# 3874

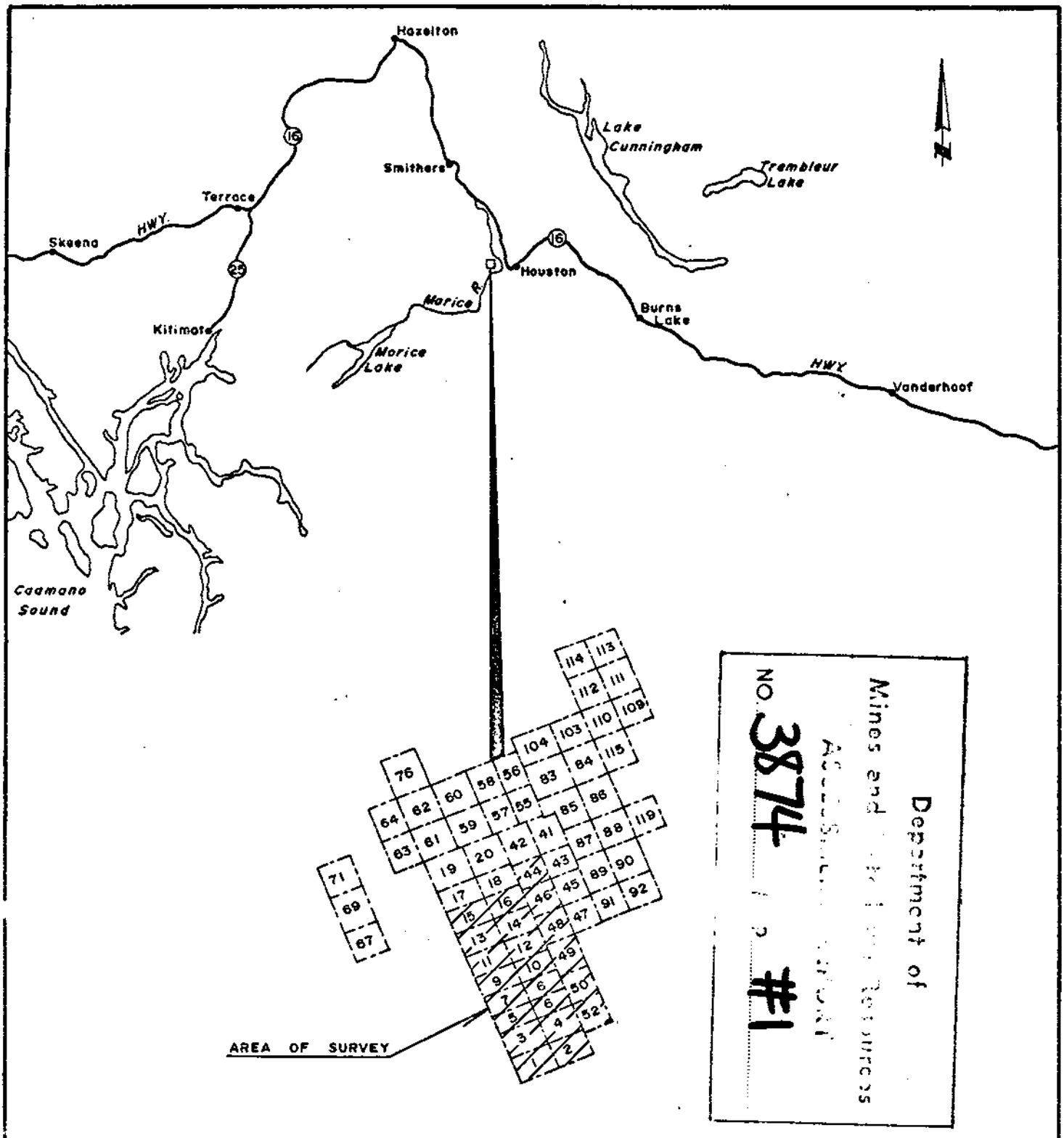
LOBELL MINES LTD.
INDUCED POLARIZATION and GEOCHEMICAL REPORT

Joe claim group, 30 miles south of Smithers, B.C.
Lat. 52°22'N Long. 127°12'W N.T.S. 93L/6

AUTHOR: Glen E. White B.Sc. Geophysicist
P. ENG: D. Parent
DATE OF WORK: June 15 - 28, 1972
DATE OF REPORT: July 14, 1972

93L/6E

# C O N T E N T S




# LOBELL MINES LTD.
## LOLJUH CREEK PROPERTY

### JOE CLAIMS

## LOCATION & CLAIMS MAP

SCALE : LOCATION MAP : 1" = 39 MILES APPROX. CLAIM MAP : 1" = 6000' APPROX.

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FIG. 1
JULY 14, 1972

## INTRODUCTION

During the period June 15 to June 28, 1972, Glen E. White Geophysical Consulting and Services Ltd. conducted a program of induced polarization surveying and geochemical soil sampling over the Joe group of mineral claims located in Smithers area, Omineca Mining Division, Province of British Columbia.

The purpose of the survey was to examine at depth an overburden-covered area which appeared to contain favourable geological structure and which shows a pronounced rise in magnetic intensity with weak copper geochemical values.

## PROPERTY

The induced polarization and soil sampling surveys discussed in this report were conducted over mineral claims Joe 1 - 16, 46, 48, 49, 50, 52, and 44 as illustrated in Figure 1.

## LOCATION AND ACCESS

The Joe mineral claims illustrated in Figure 1 are located some 30 miles south of Smithers B.C. at Latitude 54°22'N Longitude 127°12'W N.T.S. 93L/6, Omineca Mining Division, B.C.

Access to the property is by helicopter from a helicopter base at Smithers. Flying time is approximately 20 minutes one way.

