

4506

93B/9E

GEOCHEMICAL REPORT

on a

SOIL SAMPLE SURVEY

MAD CLAIM GROUP

MCLEESE LAKE AREA, CARIBOO M.D., B.C.

June, July, 1973

MAD Claim Group: 8 miles N25E of
McLeese Lake
: 52° 122° NE
NIS : 93 B/9E

Written for:

Exeter Mines Ltd (NPL)
211-850 W Hastings Street,
Vancouver 1, B.C.

by:

David G. Mark,
Geophysicist
GEOTRONICS SURVEYS LTD
514-602 W Hastings Street,
Vancouver 2, B.C.

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

July 20, 1973

NO. 4506 MAP

Geotronics Surveys Ltd.

Vancouver, Canada

TABLE OF CONTENTS

	Page
SUMMARY	
CONCLUSIONS AND RECOMMENDATIONS	
INTRODUCTION AND GENERAL REMARKS	1
PROPERTY AND OWNERSHIP	2
LOCATION AND ACCESS	3
PHYSIOGRAPHY	3
HISTORY OF PREVIOUS WORK	4
GEOLOGY	4
SURVEY PROCEDURE	5
TESTING PROCEDURE	6
TREATMENT OF DATA	7
DISCUSSION OF RESULTS	10
SELECTED BIBLIOGRAPHY	14
RESUME: U. KELLY	15
GEOPHYSICIST'S CERTIFICATE	16
ENGINEER'S CERTIFICATE	17
GRAPHS AND MAPS - at end of report	Scale
#1 LOCATION MAP - Figure 1	1" - 134 miles
#2 CLAIM MAP - Figure 2	1" = 1500 feet
CUMULATIVE FREQUENCY GRAPH	
#3 SOIL SAMPLING - COPPER, Figure 3	

TABLE OF CONTENTS (continued)

MAP - in pocket

#4 SOIL SAMPLING GEOCHEMISTRY - Copper

DATA AND CONTOURS, SHEET 1

1" = 400 feet

SUMMARY

A soil sampling geochemistry survey in which the samples were tested for copper was completed over the Mad Claim Group in the McLeese Lake area, B.C., during June and July 1973. The purpose of the survey was to delineate any possible zones of copper sulphide mineralization such as occurs on the property of Gibraltar Mines.

The claims are located on the northeastern slope of Granite Mountain about eight miles N25E of McLeese Lake. Access is by a series of 12 miles of gravel and 4-wheel drive type roads. The terrain is fairly gentle, several swamps and one lake occur on the property, and the forest cover is that of small pine trees.

The property is largely underlain by quartz diorite of the Granite Mountain stock which has intruded metasediments and meta-volcanics of the Cache Creek group found to the east. Structure in the form of joints and shear zones strike mainly in a north-westerly direction. A few occurrences of copper sulphides are found throughout the GM claims.

A number of sporadic anomalies are found throughout the property, especially on the GM claims. Most of the anomalous values occur

in dark brown and black organic-rich soils from swampy areas. The swampy areas are felt to act as settling basins for copper ions from any sulphide mineralization nearby or underneath. Three anomalous zones were felt to have a good possibility of indicating sulphides over a wide area and are labelled A, B, and C.

CONCLUSIONS AND RECOMMENDATIONS

It is the writer's opinion that the soil sampling has indicated zones of copper sulphides. It is difficult, however, to ascertain how much and how continuous. That is, a small amount of copper sulphide could cause a very high copper content within the soil of a swamp.

It is known that sulphide mineralization does occur on the property nevertheless, and the soil sampling indicates that copper sulphides probably occur over a much larger area. As noted above, the occurrences may be sporadic. However, considering the above facts, the favourable geology, and the proximity of the Gibraltar orebody, it is felt that anomalous zones A, B and C should be further explored.

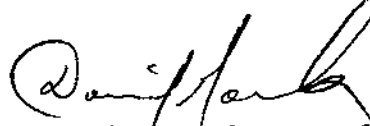
This would best be done by surveying with the induced polarization method. The lines recommended to be surveyed are:

GM Grid South part of Lines 12E to 36E
 South part of Lines 60E to 72E
 North part of Lines 52E to 60E

Enough of Line 60E should be done to cover Zone C. This constitutes about 6.2 line miles. The field results may indicate that more lines need to be surveyed. Readings should be taken at 200 foot intervals and the electrode spacing should be chosen so that a depth penetration of at least 400 feet be reached.

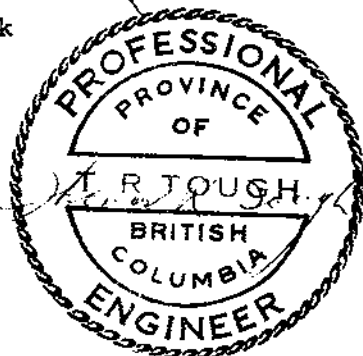
One disadvantage of the induced polarization method in this case is that much pyrite occurs in the Granite Mountain stock. Any anomalies produced, therefore, may not be caused by copper sulphides, but rather pyrite. However, pyritization occurs peripheral to the Gibraltar orebody and therefore the induced polarization survey results correlated with the soil sampling results may give good target areas for further exploration.

