4999

GEOLOGICAL - GEOCHEMICAL REPORT

ON THE

93I/14E

B R U C E CLAIM GROUP

LOCATED: Eight miles due west of McLeod Lake
Indian Reserve No. 5, McLeod Lake Area,
B.C.
54° 57' 30" N; 123° 12' 30" W

CARIBOO MINING DIVISION

BY

G. A. Noel, (P. Eng.) Geologist,

EL PASO MINING AND MILLING COMPANY

JUNE 12, 1974

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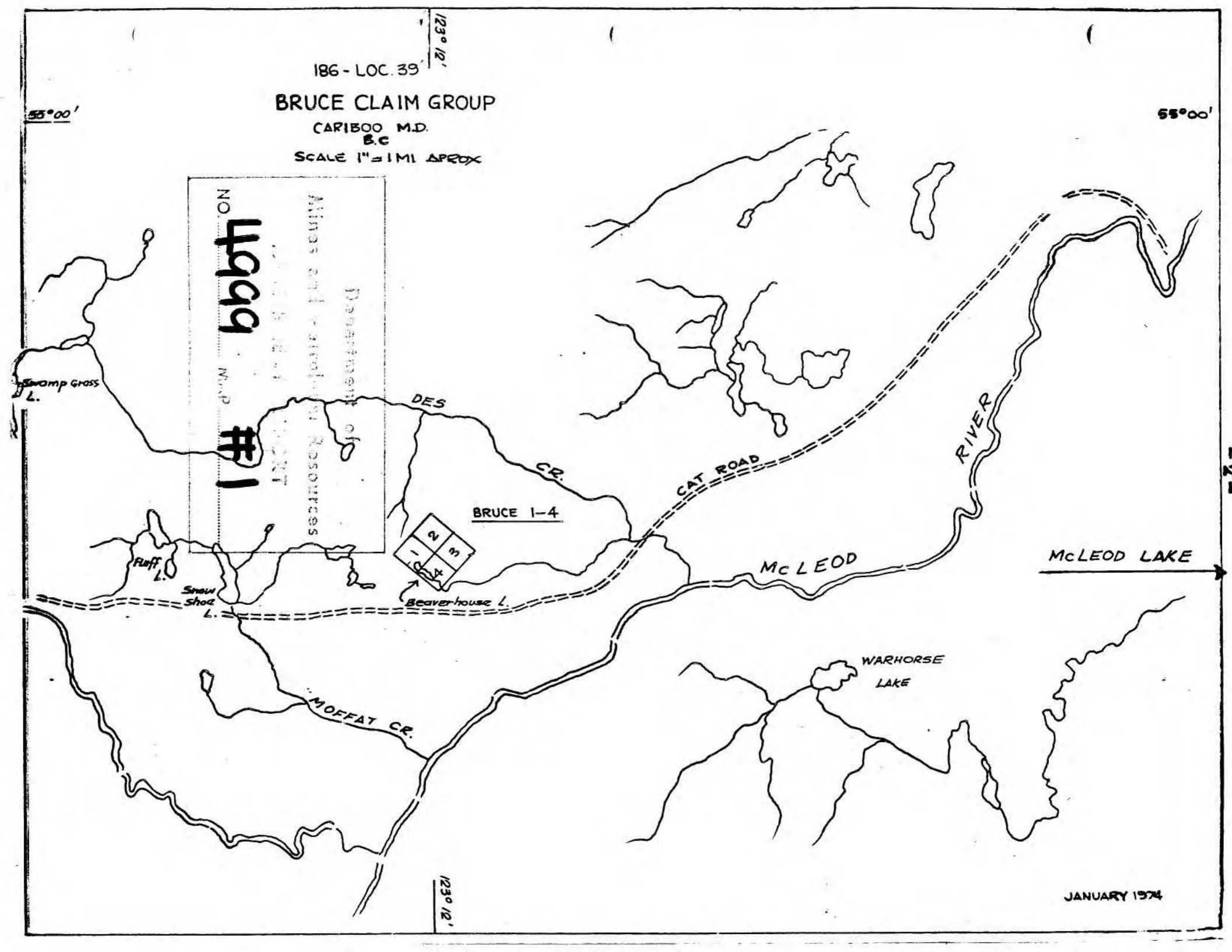
MAPS AND ILLUSTRATIONS

S U M M A R Y

On June 4, 1974 two geologists employed by El Paso Mining and Milling Company conducted a geochemical soil survey with limited geological mapping over part of the Bruce group of four claims. These claims are located eight miles due west of McLeod Lake in the Cariboo Mining Division of B.C.

The claims are underlain by argillaceous rocks of the Paleozoic Slide Mountain Group. At least one gabbroic dyke intrudes the sediments. Fine pyrite occurs in places as fine disseminations and fracture coatings in argillite.

The soil survey which covered Bruce No. 1 claim and part of Bruce No. 4 claim outlined two coincident copper-nickel-zinc soil anomalies. Additional soil sampling for more complete definition of one of these anomalies is recommended.


186 - LOC. 39
BRUCE CLAIM GROUP
CARIBOO M.D.
B.C
SCALE 1" = 1 MI APROX
55°00'
123° 12'
Swamp Grass L.
DES CR.
CAT ROAD
RIVER
BRUCE 1-4
1
2
3
4
Fluff L.
Snow Shoe L.
Beaverhouse L.
McLEOD
McLEOD LAKE
WARHORSE LAKE
MOFFAT CR.
JANUARY 1974

INTRODUCTION

The Bruce No's. 1 - 4 mineral claims were staked for El Paso Mining and Milling Company on May 30, 1973 by Kolbjorn Lovang, while employed as a prospector by this company.

The claims are located eight miles due west of McLeod Lake Indian Reserve No. 5, which is situated on the east shore of McLeod Lake on highway 97, approximately 80 miles north of Prince George. The claims cover gently rolling terrain at approximately 3000 feet elevation. Vegetation consists of spruce and poplar interspersed with rather thick patches of tag alder. Access to the claims is by helicopter from MacKenzie, B.C., a distance of 27 miles. MacKenzie is 122 miles by paved road north of Prince George. It is serviced on a daily schedule by air from Prince George.

On June 4, 1974 two geologists employed by El Paso Mining and Milling Company carried out a program of reconnaissance geology and detailed soil sampling on the Bruce No's. 1 and 4 claims, covering the area which appeared of most interest from prior prospecting. A total of 8200 feet of lines was run and 91 soil samples collected.

F I E L D W O R K

A grid was laid out using the common claim corner of Bruce Nos' 1, 2, 3, and 4 as reference. The grid origin was located 900 feet S45°W from this common corner and marked ON, OE. From here, the baseline was run 1200 feet N45°W and 400 feet S45°E. Crosslines, spaced at 200-foot intervals, were run N45°E for 800 feet from line 4 south to line 8 north, excluding line ON which had previously been run by the prospector. The cross lines from 4 north to 12 north were extended S45°W for 600-800 feet from the baseline.

