

DELBROOK MINES LTD.  
GEOPHYSICAL REPORT

Jim Claim Group near Owen Lake  
some 26 miles south of Houston, B.C.  
Latitude 54° 02' North Longitude 126° 48' West

AUTHOR: Glen E. White, Chief Geophysicist

P. ENGINEER: W. G. Stevenson

DATE OF WORK: August 29 - September 13, 1970

934/2W

2907

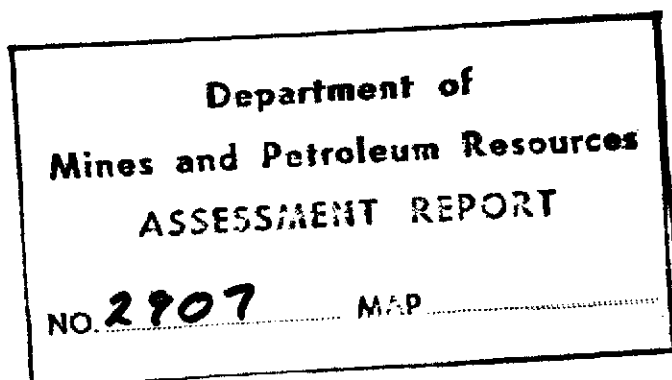
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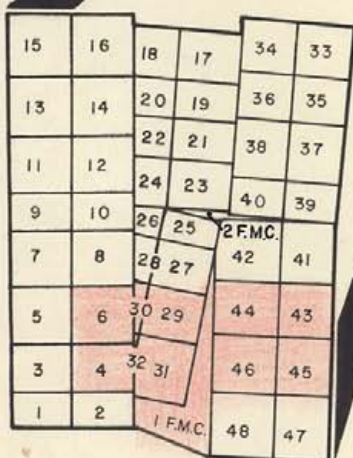
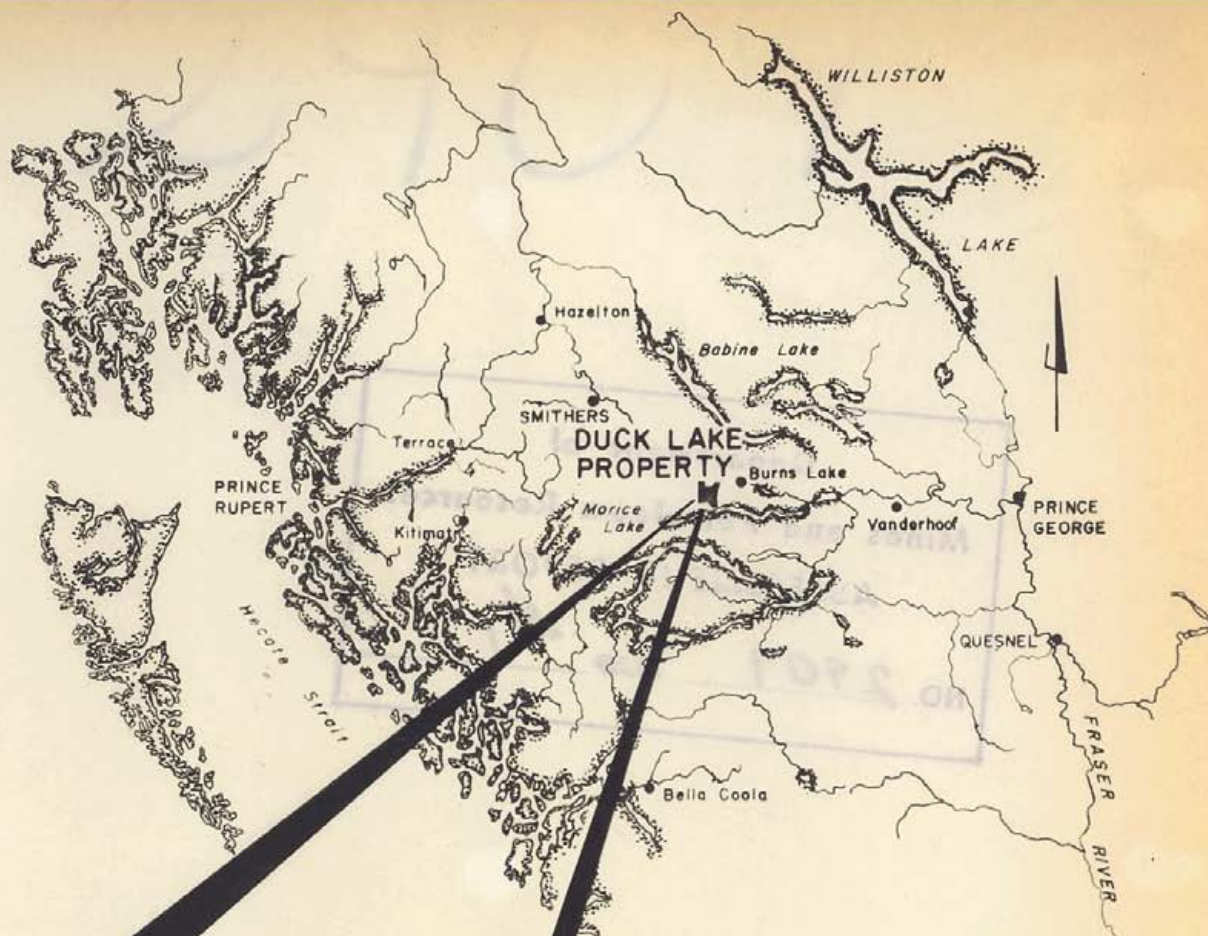
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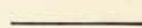


