. In the southern part of the property, the sugary dolomite consists entirely of ovoid concretionary masses 1 inch to 4 feet in diameter. Weak, concentric banding is present in rare concretions but most are massive or are transected by bedding laminations.

Shale (Es2): Shale containing minor quartzite and conglomerate overlies dolomite (Ed4) with an iron-oxide stained contact. Thickness of this shale unit is 300 feet, thickening to 650 feet due to thrust faulting. The basal 25 feet is black shale, overlain by 15 feet of green, well-sorted, close-packed, chert and quartz pebble conglomerate. In turn, the conglomerate is overlain by 150 feet of intercalated shale, quartzite, and quartz arenite. The lower half of the intercalated beds is maroon and hematitic and the upper beds are green and non-hematitic. Overlying the green beds is black shale with minor quartzite interbeds.

Quartzite (Eq1): Approximately 200 feet of quartzite and minor shale gradationally overlies shale (Unit Es2). This quartzite is brown, fine to medium grained, pyritic, in part glauconitic, cross-bedded, and contains minor shale intercalations. Animal tracks are common on shaly bedding planes. The upper 50 feet is mainly shale.

Dolomite (Ed5): Contact between this dolomite and the underlying shale is concealed. The dolomite is 150 feet thick and is divided into two equal halfs by about 15 feet of recessive dolomite. Brown and yellowish-brown weathering, fine-grained, thin- and thick-bedded dolomite comprises the lower half. The upper half is cryptograined, finely cross-laminated and thin bedded.

Shale (Es3): One hundred feet of recessive, dark grey shales with minor quartzite are found overlying dolomite (Unit Ed5).

Quartzite (Eq2): Gradationally overlying shale (Unit Es3) is 200 feet of brown and white, fine- to coarse- grained, pyritic, cross-bedded quartzite with minor conglomerate and shale beds. The basal quartzite beds are glauconitic.

Interbedded Dolomite and Quartzite (Edq): About 80 feet of recessive, mainly concealed beds overlie quartzite (Unit Eq2). Where exposed, this recessive unit consists of yellowish-green weathering, quartz arenaceous, fine grained dolomite with interbeds of fine-grained, dolomitic quartzite.

Mount Kindle Formation

Contact between the Mount Kindle Formation dolomite and the underlying Backbone Ranges Formation is concealed. On the Sun Group property, several thousand feet of medium bluish-grey weathering, fine-grained, locally oolitic, thick- and thin- bedded dolomite forms jagged, castellated peaks.

Brecciation is minor within the dolomite.

MINERALIZATION

Minor fracture-fill sphalerite, galena, and smithsonite are found on the Sun Group claims. White zinc oxide stain is a byproduct of most occurrences.

GEOCHEMISTRY

1974 Program

Lead-zinc soil geochemical samples were collected on a grid with base line striking north-northwesterly, parallel to the geological strike. About 573 samples were collected at 200 foot intervals from tie lines spaced 400 feet apart. Twenty-nine stream silt geochemical samples were collected from four creeks.

Lead

Anomalous and threshold soil geochemical values are considered to be greater than 63 and between 54 and 63 ppm Pb, respectively (Plate 4). Two anomalies are outlined. Stream silt samples collected indicate a threshold of 54-63 ppm Pb and an anomaly of greater than 63 ppm Pb (Plate 5). A few weakly anomalous values are shown.

Zinc

In the soil survey, the definition of threshold and anomalous is 388-631 and greater than 631 ppm Zn, respectively (Plate 6). Three soil geochemical anomalies are defined on Sun Group claims.

For the stream silt survey, values of 147-208 and those greater than 208 ppm Zn are considered threshold and anomalous, respectively (Plate 7). One weakly anomalous zinc value is present.

CONCLUSIONS

Prospecting and mapping were unsuccessful in locating economic sulphide deposits on the Sun Group. The geochemical survey failed to outline large and/or intense lead-zinc anomalies.

REFERENCES

Cominco Files.
Geological Survey of Canada, Paper 53-7, 1954.
Geological Survey of Canada, Open File 206, June 1974.