Silva compass and Topofil chain were used to survey the grid. All lines were well marked with blue flagging and sample stations were marked with pink flagging. Soil sample stations were marked at 100-foot intervals along both cross lines and baseline.

Soil samples were taken by means of a mattock from the B horizon, wherever possible, at depths from 4 - 8 inches. At a few locations, due to swampy conditions or deep organic cover, no samples could be obtained. The sample material was generally a yellowish-brown light clay with numerous small stones or rock fragments. Each sample was placed in a kraft envelope and marked with the sample grid location. Field notes were made describing the character, texture, color and depth of each sample. A total of 91 samples was collected and analysed for total copper, nickel and zinc by Chemex Labs. Ltd., 212 Brooksbank Avenue, North Vancouver, B.C. Assaying was done,using the atomic absorption spectrometer with quantities of each element reported in parts per million. The assay results were plotted on a separate map for each metal at a scale of one inch equals 200 feet.

GEOLOGY

The claims are located in a poorly drained area of low relief and extensive drift cover. Due to the paucity of outcrop very little detailed geology is available for this area.

The general area is underlain by rocks of the Slide Mountain Group of Paleozoic age. The Slide Mountain Group consists of interbedded volcanic and sedimentary rocks including andesite, basalt, limestone,chert and argillite. Regionally these rocks strike north westerly and dip to the southwest. In the area of the claims they are disturbed by folding and faulting, so that bedding attitudes vary from northwesterly to northeasterly in strike.

Although based on very limited rock exposure, the claims are mainly underlain by argillite, cherty argillite and hornfels (argillite float is widespread). The only attitude recorded was $N20^{o}E/75^{o}SE$.

Gabbro outcrops sporadically along the northeast shore of the small lake in what appears to be a narrow dike-like form. This gabbro may be related to the Mount Murray ultrabasic intrusions or may be part of the metamorphic Wolverine complex.

Pyrite, which was the only sulfide mineral seen, occurs as fine disseminations and fracture coatings in argillite. In most places, limonite coats weathered surfaces of the argillite.

GEOCHEMICAL RESULTS

1. Copper

The arithmetic mean of all copper analyses is 45.8 ppm. The values are shown on a frequency histogram (Figure 2) and a cumulative percent frequency plot on log probability paper (Figure 3). On the latter curve, the background value at the 50 percentile is 31 ppm. A significant break in the slope of the cumulative percent frequency curve occurs at 50 ppm copper and this is assumed to be the threshold value. The following ranges of anomalous copper values in the soils have been selected from a consideration of this threshold value and of the frequency histogram.

50 - 75 ppm		Possibly anomalous
75 - 125 ppm		Probably anomalous
> 125 ppm		Definitely anomalous

These values have been contoured on Map No. 93 J 14 - B2 with the"Possibly Anomalous" range colored yellow, "Probably Anamalous" colored orange and "Definitely Anomalous" colored red.

A small sharp copper soil anomaly is defined on two lines (6N and 8N) on Bruce No. 1 claim, about 1000 feet northwest of the small lake. This anomaly is probably related to a small gabbroic lens in the sediments.

A copper anomaly, 800 feet long ($N30^{o}W$) by 200 feet wide is defined by the 75 ppm contour about 600 feet northeast of the lake on lines ON to 8N between stations 3E and 6E. There is no outcrop in this vicinity but the extent of the anomaly suggests stratigraphic, or perhaps dike control.

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BRUCE MINERAL CLAIM GROUP

CARIBOO, M.D. BRITISH COLUMBIA

HISTOGRAM OF COPPER, P.P.M.