## I L L U S T R A T I O N S

#1 Figure 1	Location and claims map
#2 Figure 2	Induced polarization - chargeability
#3 Figure 3	Induced polarization - resistivity





**L E G E N D**

-  Outline of Claims
-  Shore Line
-  Creeks & Rivers

**DELBROOK MINES LIMITED**  
**DUCK LAKE PROPERTY**  
**JIM CLAIMS**

**LOCATION AND CLAIMS MAP**

SCALE : LOCATION MAP 1" = 80 MILES CLAIMS MAP 1" = 5000'



EXPLORATION SURVEYS LTD.

Fig. 1.

## INTRODUCTION

During the period August 29, 1970 to September 13, 1970 Tri-Con Exploration Surveys Ltd., on behalf of Delbrook Mines Ltd. conducted a program of induced polarization surveying on the Jim claim group located some 26 miles south-southwest of Houston, B.C. in the Omineca Mining Division, Province of British Columbia.

The purpose, of the induced polarization survey, was to examine an area of anomalous reconnaissance copper and zinc geochemical values, for chargeable material indicative of sulphide mineralization.

## PROPERTY

The Jim claim group consists of some 48 full-sized mineral claims and two fractions listed as follows:

Jim 1 - 48 inclusive

Jim No. 1 F.M.C. and Jim No. 2 F.M.C.

The induced polarization survey was conducted in the southern section of the survey area over mineral claims Jim 4, 6, 29, 30, 31, 32, 43, 44, 45, 46 and Jim No. 1 F.M.C.

## LOCATION AND ACCESS

The Jim claim is situated at 54° 02' North latitude and 126° 48' West longitude, immediately north of Duck Lake which is located some 26 miles directly south-southwest of Houston, B.C. in the Omineca Mining Division. N.T.S. 93L/2

Access to the property is south on the Morice River road just west of Houston, B.C. and then south on the Nadina Mines road past Owen Lake and then southwest on the Nadina River road past "Humpty Dumpty" rock. Some 3 miles from this point a good secondary road turns off to the west and passes on the north side of Duck Lake along the southern boundary of the claim block.

## SURVEY SPECIFICATIONS

### Survey Grid

The survey grid consisted of east-west lines turned off every

400 feet from a north-south base line and flagged at 100 foot intervals. Two north-south tie lines were cut for survey control, one at 24 + 00E and the other at 48 + 00E. Some 6.5 line miles of survey grid were cut and some 6.5 line miles of induced polarization surveying were conducted.

#### The Induced Polarization Survey

The induced polarization survey was conducted with a Hewitt 1KW I.P. transient pulse type unit deployed in the Wenner electrode configuration with an "a" spacing and traverse interval of 200 feet. In the pulse (also known as time domain) method a steady direct current is impressed into the ground for a few seconds, abruptly terminated for a short time (usually equal to the length of pulse time) and then a steady current is impressed in the reverse direction for a few seconds and then abruptly terminated for a few seconds. This is one cycle which can be repeated. A fraction of a second after each cessation of the current pulse the decay voltage is integrated and measured. The current and total integrated primary voltage and total integrated decay voltage are then recorded for the given number of cycles. From these three measurements the chargeability in millivolts/volt and apparent resistivity in ohm feet are calculated. The values calculated are then plotted at the center position of the array for a given set of readings.

#### Data Presentation

The survey data accompanying this report as contour maps, at a horizontal scale of one inch equals 400 feet as follows:

- Figure 2 Induced polarization; percent chargeability (millivolts/volt) contoured at an interval of one mv/v to a level of 7 mv/v.
- Figure 3 Induced polarization - Resistivity (ohm feet) contoured logarithmically at 300, 500, 750, 1000, 1500 and 2000 ohm feet levels.