Report by: M. G. Lomenda

M. G. Lomenda

Endorsed by: D. W. Heddle

D. W. Heddle, P. Eng.
Chief Geologist

Approved for
Release by: W. T. Irvine

W. T. Irvine
Manager, Western District
Exploration

MGL/dr
Distribution:
Mining Recorder (2)
Western District

IN THE MATTER OF THE

YUKON TERRITORY QUARTZ MINING ACT

AND

IN THE MATTER OF A GEOLOGICAL AND

GEOCHEMICAL SURVEY

CARRIED OUT ON MINERAL CLAIMS SUN 1-58

Located in the Mayo Mining District of the

Yukon Territory

More Particularly, NTS 106 C-14, 15

A F F I D A V I T

I, M. G. LOMENDA OF THE CITY OF WINNIPEG IN THE PROVINCE OF MANITOBA, GEOLOGIST, MAKE OATH AND SAY:

1. THAT I AN EMPLOYED TEMPORARILY AS A GEOLOGIST BY COMINCO LTD. AND, AS SUCH, HAVE 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 MINERAL CLAIMS SUN 1-58;

3. THAT THE SAID EXPENDITURES WERE INCURRED BETWEEN THE 26th DAY OF JULY 1974, AND THE 6th DAY OF SEPTEMBER, 1974, FOR THE PURPOSE OF MINERAL EXPLORATION ON THE ABOVE NOTED CLAIM GROUP.

Sworn Before Me at the City)
of Vancouver in the Province)
of British Columbia this)
17th day of October)
1974.)
)
M. E. Brown)
A NOTARY PUBLIC IN AND FOR THE)
PROVINCE OF BRITISH COLUMBIA)

M. G. Lomenda
M. G. LOMENDA

EXHIBIT "A"

GEOLOGICAL AND GEOCHEMICAL REPORT

ON THE

SUN GROUP OF MINERAL CLAIMS

Situate at

NTS 106C-14,15

STATEMENT OF EXPENDITURES

Salaries:	M.G. Cogill (31 days)	$ 1,455.00
	N. Leggett (31 days)	1,620.00
	S. Leung (9 days)	480.00
	M.G. Lomenda (31 days)	1,901.00
	L. Price (26 days)	1,151.00
Camp Costs:		1,553.00
Analyses		655.00
Transportation		3,269.00
	TOTAL:	$12,084.00

M. G. Lomenda

THIS IS EXHIBIT "A", TO THE STATUTORY DECLARATION OF EXPENDITURES RELATING TO THE GEOLOGICAL AND GEOCHEMICAL SURVEY DECLARED BEFORE ME ON THE 4th DAY OF OCTOBER, 1974.

A NOTARY PUBLIC IN AND FOR THE
PROVINCE OF BRITISH COLUMBIA

COMINCO LTD.

EXPLORATION WESTERN DISTRICT

STATEMENT OF QUALIFICATIONS

I, M. G. Lomenda with business address at 2200-200 Granville Square, Vancouver, British Columbia, V6C 2R2, do hereby certify that I have supervised the field work and have assessed and interpreted the data resulting from this geological and geochemical survey on the Sun mineral claims.

I also certify that:

