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GEOCHEMICAL AND GEOPHYSICAL REPORT

WOLF GROUP OF MINERAL CLAIMS

MORRISON LAKE  
44 MILES N.E. OF SMITHERS

55° 126° S.E.

OMINECA MINING DIVISION, BRITISH COLUMBIA

BY

GAVIN A. DIROM, P. ENG.

FOR

TRO-BUTTLE EXPLORATION LTD. (N.P.L.)

DATE OF REPORT:

MAY 10TH, 1968

DATE OF FIELD WORK:

GEOCHEMICAL:

JULY, AUGUST & SEPTEMBER, 1967

GEOPHYSICAL:

MARCH, 1968 & APRIL, 1968

GOVERNMENT AGENT

R. J. (10)

SMITHERS, B. C.

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ATTACHMENTS:

- 1 Figure #1 - Claim Map, Morrison Lake Area, 1" = 1 mile  
(Part of M.R. Map #127)
- 2 Figure #2 - Geological Map, Morrison Lake Area, (Fig.14, M.M.R.  
for 1966) 1" = 1 mile
- 3 Figure #3 - Graph showing Cu ppm Concentration Frequency, Wolf Group.
- 4 Map #3 - Wolf Group, Geochemical Soil Survey, 1" = 400'
- 5 Map #4 - Wolf Group, Magnetic Survey, Relative Station Values, 1" = 400'
- 6 Map #5 - Wolf Group, Magnetic Survey, Contour Map, 1" = 400'
- 7 Map #6 - Wolf Group, Reduction of Map #3, showing relation to Mineral  
Claims, 1" = 800'

INTRODUCTION:

Following report summarizes soil geochemical and ground magnetic surveys completed on the WOLF GROUP of mineral claims since May 1st, 1967. Purpose of report is to record the results for assessment credit re WOLF GROUPS #1 and 2 per Affidavits Form B filed on April 30th, 1968.

The writer, as Consulting Engineer for Tro-Buttle Exploration Ltd. (N.P.L.), the recorded owner of the claims, made a brief examination of the ground last August 21st. Also he is familiar with the adjoining "K" (now "Kofit") Group, likewise owned by Tro-Buttle. (See Assessment Report of September 2, 1967).

The writer feels that these surveys fully qualify for acceptance as bona fide assessment work. Amount of credit applied for, based on these surveys, is \$7,300 to be apportioned as follows:

Wolf Group #1: \$100 each on Wolf 1 & Wolf 1 Fraction.  
\$200 each on Wolf 4 - 6; and 8 - 19.  
\$300 on Wolf 3.

Wolf Group #2: \$200 each on Wolf 20 - 38.

In addition, physical work totalling \$500, in bulldozer trenching on Wolf 1 claim, is applied @ \$200 each on Wolf 1 and 2 claims, and \$100 on Wolf 1 Fraction.

Total amount of Applications for Certificates of Work re above is \$7,800.

No work is applied on the Wolf 7 claim as this was included in the "K" claims "C" Group last August 2nd.

GENERAL CONCLUSION:

The geochemical and magnetic surveys have indicated anomalous areas warranting further investigation.

PROPERTY & OWNERSHIP

Consists of the following 39 claims staked by Peter F. Bland as agent for Tro-Buttle Exploration Limited (N.P.L.):

	<u>RECORD DATE</u>	<u>RECORD Nos.</u>
<del>10565, 68, 71-96</del> Wolf 1-16	1 May 1967	49119 - 134 <del>8281-16</del>
<del>70597-628</del> Wolf 17-32	5 June 1967	50230 - 245 <del>82817-33</del>
<del>70627/40</del> Wolf 33-38	18 August 1967	54044 - 049 <del>82831-45</del>
<del>_____</del> Wolf #1 Fraction	6 October 1967	55109 <del>_____</del>
<u>70570</u>		

Essentially, they are a relocation of the 40 claim Bee Group of Kerr-Addison Gold Mines Limited which expired on April 8th, 1967.

#### LOCATION AND ACCESS

The property lies about 44 miles airline N.E. of Smithers, and along the west shore of Morrison Lake. It adjoins and extends northwesterly from the N.W. corner of Tro-Buttle's "K" (now "Kofit") Group.

Access is by foot and bulldozer trails from Morrison Lake.

Elevations range from around 2,400' at the lake, to about 3,400', on the ridge crest one mile to the west.

Accompanying Figure #1 shows the relation of the claims to Morrison Lake and adjoining properties. This is a xerox copy of a portion of Mineral Record (Claim) Map #127.

#### GEOLOGY:

Local geology of Morrison Lake Area is briefly covered by N.C. Carter in B.C. Minister of Mines report for 1966, pages 99-102. This includes Figure 14, Geological Map of the area, copy of which accompanies this present report as Figure #2.

According to Carter's mapping, the Wolf Group is underlain principally by sedimentary and volcanic units which are the N.W. extensions of similar units on the "K" Group, and in part, are similar to units on Noranda's Morrison Lake property. Carter also maps a swarm of porphyry, monzonite and diorite bodies intruding siltstones, etc., along the southwestern half of the Wolf Group. These are similar in general fashion to occurrences to the S.E. on the "K" Group. The intrusions are roughly outlined on Map #1.

Carter also infers a major N.W. trending fault as continuing through the Wolf Group and separating the main sedimentary and volcanic series.

A reconnaissance magnetometer survey run by Kerr-Addison early in 1966 indicates that higher intensity igneous rocks largely underlie an east/west belt which includes portions of the intrusive swarm mapped by Carter.

An E.M. survey, also run by Kerr-Addison, shows some anomalous features in tandem along the inferred N.W. trending fault. These may reflect pyritic, etc., sulphide mineralization along the fault zone, and/or, carbonaceous to graphitic material along this structure.