## GENERAL GEOLOGY

The property is underlain by interbedded sedimentary and volcanic flows and tuffs of the Hazelton formation of Jurassic age which have been intruded by small granitic bodies of variable composition. Mineralization is reportedly associated with these intrusions.

## PREVIOUS WORK

Previous work consisted of geochemical, geological, magnetometer and electromagnetometer surveys conducted during the 1970 exploration season and discussed in a report dated December 29, 1970 by Tri-Con Exploration Surveys Ltd. The 1970 exploration program located an area in the southern section of the claim group which showed some correlation between trends delineated by the magnetometer and electromagnetometer surveys and geochemical values in p.p.m. of copper and silver. This area was subsequently covered by the induced polarization and geochemical surveys discussed in this report.

## SURVEY SPECIFICATIONS

### Electrode Array

The data was obtained using the "three electrode" array. This array consists of one current ($C_1$) and two potential electrodes ($P_1$ and $P_2$) which are moved together along the survey line at a fixed distance apart, which is known as the "a" spacing. The second current electrode ($C_2$) is placed at "infinity".

### Induced Polarization System

The equipment used on this survey was the Huntec pulse-type unit. Power was obtained from a JLO motor, coupled to a 2.5 KW 400 cycle three-phase generator, providing a maximum of 2.5 KW D.C. to the ground. The cycling rate is 1.5 seconds "current on" and 0.5 seconds "current off", the pulses reversing continuously in polarity. Power was transmitted to the ground through two current electrodes $C_1$ and $C_2$, and measurements taken across two potential electrodes, $P_1$ and $P_2$.

The data recorded in the field consist of careful measurements of the current (I) in amperes flowing through electrodes $C_1$ and $C_2$, the primary voltage ($V_p$) appearing between electrodes $P_1$ and $P_2$ during the "current on" part of the cycle, and the secondary voltage ($V_s$) appearing between electrodes $P_1$ and $P_2$ during the "current off" part of the cycle.

The apparent chargeability ($M_a$), in milliseconds, is calculated by dividing the secondary voltage by the primary voltage and multiplying by 400, which is the sampling time in milliseconds of the receiver unit. The apparent resistivity, in ohm-feet, is proportional to the ratio of the primary voltage to the measured current, the proportionality factor depending on the geometry of the electrode array used. The chargeability and resistivity obtained are called "apparent" as they are values which that portion of the earth sampled by the array would have if it were homogeneous. As the earth sampled is usually inhomogeneous, the calculated apparent chargeability and apparent resistivity are functions of the actual chargeabilities and resistivities of the rocks sampled and of the geometry of these rocks.

Survey Grid

The regional grid established during the 1970 exploration program was used for this survey. The traverse grid consisted of north-south lines spaced approximately 700 feet apart which were tied together by two control lines. The lines were flagged at 100 foot intervals. Some 7.5 line miles of reconnaissance surveying with an "a" spacing of 200 feet and some 1.5 line miles of detail surveying with 100 foot and 400 foot seperations were conducted.

GEOCHEMICAL SURVEY

174 soil samples were obtained of the B horizon which varied in depth from 8 - 18 inches and were placed in geochemical envelopes supplied by Chemex Labs Ltd.

The soil samples were delivered to Chemex Labs Ltd. of North Vancouver, where drying -80 mesh seiving, digestion by perchloric acid and analysis by atomic absorption was carried out under the supervision of professional geochemists. All samples were analysed for copper.

## DATA PRESENTATION

The survey data described in this report is depicted in contour form at a horizontal scale of 1" = 600' as follows:

Figure 2 - Chargeability - contoured at an interval of one millisecond.

Figure 3 - Apparent Resistivity - contoured at 750, 1000, 1500, 2000, 3000, 5000, and 7500 ohm-feet levels.

Figure 4 - Copper in p.p.m. - contoured at 70, 100, and 130 p.p.m. levels.

## DISCUSSION OF RESULTS

The anomalous copper geochemical values delineated by the survey varied from 102 p.p.m. to 1760 p.p.m. Several areas on the property show evidence of deep overburden conditions; thus geochemical sampling would be ineffective. However at a value of 70 p.p.m. the copper geochemical values show a well defined trend and likely reflect shallow overburden-covered or upslope geochemical sources.

The resistivity data showed moderate variations which reflect changes in the depth of overburden and physical characteristics of the overburden. In general the low values on the baseline near 98S, reflect a flat valley bottom likely containing deep overburden conditions.

The induced polarization survey delineated an area of high chargeability values in the southern section of the survey area trending in an east-west direction from lines 3E to 1W a distance of 3000 feet. The detail profiles on line 0.5W (Plate I) shows a small increase in chargeability material with depth at 90S, whereas the larger seperation on line 0+00 (Plate II) shows a definite increase with depth at 87S. The anomalous zone extends in width from 79S to 91S a distance of 1200 feet. The detail on line 1E (Plate III) shows an increase in chargeability with each increase in seperation indicating deep overburden conditions.

Correlation of the chargeability and copper geochemical data shows anomalous copper geochemical values to 362 p.p.m.

directly associated with the chargeability anomaly in the SE section of the survey area. Several other areas of above background chargeability values were located; one is on line 3E at 36S. It would appear to be associated with anomalous copper geochemical values. It is possible that the very high copper geochemical values - 1150 and 1760 p.p.m. copper - reflect a source upslope to the east.

## CONCLUSIONS

During the month of June 1972, a program of induced polarization surveying and coincident geochemical sampling on the Joe claim group, was carried out on behalf of Lobell Mines Ltd.

