

B.C. - Yukon Exploration Co. Ltd. (N.P.L.)

Line Mountain Area
Carcross, Y.T.

For
Department of Indian Affairs and
Northern Development - Resources Branch

Purpose
Northern Mineral Exploration
Assistance for 1968

August 1 - October 15
1968

Table of Contents

	<u>Page Number</u>
Introduction	1
List of Employees	1
Scope of Work	2
Certification	3
List of Claims	
Details of Expenditures	
Geochemistry Report	

In Pocket

- 1 - Geology Map 1" = 400 feet
- 1 - Magnetics Plan 1" = 400 feet
- 1 - Geochemical Soil Sample Molybdenum P.P.M. Plan
1" = 400 feet
- 1 - Geochemical Soil Sample Copper P.P.M. Plan
1" = 400 feet
- 1 - Trenching Sketch 1" = 100 feet

Introduction

B.C. - Yukon Exploration Co. Ltd. (N.P.L.) conducted surface exploration work August 1st to October 15, 1968 on the company claims in the Carcross area of the Yukon Territory. The claims are located on sheet 105-D-1 Jubilee Mountain in the Whitehorse Mining District. Attached to this sheet is a list of claims registered in the name of B.C. - Yukon Exploration. The exploration work was conducted on the Strik 1-4, G1-3, B 1-4 and T 1-8 Yukon quartz mineral claims. Following is a list of employees who worked on the exploration survey and the jobs done.

During late August 1968, Mr. A. Oliver of the Department of Indian Affairs and Northern Development - Resources Branch, visited the property, observed the work in progress and inspected the molybdenite showings. Mr. Oliver was conducted on his tour by Mr. R. G. Hilker.

List of Employees

Mr. M. J. Hannan	3rd year Geology Student 402 E. Fairview, Houghton, Michigan, U.S.A.
Terry Aimone	3rd year Mining Student 210 East Street, Houghton, Michigan, U.S.A.
G. J. Miatech	3rd year Geophysics Student 402 Fairview Park, Houghton Michigan, U.S.A.

F. Osachoff	Draftsman 1106 4th Street, N.E., Calgary, Alberta.
Roger Voisine	Linecutter Contractor P.O. Box 37, Val Dor, Quebec.
Gille Desmone	Linecutter
Legar Roy	Linecutter
Hector Rail	Blaster Carcross, Y.T.
R. G. Hilker	Technical Adviser P.O. Box 566, Whitchorse, Y.T.

Scope of Work

Exploration work conducted on the claims during the late summer and fall of 1968 is as follows:

1. Slashed 27 linemiles of 400 feet spaced grid lines on claim group for surface control and mapping purposes.
2. Geological mapping over grid system and plotting all outcrops on 1" = 200 feet geology plan map.
3. Conducted a magnetics survey over grid system using a Sharpe MF-1 Fluxgate magnetometer.
4. Acquired soil samples at each 100 foot station over the entire grid system and Whitchorse Assay Office made copper and molybdenum determinations in parts per million.
5. All survey data plotted on plan and geochemical data interpretation.

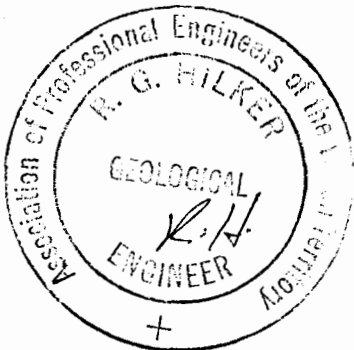
6. Holes drilled with plugger for trenching in selected areas across the granite plug that was delineated by the geological mapping. Trenches dynamited in some areas but stopped before completion due to snow cover.

Certification

I, R. G. Hilker, P.Eng., of Box 566, Whitehorse, Yukon Territory, do hereby certify that the technical exploration work on the B.C. - Yukon Exploration Co. Ltd. (N.P.L.) property in the Carcross, Y.T. area was of a good quality and expenditures were made for this work only.

R. G. Hilker

R. G. Hilker, P. Eng.,
March 21, 1969.



?

Sheet - JUBILEE MTN. - 105D-1

<u>Claim</u>		<u>Anniversary Date</u>	<u>Registration Date</u>
STRIK-1	Y9638	July 15, 1969	
	2 Y9639	July 15, 1969	
	3 Y9640	July 15, 1969	
	4 Y9641	July 15, 1969	
G - 1	Y9943	August 10, 1969	
	2 Y9947	August 10, 1969	
	3 Y9944	August 10, 1969	
	4 Y9948	August 10, 1969	
	5 Y9945	August 10, 1969	
	6 Y9949	August 10, 1969	
	7 Y9946	August 10, 1969	
	8 Y9950	August 10, 1969	
B - 1	Y10376	September 8, 1969	
	2 Y10377	September 8, 1969	
	3 Y10378	September 8, 1969	
	4 Y10379	September 8, 1969	
T - 1	Y10368	September 8, 1969	
	2 Y10369		
	3 Y10370		
	4 Y10371		
	5 Y10372		
	6 Y10373		
	7 Y10374		
	8 Y10375	September 8, 1969	
J - 1	Y10131	August 30, 1969	
	2 Y10132	August 30, 1969	
	3 Y10133	August 30, 1969	
	4 Y10134	August 30, 1969	
JUNE	1 Y25644	August 5, 1969	August 5, 1968
	2 Y25645		
	3 Y25645		
	4 Y25647	August 5, 1969	August 5, 1968

Northern Mineral Exploration Program

- Note:** 1. This sheet must accompany the application for assistance.
 2. It must be completed anew at the conclusion of the approved exploration program to show actual expenditures, and is to be submitted under oath with the request for grant payment.
 3. "Units" refers to units of performance such as feet of drilling, line miles of surveys, hours of flying time, etc.