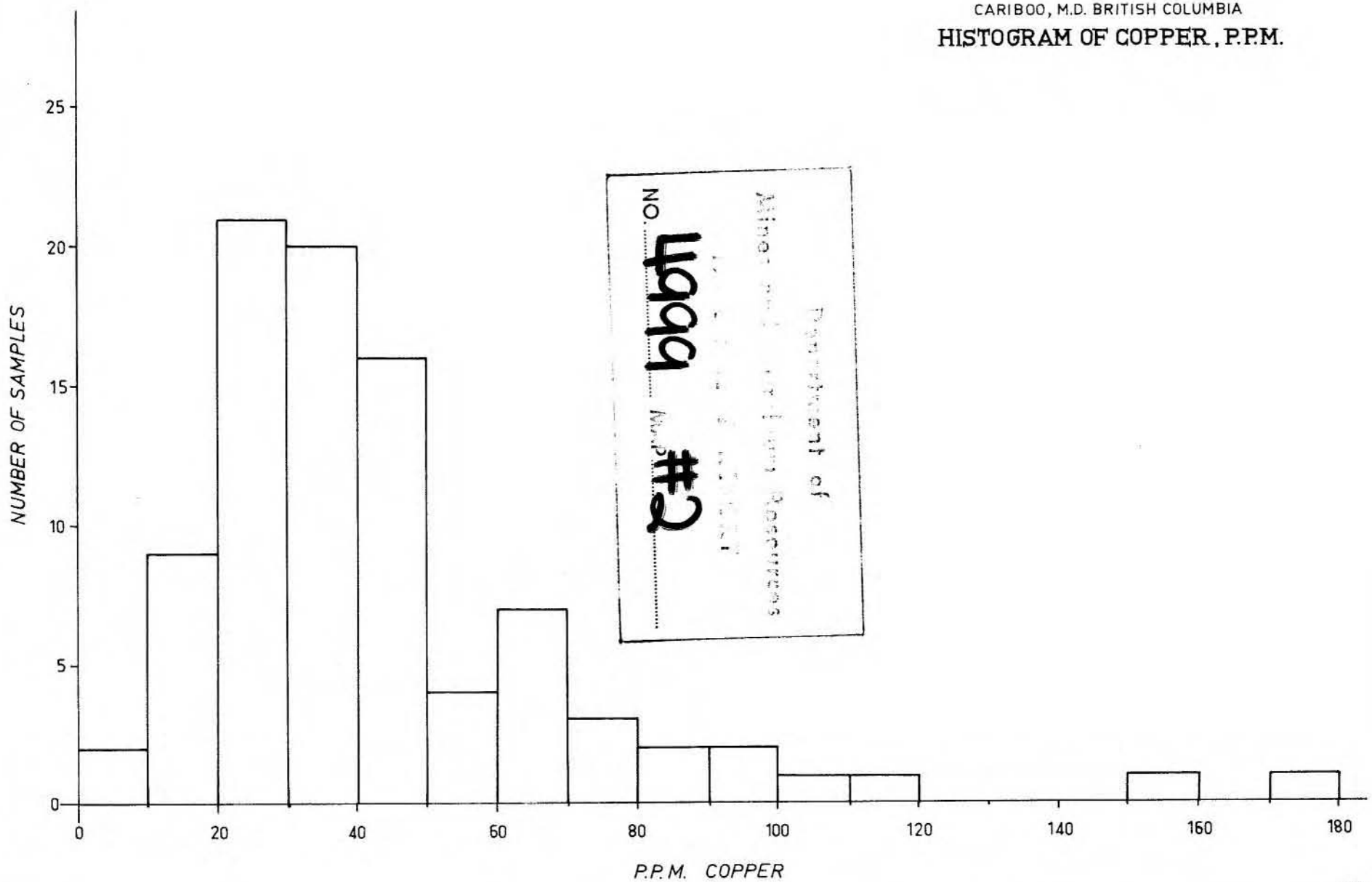
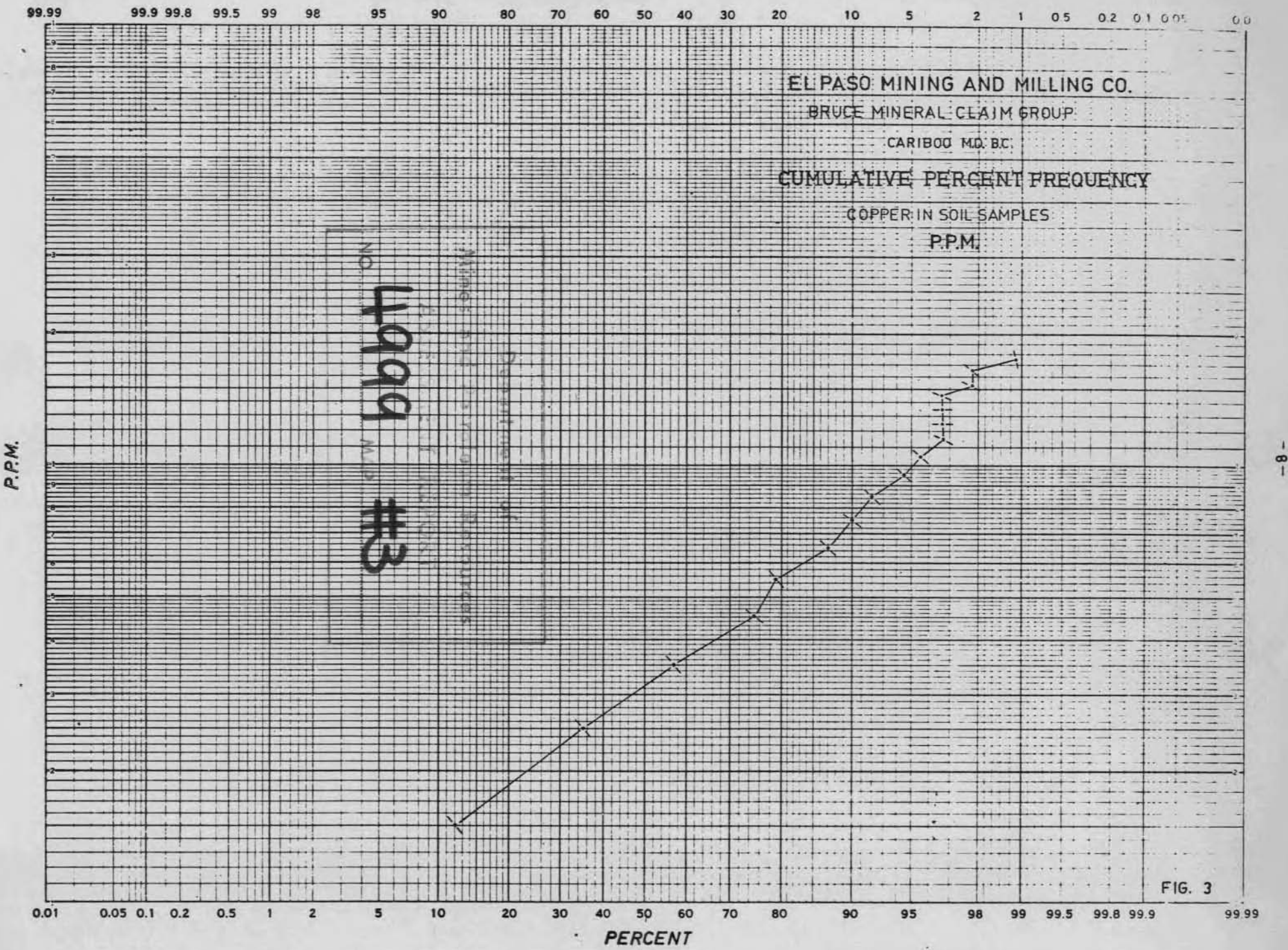


FIG. 2

GRAPHIC CONTROLS CANADA LTD
MADE IN CANADA



2. Nickel

The arithmetic mean of all nickel analyses is 39.1 ppm. The analyses are shown on a frequency histogram (Figure 4) and a cumulative percent frequency plot on log probability paper (Figure 5). On the latter curve, the background value at the 50 percentile is 30 ppm. A significant break in the slope of the curve occurs at 55 ppm, so this is considered to be the threshold value. The following anomalous limits for nickel were selected from a consideration of the threshold value and the frequency histogram.

50 - 75 ppm	-	Possibly anomalous
75 - 125 ppm	-	Probably anomalous
> 125 ppm	-	Definitely anomalous

These values were contoured on Map 93 J 14-B3 with the "Possibly Anomalous" range colored yellow, "Probably Anomalous" colored orange and "Definitely Anomalous" colored red.

A strong nickel anomaly coincident with a previously discussed copper anomaly is outlined on lines 6N and 8N at 4W. As already mentioned, this anomaly is probably related to a small gabbroic lens in the predominantly argillaceous sediments.

About 600 feet northeast of the lake, a diffuse line of weak nickel anomalies trends N60^{o}W across Bruce 1 and 4 claims for over 2000 feet. This linear anomaly may indicate a gabbroic dike or sill in the sediments. It lies along the southwest edge of the larger copper anomaly previously described in the same area.

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BRUCE MINERAL CLAIM GROUP

CARIBOO, M.D. BRITISH COLUMBIA

HISTOGRAM OF NICKEL, P.P.M.