The survey located a strong, well-defined chargeability anomaly in the southern section of the survey area. The anomaly shows a definite increase in chargeability material with depth and is associated with anomalous copper geochemical values on its eastern end, possibly in an area of shallower overburden conditions.

## RECOMMENDATIONS

It is recommended that the induced polarization anomaly be investigated by a program of diamond drilling. A study of the survey area indicates that since all equipment must be airlifted to the property, a minimum of two diamond drill holes should be collared from the same setup.

It is considered that a diamond drill hole collared on 0+00 between 89 and 90S and drilled at an angle of -50° in a northerly direction for a length of 500 to 600 feet would effectively evaluate the chargeability anomaly.

Respectfully submitted,
GLEN E. WHITE GEOPHYSICAL
CONSULTING AND SERVICES LTD.

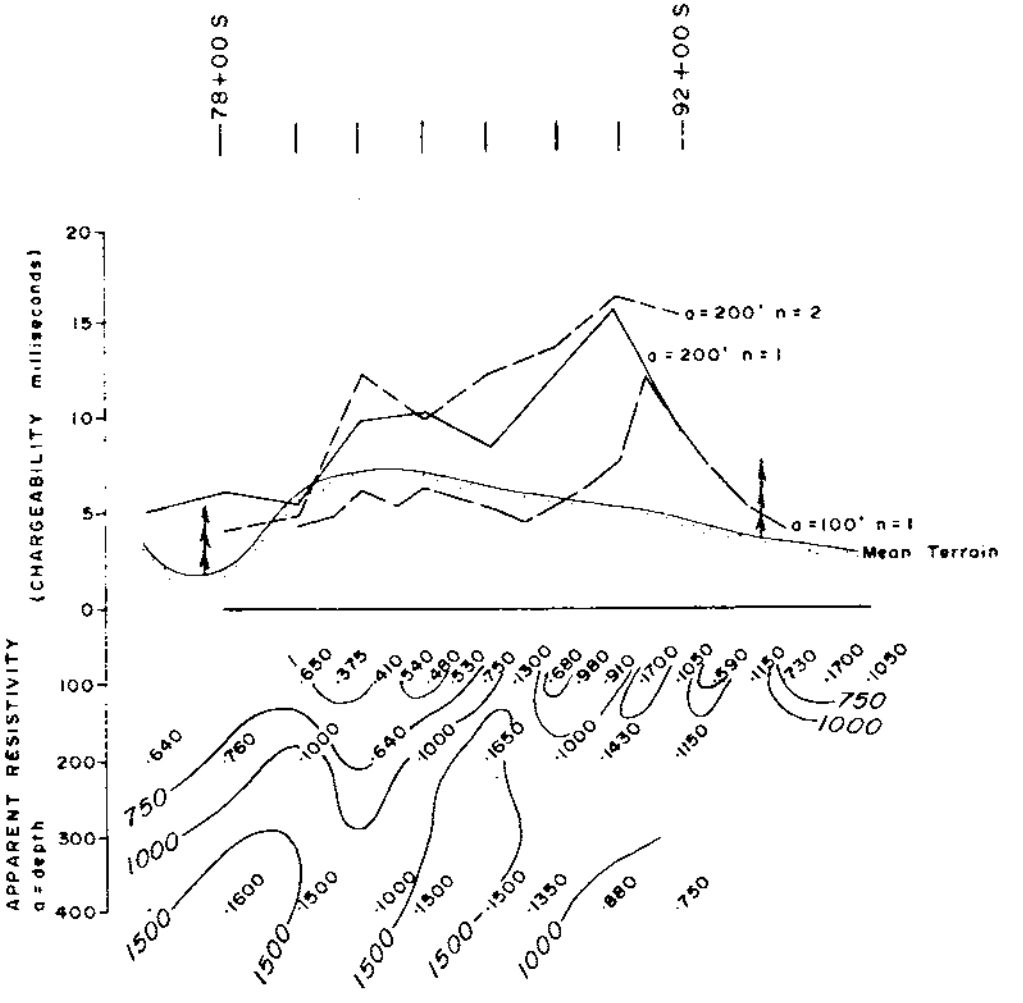
Glen E. White B.Sc.
Geophysicist

# LOBELL MINES LTD.

## COMPOSITE PROFILES

### INTERMEDIATE LINE 0.5 W

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3874 MAP #2

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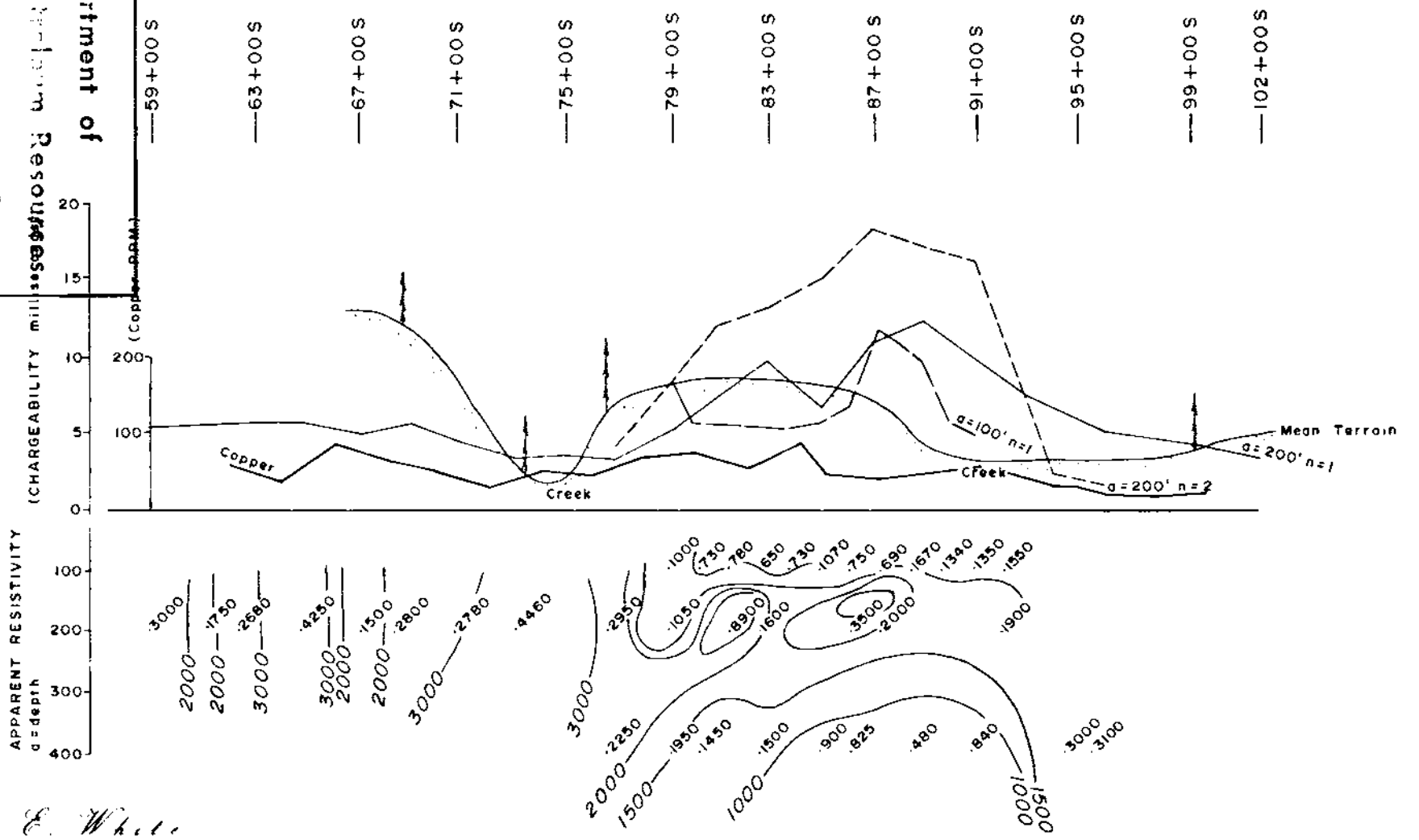
SCALE 1" = 600'

PLATE 1
JULY 14, 1972

# LOBELL MINES LTD.

## COMPOSITE PROFILES

### BASE LINE 0+00

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SCALE 1" = 600'

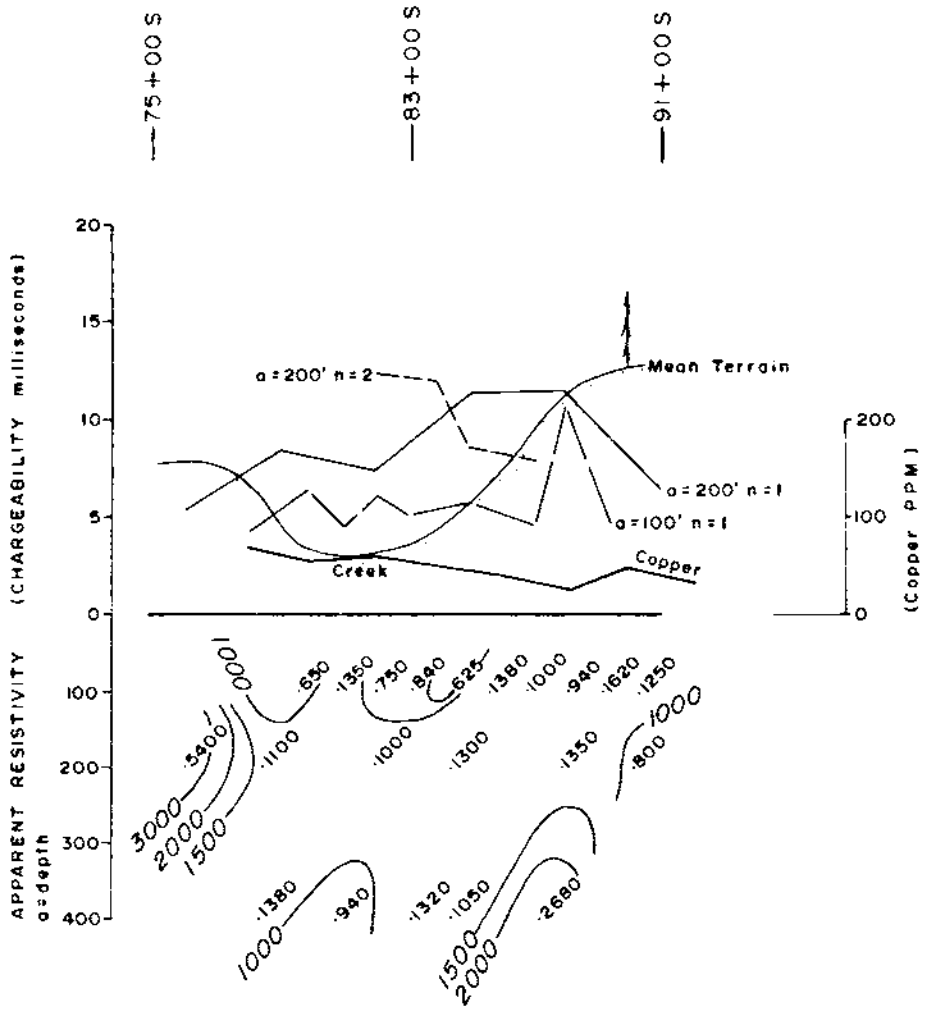
PLATE 2
JULY 14, 1972

# LOBELL MINES LTD.

## COMPOSITE PROFILES

### LINE 1+00E



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SCALE 1" = 600'