Property Line Creek Molybdenite	Claim Sheet No. 105 D-1
Name of Company B.C. Yukon Exploration Co. Ltd. (NPL)	Lat. Long.....

Program to be carried out between July 15, 1968 and November 15, 1968

Mining Exploration Program	ESTIMATED		ACTUAL		Inspection Field Check
	Units	Expenditure	Units	Expenditure	
1. (a) Consultants Fees		2000		400.00	
(b) Field Supervision		2000		1175.00	
2. Mobilization and Demobilization of Program					
(a) Transportation		1000		1125.00	
(b) Freight		3500		965.50	
Road Construction	3½ miles	3500		Nil	
3. Exploration Work					
(a) Mapping & Prospecting	Line cutting	3700		2151.53	
(b) Surveys	75 miles	7500		3730.00	
(i) Geological		4000		819.95	
(ii) Geophysical	Assay 2000	2000		2658.25	
(iii) Geochemical	samples				
(iv) Evaluation					
(c) Trenching					
(d) Dia. Drilling-(surface)	1500 feet	10,000		482.34	
(e) Shaft Sinking					
(f) Underground Expl.....					
(i) Drifts & Crosscuts					
(ii) Raising					
(iii) Dia. Drilling					
(iv) Servicing					

Interpretation of Analysis (cont'd)

Not all areas equal to over 4.0 ppm were contoured. The areas contoured have some significant shape and/or continuation. The areas not contoured appear to be random highs and lows.

Interpretation of Anomalies

It is the opinion of the writer that there are three significant and a few possibly significant anomalies shown by the contouring of copper and moly values.

The moly map is the best map for delineation of the anomalous zone, this will be explained later.

Anomaly A, on the Moly map shows a characteristic halo affect common to copper-moly porphyries. This effect is very often noted. It has a richer zone of copper and moly around the edges of a stock producing a circular zone of mineralization. The copper anomaly in the same area outlines most of the band of Moly anomaly above one standard deviation. But as is noted the copper is not as rich in this area as the moly. This anomaly when compared to the geology map shows a slight down-hill shift from the area interpreted as having sub-crop of intrusive.

Anomaly B, appears to lie over the extrusive rocks up hill from the intrusive rocks (8). It may be an alteration in the extrusives or, since the moly is quite high in the rocks that it represents a small stock*off-shoot from the stock downhill (under anomaly A).

Interpretation of Anomalies (cont'd)

The third major anomaly, C, lies in the upper edge of the map. The main interest in this area is that it is suggested it represents a solufuction off of the hill of moly oxides in soil. From the solubility properties of Moly and Copper it becomes evident in this area that copper is being leached rapidly from the soil and moly is remaing. This occurs under strong acid conditions. In spite of the limestone bedrock I suggest that because the copper anomalies are much lower and less significant than the moly that acid soil conditions prevail and this zone C, thus is important in that it points to possible mineralization further up hill.

Proof of the acid soil hypothesis is based on the poor copper values below and along lines 8400 N. There is shown from the geology work that visible copper float was found but there is no appreciable copper retained in the soil. This copper float may be an expression of the moly solufuction from further up hill.

Thus in only one area is there no coincidence of copper and moly anomalies. This latter case has been covered above. As a result, it is suggested that a significant anomaly of copper and molybdenum has been determined by soil survey.

The only other significant point is that the zone of relative high moly values of which zone A is a part, is open sided on the bottom or lake and stream side. This means that the other side of this area must be sampled to determine where the large area of anomalous moly values is terminated, i.e., Zone A must be terminated, its boundary must be defined before the true significance of this area can be determined.

Mining Exploration Program	ESTIMATED		ACTUAL		Inspection Field Check
	Units	Expenditure	Units	Expenditure	
4. Miscellaneous sampling and Assays.		2000		138.62	
5. Camp Construction	3 wood 3 tents	4000		325.00	
6. Camp Operation					
(a) Supplies		2000		1369.40	
(b) Heating		300		18.40	
(c) Maintenance		800		Nil	
7. Rental of Equipment					
8. Depreciation					
9. Major Transportation for Field Support or Service					
(i) Fixed Wing Aircraft	3 Trips	500		500.00	
(ii) Rotary Wing Aircraft					
10. Communications	radios	500		Nil	
11. Other					
12. General and Administrative Expenses (includes head office and field office administration; attach list of details).	accounting & legal	3000		1311.59	
TOTAL		\$52,300		\$17,170.59	

Signature

Inspecting Officer

Title

Date

DATE October 1, 1969
FILE NO. 5781-2

ASSAY CERTIFICATE

WHITEHORSE ASSAY OFFICE

P.O. BOX 346. WHITEHORSE, YUKON

RECEIVED FROM Mr. R.G. Hilker

SAMPLE NO.	XXXXXX OZ. PER TON	SILVER OZ. PER TON	Lead	Nickel				
3788		20.2	4.6	-				
3789		-	-	.63				

ASSAYER Geo. Spalding

COLLINS & COLLINS

CHARTERED ACCOUNTANTS

TELEPHONE 667-4241

ASSOCIATED FIRM

COLLINS, LOVE, EDDIS, VALIQUETTE & CO.
VANCOUVER-CALGARY-WINNIPEG-TORONTO-MONTREAL

REPRESENTATIVES IN GREAT BRITAIN, MEXICO
AND THE UNITED STATES OF AMERICA

P. O. BOX 3109

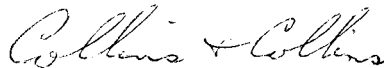
CASCA BUILDING

WHITEHORSE, YUKON TERRITORY

REFERENCE:

March 21, 1969

We, a firm of Chartered Accountants with offices situate in Whitehorse, Yukon Territory certify that the expenditures of B. C. Yukon Exploration Co. Ltd. (N.P.L.) are as stated on the enclosed statement and were applied on the Northern Mineral Exploration Program of the Company between July 15, 1968 and November 15, 1968.