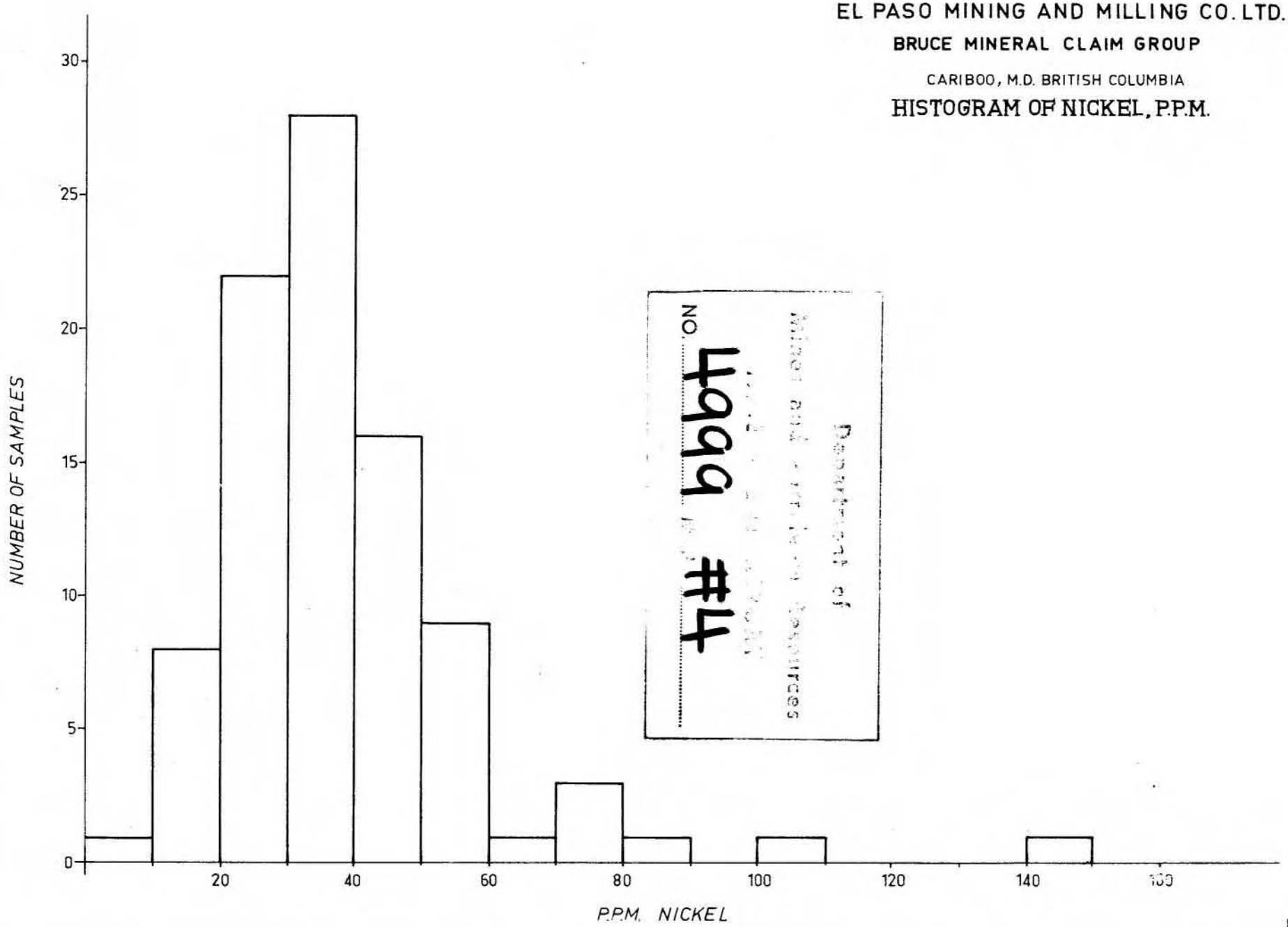

FIG. 4

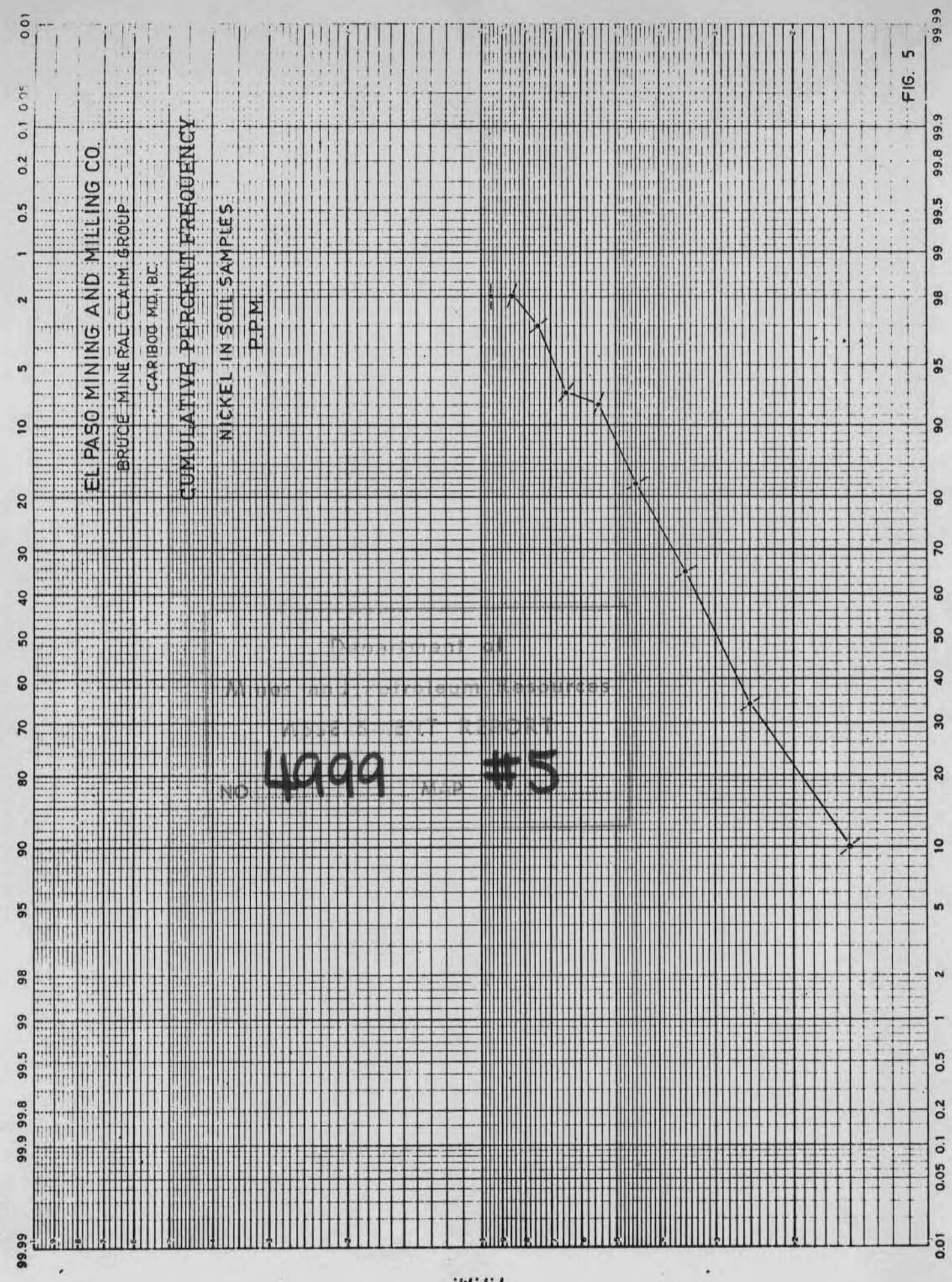

FIG. 5

3. Zinc

The arithmetic mean of all of the zinc analyses is 117.2 ppm. The zinc analyses are shown on a frequency histogram (Figure 6) as well as a cumulative percent frequency plot on log probability paper (Figure 7). On this latter plot, the background value at the 50 percentile is 88 ppm zinc. A break in the slope of this curve occurs at 50 ppm and this may be considered the threshold value. As a result, the anomalous limits for zinc have been selected as follows:

100 - 150 ppm	Possibly Anomalous
150 - 200 ppm	Probably Anomalous
> 200 ppm	Definitely Anomalous

These values have been contoured on Map No. 93 J 14-B4 with the "Possibly Anomalous" range colored yellow, "Probably Anomalous" colored orange and "Definitely Anomalous" colored red.

The small sharp copper-nickel anomaly northwest of the lake, is also strongly anomalous in zinc.

A large multi-lobed zinc anomaly is centered about 800 feet north of the lake and extends for about 1500 feet in a N70^{o}W direction with an average width of about 300 feet. The copper and nickel anomalies in this area, roughly coincide with sections of this zinc anomaly which is outlined by the 100 ppm contour. The anomaly is probably related to weak zinc mineralization in the argillaceous sediments.

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BRUCE MINERAL CLAIM GROUP

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HISTOGRAM OF ZINC, P.P.M.

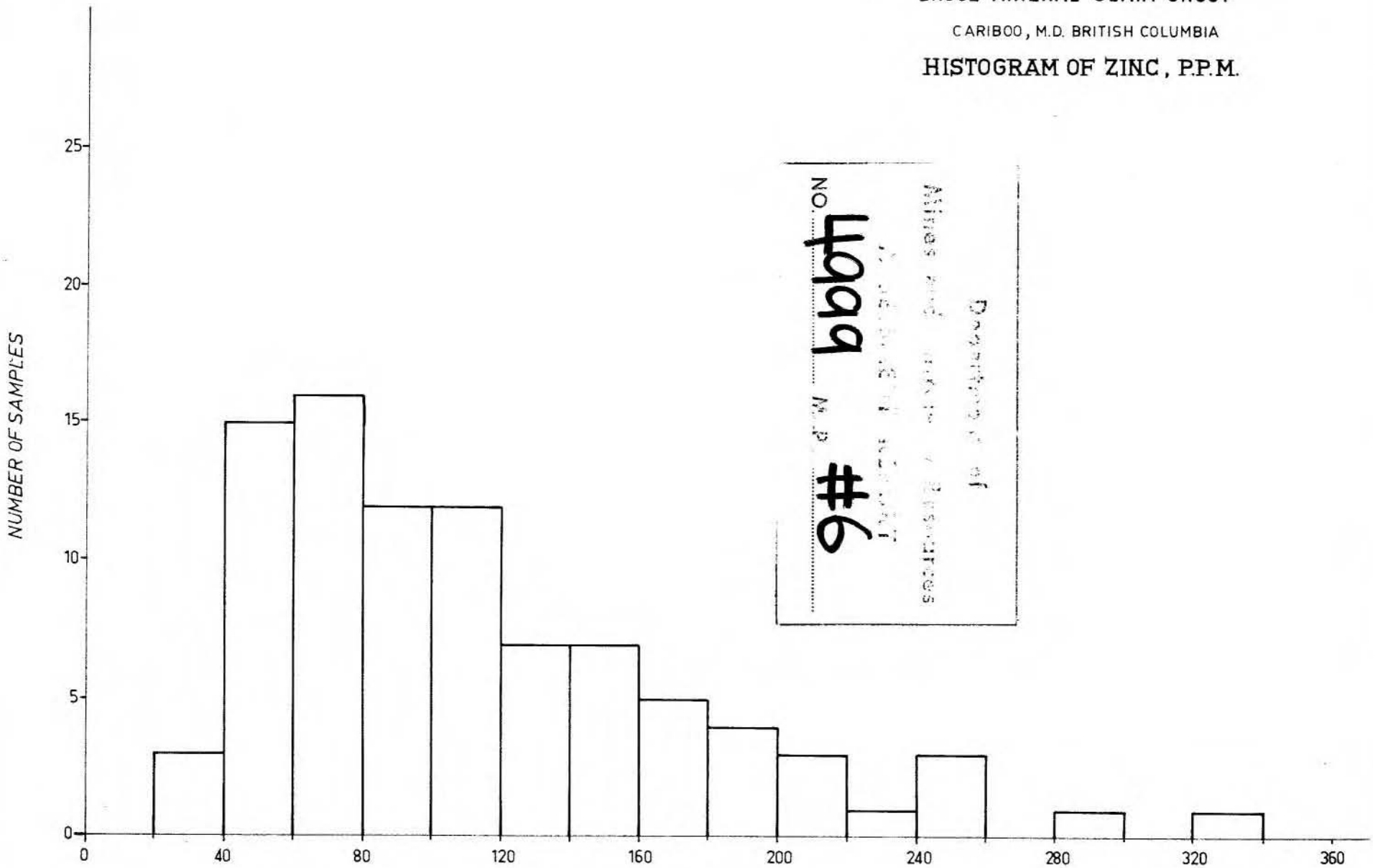
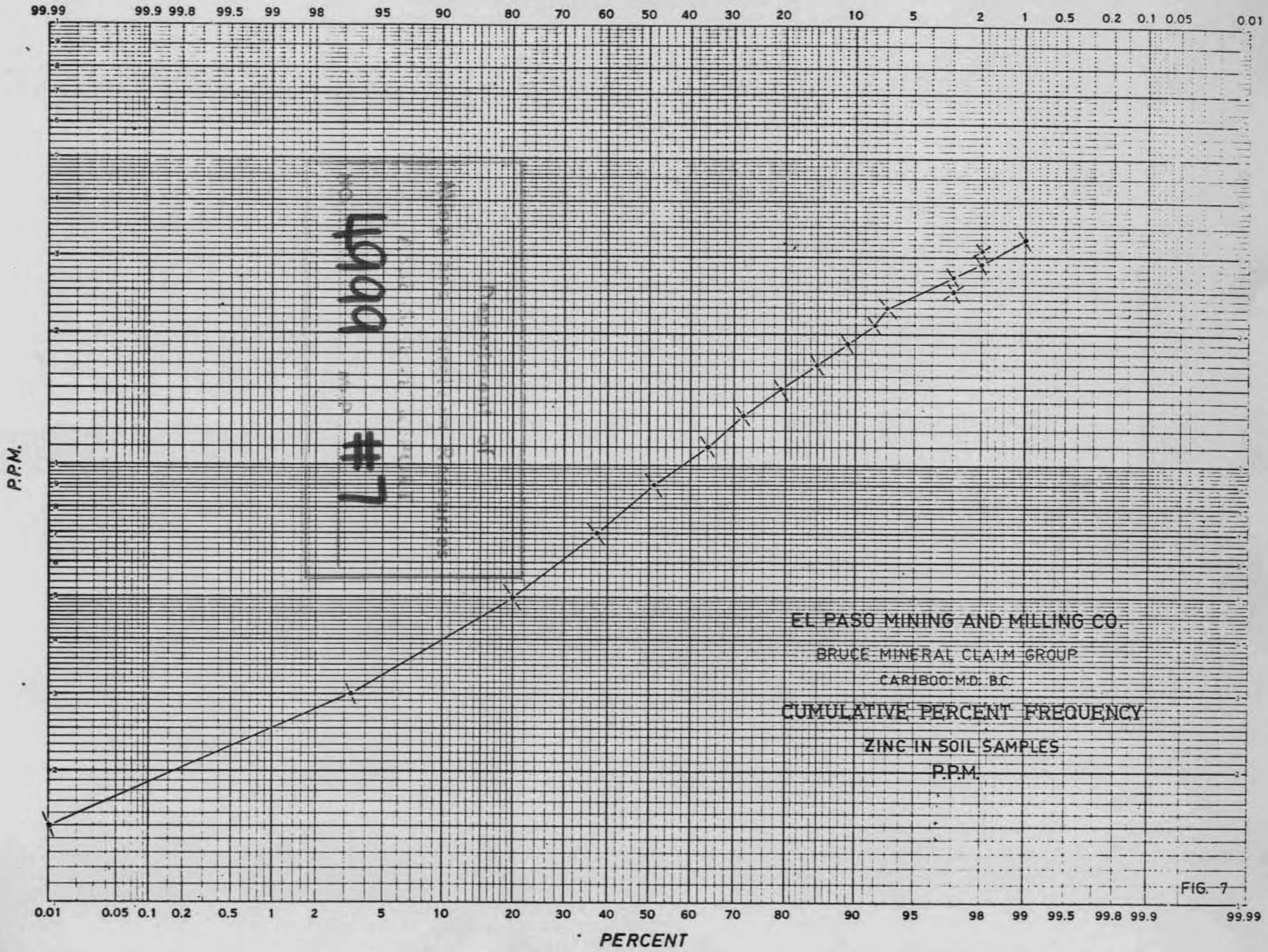