Respectfully submitted
GEOTRONICS SURVEYS LTD



David G. Mark
Geophysicist

July 20, 1973



GEOCHEMICAL REPORT
on a
SOIL SAMPLING SURVEY
FOR COPPER
MAD CLAIM GROUP
McLEESE LAKE AREA, CARIBOO M.D., B.C.

INTRODUCTION AND GENERAL REMARKS

This report discusses the survey procedure, compilation of results, and their interpretation, of a soil sample survey carried out over the Mad Claim Group during June and July of 1973.

The field work was carried out under the supervision of U. Kelly. The number of line miles completed was 20 and the number of soil samples picked up and analyzed was 920.

The object of the survey was to outline any probable areas of copper sulphide mineralization. Much copper mineralization is found throughout the area, most notably the orebody of Gibraltar Mines.

PROPERTY AND OWNERSHIP

The Mad group of claims consists of 18 full-sized claims and 6 fraction claims as shown in Figure 2. All are fully owned by Exeter Mines Ltd. of Vancouver. Exeter Mines Ltd. has an option to acquire Strike 1 mineral claim which is also shown.

The claims are as follows:

MAD GROUP

<u>Name</u>	<u>Record Number</u>	<u>Expiry Date</u>
GM 21-28	50695-702	April 28, 1974
GM 41-46	50703-8	April 28, 1974
BM 1 - 4	50970-73	May 7, 1974

ADDITIONAL CLAIMS

Strike	63324	July 8, 1974
Sandie 1 fr. 2 fr.	67128. 67129	July 14, 1973
Sandie 3 & 4	67130 & 67131	July 14, 1973
Sandie 5 fr. 6 fr.	67132. 67133	July 14, 1973

LOCATION AND ACCESS

The property is located on the northeastern slope of Granite Mountain about eight miles N25E of McLeese Lake in a straight line. McLeese Lake is 21 miles north of the city of Williams Lake.

The geographical coordinates are $52^{\circ} 32'N$ and $122^{\circ} 13'W$.

Access is by a series of gravel and 4-wheel drive-type roads for a distance of about 12 miles from McLeese Lake which is 28 miles from Williams Lake by Highway 97.

PHYSIOGRAPHY

The property is found in the physiographic division known as the Frazer Plateau which is part of the Interior Plateau. The plateau is a flat and gently rolling country having large areas of undissected upland lying between 4,000 and 5,000 feet. It has been covered by Pleistocene ice which has subsequently left glacial drift over most of the area with little bedrock exposed.

The property itself lies between elevations 3,500 and 4,000 feet giving a small relief of 500 feet. The terrain in general is fairly gentle, the fact which is attested to by the occurrence of one large and several small swamps. Within the large swamp is a

lake about 1,500 by 500 feet and is the main occurrence of water on the claims. Small creeks drain some of the swamps.

Much of the forest cover on the property is second growth in the form of pine trees varying in diameter from 1 inch to 4 inches with the odd tree being over 12 inches.

The temperatures in the area vary from an extreme low of about -30°F in winter to an extreme high of about 95°F in summer though the usual winter temperature range will be 0° to 40°F and the summer range, 60° to 80°F . Rainfall is moderate and snowfall is usually about three feet.

HISTORY OF PREVIOUS WORK

During the exploration season of 1969 and 1970, prospecting, reconnaissance soil sampling, trenching and road work was done. The samples were tested for copper.

GEOLOGY

The general area is largely underlain by diorite and quartz diorite of Mesozoic age. These have intruded into metasediments and metavolcanics of the Cache Creek group of which outcrops are seen to the east. Its age is Permian and (?) earlier.

The property itself is underlain by quartz diorite of the Granite Mountain intrusive. It is coarse-grained, equigranular and contains chloritized biotite, kaolinized sodic feldspar and sausseritized calcic plagioclase. Accessory minerals are magnetite and sparse pyrite with the occasional chalcopyrite crystal. The quartz diorite is cut by stringers, veinlets and lenses of quartz-calcite.

Two sets of joints occur, one striking northerly and dipping 50° to 80° E and the other striking northeasterly and dipping 65° to 85° NW. Shearing strikes east-west and dips 45° to the north.

Mineralization in the area is in the form of pyrite, chalcopyrite, malachite, and molybdenite within shear zones and quartz veins that for the most part strike northwesterly. Copper mineralization occurs on the Mad group with the approximate locations being shown on Sheet 1.