1. I am a graduate of University of Saskatchewan, M.Sc., Geology,

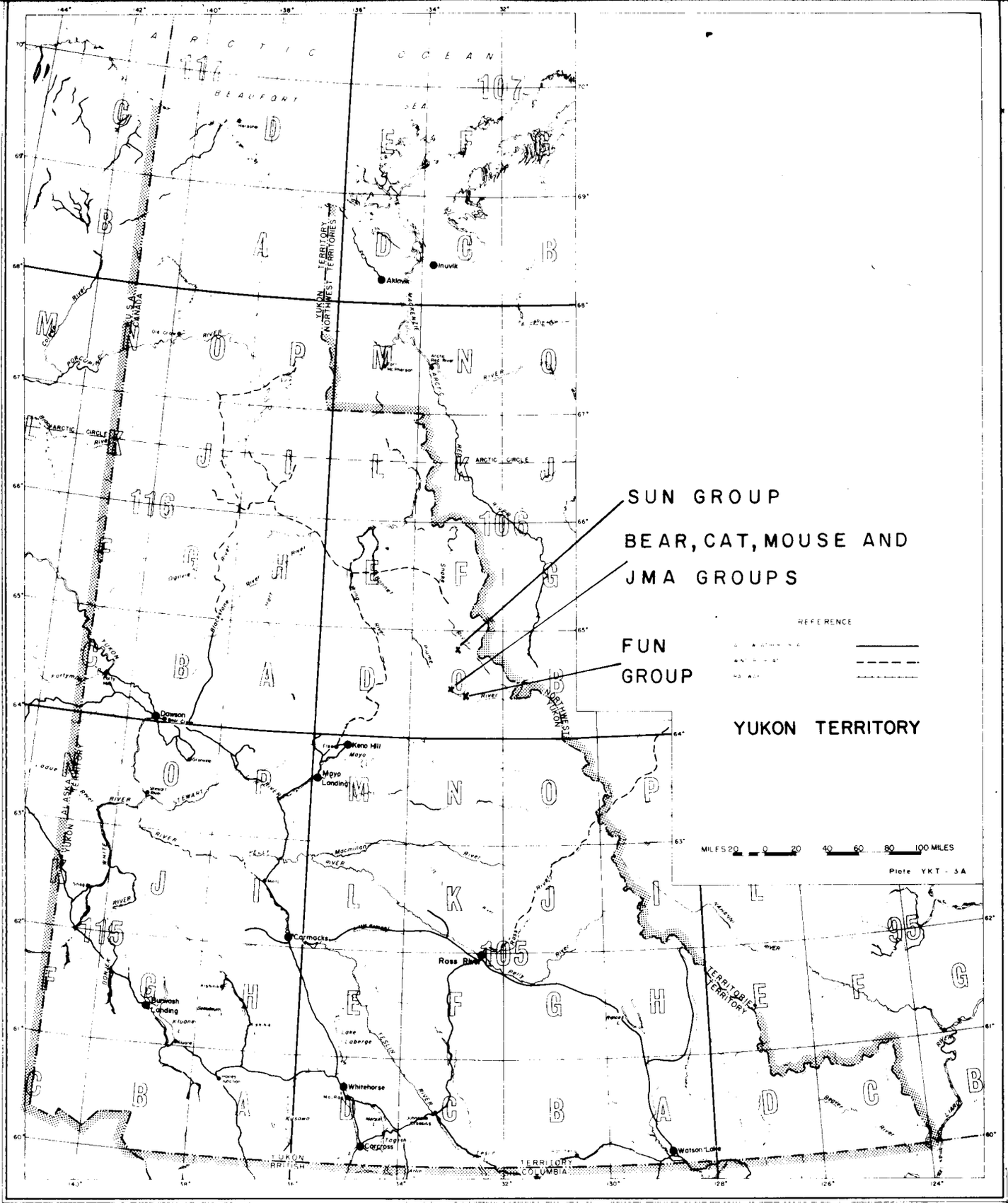
2. I have engaged in mineral exploration since graduation.