Chartered Accountants

B.C. - YUKON EXPLORATION CO. LTD. (N.P.L.)

GEOCHEMISTRY REPORT

LIME MOUNTAIN AREA

WINDY ARM

YUKON TERRITORY

BY

F. M. SMITH, B.Sc.

WHITEHORSE, Y.T.

December 2, 1968

INDEX

Summary	2
Introduction	3
Problems of Interpretation	4
Interpretation of Analysis	4
Molybdenum PPM Distribution Charts	
Interpretation of Anomalies	6
Recommendations	8
Remaining small possibly insignificant anomalies	8

Summary

During the last of August and early September the claim group at Lime Mountain was soil sampled by line cutters.

From statistical interpretation of the copper and molybdenum contour intervals were determined and the two maps contoured according to the understanding of the significance of the values.

From the contours pattern it becomes evident there are three significant anomalies. The first, zone A, on the Moly map is characterized by a ring halo common to copper-moly porphyry granite stocks; the second, zone B, is either an alteration due to this stock or a small subordinate stock; the third, zone C, is important in that it suggests more mineralization further up hill on Lime Mountain.

From the interpretation it is suggested that zone A be examined by drilling and/or trenching to determine economic potential. That zone B be further sampled to delineate the shape and significance of this anomaly. That further exploration be carried out further up hill to determine if more mineralization occurs.

Since Anomaly A is open sided on the lake side, it is suggested that more effort be expended by sampling this area as soon as is practical to determine where this anomaly terminates.

Introduction

Between the 21st of August and September 15th, approximately 1,650 soil samples were taken along cut lines 400' apart, at 100' spacings on the claim group. This group is situated on Lime Mountain, Claim Sheet 105D1, i.e., the Jubilee Mountain sheet.

Samples consisted of borings from below moss using an auger. Samples were collected in kraft bags. Three samplers completed the task.

The only problems evident from the data are as below:

a. The samplers were unfamiliar with the sampling method and procedure and may have accidentally caused erroneous values due to contamination.

b. No effort was taken to determine, pH, water content of soil, local slope, local vegetation, soil composition and colour. All these factors should have been noted, their lack makes the conclusions somewhat qualified due to a lack of control features of the possible anomalies. All these factors are pertinent to understanding the importance of an anomaly. For example, and most importantly, the pH controls the mobility of the molybdenation and cupric ion. If the soil is acidic then moly does not move except by purely mechanical means (soil creep). Copper is effectively leached from the soil. The opposite is in effect in a basic soil. Sometimes soil cover over rocks may have very little to do with subcropping rocks, i.e., the soil over a limestone may^y be acidic due to its own composition and in spite of local limestone.

Problems of Interpretation

From a perusal of the data it became evident that there are some possible errors in the values. This is especially noticeable in the rather poor repeatability of any sample site value from double (accidental) sampling. This poor repeatability may be due to many factors some are noted below:

- a. Improper sampling, i.e., non uniformity of sample depth.
- b. Contamination.
- c. Poor assay repeatability.

Because future work is suggested it is recommended that more effort be spent at defining all pertinent parameters (as noted earlier) affecting sample values. This does not require much more time, energy, knowledge or money but leads to a more reliable picture of the sample value relation to the real value at the sample site.

Interpretation of Analysis

From the values of the two analysis an idea of the significance of unusual or anomalous values must be obtained. That is to say, one must be able to note how anomalous any given value is and what the average value is. This requires some simple but labourous mechanical arithmetic. The average used is the arithmetic mean, i.e., the sum of the values divided by the number of values - as follows:

$$\bar{x} = \frac{\sum (\text{PPM})}{N}$$
 where \bar{x} is the means, \sum means to sum all inside the bracket,

PPM stands for the values and N the number of values.

Interpretation of Analysis (cont'd)

The next important value is the standard deviation of the sample values from the mean. This is the sample variance of the values. It is a measure of the spread of the values from the mean, as below:

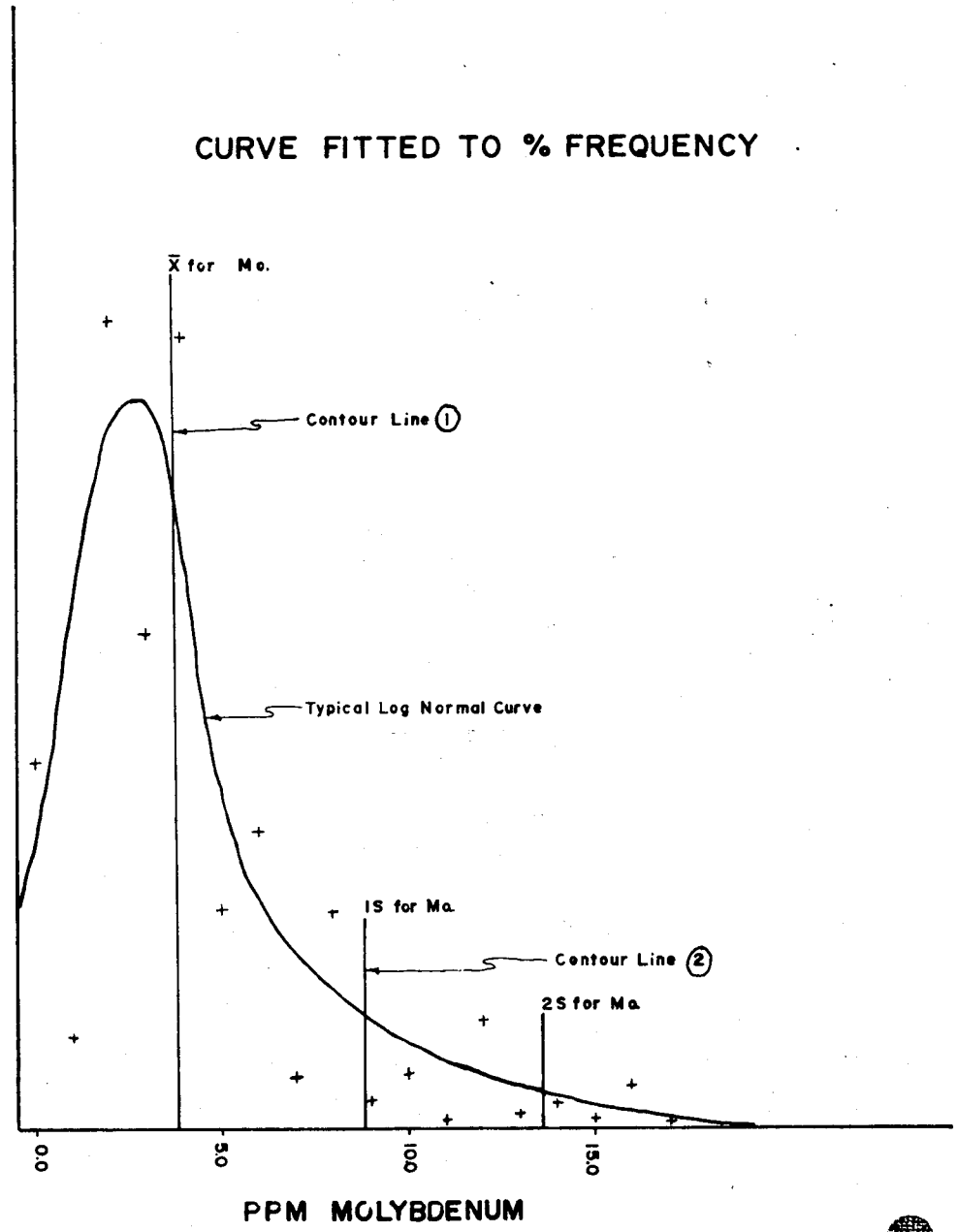
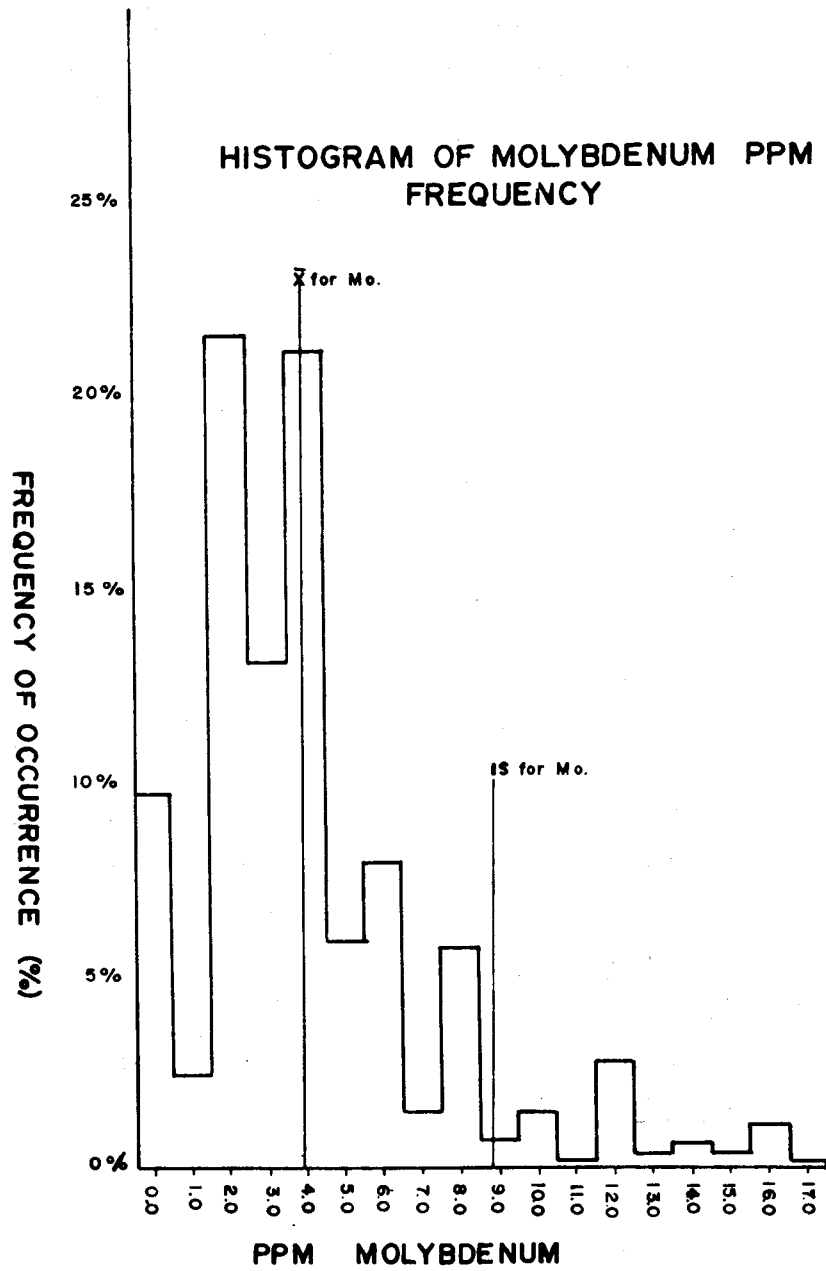
$$S = \sqrt{(\sum (\text{PPM} - \bar{x})^2) / (N-1)}$$
 This "S" then is the standard deviation (variance) of the sample. These two values must be determined if one is going to attempt to compare the contours on the Copper and Moly map.