SURVEY PROCEDURE

A grid of survey lines had been cut out, chained, and picketed previous to the soil sampling. Two baselines, one on the GM claims and one on the BM claims, run in a southeast direction and the

survey lines, perpendicular to the baselines, run in a southwest-northeast direction. The pickets were placed every 100 feet on survey lines 400 feet apart and on the baselines.

The soil samples were picked up at the picket stations by an auger at approximately a one-foot depth and placed in brown wet-strength paper bags with grid co-ordinates marked thereon. The soil samples largely varied in colour from grey to brown to red and the texture was usually quite coarse and sometimes gravelly. The soil type is undoubtedly glacial till. In marshy areas, only the A₀ layer of soil was available which was black and organic.

TESTING PROCEDURE

All samples were tested by General Testing Laboratories of Vancouver, B.C. The sample is first thoroughly dried and then sifted through an -80 mesh screen. A measured amount of the sifted material is then put into a test tube with subsequent measured additions of a solution of perchloric and nitric acid. This mixture is next heated for a certain length of time. The parts per million (ppm) copper is then measured by atomic absorption.

TREATMENT OF DATA

The values in ppm copper were first grouped into a logarithmic interval of 0.15. The cumulative frequency for each interval was then calculated and then plotted against the correlating interval to obtain the logarithmic cumulative frequency graph as shown in Figure 3.

The coefficient of deviation, indicative of the range or spread of values was calculated to be 0.28, an average figure. Therefore, the spread of values is moderate.

The graph shows the mean background value to be about 35 ppm taken at the 50% level. The sub-anomalous threshold value (a term used by the writer to denote the minimum value that is not considered anomalous but still important as an indicator of mineralization) is taken at one standard deviation from the mean background value which is at the 16% level and is in this case 65 ppm. The anomalous threshold value is two standard deviations away at the 2 1/2% level and is on this property 125 ppm.

The graph shows a break at the 20% level which therefore indicates that there is an excess of high copper values on the Mad Claim Group. This is usually the case where copper sulphide mineralization occurs.

If one compares the results of this cumulative frequency curve with that of the one done for the reconnaissance soil sampling results of 1970, one can see the parameters are different. The 1970 values for background, sub-anomalous threshold, and anomalous threshold were felt to be 30, 110, 420 ppm respectively compared to 35, 65, and 125 ppm. The reason for the disparity is that there were many more samples taken from this survey than from the 1970 one and, therefore, give a greater statistical accuracy. Also, the sampling procedures and testing procedures were each done by different people with different methods and consequently this will also affect the results. However, if the upper segment of the 1970 cumulative frequency curve was straight-lined below the 50% level and rotated slightly counter-clockwise (which one can do because of the statistical errors within the graph), one could obtain the same parameters as those from this year's graph. It therefore appears that the 1970 parameters were taken off of the wrong segment which is largely caused by the statistical error within the graph, as mentioned above.

The results were then placed on Sheet 1 and contoured at 70 ppm, which is the sub-anomalous contour, by a dashed line. The anomalous results were contoured by a solid line at 125 ppm, 250 ppm, 500 ppm, 1,500 ppm, and 2,000 ppm.

The 1970 soil sample results were also placed on the map,
though the sample locations are only approximate.

DISCUSSION OF RESULTS

It can be seen by examining Sheet 1 that the claims area contains many sporadic highs. This is undoubtedly partly caused by the fact that only poor soil samples would be obtained which were fairly coarse with an overabundance of small rocks. Also, from field observations the overburden was shallow in many places. The shallower it is over sulphide-mineralized zones, the more sporadic will be the anomalies.

The main reason is, however, due to the fact that most of the high values are from soil samples of a dark brown or black colour and from swampy areas. These areas tend to act as settling basins for metal ions and therefore, over thousands of years, the metal content of the soil increases. If there is metal sulphide mineralization nearby, then the metal content of the swampy area can increase from non-anomalous to anomalous values.

This appears to be the case on this property and is especially true of the excessively high copper parts per million values. That is, the number and size of the anomalous values in copper do not indicate the amount and size of copper mineralization. All it does indicate is that copper sulphide mineralization very likely occurs. It should also be considered that the mineralization in this area occurs in low areas, i.e. where swamps usually are found.

Anomalous copper values are found throughout the GM claims and some on the BM claims. There are three zones, nevertheless, of more concentrated values that are worthy of further attention. It is felt by the writer that these represent sporadic occurrences of copper sulphides almost over the whole anomalous area.

Zone A is at least 2,400 feet long by up to 1,000 feet wide and is open on both the north and south ends. The strike is difficult to ascertain but appears to be about N15W. Copper mineralization has been found on the north end of the anomaly.