### DISCUSSION OF RESULTS

The 1969 reconnaissance geochemical soil sampling program located several areas of interesting coincident copper and zinc geochemical anomalies in the northern and southern sections of the survey area. The surface soils of the property were determined to be acidic by profile and pH testing indicating a favourable horizon for copper and zinc ion migration.

The 1970 induced polarization program was conducted over an area of coincident copper and zinc reconnaissance geochemical anomalies in the southern section of the claim group where the topography has a southerly slope of some 20°.

The induced polarization resistivity data showed considerable variations from a low of some 80 ohm feet to a high of some 5,500 ohm feet. In general such variations can be attributed to changes in the conductivity and depth of the overburden. Thus, the high resistivity data in the north of the survey area may indicate outcrop or near surface bedrock. The chargeability data varied from a background of some 1.5 mv/v to a high of 22.5 mv/v. The northern part of the survey area showed several definitely anomalous, still undefined, chargeability zones. These zones are just upslope from the previously located anomalous copper-zinc reconnaissance geochemical data. The inference, therefore, is that the zinc and copper geochemical anomalies reflect upslope sulphide mineralization of commercial interest.

### CONCLUSIONS

A small amount of induced polarization surveying conducted over an area of interesting coincident copper and zinc geochemical anomalies on the Jim claim group near Duck Lake in the Omineca Mining Division, Province of British Columbia, located a zone of anomalous chargeability which is situated just upslope from previously located geochemical data.

RECOMMENDATIONS

1. Increase the induced polarization survey coverage to the north to define the located chargeability anomalies.
2. Undertake an induced polarization program to examine the large reconnaissance copper and zinc geochemical anomalies in the northern area of the claim block.
3. Conduct a program of geological mapping, detailed geochemical soil sampling, magnetometer and V.L.F. electromagnetometer surveying and a limited amount of hammer seismic surveying on both survey areas.

Respectfully submitted,  
TRI-CON EXPLORATION SURVEYS LTD.



Glen E. White  
Chief Geophysicist

CERTIFICATION

TO WHOM IT MAY CONCERN:

I, GLEN ELMO WHITE, of the City of Richmond in the Province of British Columbia, hereby certify:

1. That I am a Geophysicist and reside at 117 - 641 Gilbert Road, Richmond, B.C.
2. That I studied Geophysics and Geology and graduated from the University of British Columbia with the degree of Bachelor of Science.
3. That I have been engaged in Mining Exploration for eight years.
4. That I do not have, nor do I expect to receive, either directly or indirectly, any interest in the property, or in the securities of Delbrook Mines Ltd.
5. That this report is based on information derived from an induced polarization survey carried out by Tri-Con Exploration Surveys Ltd. during the 1970 exploration season.

Dated this 25th day of January, 1971.



G. E. White, B.Sc.  
Chief Geophysicist



A P P E N D I X

Instrument Specification

INDUCED POLARIZATION

A Instrument

- (a) Type - Transient Pulse Prospecting Equipment
- (b) Make - Hewitt Enterprises 200
- (c) Size - 13½"W x 15½"L x 9½" Deep

B Specifications

- (a) Transmitter
  - (i) 1,000 Watt nickle cadnium battery supply
  - (ii) operation mode 2 seconds on, 2 seconds off, 2 seconds reverse  
4 seconds on, 4 seconds off, 4 seconds reverse
  - (iii) Cycles .5, 1, 2, 3, 4. selected on switch.
  - (iv) Timing - solid state logic circuitry
  - (v) Current Ranges 10, 50, 100, 500, 1,000, 5,000, milliampere
  
- (b) Receiver
  - (i) Solid State
  - (ii) dV and I.P. solid state memory storage.
  - (iii) dV ranges 10, 50, 100, 1,000, 1,500 millivolts
  - (iv) I.P. ranges .1, .5, 1.0, 5, 10, 15, millivolts
  - (v) Self-potential-direct dial reading from polartometer
  - (vi) A.C. filtering-low pass active filter
  - (vii) Transient delay period .4 seconds
  - (viii) Integrating period 1.2 seconds
  - (ix) Power supply-four 9 volt transistor radio batteries.