FIG. 6

G-24 LOGARITHMIC PROBABILITY

GRAPHIC CONTROLS CANADA LTD.
MADE IN CANADA



C O N C L U S I O N S

Small but strong and roughly coincident copper, nickel and zinc soil anomalies were defined on the southwest side of Bruce No. 1 claim. These anomalies are believed related to an ultrabasic lens in the largely argillaceous sediments.

A larger zinc-copper soil anomaly was defined on the eastern half of Bruce No. 1 claim and probably reflects weak mineralization in the argillaceous sediments. This anomaly requires further soil sampling to the north and east for more complete definition.

G. A. Noel, P. Eng.
June 12, 1974

REFERENCES

1. Map 979 A - Carp Lake, B.C., Geology by J.E. Armstrong, H. W. Tipper and J. W. Hoadley, Geological Survey of Canada, 1946.

2. Map 11-1961 - (Sheet 930) - Pine Pass, B.C., Geology by J. E. Muller, Geological Survey of Canada, 1961.

3. Map 1204 A - McLeod Lake, B.C, Geology by J. E. Armstrong, H. W. Tipper, J. W. Hoadley and J. E. Muller, Geological Survey of Canada, 1968.

A P P E N D I X A

GEOCHEMICAL ANALYSES

A P P E N D I X B

STATEMENT OF COSTS

STATEMENT OF COSTS

The following wages and costs were directly expended on a geological and geochemical survey on the Bruce Claims on June 4, 1974.

WAGES:

G. A. Noel	1 day @ $68 per day	= $ 68.00
H. M. Jones	1 day @ $56 per day	= 56.00
	TOTAL WAGES	$ 124.00

TRANSPORTATION:

Vancouver - Prince George Return Air Fare @ $84 per person ----------(20%)	$ 34.00
Vehicle Rental----------(20%)	10.00
Helicopter Charter----------(50%)	173.00
	$ 217.00

ACCOMMODATION, MEALS ETC.---------- $ 55.00

ASSAY COSTS:

91 samples, assay for Cu, Ni, Zn @ $2.25 per sample---------	$ 204.75
Map and Report Preparation----------	200.00
TOTAL	$ 800.75

Declared before me at the City of Vancouver, in the Province of British Columbia, this 14 day of June 1974, A.D.

A Commissioner for Affidavits within British Columbia or a Notary Public in and for the Province of British Columbia.

Sub-Mining Recorder

A P P E N D I X C

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

The fieldwork for this report was done under the supervision of G. A. Noel (P. Eng.), geological engineer and Manager of Canadian Exploration for El Paso Mining and Milling Company at Vancouver, B.C.

The following is a statement of the qualifications of G. A. Noel:

1. Graduated from University of British Columbia in 1950 with a Bachelor of Applied Science degree in Geological Engineering.

2. Completed Master of Applied Science degree in 1951 at University of Toronto.

3. Employed as a field geologist in B.C. and Yukon Territory by Kennco Explorations (Canada) Ltd., from 1951 to 1956.

4. Employed as a project geologist, senior geologist, and district geologist in B.C. and Alaska by Utah Construction and Mining Co., from 1956 to 1969.