PLATE 3
JULY 14,1972

## STATEMENT OF QUALIFICATIONS

| | |
|---|---|
| Name: | WHITE, Glen E. |
| Profession: | Geophysicist |
| Education: | B.Sc. Geophysics - Geology<br>University of British Columbia |
| Professional Associations: | Associate member of Society of Exploration Geophysicists.<br>Active member B.C. Society of Mining Geophysicists. |
| Experience: | Pre-Graduate experience in Geology-Geochemistry - Geophysics with Anaconda American Brass.<br><br>Two years Mining Geophysicist with Sulmac Explorations Ltd. and Airborne Geophysics with Spartan Air Services Ltd.<br><br>One year Mining Geophysicist and technical Sales Manager in the Pacific north-west for W. P. McGill and Associates.<br><br>Two years Mining Geophysicist and supervisor Airborne and Ground Geophysical Divisions, with Geo-X Surveys Ltd.<br><br>Two years Chief Geophysicist Tri-Con Exploration Surveys Ltd.<br><br>One year Consulting Geophysicist.<br><br>Active experience in all Geologic provinces of Canada. |

# A P P E N D I X

## Instrument Specifications

Method of Survey - Induced Polarization

A. Instruments

(a) Type - Pulse
(b) Make - Huntec
(c) Serial No. - transmitter #107 - receiver #207

B. Specifications

(a) Size and Power - 2.5 KW
(b) Sensitivity - 300 x 10.5 volts
(c) Power Sources - 2.5 KW 400 cycle - three-phase generator
(d) Power by JLO motor, 5.2 H.P. @ 3,600 R.P.M.
(e) Timing - electronic, remote and direct
(f) Readings - (i) amps (ii) volts primary and secondary
(g) Calculate (i) Resistivity - ohm-feet
(ii) Chargeability - milliseconds

C. Survey Procedures

(a) method - power supplied to mobile probe along TW 18 stranded wire from stationary set-up.
(b) configuration - Pole - dipole (three electrode array) Plot point midway between $C_1$ and $P_1$.

D. Presentation

Contour Maps (i) Chargeability - milliseconds
(ii) Resistivity - ohm-feet

# C E R T I F I C A T E

I, Douglas Parent, DO HEREBY CERTIFY AS FOLLOWS:

(1) That I am a Consulting Mining Engineer with a business office at 4495 Wallace St., Vancouver 8, B.C.

(2) That I am a Graduate of New Mexico Institute of Mining and Technology having received the degree of B.Sc. in Mining Engineering in 1934.

(3) That I am a registered P. ENG in the Association of Professional Engineers in the provinces of British Columbia and Quebec.

(4) That I have practised my profession as a Mining Engineer for the past 36 years.

(5) That I have reviewed a report dated July 14, 1972 based on work conducted by Glen E. White Geophysical Consulting and Services Ltd. under the supervision of Glen E. White B.Sc. Geophysicist, and concur with the findings therein.

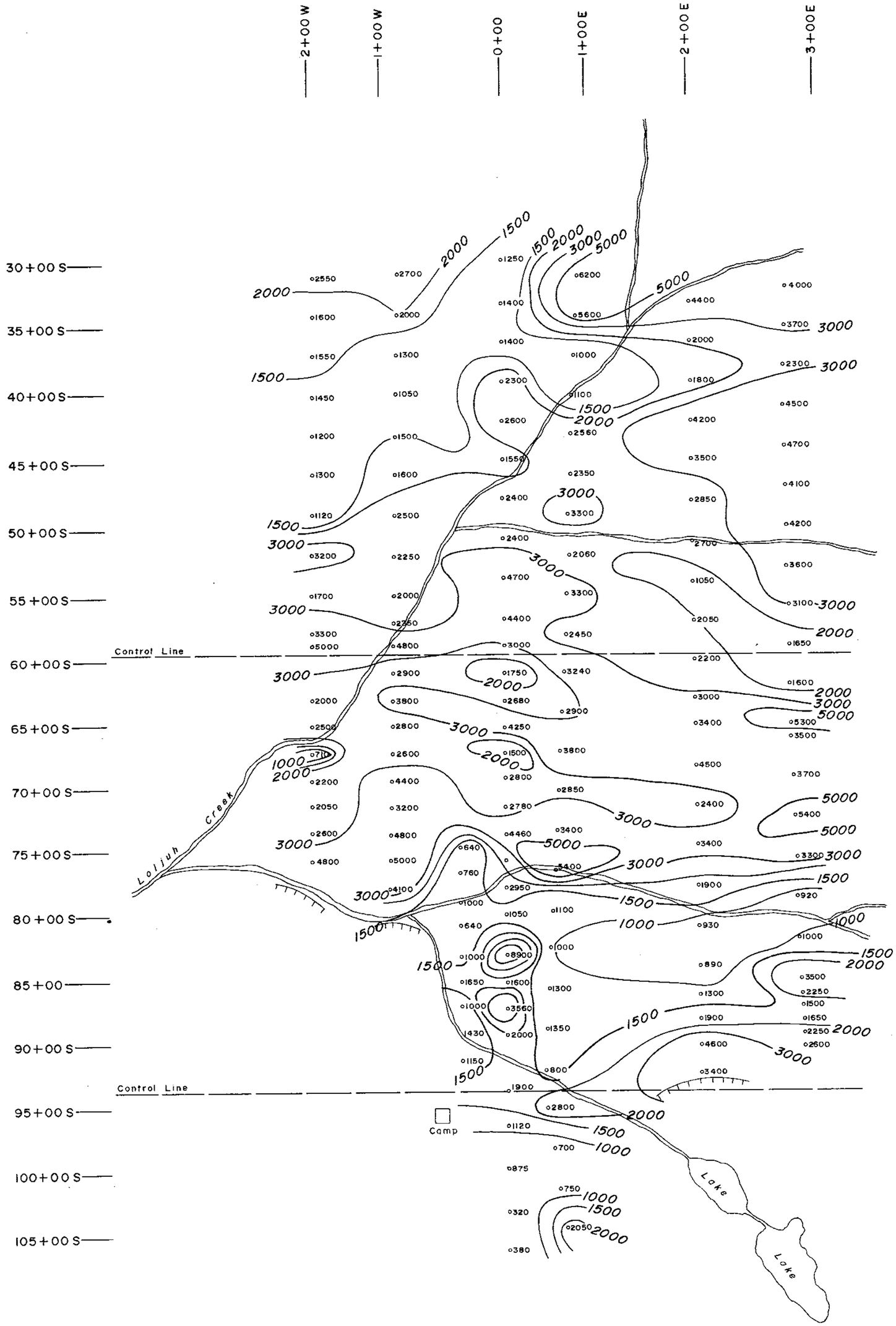
(6) That this report consists of 8 typewritten pages and three maps.