C Survey Procedure

- (i) Wenner, pole-dipole or schlumberger array

D Data Presentation

- (i) chargeability percent chargeability in milliseconds or  
millivolts  
voltage
- (ii) Resistivity - ohm - feet
- (iii) Self-potential-millivolts often not used

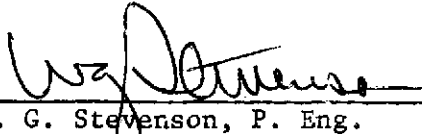
CERTIFICATE

I, William G. Stevenson, DO HEREBY CERTIFY:

- That I am a Consulting Geological Engineer with offices at Suite 209 Stock Exchange Building, 475 Howe Street, Vancouver 1, B.C.
- That I am a graduate of the University of Utah, 1946, with a B.Sc. Degree.
- That I am a registered Professional Engineer in the Association in British Columbia.
- That I have practised my profession for 22 years.
- That I have no direct, indirect or contingent interest in the Jim Mineral Claims or in the securities of Delbrook Mines Ltd., nor do I intend to receive any such interest.
- That I have reviewed a report dated January 25, 1971, based on work conducted by Tri-Con Exploration Surveys Ltd. under the supervision of Glen E. White, chief geophysicist.

DATED at Vancouver, British Columbia, this 31<sup>st</sup> day of January, 1971.

W. G. STEVENSON & ASSOCIATES LIMITED

  
\_\_\_\_\_  
W. G. Stevenson, P. Eng.

DOMINION OF CANADA:  
 PROVINCE OF BRITISH COLUMBIA.

In the Matter of  
 GEOPHYSICAL SURVEY

To Wit:

I, Garry L. Anselmo, president of Tri-Con Exploration Surveys Ltd.

of #200 - 1405 Hunter Street, North Vancouver

in the Province of British Columbia, do solemnly declare that the following is a true statement of cost of combined surveys for report enclosed:

<u>PERSONNEL</u>	<u>PERIOD</u>	<u>MAN DAYS</u>	<u>WAGES/DAY</u>	<u>TOTAL</u>
L. Vaness	Aug. 30-Sept. 2; 11-13	7	\$75	\$ 525.00
J. Sheppe	Aug. 29-Sept. 2; 11-13	8	\$65	\$ 520.00
K. Witherly	Aug. 29-Sept. 5	8	\$60	\$ 480.00
N. Bonner	Aug. 29-Sept. 2; 11-13	8	\$60	\$ 480.00
S. York	Aug. 30-Sept. 2; 11-13	7	\$60	\$ 420.00
T. Atkins	Aug. 30-Sept. 3	5	\$40	\$ 200.00
J. Bolechowsky	Aug. 30-Sept. 2; 11-13	7	\$40	\$ 280.00
R. Kimmins	Sept. 4-5	2	\$40	\$ 80.00
H. Larson	Sept. 4-5	2	\$40	\$ 80.00
G. Holland	Sept 1-2; 11-13	5	\$40	\$ 200.00
W. Morris	Sept. 1-2; 11-13	5	\$40	\$ 200.00
Food & Materials				\$ 500.00
Camp Equipment @ \$5/day/man				\$ 320.00
I.P. Rental @ \$50/day @ 8 days				\$ 400.00
Vehicle @ \$10/day; 10¢/mi. + gas				\$ 120.00
Reports & Maps				\$ 800.00
Secretarial				\$ 80.00
			TOTAL	\$5685.00