Respectfully submitted: M. Lomenda
M. G. Lomenda

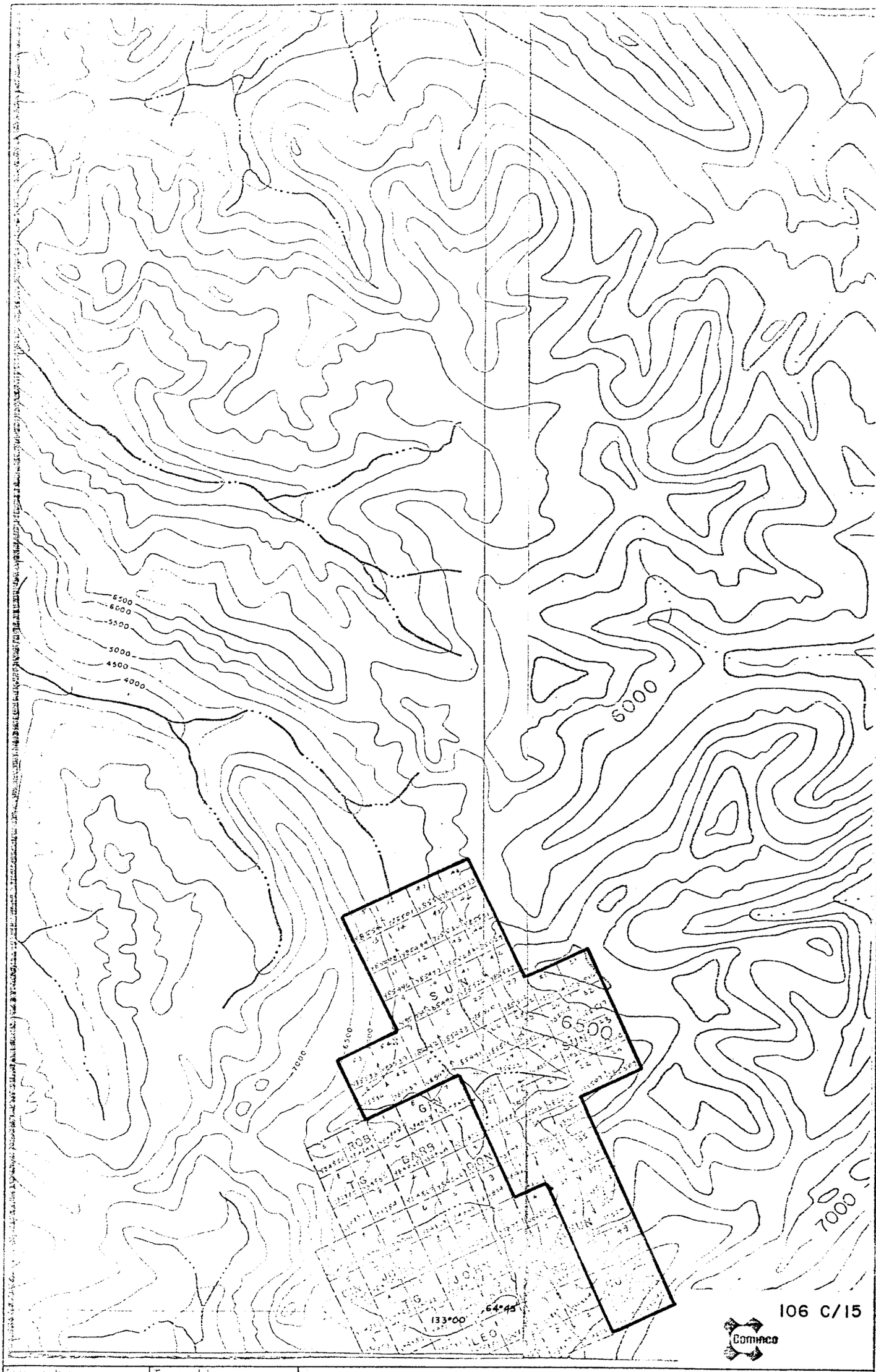
Vancouver, British Columbia

M. G. Lomenda was responsible for supervising the geological and geochemical survey described herein. Mr. Lomenda received his M.Sc. degree in Geology from the University of Saskatchewan in 1973. He has worked for Cominco Ltd. for one summer field season. I consider him a competent geologist.