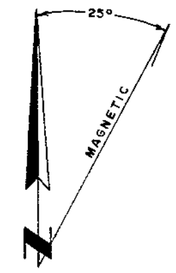
(7) That I have no interest directly or indirectly in the Joe mineral claims or the securities of Lobell Mines Ltd. nor do I expect to acquire or receive any.

DATED at Vancouver, British Columbia, this 14th day of July, 1972.

DOUGLAS PARENT, P. ENG

Douglas Parent, P. ENG



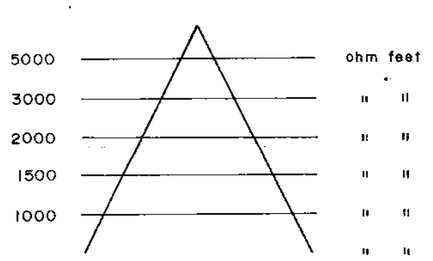

## LEGEND

Contour Line, Contour Interval: 1000, 1500, 2000, 3000, 5000 ohm feet

Stations

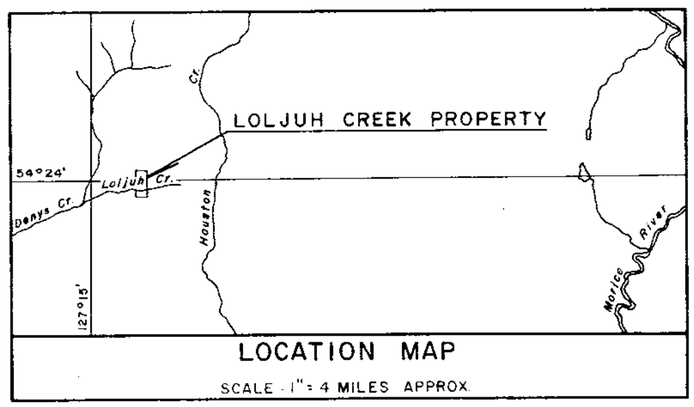
Cliff

## RESISTIVITY KEY




Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 3874 MAP #6

N.T.S. 93 L/7




LOCATION MAP
SCALE - 1" = 4 MILES APPROX

600 300 0 600 1200 1800
1" = 600'

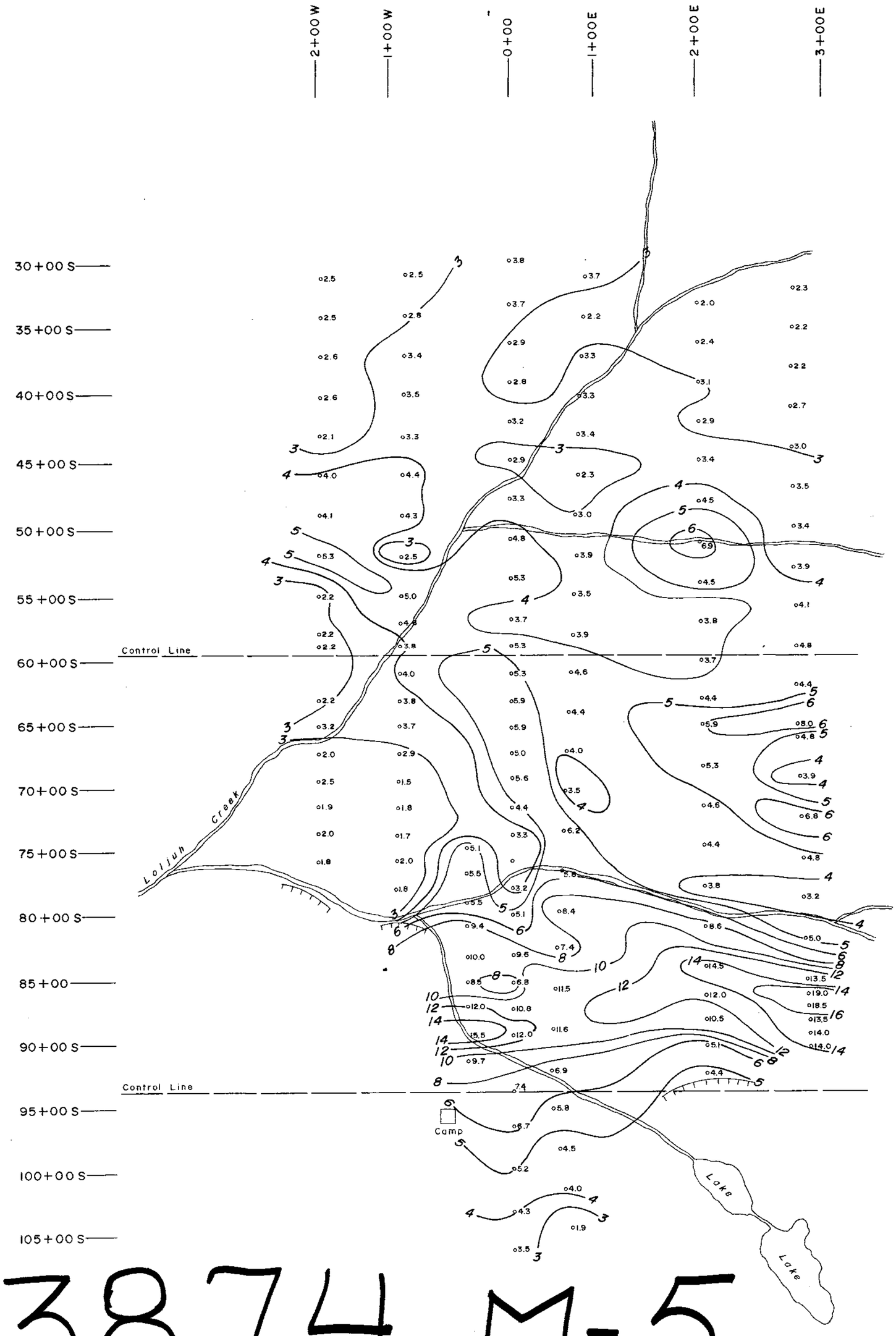
# LOBELL MINES LTD.
## LOLJUH CREEK PROPERTY
### JOE CLAIMS
OMINECA MINING DIVISION — BRITISH COLUMBIA