According to personal communication from N.C. Carter, the volcanics lying between the fault zone and Morrison Lake, are principally felsitic tuffs rather than the andesitic tuffs and breccias common on Hearne Hill.

Limited mapping done by G.A. Dirom was confined to a traverse from the helicopter landing on the hump south of Geochem Anomaly #1 to the southern fringe area of this anomaly, and thence northerly to Line Z8N.

The hump is underlain by steep-dipping siltstones with variable strikes. Dioritic to monzonitic intrusions outcrop 600' to the north, and extend at least to the Zero N crossline, between 15 and 30W on this line. Some biotite feldspar porphyry dykes were also observed.

Sparse chalcopyrite and molybdenite mineralization was found in local float material between 24 and 26W on the Zero line. These sulphides occur in hairline fractures, or as adjacent disseminations in altered diorite, monzonite or porphyry. At 18W on the same line, a frozen aplite stringer contains trace amounts of chalcopyrite and molybdenite.

It is understood that Peter Bland found some small local concentrations of pyrrhotite near the west end of X Zero Line.

#### SUMMARY OF WORK DONE BY TRO-BUTTLE

Chain and compass grid over area up to 2.4 miles N/S by 1.75 miles E/W totals about 16,000' of baselines and 88,000' of crosslines at 800' spacing. These lines were picketed or flagged. The majority were brushed out as area includes an old burn which is a tangle of downfall and brush.

Soil samples were taken at 200' intervals, on all lines, and at 100' intervals on about 2,000' of lines. Total number of samples taken on the Wolf claims was approximately 525, including several silts. The sample locations and results are shown on Map #3.

The above work was done by Peter F. Bland and his crew during period July 1st, to September 30th, 1967.

Magnetic survey was run by Bland and assistant during period March 1st, to April 11th, 1968. It was delayed by instrument trouble and tough snow conditions. Readings were taken at 100' intervals on 8,800' of baselines and 71,900' of crosslines.

Six trenches were put in on the Wolf 1 claim during October 1967 using a TD 20 bulldozer.

SUMMARY OF COSTS:

GRID & GEOCHEMICAL SURVEY - (July 1 - September 30, 1967)

Wages -	(124 man-days)		
	Peter F. Bland	\$ 880	
	Craig Forfar	772	
	Norman McCullough	455	
	John Command	140	
	Anthony Evans	336	\$2,583
			<hr/>
Camp Costs			695
Transportation			575
Geochemical Analysis (525 samples)			1,045
			<hr/>
		Total	\$4,898
			<hr/>

MAGNETIC SURVEY - (March 1 - April 11, 1968)

Wages -	(30 man-days)		
	Peter F. Bland	\$ 358	
	Craig Forfar	297	\$ 655
			<hr/>
Camp Costs			200
Magnetometer Rental			100
Transportation			500
Reduction of Data by Geo-X Surveys Ltd.			370
			<hr/>
		Total	\$1,825
			<hr/>
Supervision - George A. Burdett, Exploration Manager			200
Engineering and Preparation of Report by G.A. Dirom, P. Eng.			500
			<hr/>
		TOTAL COSTS -	\$7,423
			<hr/> <hr/>

GEOCHEMICAL SURVEY:

Procedures -

All soil samples were taken using a shovel and consisted, wherever possible, of the upper part of the "B" horizon. The samples were packaged in standard, high wet-strength, kraft paper, soil sample bags.

The samples were shipped to Chemex Labs Limited, North Vancouver, B.C., where they were dried, screened and analyzed for Cu and Mo during

period July 24 to October 16, 1967. Attached hereto as Appendix #1 is a brief synopsis dated October 25, 1967 from Chemex Labs Ltd. covering their laboratory procedures.

### Results -

Cu and Mo values are shown on Map #3; and Cu values are graphically summarized on Figure 3. (Concentration Frequency Graph).

Copper background on the Wolf Group is about 25 ppm; threshold is around 90 ppm, but arbitrarily is taken as 100 ppm. This leaves as "anomalous" approximately 10% of the samples taken. It is felt at this time that groups of samples in this category have exploration significance. Highest values obtained were 1750 ppm.

Mo values are erratic, and at the best, are moderate to low. Highest value is 49 ppm. Approximately 90% of the samples run less than 5 ppm, and only 5% run 10 ppm or greater. These latter probably have some exploration significance.

There is no apparent direct relationship between the Cu and Mo soil values. However, the majority of the higher Mo values occur in areas of higher Cu values.

The majority of the anomalous Cu and Mo samples lie within an oval-shaped area straddling Baseline "X" from 0-12N. This area is up to 2,400' E/W by 1,600' N/S, and has been designated No.1 Anomaly. Cu and Mo values within this area are extremely spotty.

Outside of this area, the few scattered anomalous Cu samples are confined largely to silt samples on drainage from No. 1 Anomaly area. A high sample of 1135 ppm Cu on the lake shore on A72N, appears to be a local erratic. However, check soils in the near vicinity do show a couple of low anomalous samples. It is of interest to note that this particular area is close to the mouth of a creek draining No. 1 Anomaly, but about 1½ miles down creek from the latter.

Some of the high copper samples in #1 Anomaly area undoubtedly are due partly to transportation and subsequent concentration in soils high in organic material. This probably explains the two higher Cu values in the drainage down to the north-east from #1 Anomaly.

### MAGNETIC SURVEY:

#### Procedures -

Instrument used was a McPhar M-500, Vertical Component magnetometer of the fluxgate type.

The readings were taken at 100' station interval in closed loops which were tied in to base line controls related to Reference Station

A56N-4E of arbitrary value 480 gammas. The diurnal change was considerable during portions of the survey, so the results must be considered as relative rather than specific.