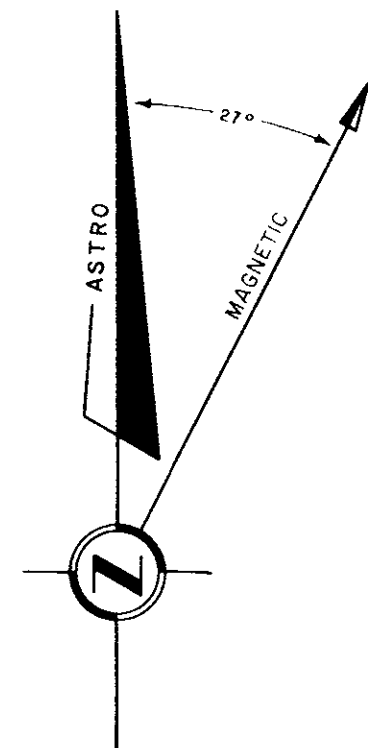
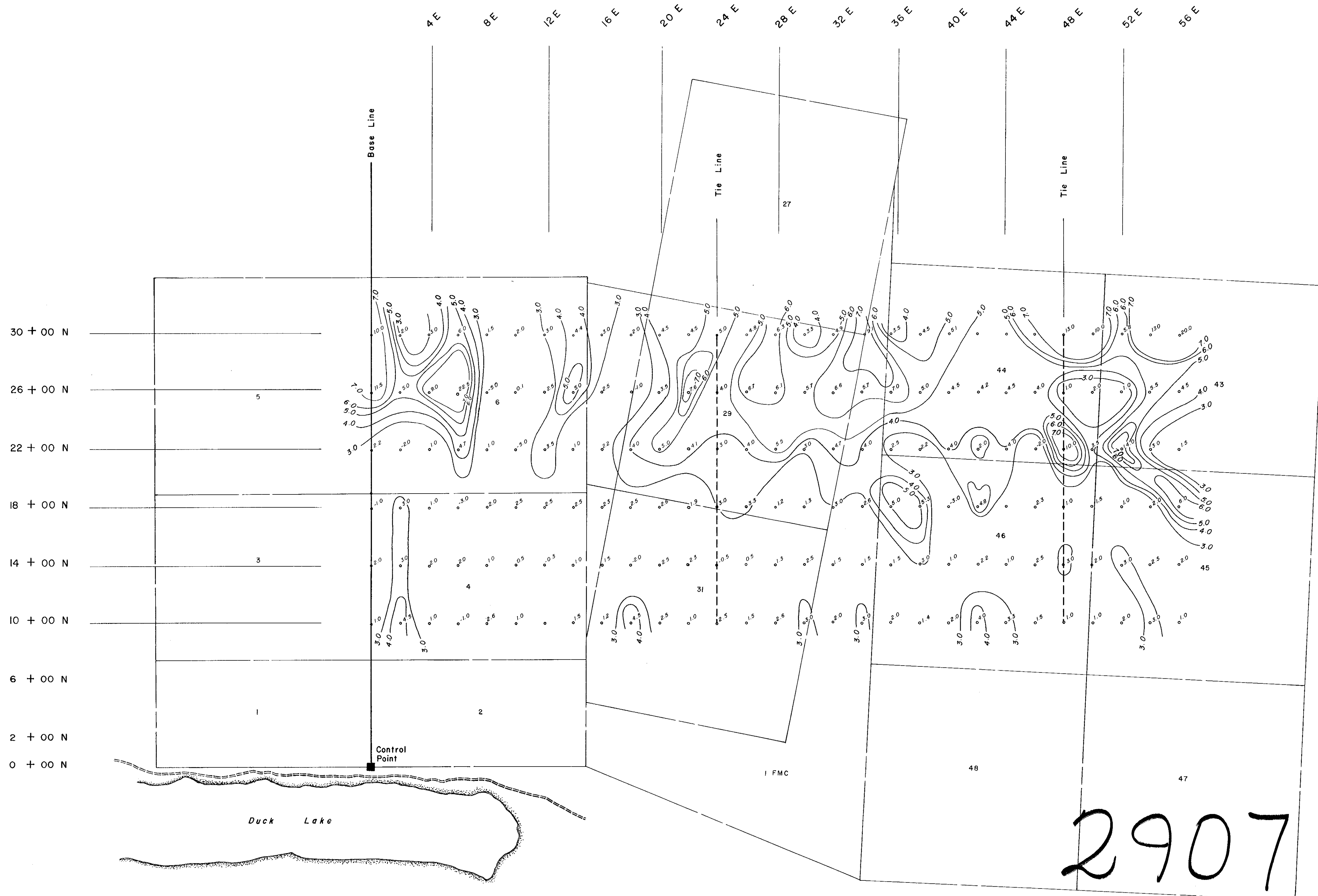
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the City  
 of Vancouver, in the  
 Province of British Columbia, this 18<sup>th</sup>  
 day of February 1971, A.D.

*Garry L. Anselmo*

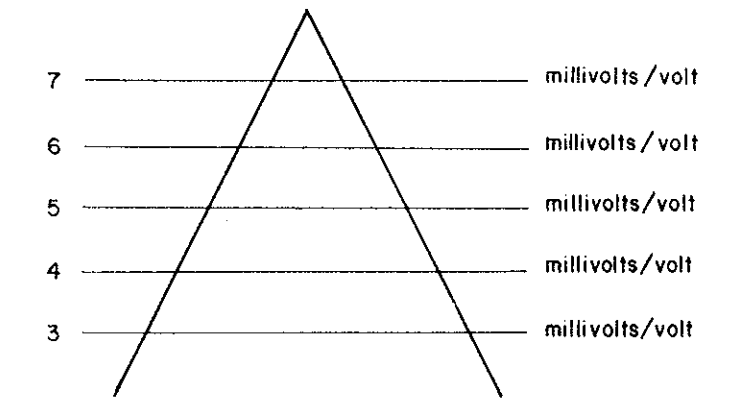
*J.P. Phillips*  
 A Commissioner for taking Affidavits within British Columbia or  
 A Notary Public in and for the Province of British Columbia.