5. Employed by El Paso Mining and Milling Company at Vancouver, B.C., as Manager of Canadian Exploration since 1969.

LEGEND

A ARGILLITE

B GABBRO, PYROXENITE

ARGILLITE, MASSIVE HORNFELSIC, PYRITE 1-75

ARGILLITE, CHERTY FINE PYRITE

SCATTERED SMALL OUTCROPS OF PYROXENITE - GABBRO

ARGILLITE PYRITE

BRUCE 1
BRUCE 2
BRUCE 3
BRUCE 4

LAKE

12 N
10 N
8 N
6 N
4 N
2 N
0
2 S
4 S

8E
7E
6E
5E
4E
3E
2E
1E
0
1W
2W
3W
4W
5W
6W
7W
8W

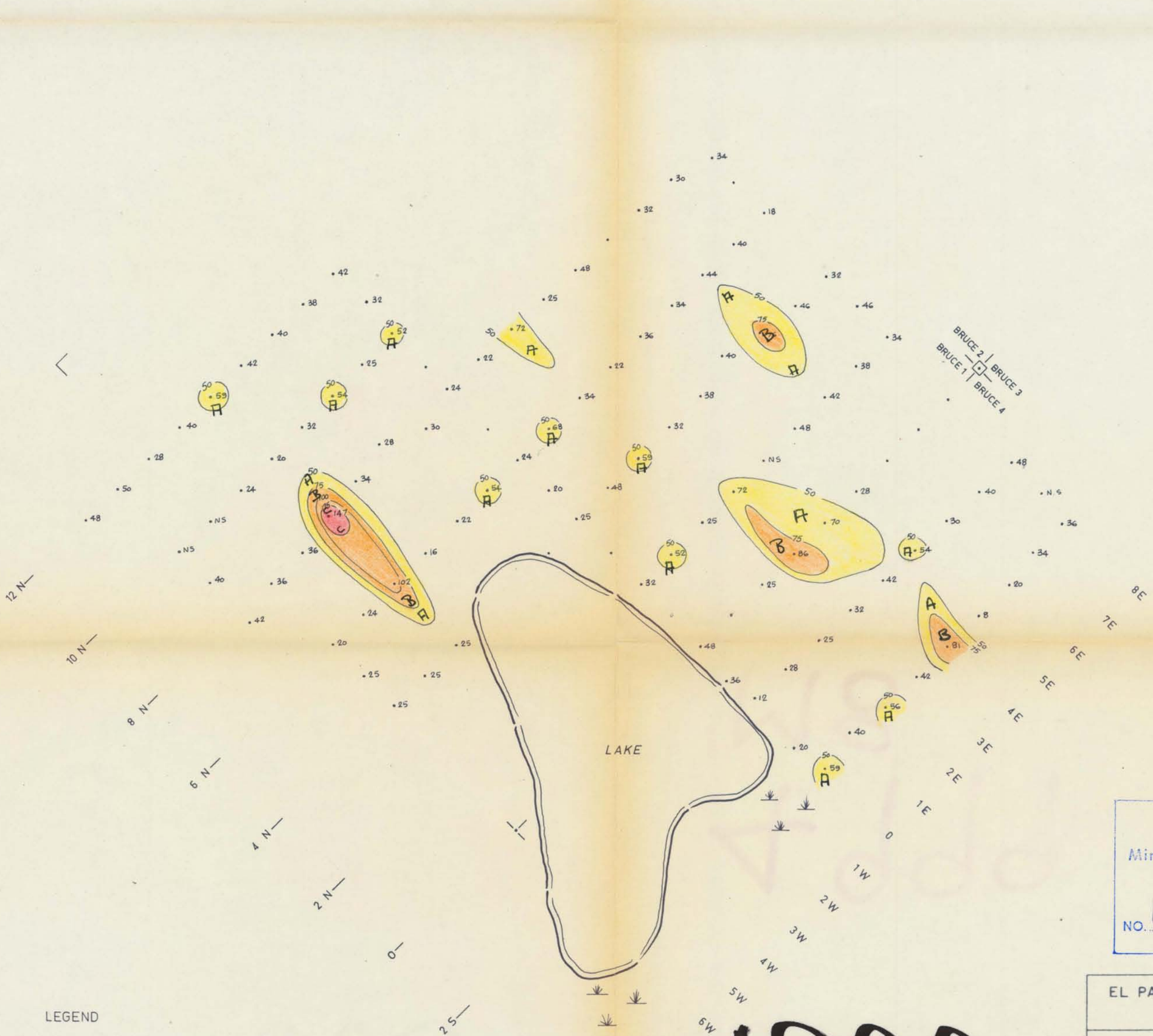
4999
M8

EL PASO MINING AND MILLING COMPANY
DEL NORTE MINING GROUP

G-E-O-L-O-G-Y

BRUCE CLAIMS
McLEOD LAKE AREA
CARIBOO M.D., B.C.

DRAWN BY: P.V.	DATE: JUNE 1974			SCALE: 1" = 200'
TRACED BY:	DATE:			DRAWING No.: 93-J-14-B1
REVISED	DATE	REVISED	DATE	



LEGEND

A	POSSIBLY ANOMALOUS	50 – 75 P.P.M.
B	PROBABLY ANOMALOUS	75 – 125 P.P.M.
C	DEFINITELY ANOMALOUS	> 125 P.P.M.

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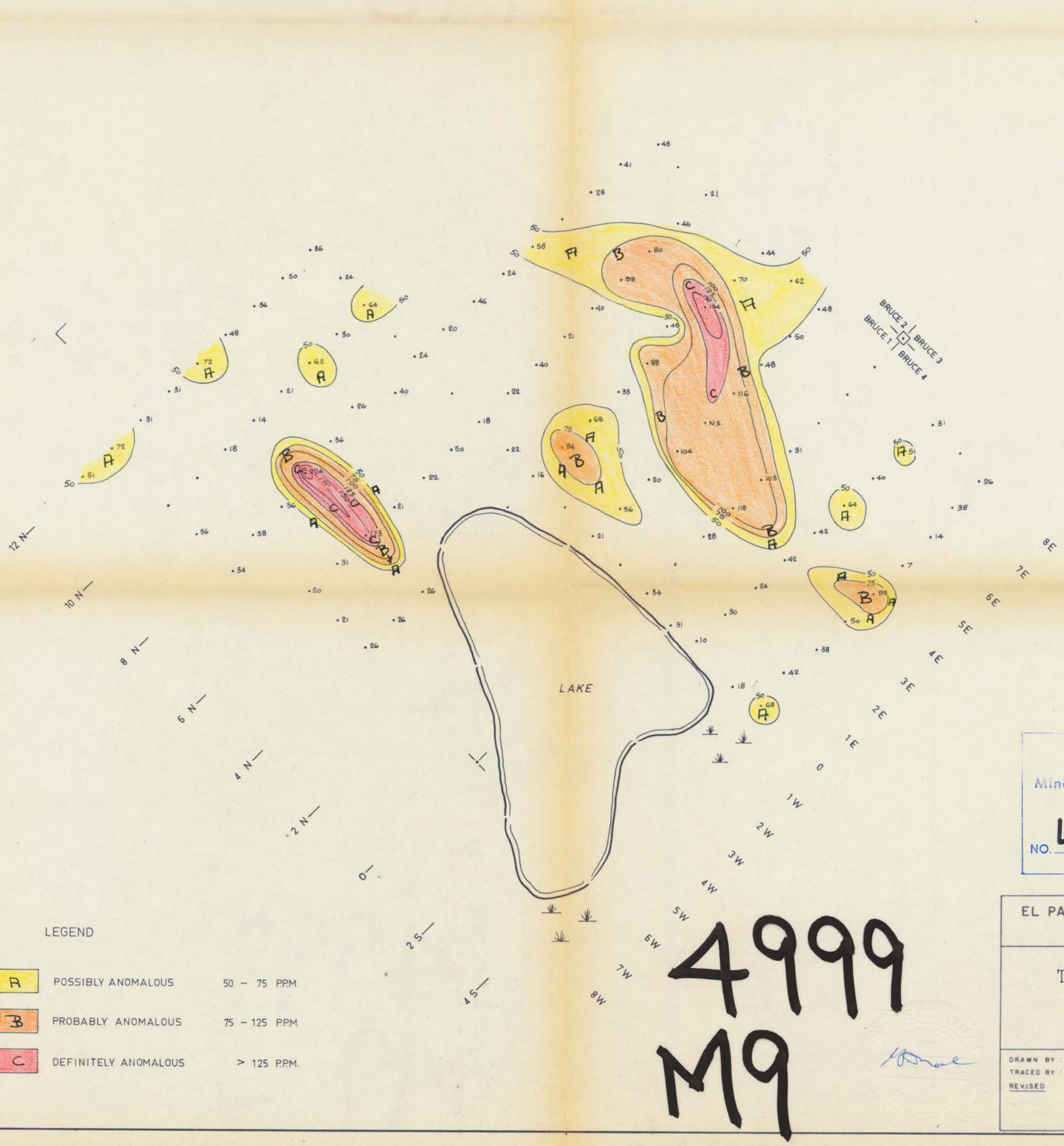
DEL NORTE MINING GROUP