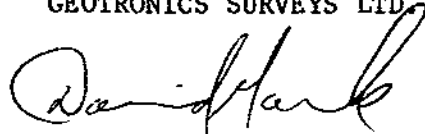
Zone B is 3,800 feet long by up to 1,000 feet wide. Its strike appears to be about N15E. Here copper mineralization was found on the west edge and the south end below the claim group.

Zones A and B are joined by a series of sporadic anomalies that strike in an east-west direction.

Zone C is not nearly as large as the other two zones but is interesting since it occurs on the edge of the swamp and lake. It therefore indicates the possibility of copper mineralization beneath the swamp and lake area. Except for those on line 16E, few samples could be obtained in this area.

There are about ten small anomalies throughout the rest of the claims area, especially within the northwestern corner of the GM claims. One of these just above anomalous Zone A occurs around known copper mineralization.

Respectfully submitted
GEOTRONICS SURVEYS LTD.



David G. Mark
Geophysicist

July 20, 1973



SELECTED BIBLIOGRAPHY

- Eastwood, G.E.P., Geology of the Granite Mountain Stock,
Geol. Expl. and Mining in B.C. - 1969, B.C. Dept
of Mines and Petr. Res. 1970.
- Tough, T.R., Geological Report of the McLeese Lake Property,
Cariboo Mining Division, B.C. of Exeter Mines Ltd (NPL)
T. R. Tough & Associates Ltd., April, 1972.
- Sutherland Brown, A. Geology of the Granite Mountain, Cuisson
Lake Area, Lode Metals in British Columbia - 1966. B.C.
Dept. of Mines and Petr. Res. 1967.
- Tipper, H.W. Geology, Quesnel, Cariboo District, British Columbia.
Geol. Surv. of Can. Map 12-1959, Sheet 93B, 1959.

RESUME OF TECHNICAL AND FIELD EXPERIENCE
OF
U. KELLY

EDUCATION

- 1969 - Graduate of Centennial Senior Secondary School.
- 1970 - One Year University Training in General Science Programme.
- 1971 - One Half Year University Training in General Science Programme.

EXPERIENCE

- 1. Crew Chief for Trans-Arctic Explorations Ltd./
Geotronics Survey Ltd.
- 2. 2 Years of Applied Field Experience in:
 - Claim Staking
 - Line Cutting
 - Geochemical Survey
 - Chain and Compass Surveying
 - Operating Geophysical Instrument
- 3. Geophysical Operator on Various Geophysical
Instrumentation methods:
 - Ground Magnetometer
 - VLF Electromagnetic
 - Aspects of Induced Polarization
 - Self Potential; Resistivity
- 4. The above mentioned experience applied extensively
in all regions of British Columbia.

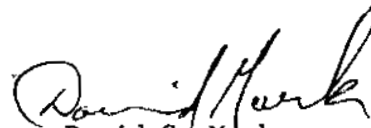
GEOPHYSICIST'S CERTIFICATE

I, DAVID G. MARK, of the City of Vancouver,
in the Province of British Columbia, do hereby certify:

That I am a Consulting Geophysicist of
GEOTRONICS SURVEYS LTD., with offices
at 514-602 W Hastings Street, Vancouver 2,
B.C.

I further certify that:

1. I am a graduate of the University of British Columbia (1968) and hold a B.Sc. degree in Geophysics.
2. I have been practising in my profession for the past four years and have been active in the mining industry for the past seven years.
3. I am an associate member of the Society of Exploration Geophysicists and a member of the European Association of Exploration Geophysicists.
4. This report is compiled from data obtained from a soil sampling geochemistry survey carried out by U. Kelly in June and July, on the Mad Claim Group, and pertinent data from published maps and reports as listed under Selected Bibliography.
5. I have no direct or indirect interest in the properties or securities of Exeter Mines Ltd (NPL) Vancouver, B.C. nor do I expect to receive any interest therein.


David G. Mark
Geophysicist

July 20, 1973

ENGINEER'S CERTIFICATE

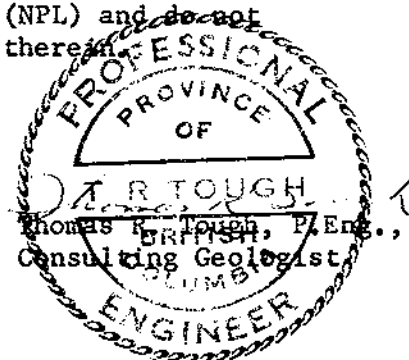
I, Thomas R. Tough, of the City of Vancouver in the Province of British Columbia, do hereby certify:

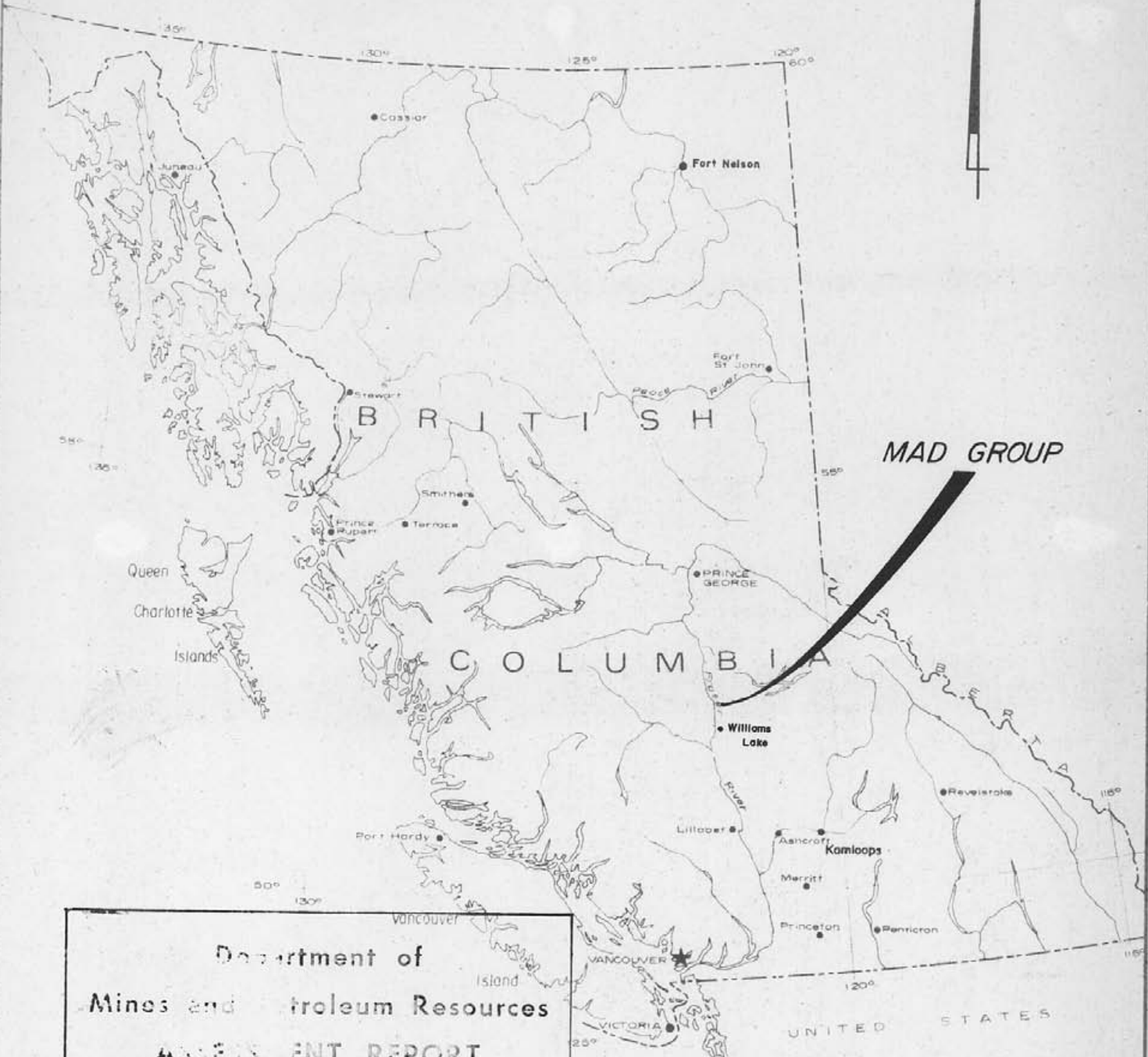
That I am a Consulting Geologist and an associate with T.R. Tough & Associates Ltd., with offices at 519-602 W Hastings Street, Vancouver 2, B.C.

I further certify that:

1. I am a graduate of the University of British Columbia(1965) and hold a B.Sc. degree in Geology.
2. I have been practising in my profession for the past seven years and have been active in the mining industry for the past fourteen years.
3. I am registered with the Association of Professional Engineers of British Columbia.
4. I have studied the accompanying report dated July 1973 on a soil sampling geochemistry survey submitted to Geotronics Surveys Ltd., written by David G. Mark, Geophysicist, and concur with findings therein.
5. I have no direct or indirect interest whatsoever in the property described herein, nor in the securities of Exeter Mines Ltd (NPL) and do not expect to receive any interest therein.