SUB - MINING RECORDER

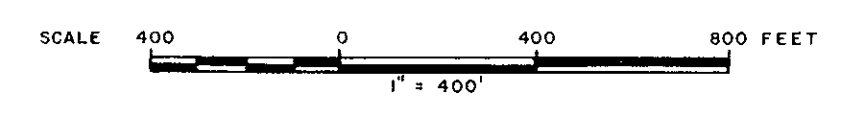
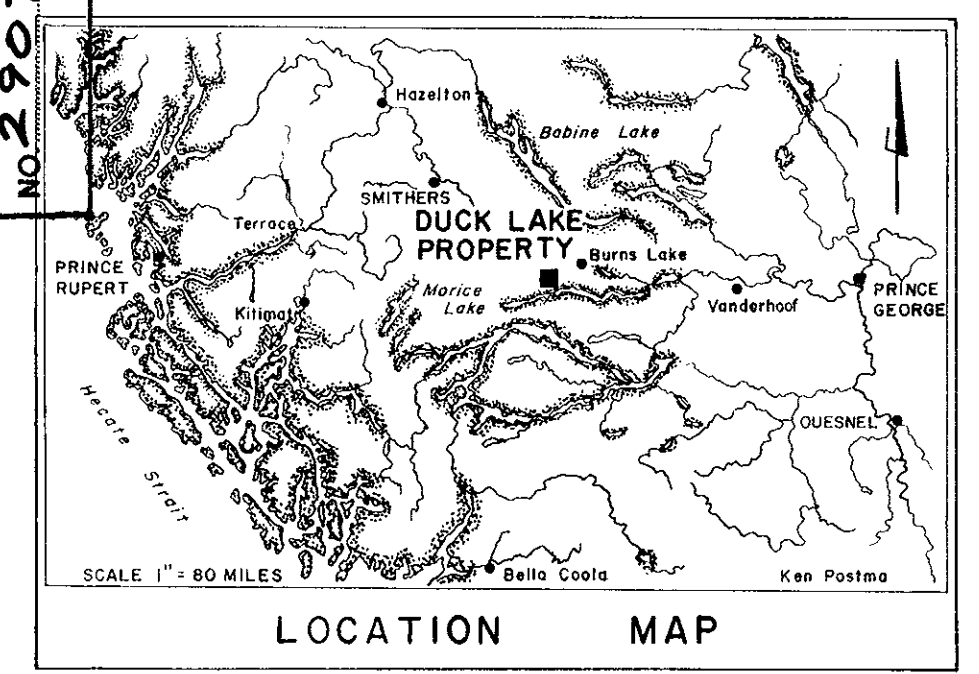


- L E G E N D**
- Outline of Jim Claims
  - Stations Surveyed & Reading
  - Contour Line - Contour interval 1 millivolt/volt
  - Outline of Lake
  - Secondary Road

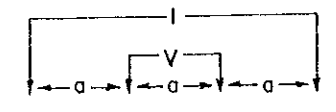
**CHARGEABILITY KEY**



Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO 2907 MAP #2



INSTRUMENT HEWITT 200-1 KW  
 (Wenner Array - a = 200 feet)



NOTE:  
 To Accompany Geophysical Report Dated January 25, 1971 on JIM CLAIMS,  
 Omineca Mining Division British Columbia, Canada  
 By: G.E. White Chief Geophysist  
 NOTE:  
 All Claims herein Designated Area  
 From The JIM CLAIMS