The field data were submitted to Geo-X Surveys Ltd., Vancouver, for reduction and the subsequent results were checked and modified by the writer. The final results are shown on accompanying maps #4 and 5.

#### Discussion of Magnetic Results -

Maximum magnetic range is 4,300 gammas, - from a low of -130 to a high of 4170 gammas.

Plus 800 gamma values are largely confined to an East/West belt 6,000' long and up to 2,700' wide, but averaging about 1,500' wide. This would appear to be underlain by dioritic to monzonitic intrusives and related biotite feldspar porphyry. These intrusives apparently have local northerly lineations and seem to occur in several similarly trending dykes immediately to the west of the above defined belt.

Based on the magnetics, the presumed main E/W intrusive body appears to be truncated abruptly at its eastern end by the major, NW-trending regional fault. Undoubtedly the latest movement along the latter is post-intrusive, so it is interesting to speculate on the direction and magnitude of the displacement. By coincidence there is a local magnetic high 3,500' to the S.E. on A72N near the Base Line, but there is no apparent continuation of this to the east.

The siltstones and felsitic tuffs on the Wolf Group seem to have magnetic intensities under 800 gammas (probably mostly under 700 gammas) away from the intrusive bodies.

#### EXPLORATION POSSIBILITIES:

Geochem No. 1 Anomaly area is of exploration interest as it contains a number of intrusive bodies and lies on the north flank of the presumed main E/W intrusive mass. Outcrops in this geochem anomalous area are largely confined to the western and southern portions. Known Cu and Mo mineralization is presently limited to the latter, and is scant in amount. At the present time, one has to assume that the anomalous values probably are derived from comparatively minor sources. However, where there is smoke there may be fire, so this anomalous area still possesses exploration interest.

The magnetic survey suggests that the belt of intrusive bodies continues for over 3,000' east of the above geochem anomaly and the rock exposures mapped by the writer last August. This extension and its north and south flanks warrant further investigation. The lack of anomalous Cu and Mo geochem values does not eliminate this eastern extension area as overburden may be excessive in depth.

The local magnetic high on A72N @ B/L also is of exploration interest, as it may indicate a local intrusive high. It is just possible that the erratic geochem high at the lake shore on A72N may be due to float from mineralization related to this magnetic high.



RECOMMENDATIONS:

Reconnaissance geological mapping should be done of the grid area as a whole; and more detailed coverage of the anomalous geochem area, the main E/W magnetic high belt and other local areas of higher intensity.

Further exploration should be influenced by the results of this mapping.

Respectfully submitted,



Gavin A. Dirom, P. Eng.



May 10th, 1968.



SCORCHED HILL

ALSO  
52815-17-19

MORRISON

MILLERAK



WOLF PIPE

WOLF GROUP

ALSO  
26028-9  
26028-11-13

1" = 1 MILE

ALSO:  
45371-45371C  
45372-45372C  
45373-45373C  
45374-45374C  
45375-45375C  
45376-45376C  
45377-45377C  
45378-45378C

	RECORD NO.	DATE
WOLF 1-16	45119-124	MAY 1/67
✓ 17-32	50230-245	JUNE 5/67
✓ 33-38	54044-049	AUG 15/67
WOLF PI FRAC.	55109	OCT. 6/67