If arbitrary contour values are chosen it is similar to using two altimeters both possibly in error to try to compare the altitude of two mountains. You know the mountains are there and they are high but you are not sure which altimeter is showing a measure of the true height.

Thus by converting the contours to the statistics of each sample you can compare the outlines of each contour on the basis of how high it is in relation to the basis (mean) of each sample.

From the plot of the frequency of occurrence of values of Moly (the copper being almost the same) it is possible to note why the contour interval was chosen. The first contour represents the mean; the second contour represents the first standard deviation. If one takes the area under the frequency curve, the mean divides the area in two. The first standard deviation means only about 16% of the area is above this value. The usual meaning to these lines is that the mean differentiates background from potential anomalous areas. The area inside the second line represents probably anomalous values.

There the mean for Moly was 4.0 ppm and the standard deviation is 4.8 ppm. and the mean and standard deviation for copper are 30.0 ppm and 61.8 ppm.



Recommendations

Zone A

This area has been sufficiently defined and delineated by the present work. The only follow up that should be done is drilling and/or trenching of this area to determine actual rock mineralization. The only work in this area being sampling the other side of the creek to be carried out.

Zone B

This area should be re-done at tighter spaced sampling, i.e., a 50' x 50' grid to tighten down the boundary and significance of this anomaly.

Zone C

Exploratory work should be undertaken further up this hill to see if other stocks intrude in this area with the aim of tying down more mineralized zones.

Remaining Small possibly insignificant anomalies.

The other small discontinuous anomalies should be tight grid sampled to either reject or further enlarge their anomalous significance. This grid should be at least 50' x 50' spacing with the grid lines re-sampled.

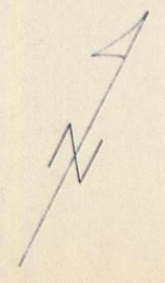
There are too many of these to be listed but if further work is undertaken all these areas should be double checked by re-sampling to check for possible mineralized zones.

AUTHORIZATION

1. I, the undersigned, am a geologist, graduate of the University of Toronto, 1967.
2. I have practised my profession as a geologist in mapping and geochemical exploration for the last four summers.
3. My home address is Box 548, Whitehorse, Yukon Territory.
4. I am familiar with the geology and geochemistry of the Lime Mountain, Area, Windy Arm, Yukon Territory.