July 20, 1973





MAD GROUP

Department of
 Mines and Petroleum Resources
 ASSESSMENT REPORT
 NO. **4506** MAP #1



GEOTRONICS SURVEYS LTD.
 EXETER MINES LTD. (N.P.L.)
 MAD GROUP
 Mc LEESE LAKE AREA
 CARIBOO M.D., B.C.
LOCATION MAP
 SCALE 1" = 134 mi

FIG. 1

Department of
Mines and Geoscience Resources
ASSESSMENT REPORT
NO. 4506 MAP #2

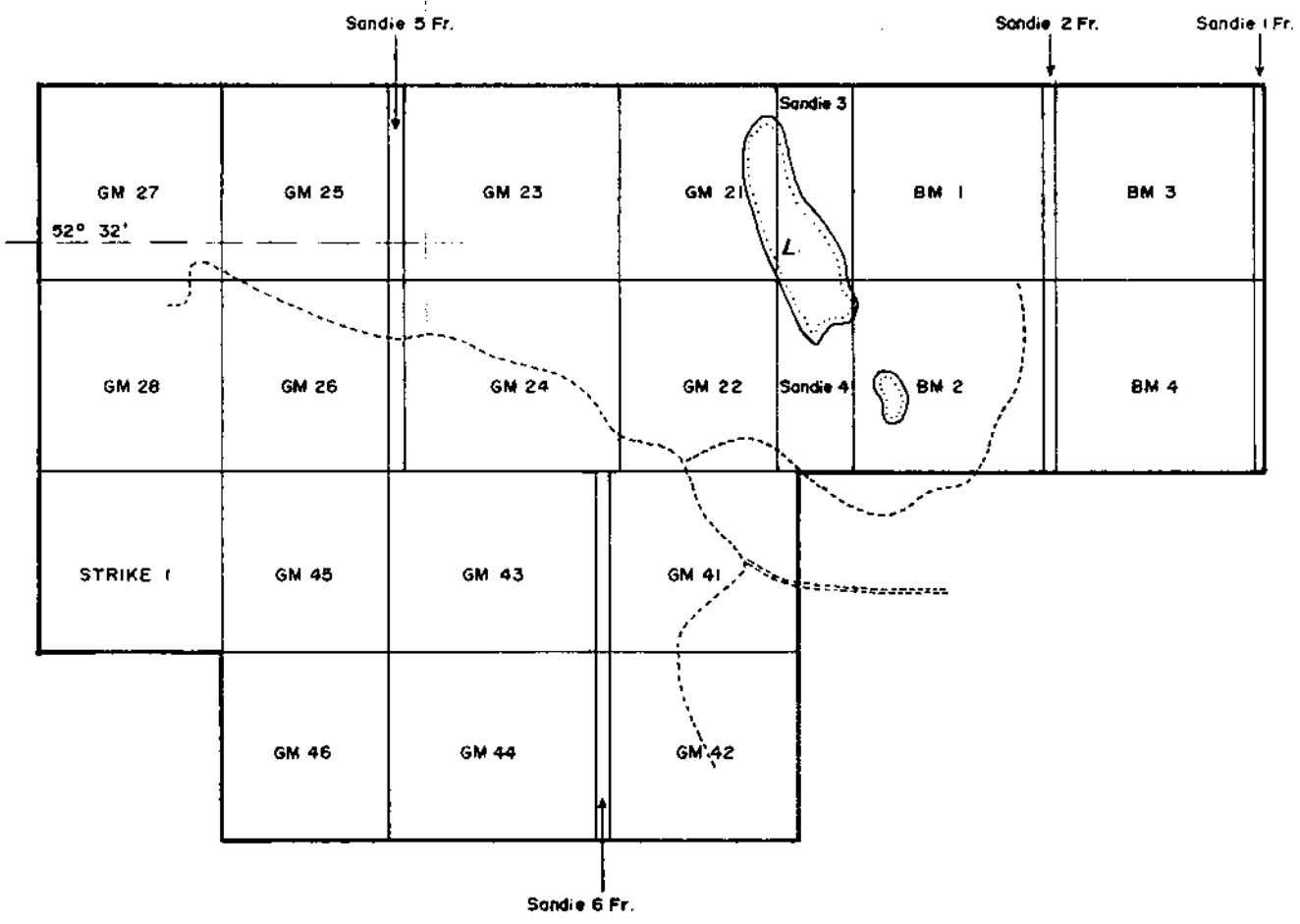
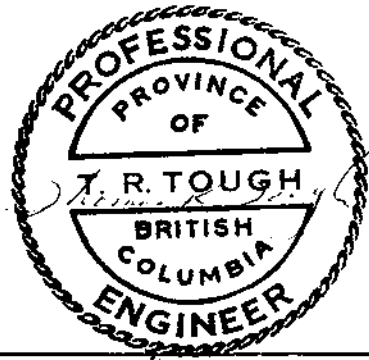


FIG. 2



EXETER MINES LTD. (N.P.L.)		
MAD GROUP McLEESE LAKE AREA CARIBOO M.D., B.C. CLAIM MAP		
GEOTRONICS SURVEYS LTD. PDT DRAFTING SERVICES	SCALE 1" = 1500	DATE JULY 1973