PORTION OF CLAIM MAP #127

CLAIM INDEX MAP

TO ACCOMPANY REPORT BY  
G. ADROM - MAY 10, 1963

FIGURE

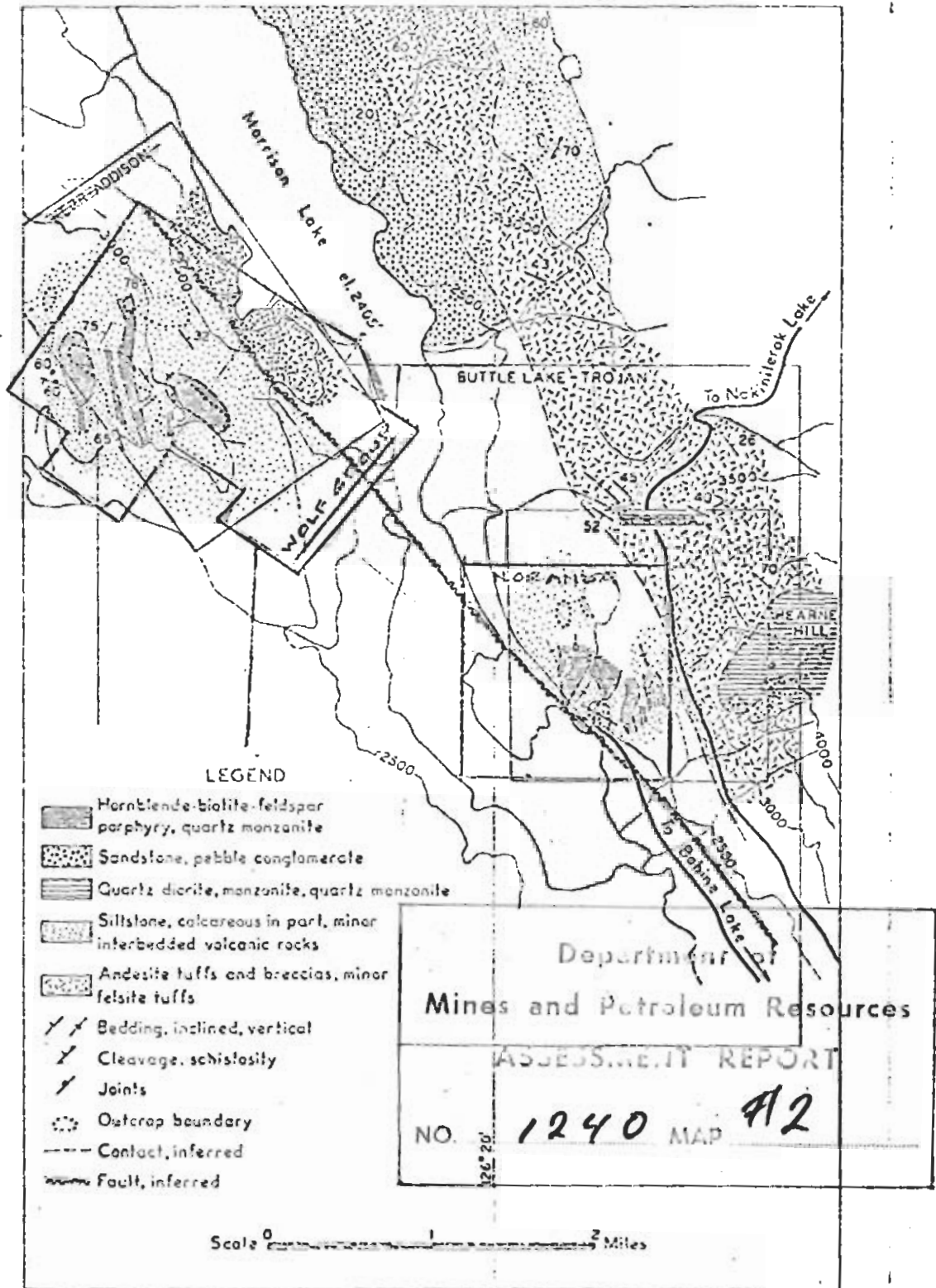


Figure 14. Geological map of the Morrison Lake area.  
by N. C. CARTER

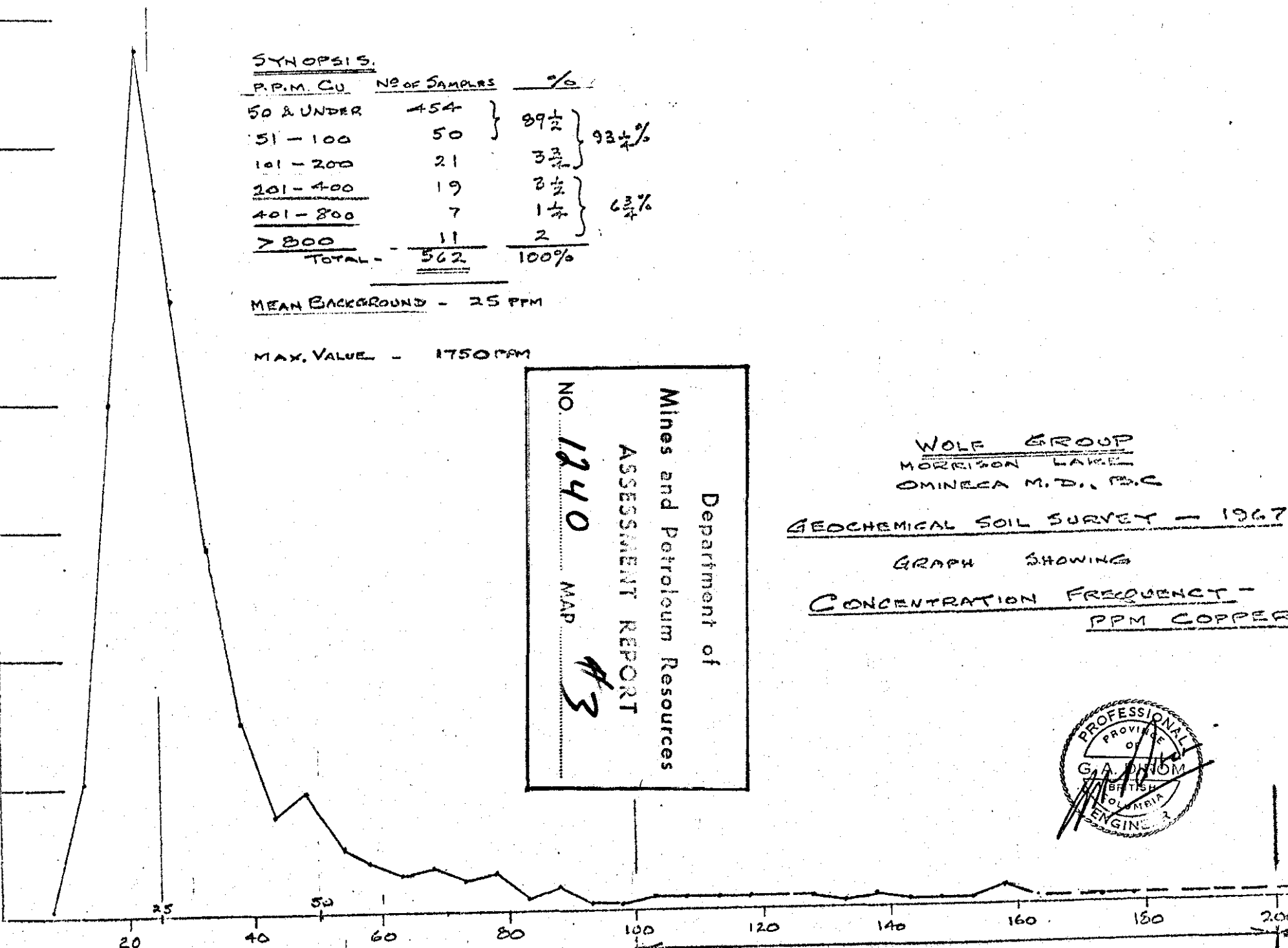


SYNOPSIS.