F. Marshall Smith

F. Marshall Smith, B. Sc.
December 2, 1968



LEGEND

--- INFERRED CONTACT

IA OUTCROP/MOLY STRINGERS

8b/IA ROCK TYPE - RUST STAINED GRANITE

OO MOLY FLOAT

CHALCOPYRITE FLOAT IN LIMESTONE

GEOLOGICAL LEGEND

I
CRETACEOUS

8 COAST INTRUSIVES

8A HORNBLende, BIOTITE, OLIGOCLEASE - GRANODIORITE

8B LIGHT COLOURED GRANITE - BIOTITE GRANITE

8C BIOTITE, HORNBLende - QUARTZ DIORITE

8E ONESIC "PORPHYRITIC" - GRANODIORITE

8F SCATTERED GRANODIORITE & GRANITE BRECCIA

8G PEMATIC STENITE

HORNBLende CRYSTALS - LONG RECT. BLACK TO DARK GREEN

II
TAKU GROUP

2A PENNSYLVANIAN & PERMIAN

2B CHERT

2C GREENSTONE FLOWS & PYROCLASTIC ROCKS

2D LIMESTONE LIMESTONE BRECCIA

2E METAMORPHOSED VOLCANICS - CONTAIN SERPENTINE

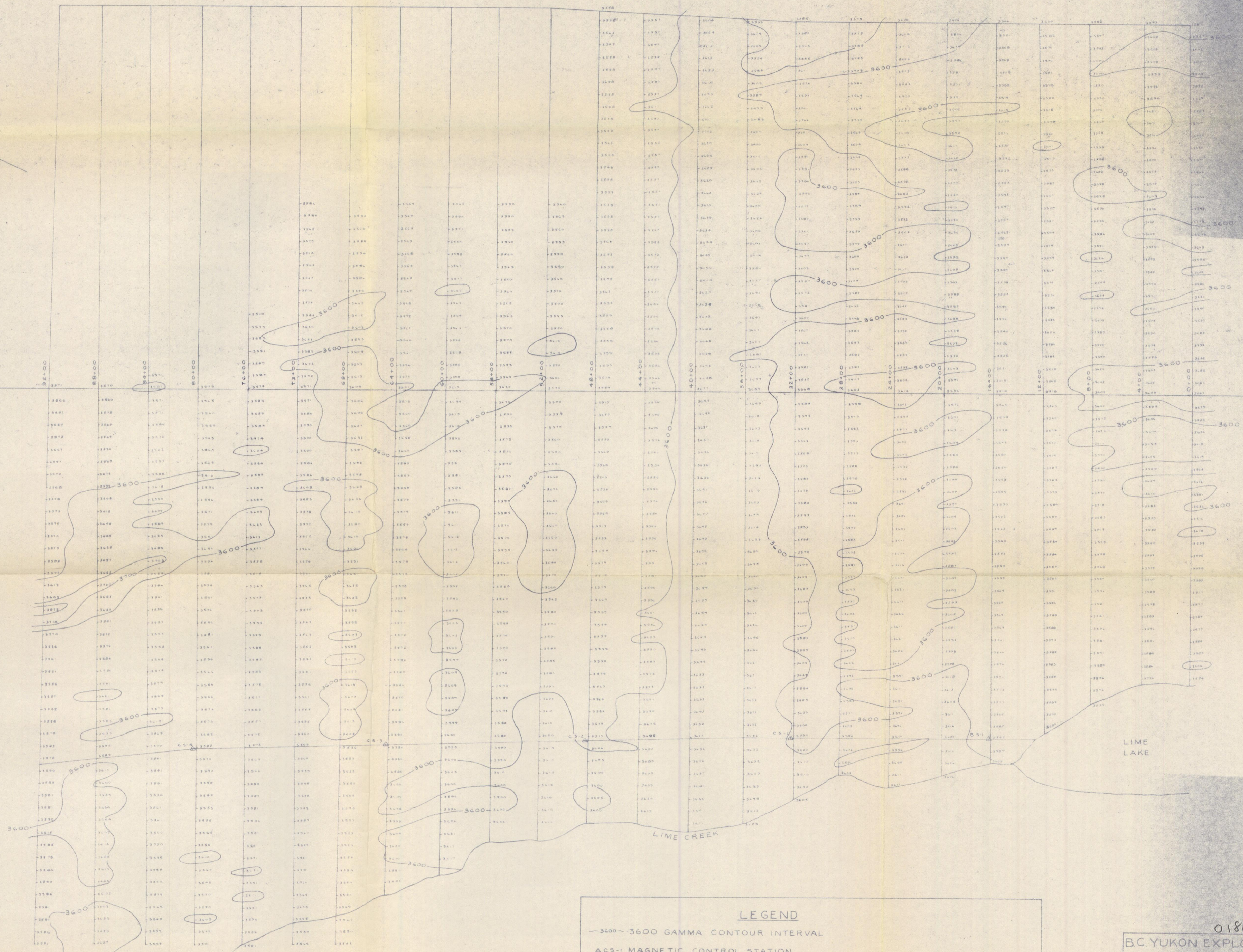
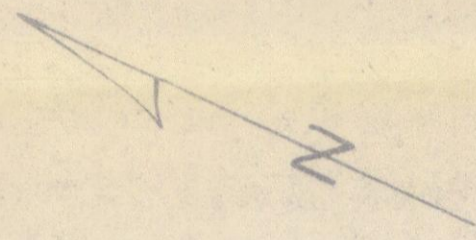
III

IA MOLY STRINGERS - VEINS &/OR DISSEMINATED IN GRANITE

IB RUSTY STAINED GRANITE - CHALCOPYRITE

018625

B.C. YUKON EXPLORATION CO. LTD.(NPL)		
GEOLOGY MAP - WINDY ARM YUKON TER.		
DR BY - W.S.M.	APP'D BY	REVISED
DATE - NOV - 27 - 68	SCALE - 1" = 400'	
REF No.	DWG No.	



LEGEND

—3600—3600 GAMMA CONTOUR INTERVAL

△C-1- MAGNETIC CONTROL STATION

△B-51-BASE CONTROL STATION WITH ASSUMED GAMMA VALUE

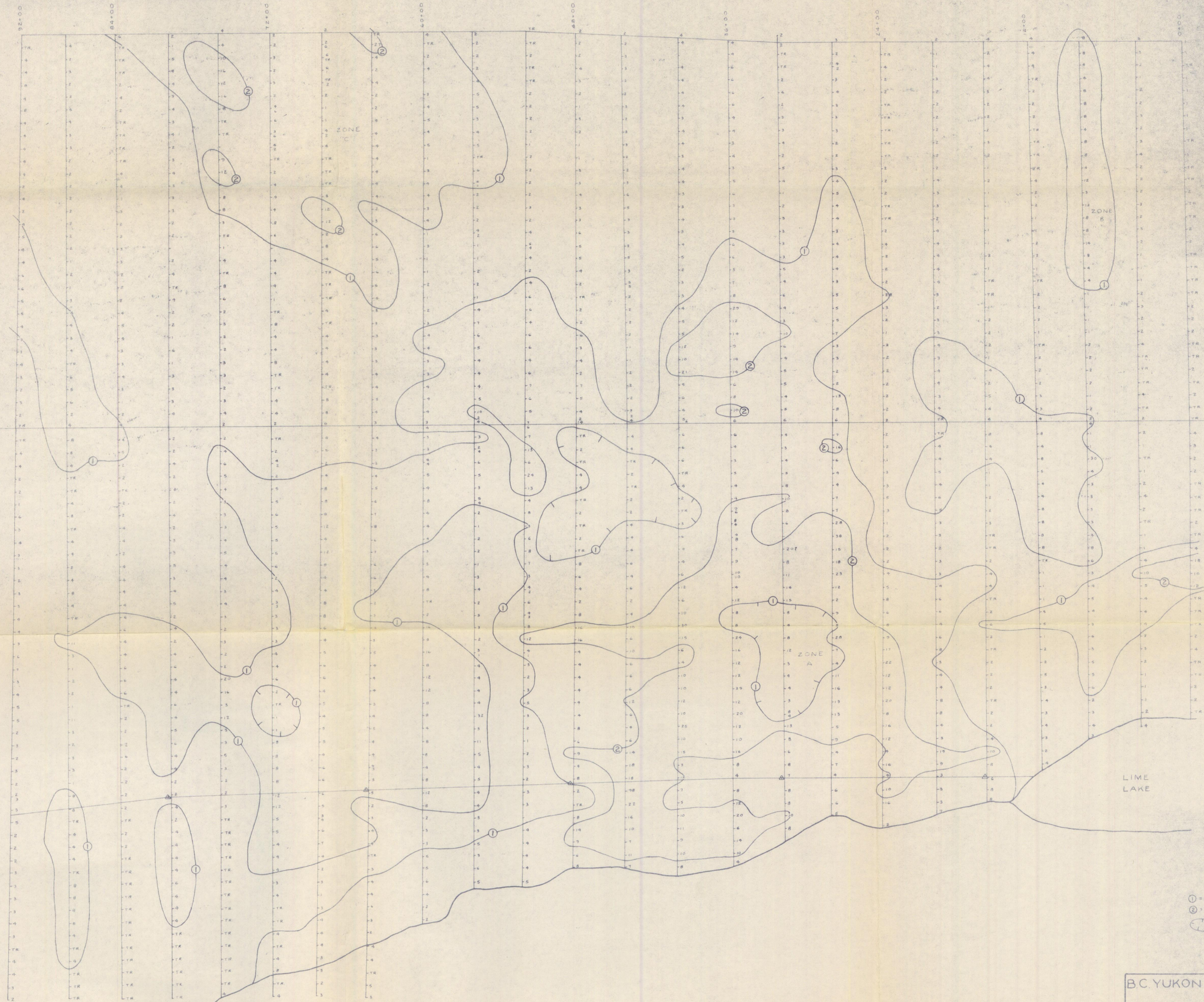
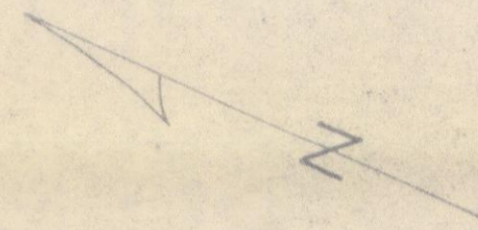
—3602— DETERMINED MAGNETIC INTENSITY IN COMPARISON WITH THE BASE CONTROL STATION-VERTICAL COMPONENT OF THE TOTAL MAGNETIC FIELD