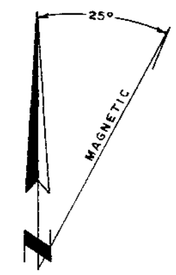
GEOPHYSICAL MAP
INDUCED POLARIZATION
APPARENT RESISTIVITY — (ohm feet)

To Accompany Geophysical Report on
THE JOE CLAIM GROUP
Date: July 1972
By: GLEN E. WHITE — B. Sc. Glen E. White GEOPHYSICIST

Glen E. White
geophysical consulting & services ltd.

| | |
|---|---|
| INTERPRETED BY: G.E.W. | |
| DRAWN BY: T.M. | |
| CHECKED BY: | |
| DATE: JULY 14, 1972 | |
| FIG. 3 | |




## LEGEND

Contour Line, Contour Interval: 3,4,5,6,8,10,12,14,16 milliseconds

Stations

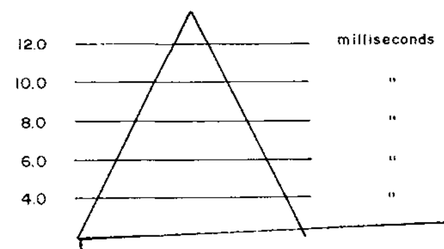
Cliff

**INSTRUMENT** HUNTEC 2.5 KW TIME DOMAIN
(a = 200')

C2 ← I — V

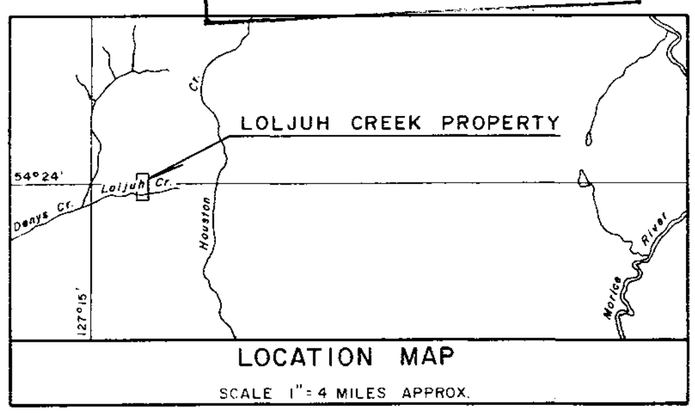
C1 Pole — P2 Dipole — P1

## CHARGEABILITY KEY






N.T.S. 93 L/7




LOCATION MAP
SCALE 1" = 4 MILES APPROX.

600 300 0 600 1200 1800
1" = 600'

# LOBELL MINES LTD.
## LOLJUH CREEK PROPERTY
### JOE CLAIMS
OMINECA MINING DIVISION — BRITISH COLUMBIA

GEOPHYSICAL MAP
INDUCED POLARIZATION
PERCENT CHARGEABILITY — (milliseconds)

To Accompany Geophysical Report on
THE JOE CLAIM GROUP
Date: July 14th 72
By: GLEN E. WHITE — B. Sc. _____ GEOPHYSICIST