P.P.M. CU	NO OF SAMPLES	%
50 & UNDER	454	93½%
51 - 100	50	
101 - 200	21	
201 - 400	19	6¾%
401 - 800	7	
> 800	11	
TOTAL -	562	100%

MEAN BACKGROUND - 25 PPM

MAX. VALUE - 1750 PPM



Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 1240 MAP #3

WOLF GROUP  
 MORRISON LAKE  
 OMINICA M.D., B.C.

GEOCHEMICAL SOIL SURVEY - 1967

GRAPH SHOWING  
CONCENTRATION FREQUENCY -  
PPM COPPER



# CHEMEX LABS LTD.

1416 CROWN STREET  
NORTH VANCOUVER, B. C.  
988-6955

## Laboratory Processing and Analyses of Soil and Stream Sediment Samples

1. Samples are sorted, recorded and dried at 60°C.
2. Dried Samples are sieved to -80 mesh fraction in nylon and stainless steel sieves.
3. 1 gram of -80 mesh fraction is weighed into test tube and digested with hot 70% perchloric acid.
4. Digested samples are diluted to 50 ml. volume with demineralized H<sub>2</sub>O and mixed thoroughly.
5. Copper is analyzed in aqueous solution by Techtron A-A-3 Atomic Absorption Unit - Detection Limit in soils and stream sediments = 1 P.P.M.
6. Molybdenum is analyzed colourimetrically, with stannous chloride - ammonium thiocyanate extraction, and "Moly" complex is read on Bausch and Lomb Spectronic-20. Detection Limit - 1 P.P.M.

October 25, 1967





MORRISON

LAKE



SCALE FEET  
1" = 800'

CLAIM STATUS -  
SOLID LINES - LOCATION LINES  
DASHED LINES - TYPICAL  
DOTTED LINES - VERY APPROX.

GEOCHEM VALUES -  
150 = 50 PPM  
MO  
SEE MAP #3  
1" = 400'

TRO-BUTTE  
EXPLORATION LTD.  
MORRISON LAKE, OMINICA M.D., B.C.