Signed by: W. T. Irvine
W. T. Irvine
Manager, Exploration
Western District



Drawn by:		Traced by:		LOCATION MAP		
Revised by	Date	Revised by	Date			
				Scale: ABOVE	Date:	Plate: 1



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	Date	Revised by	Date

LOCATION MAP

SUN GROUP

Scale: 1" = 1 MILE	Date: SEPTEMBER, 1974	Plate: SUN-2

210-2610

LEGEND

ORDOVICIAN-SILURIAN

- Mt Kindle Fm
  - Osc — Dolomite, medium grey weathering, fine grained

CAMBRIAN

- Bonaparte Gap Fm
  - Cqd4 — Interbedded dolomite and quartzite, light grey weathering
  - Cq2 — Quartzite, reddish brown weathering, coarse grained, with minor quartz pebble conglomerate
  - Cs3 — Shale, black, with minor quartzite
- Bonaparte Gap Fm / Mt Kindle Fm
  - Cd5 — Dolomite, yellow weathering, fine grained, capped by shale
  - Cq1 — Quartzite, brown, fine grained, capped by shale
  - Cs2 — Shale, black, pencilying green and in turn maroon interbedded shale and quartz arenite
- Bockstone Ranges Fm
  - Cd4 — Dolomite, yellow and purple weathering, thin bedded, minor pure sugary and cherty concretionary
  - Cd3 — Dolomite, yellow and purple weathering, fine grained, in part pisolitic
  - Cs1 — Shale, black, capped by quartzite
  - Cd2 — Dolomite, black, pisolitic
- Bockstone Fm
  - Cd1 — Dolomite, black, thin bedded, brecciated

HADRYNIAN

- Sheepbed Fm
  - HNs — Shale and argillite, black with minor quartzite and limestone
- Upper Kindle Fm
  - Hd4 — Dolomite, yellowish green, cryptograined
  - Hcgl — Conglomerate, brown, quartzite pebble, with quartzite
- Barkly Gp
  - Hs — Shale, black
- Lower Kindle Fm
  - Hd3 — Dolomite, light grey weathering, pisolitic; in part cryptograined, thin bedded
  - Hd2 — Dolomite, yellowish orange weathering, highly stromatolitic, with minor shale
  - Hd1 — Dolomite, medium grey weathering, stromatolitic

SYMBOLS

- Bedding
- Cleavage
- Minor folding showing plunge
- Geological boundary (defined, approximate, assumed)
- Slickensides
- Thrust fault showing dip (defined, approximate, assumed)

CREEK

CORN

SCALE 0 1000 2000 3000 Feet

SUN GROUP

106 C/15

GEOLOGY

Drawn by: M G L | Traced by: | Revised by | Date | Revised by | Date

Scale: 1" = 1000' | Date: Sept., 1974 | Plate: 3

BCIL - 2079 C

FORM 210-0690

100 N
80 N
60 N
40 N
20 N
00 N
20 S
10 W
20 W
30 W
40 W
10 E
20 E
30 E
130° 00'
5000
6000
7000

LEGEND

	Background	< 258 ppm Pb
	Threshold	258 - 429 ppm Pb
	Anomalous	> 429 ppm Pb

1000 0 1000 2000 3000 FEET
SCALE

SUN GROUP

Dominco 106 C/15

Drawn by: | Traced by:

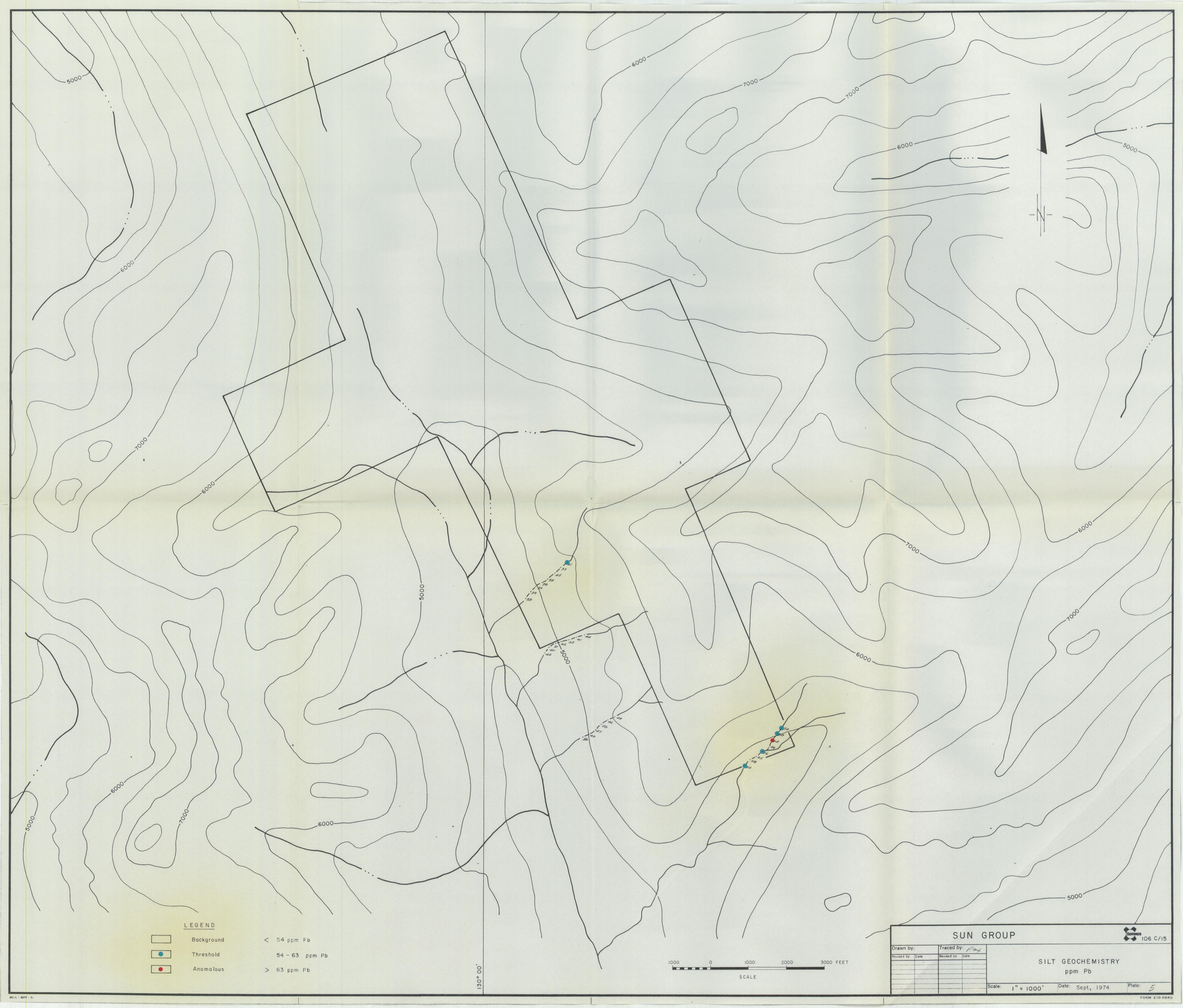
Revised by	Date	Revised by	Date

SOIL GEOCHEMISTRY
ppm Pb

Scale: 1" = 1000' | Date: Sept., 1974 | Plate: 4

FORM 210-0660

BRITISH - 3077 - C.



SUN GROUP

Dominco 106 C/15

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Revised by	Date	Revised by	Date

SILT GEOCHEMISTRY
ppm Pb

Scale: 1" = 1000' Date: Sept., 1974 Plate: 5

SCIL - 3077 - C.