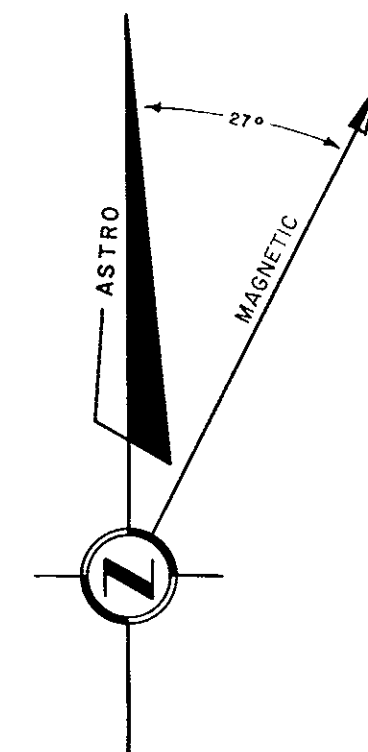
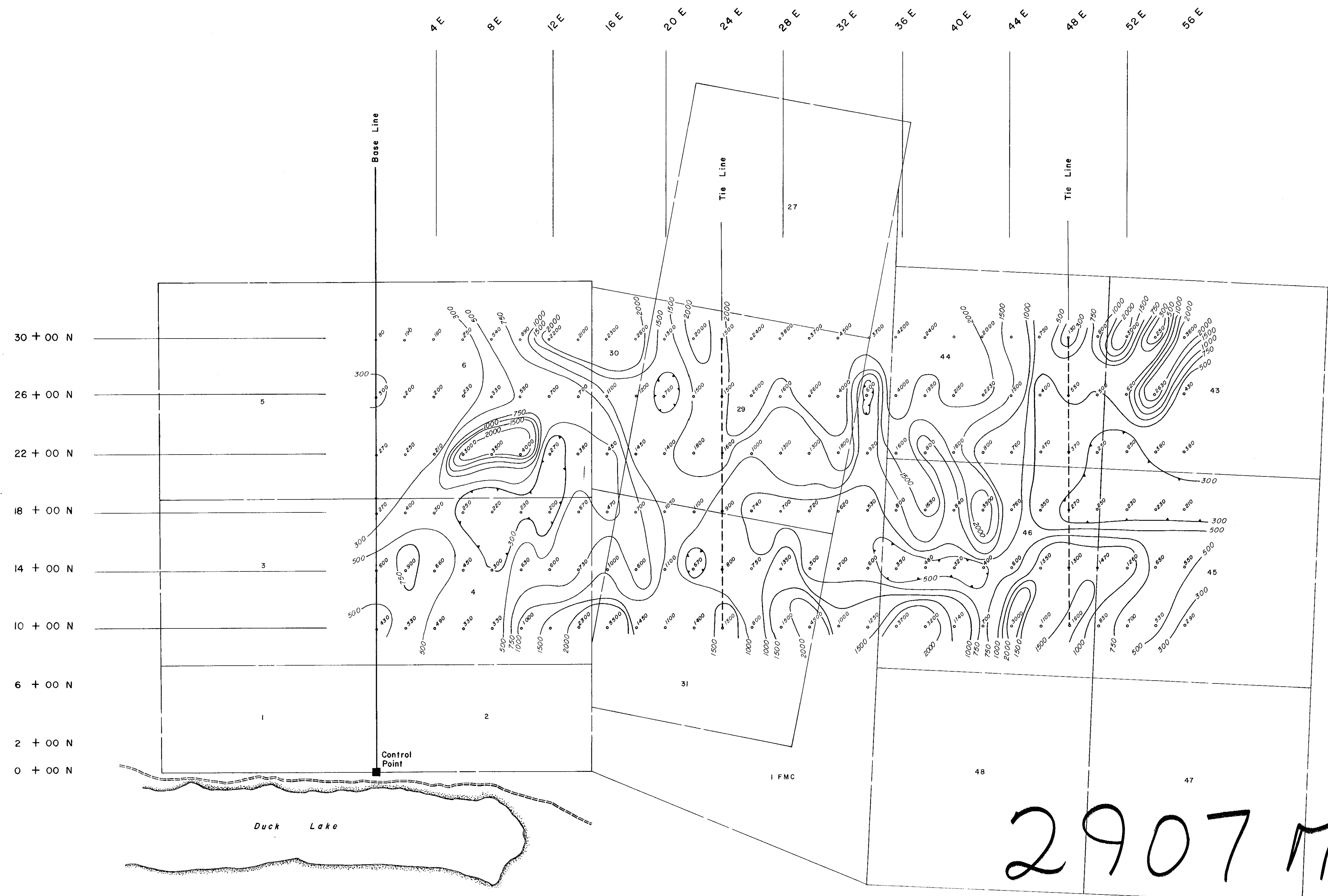
**DELBROOK MINES LIMITED**  
 DUCK LAKE PROPERTY  
 JIM CLAIM GROUP  
 OMINECA MINING DIVISION - BRITISH COLUMBIA, CANADA.

**GEOPHYSICAL MAP**  
 INDUCED POLARIZATION  
 PERCENT CHARGEABILITY - (millivolts/volt)

INTERPRETED by: G. E. White  
 DRAFTED by: Ken Postma  
 PROJECT No 119  
 FILE B17