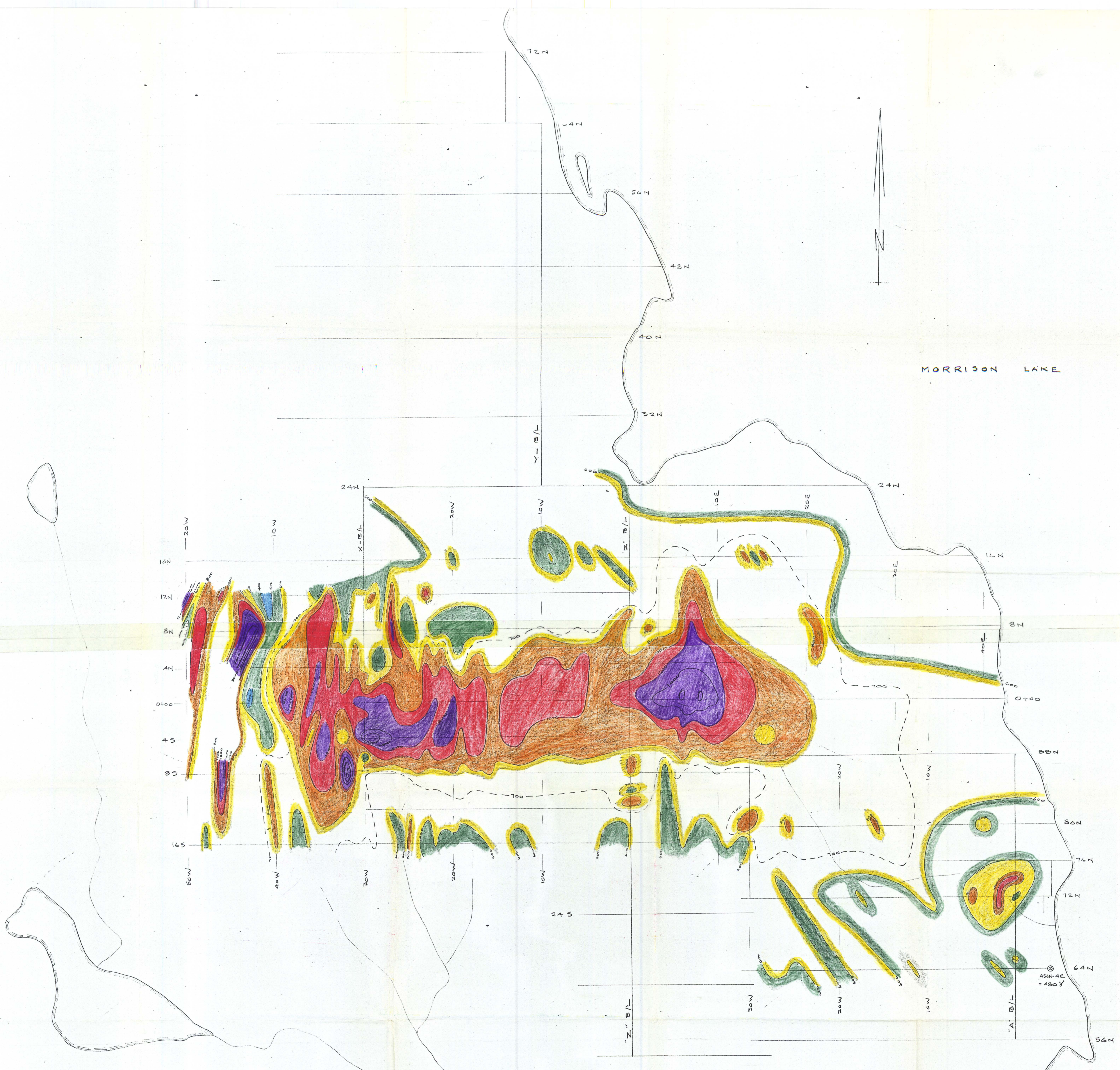
WOLF CLAIMS  
GEOCHEMICAL SURVEY  
& RELATION TO MINERAL CLAIMS

DRAWN  
CKD  
APPRD  
DATE  
MAY 10, 1968



1240

1" = 800' MAP NO 6



INSTRUMENT : M 500 VERTICAL COMPONENT, FLUX GATE TYPE.  
 FIELD WORK : PETER F. BLAND, MARCH & APRIL, 1968  
 DATA REDUCTION : GEO-X SURVEYS LTD & GADIRAM.  
 CONTOURING - BY GADIRAM.  
 VALUES (Y) RELATIVE TO ASH-4E = 480Y.  
 1200 & OVER  
 1000 < 1200  
 800 < 1000  
 600 < 800  
 400 < 600  
 < 400

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO 1240 MAP 46



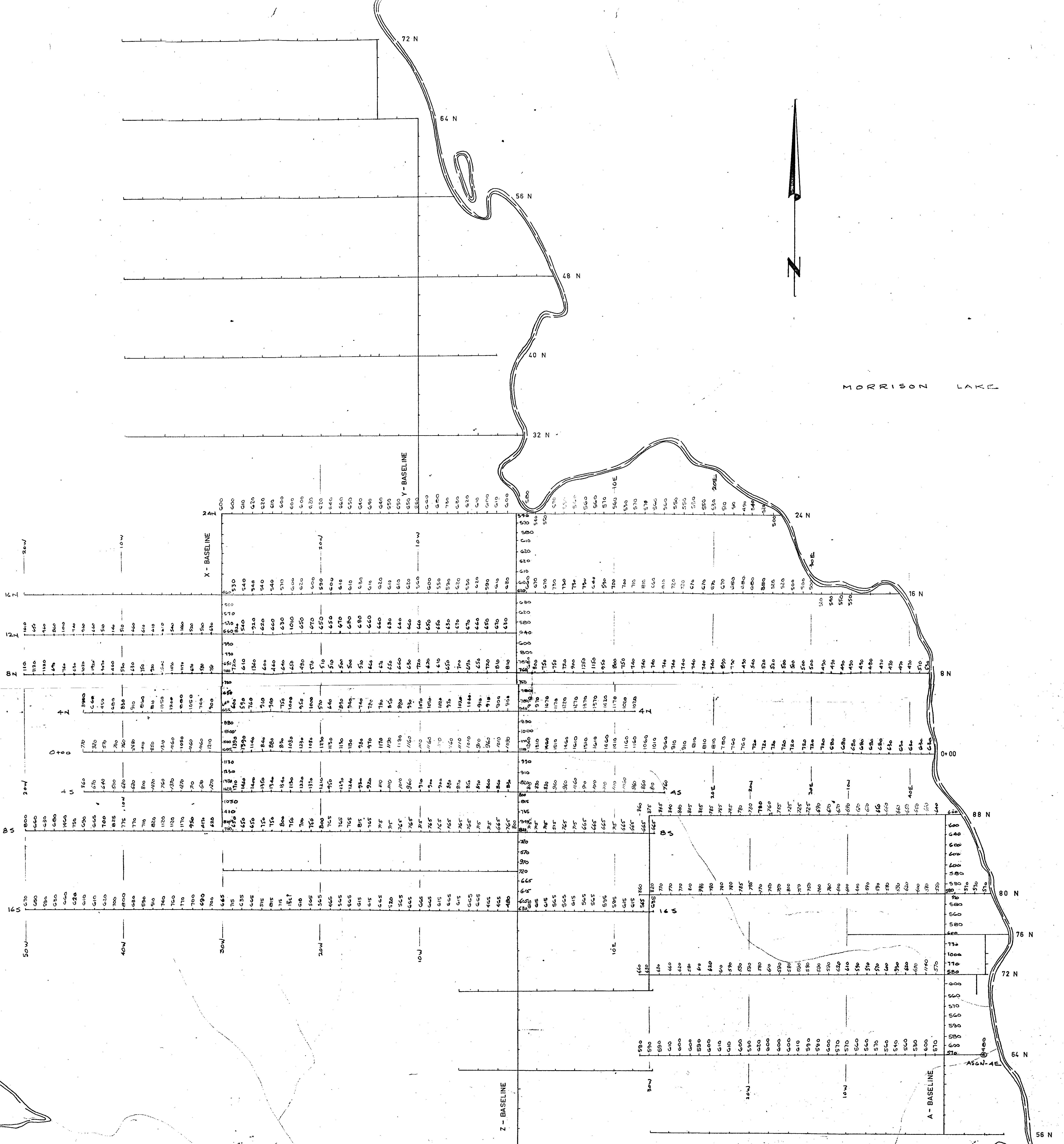
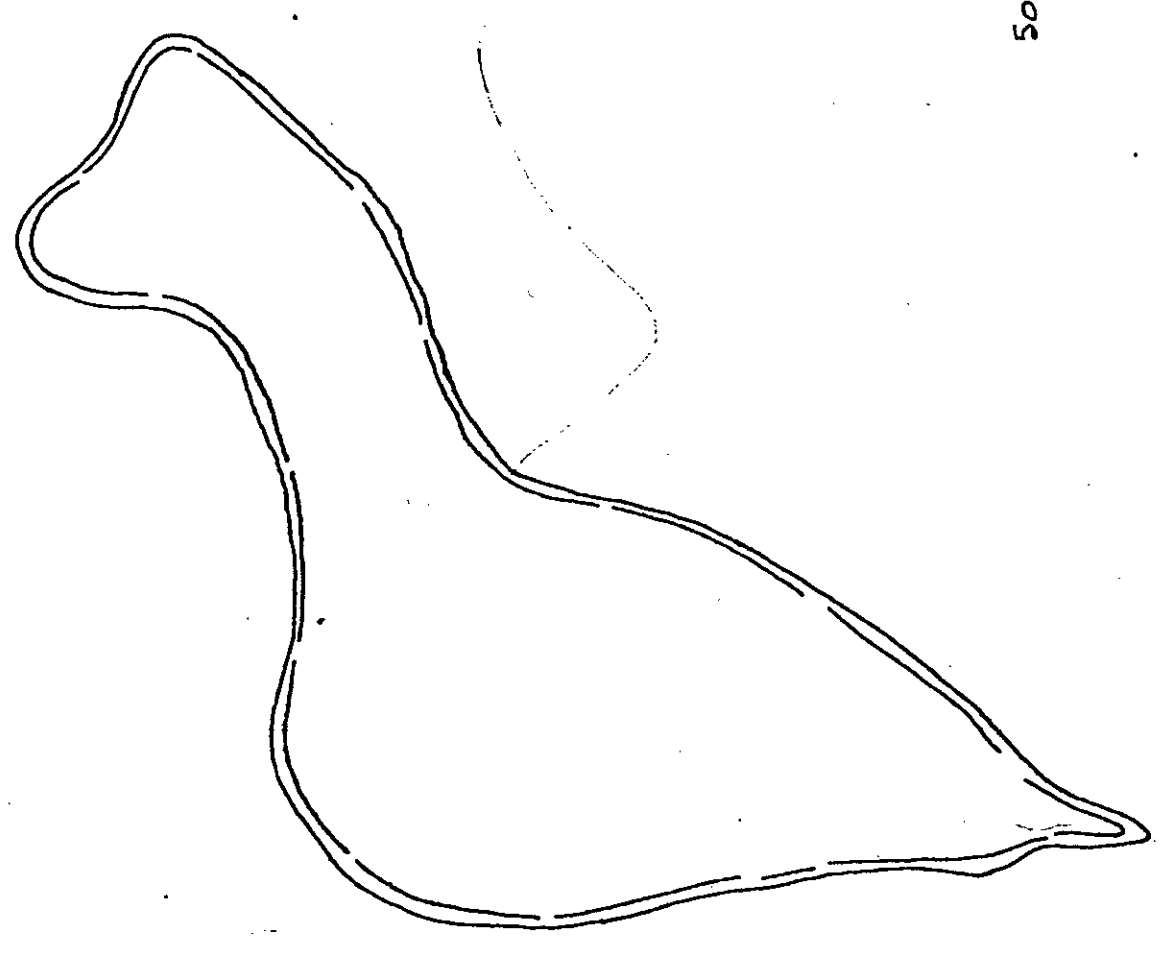
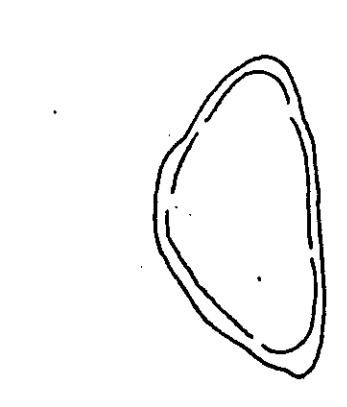
TRO-BUTTE EXPLORATION LTD  
 WOLF GROUP  
 MORRISON LAKE, CHINECA M.D., B.C.  
 MAGNETIC SURVEY  
 CONTOUR MAP