018625

BC. YUKON EXPLORATION CO. LTD.
(NPL)

MAGNETICS SURVEY

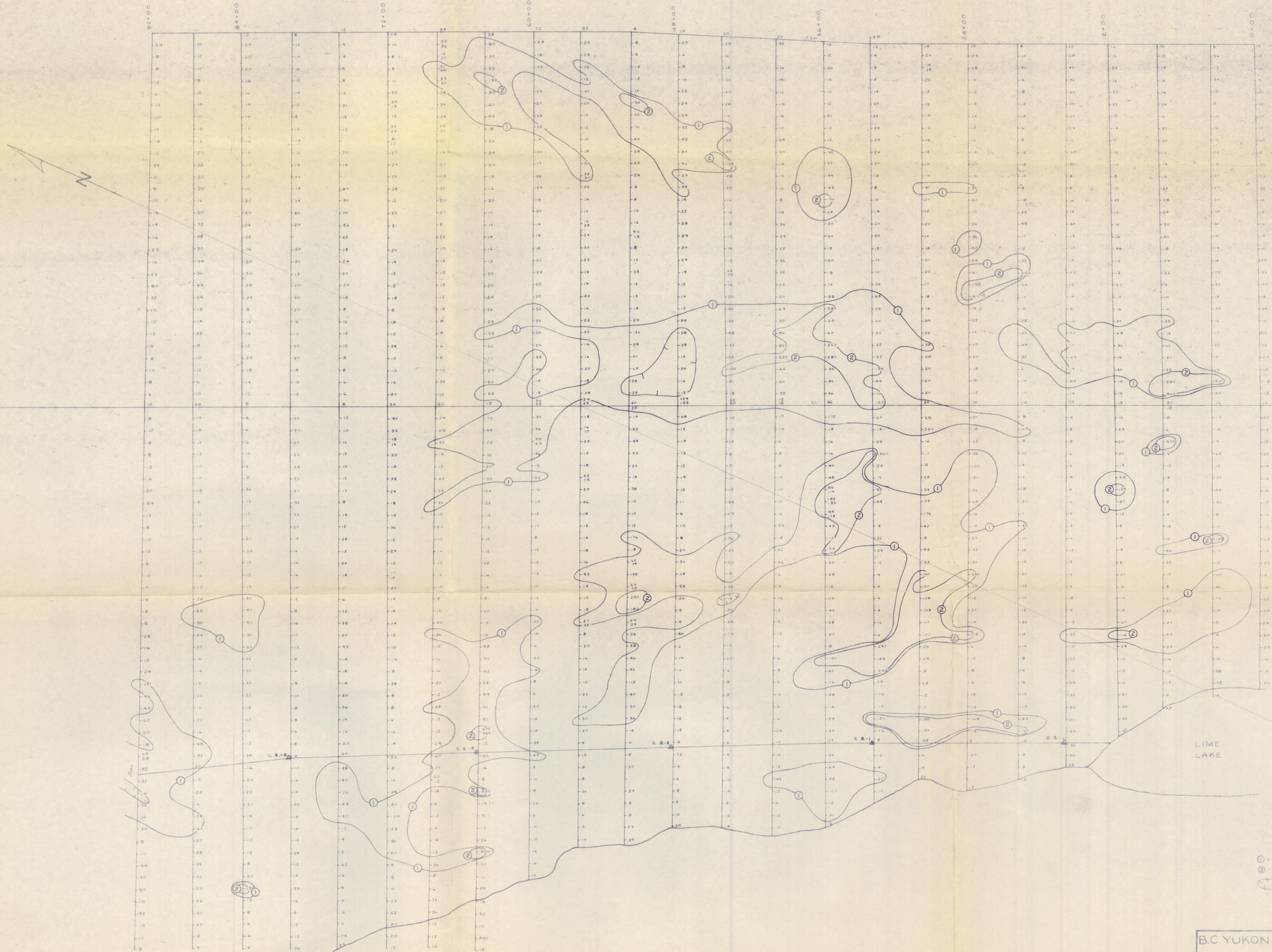
DR BY: W.S.M.	AMPD BY:	REVISIONS:
DATE: NOV-27-68	SCALE: 1:500	
REF. NO.	DWG. NO.	