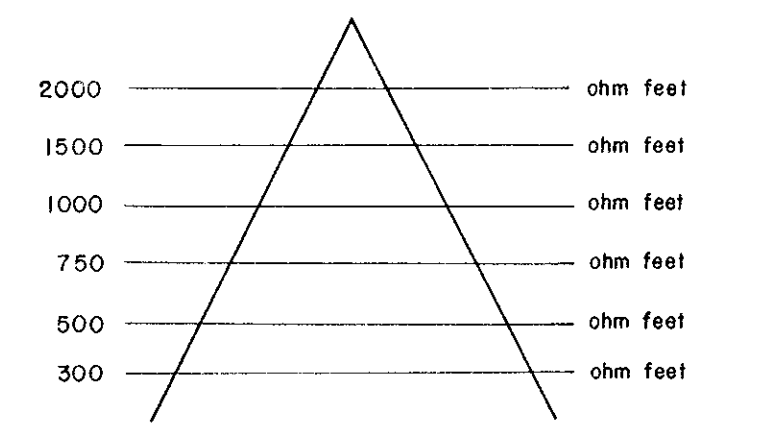
Dec. 1970 REVISED

2907 M-2

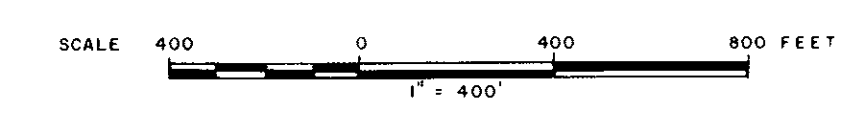
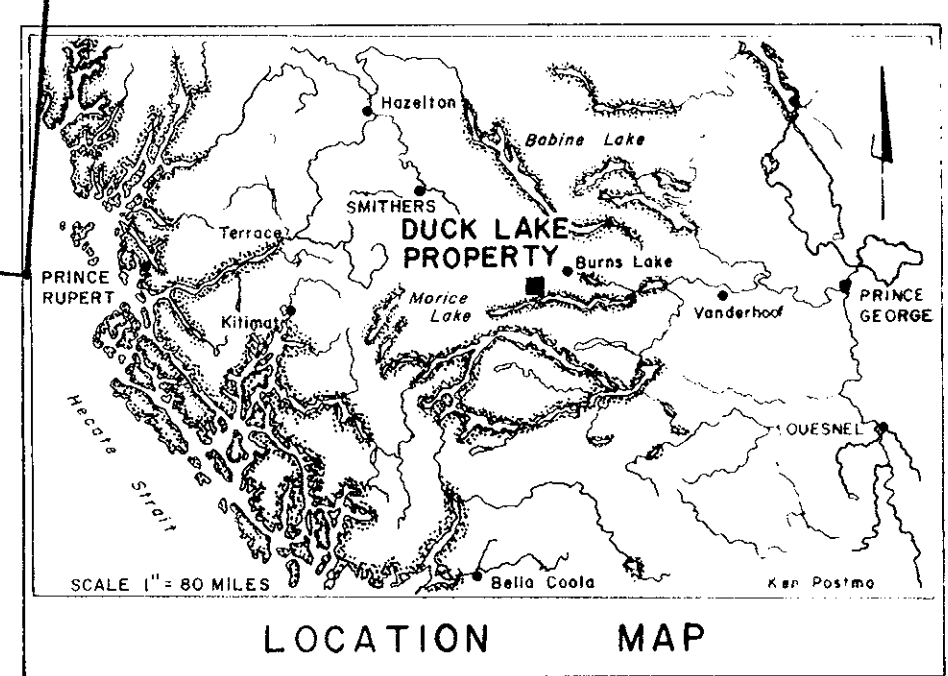


- L E G E N D**
- Outline of Jim Claims
  - Stations Surveyed & Reading
  - Contour Line - Contour interval 2000, 1500, 1000, 750, 500 and 300 ohm feet.
  - Depression
  - Secondary Road
  - Outline of Lake

**RESISTIVITY KEY**

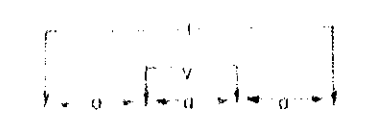


Department of  
 Mines and Petroleum Resources  
 ASSESSMENT REPORT  
 NO. 2907 MAP #3



2907 M-3

INSTRUMENT HEWITT 200-1KW  
 (Wenner Array - a = 200 feet)



NOTE:  
 To Accompany Geophysical Report Dated January 25, 1974 on JIM CLAIMS,  
 Omineca Mining Division British Columbia, Canada.  
 By: G.E. White Chief Geophysicist

NOTE:  
 All Claims herein Designated Are  
 From The JIM CLAIMS

<b>DELBROOK MINES LIMITED</b>		
DUCK LAKE PROPERTY		
<b>JIM CLAIM GROUP</b>		
<small>OMINECA MINING DIVISION - BRITISH COLUMBIA, CANADA</small>		
<b>GEOPHYSICAL MAP</b>		
<b>INDUCED POLARIZATION - (ohm feet) RESISTIVITY</b>		
EXPLORATION SURVEYS LTD.	INTERPRETED by G.E. White	
	DRAFTED by Ken Postma	Fig. 3
<small>Dec 1970 REVISED</small>	PROJECT No 119	FILE B-7