1240

To accompany Report by GADIRAM, MAY 10, 1968

1" = 400' GADIRAM MAY 10, 1968 MAP 46 5

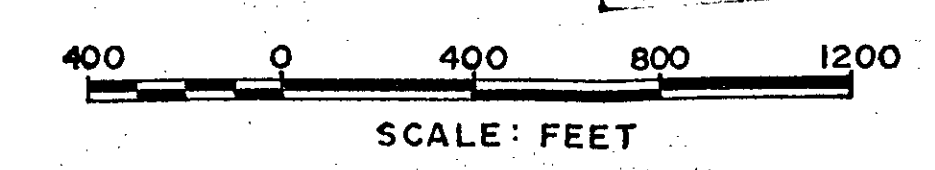
24 N  
16 N  
12 N  
8 N  
4 N  
0-00  
4 S  
8 S  
12 S  
16 S  
24 S  
32 S  
40 S



1 0 2 2 0 2 1 2 2

INSTRUMENT - M500 VERTICAL COMPONENT, FLUKGATE TYPE.  
 FIELD WORK - PETER EBLAND, MARCH & APRIL, 1968  
 DATA REDUCTION - G.R.O.X SURVEYS LTD., SUPPLEMENTED BY G.A. DIAMON, P.E.N.G.  
 VALUES (γ) - RELATIVE TO A 56N-4E = 100 γ.

TO ACCOMPANY REPORT BY G.A. DIAMON, MAY 10, 1968.