TOTAL NICKEL IN SOILS

BRUCE CLAIMS
McLEOD LAKE AREA
CARIBOO M.D., B.C.

DRAWN BY : P.V.	DATE : JUNE 1974			SCALE : 1" = 200'
TRACED BY :	DATE :			DRAWING No. : 93-J-14-B3
REVISED DATE	REVISED DATE			



LEGEND

A	POSSIBLY ANOMALOUS	50 – 75 P.P.M.
B	PROBABLY ANOMALOUS	75 – 125 P.P.M.
C	DEFINITELY ANOMALOUS	> 125 P.P.M.

4999
M9

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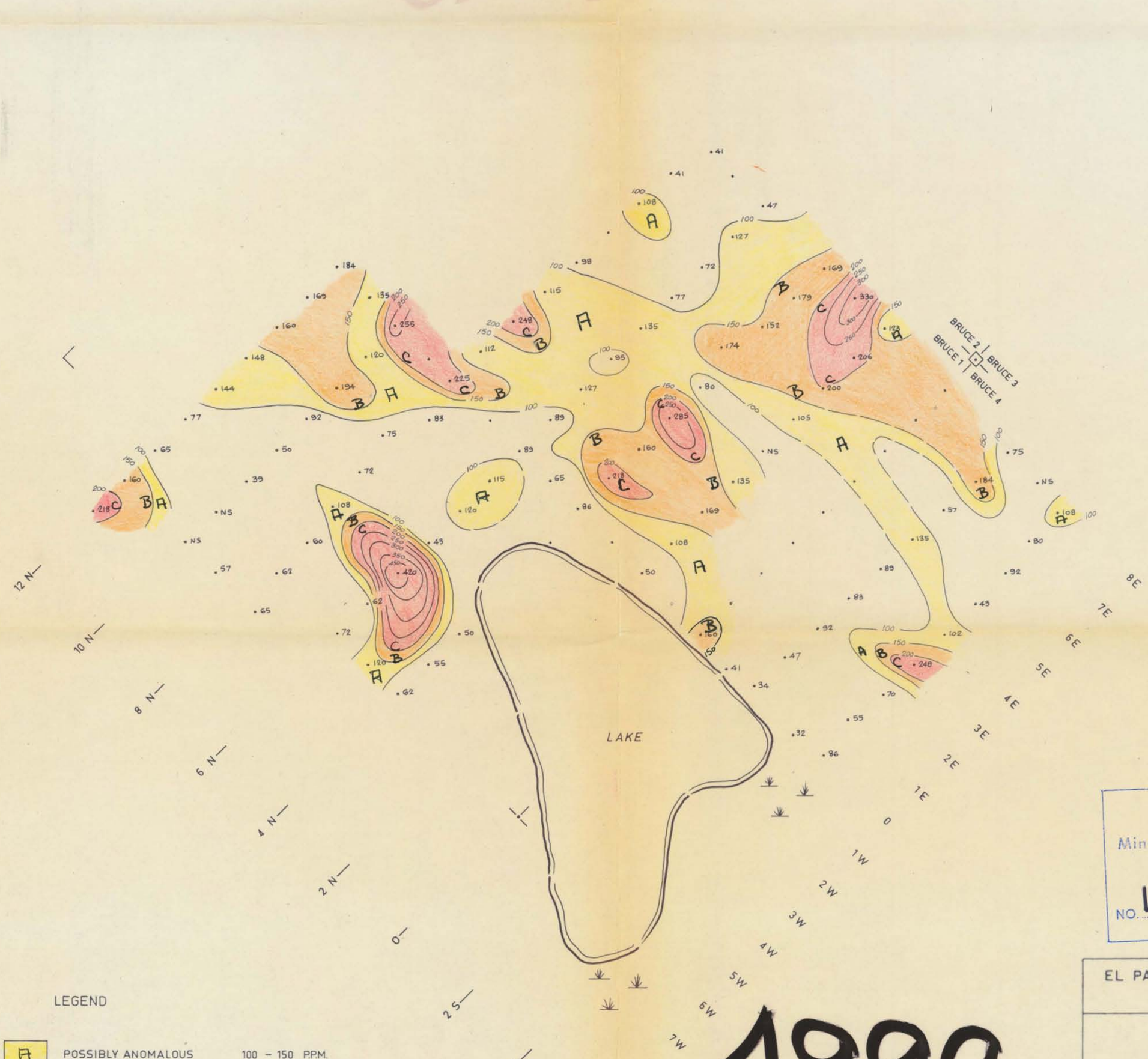
DEL NORTE MINING GROUP

TOTAL COPPER IN SOILS

BRUCE CLAIMS
McLEOD LAKE AREA
CARIBOO M.D., B.C.

DRAWN BY: P.V.	DATE: JUNE 1974			SCALE: 1" = 200'
TRACED BY:	DATE:			DRAWING No: 93-J-14-B2
REVISED	DATE	REVISED	DATE	



LEGEND

A	POSSIBLY ANOMALOUS	100 – 150 P.P.M.
B	PROBABLY ANOMALOUS	150 – 200 P.P.M.
C	DEFINITELY ANOMALOUS	> 200 P.P.M.

EL PASO MINING AND MILLING COMPANY
DEL NORTE MINING GROUP

TOTAL ZINC IN SOILS

BRUCE CLAIMS
McLEOD LAKE AREA
CARIBOO M.D., B.C.

DRAWN BY : P.V.	DATE : JUNE 1974		SCALE :	1" = 200'
TRACED BY :	DATE :			
REVISED DATE	REVISED DATE		DRAWING No :	93-J-14-B4