LEGEND
① = 4-8.77 PPM ± 4.1 PPM MOLY
② = 1-8.77 PPM ± 8.77 PPM MOLY
⊗ DEPRESSION

018625

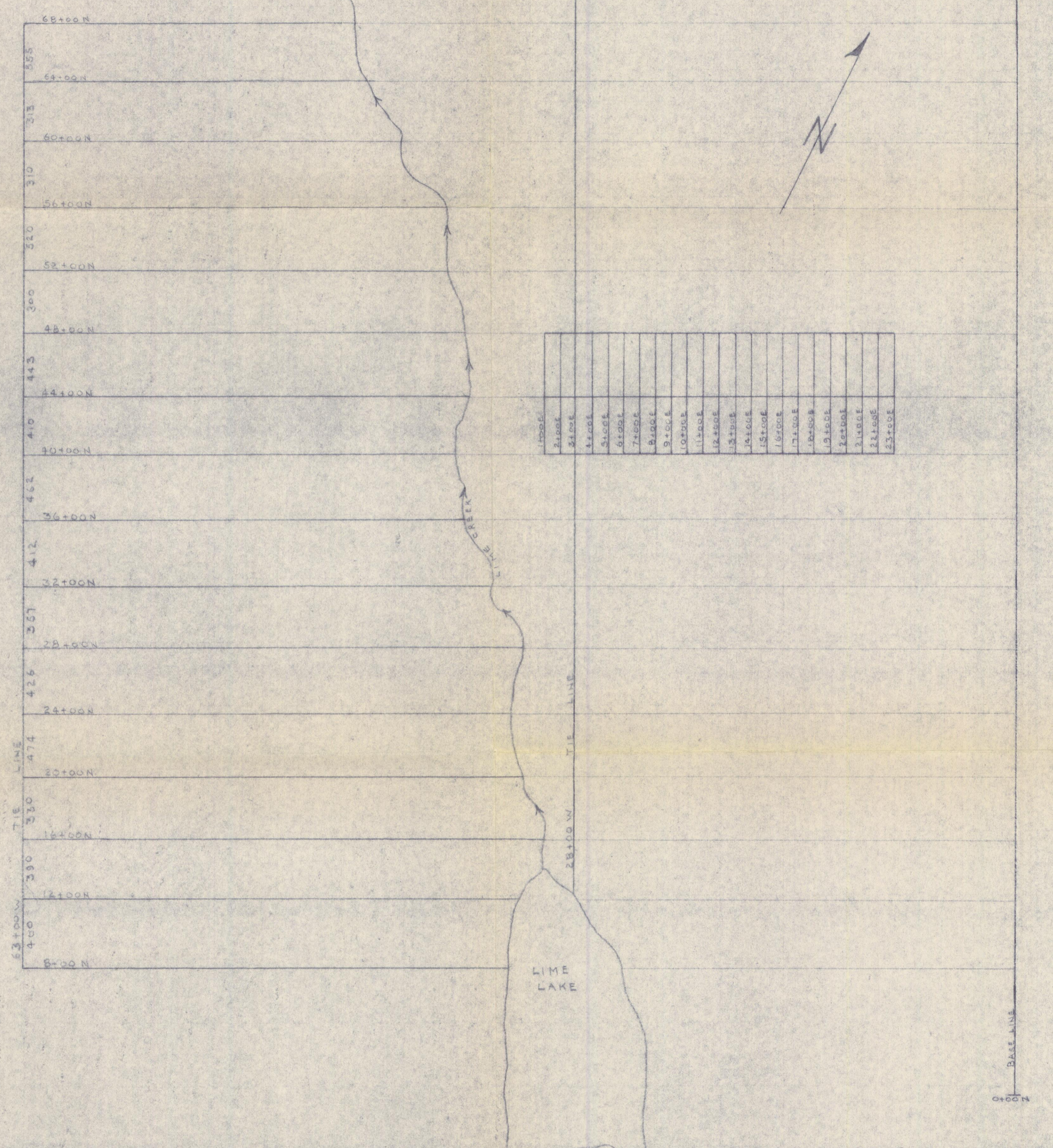
BC YUKON EXPLORATION CO. LTD. (NPL)		
GEOCHEMICAL SOIL SAMPLE MOLYBDENUM PPM		
DR BY - W S M	APP'D BY -	REVISIONS
DATE - NOV - 27 - 68	SCALE - 1" = 400'	
REF No	DWG No	



LEGEND
 (1) 30-918 PPM COPPER
 (2) 918 PPM COPPER
 (3) DEPRESSION

018625

BC YUKON EXPLORATION CO. LTD. (NPL)		
GEOCHEMICAL SOIL SAMPLE COPPER PPM		
DR. BY W.S.M.	APP'D BY	REVISIONS
DATE NOV. 27-68	SCALE 1:1400	
REF. NO.	DWG. NO.	



1+00E
2+00E
3+00E
4+00E
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20+00E
21+00E
22+00E
23+00E

018625

BC - YUKON EXPLORATION CO. LTD. (N.P.L.)

LINE CUTTING MAP, 1969

SCALE: 1 = 400

DR BY: PRM

DATE: JULY 8, 1969