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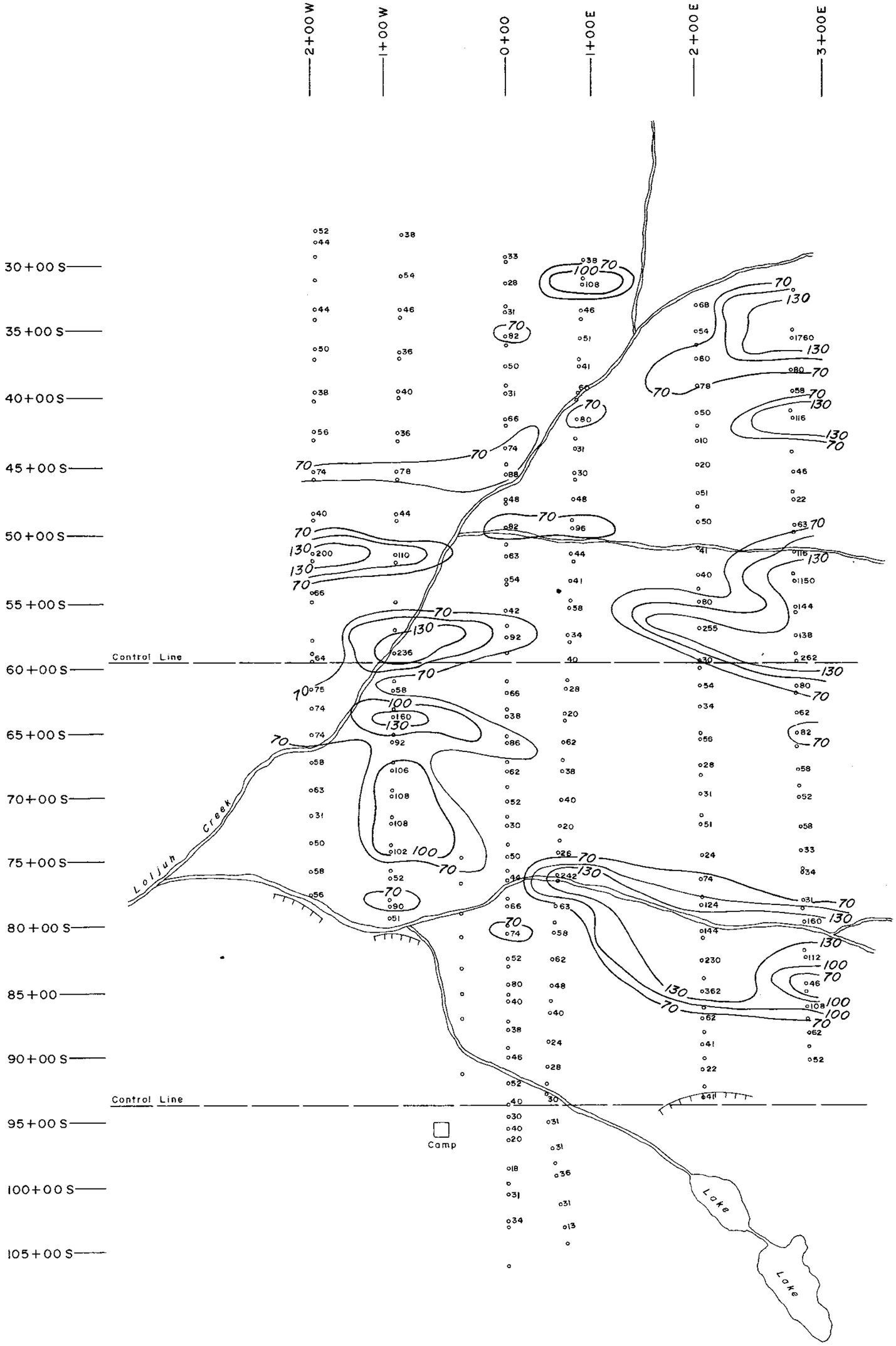
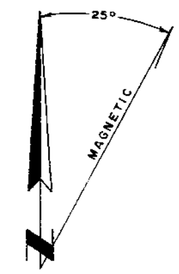
| DRAWN BY: T.M. | |
| CHECKED BY: | |
| DATE: JULY 14, 1972 | |
| FIG. 2 | |



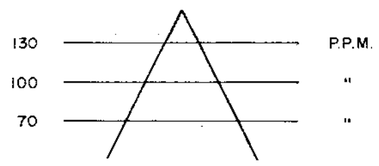

## LEGEND

Contour Line, Contour Interval: 70, 100, 130 P.P.M.

Stations

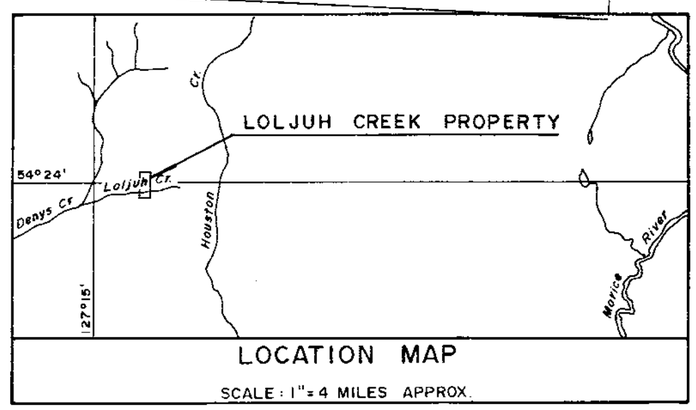
Cliff

## COPPER GEOCHEMICAL KEY






N.T.S. 93 L/7




LOCATION MAP
SCALE: 1"=4 MILES APPROX.

600 300 0 600 1200 1800
1"=600'

# LOBELL MINES LTD.
## LOLJUH CREEK PROPERTY
### JOE CLAIMS
OMINECA MINING DIVISION — BRITISH COLUMBIA

GEOCHEMICAL MAP
COPPER P.P.M.

To Accompany Geophysical Report on
THE JOE CLAIM GROUP
Date: July 14/72
By: GLEN E. WHITE — B. Sc. _____ GEOPHYSICIST

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| INTERPRETED BY: G.E.W. | |
| DRAWN BY: T.M. | |
| CHECKED BY: | |
| DATE: JULY 14, 1972 | |
| FIG. 4 | |