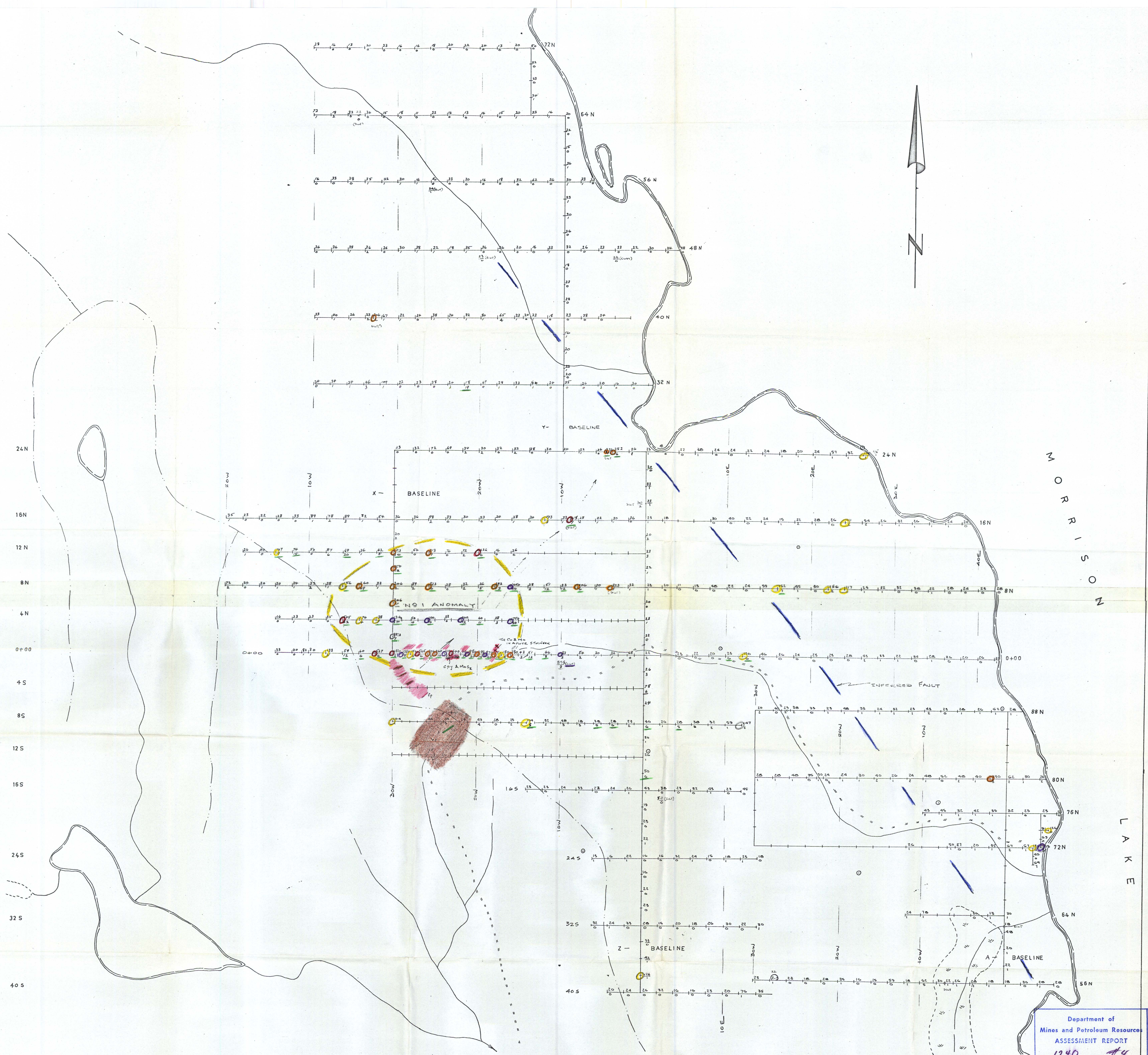
Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 1240 MAP #5

TRO-BUTTLE  
 EXPLORATION LTD.  
 MORRISON LAKE, OMINECA M.D., B.C.

WOLF CLAIMS  
 MAGNETIC SURVEY  
 RELATIVE STATION VALUES

1240	DRAWN			MAP#2 4
	CKD			
	APPR'D			
	DATE			





**GEOLOGY:**

- XXXX MINERALIZATION: CHALCOPYRITE & MALACHITE
- ORANGE FELDSPAR PORPHYRY (Fp) QUARTZ MINERALIZATION (Qm) QUARTZ DIORITE (Qd)
- SILTSTONES, ETC.
- VOLCANIC DIKES & FLOWS
- YOUNG TURFS & BERBERIAS

**GEOCHEM VALUES: PPM**

- COPPER - 101 - 200
- 201 - 400
- 401 - 800
- OVER 800
- MOLYBDENUM - 5 PPM & OVER.

Department of  
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ASSESSMENT REPORT  
NO. 1240 MAP #4

TRO-BUTTLE  
EXPLORATION LTD.  
MORRISON LAKE, OMINICA M.D., B.C.

WOLF CLAIMS  
GEOCHEMICAL SURVEY

1240

TO ACCOMPANY REPORT BY G.A. DIXON, P.E.N.G.  
MAY 10, 1968

DRAWN			MAP NO. 3
CKD			
APPR'D			
DATE	MAY 10, 1968		



INSTRUMENT : M 500 VERTICAL COMPONENT,  
 FLUX GATE TYPE.  
 FIELD WORK : PETER F. BLAND, MARCH & APRIL, 1968  
 DATA REDUCTION : GEO-X SURVEYS LTD & GADIREM,  
 CONTOURING - BY GADIREM.  
 VALUES (Y) : RELATIVE TO ASL-4E = 480Y.  
 1200 & OVER  
 1000 < 1200  
 800 < 1000  
 600 < 800  
 400 < 600  
 < 400

Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 1240 MAP 2

TRO-BUTTLE EXPLORATION LTD  
 WOLF GROUP  
 MORRISON LAKE, OMINICA M.D., B.C.  
 MAGNETIC SURVEY  
 CONTOUR MAP

TO ACCOMPANY REPORT BY GADIREM, MAY 10, 1968

1240

1" = 400' GADIREM MAY 10, 1968 MAP NO. 5