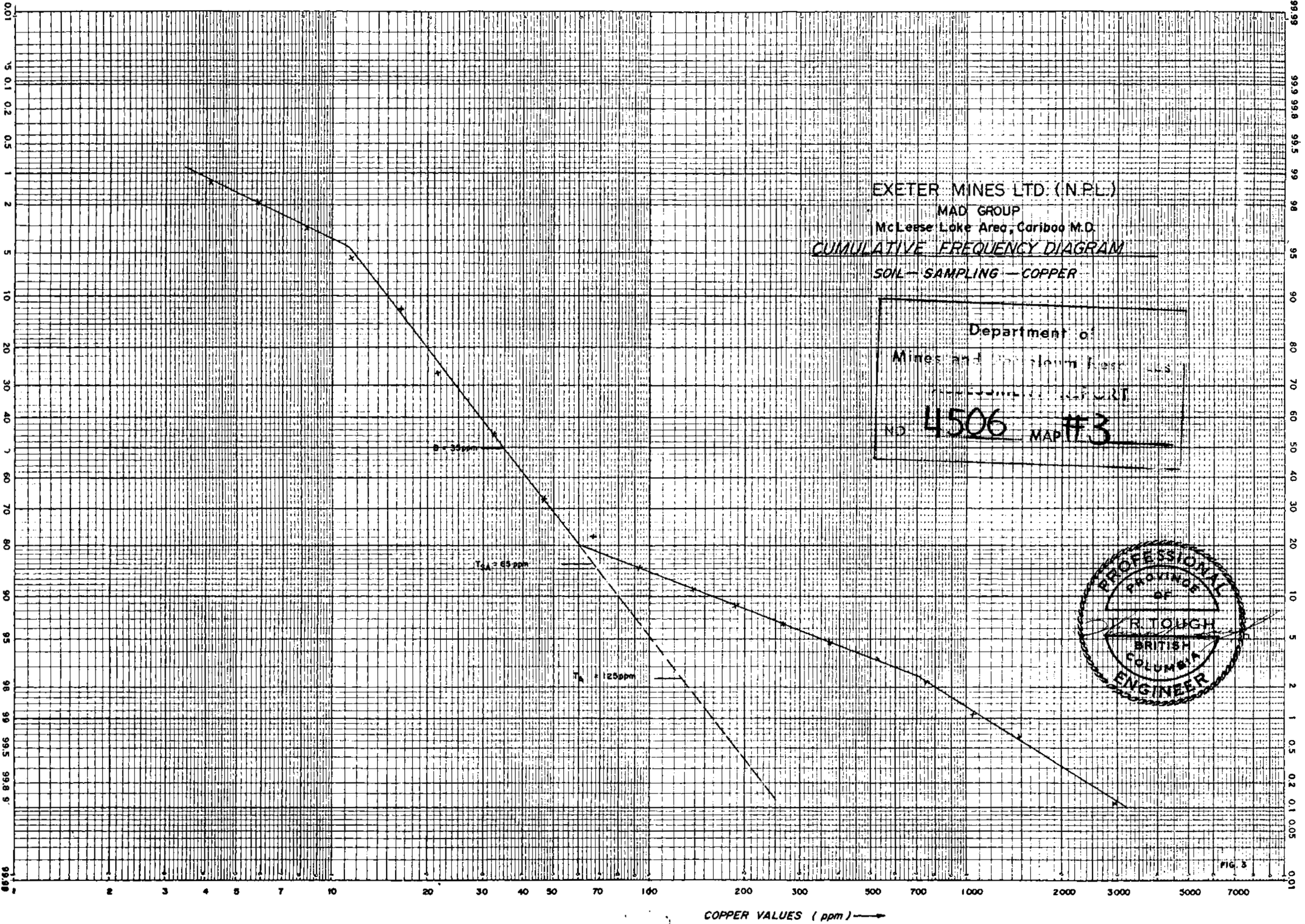


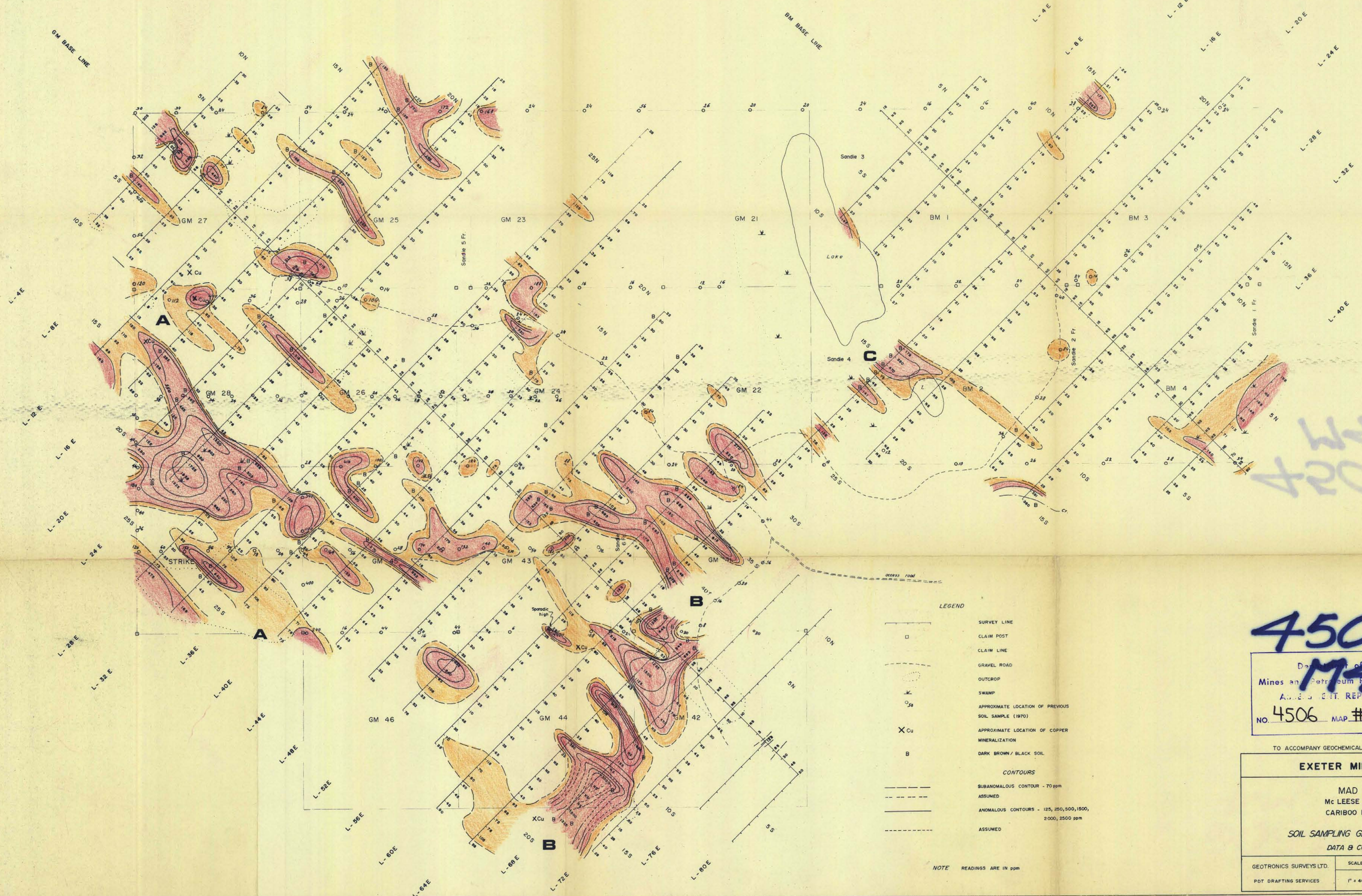
FIG. 3

COPPER VALUES (ppm) →

← FREQUENCY (%)

COST BREAKDOWN
LINE CUTTING & SOIL SAMPLE SURVEY
ON THE MAD CLAIM GROUP
McLEESE LAKE AREA, CARIBOO M.D., B.C.

2-man crew - 30 days @ \$185.00 per day	\$ 5,550.00
920 soil sample analysis @ \$1.50	1,380.00
Survey supplies	75.00
Interpretation and report	800.00
Engineering fees	300.00
	<hr/>
	\$ 8,105.00
	<hr/>



4209

LEGEND

- SURVEY LINE
 - CLAIM POST
 - CLAIM LINE
 - - - GRAVEL ROAD
 - OUTCROP
 - ⊘ SWAMP
 - APPROXIMATE LOCATION OF PREVIOUS SOIL SAMPLE (1970)
 - X Cu APPROXIMATE LOCATION OF COPPER MINERALIZATION
 - B DARK BROWN / BLACK SOIL
- CONTOURS
- SUBANOMALOUS CONTOUR - 70 ppm ASSUMED
 - - - ANOMALOUS CONTOURS - 125, 250, 500, 1500, 2000, 2500 ppm ASSUMED

NOTE READINGS ARE IN ppm

4506
 MA
 Department of
 Mines and Petroleum Resources
 ANALYTICAL REPORT
 NO. 4506 MAP #4



TO ACCOMPANY GEOCHEMICAL REPORT BY D.G. MARK, GEOPHYSICIST

EXETER MINES LTD. (N.P.L.)

MAD GROUP
 Mc LEESE LAKE AREA
 CARIBOO M.D., B.C.

SOIL SAMPLING GEOCHEMISTRY-COPPER
 DATA & CONTOURS

GEOTRONICS SURVEYS LTD.	SCALE	DATE	JOB No.	SHEET No.
PDT DRAFTING SERVICES	1" = 400'	JULY 1973	72-78	1