FORM 210-0660

100 N
80 N
60 N
40 N
20 N
00 N
20 S
10 W
20 W
30 W
40 W
00 E
10 E
20 E
30 E
130° 00'
5000
6000
7000

LEGEND

	Background	< 388 ppm Zn
	Threshold	388 - 631 ppm Zn
	Anomalous	> 631 ppm Zn

1000 0 1000 2000 3000 FEET
SCALE

SUN GROUP

Dominion 106 C/15

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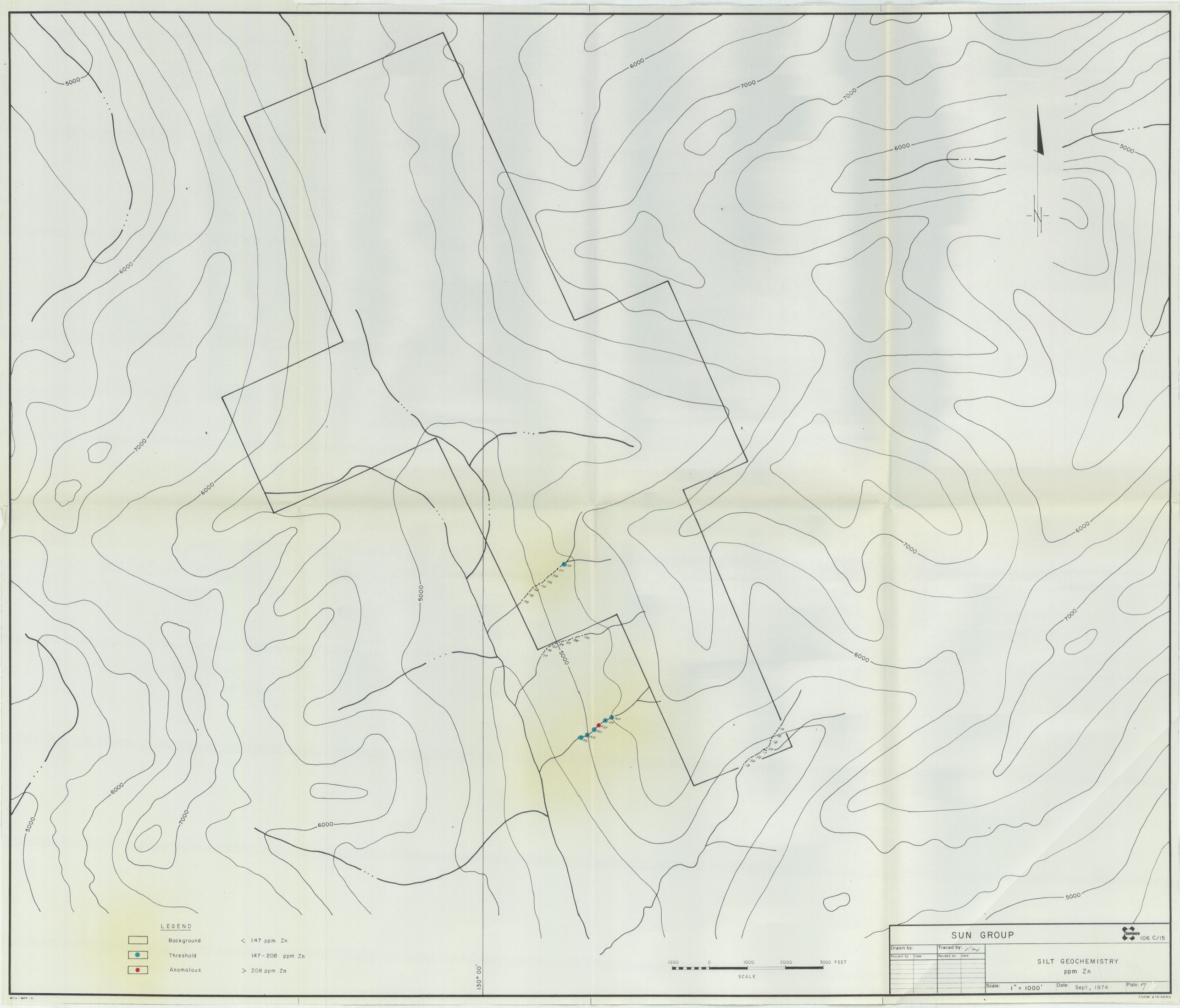
Revised by	Date	Revised by	Date

SOIL GEOCHEMISTRY
ppm Zn

Scale: 1" = 1000' Date: Sept., 1974 Plate: 6

FORM 210-0660

IRCL - 3077 - C.



SUN GROUP

Cominco 106 C/15

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

SILT GEOCHEMISTRY
ppm Zn

Scale: 1" = 1000' Date: Sept., 1974 Plate: 7

FORM 210-0660