Induced Polarization Survey
Act group Highland Valley B.C.
by Huntec Ltd.
for TASEKO MINES

Property of E. Empey
Spences Bridge B.C.

673621

C. Empey
Box 16
Spences Bridge.
458-2207

A GEOPHYSICAL REPORT ON AN INDUCED POLARIZATION (I.P.) SURVEY ACT CLAIM GROUP, HIGHLAND VALLEY, B. C. (50°, 121° S.E.)

- for -

TASEKO MINES LIMITED

HUNTEC LIMITED

December, 1968

TABLE OF CONTENTS

INTRODUCTION

General

This report contains the results of an Induced Polarization (I.P.) survey carried out by Huntec Limited for Taseko Mines Limited on the Act Claim Group in the Kamloops Mining Division of British Columbia.

The purpose of the survey was to prospect for sulphide mineralization in both massive and disseminated form. Typical mineralization in the general area is usually widely disseminated in plutonic rocks overlain by considerable overburden.

The field work was completed during November 18 to November 27, 1968. The field crew was under the direction of Mr. W. Mairs and the project supervised from Calgary, Alberta by Mr. W. A. Finney.

The Property

The claims surveyed include ACT 1, 2, 3, 4, 5, 6, 7, 8, 29, 30, 31 and 32, located about four miles west of Pimainus Lake in the Highland Valley area, B. C. Access to the property is by gravel roads from the Trans-Canada Highway near Spences Bridge, or from Highland Valley Mining Camp. The survey area is underlain by rocks of the Guichon Creek Batholith which are granodiorite and quartz diorite but deep overburden covers most of the area, particularly at the northern end.

SURVEY SPECIFICATIONS

The Equipment

The Induced Polarization equipment used was a 2.5 kw pulse-type instrument manufactured in Toronto by Huntec Limited. The following specifications apply:

Type of current	Direct Current broken at periodic intervals.
Period	1.5 seconds "current on" and 0.5 seconds "current off". Alternate pulses have reverse polarity.
Integrating time	400 milliseconds
Maximum power available	2.5 kw
Maximum current available	3.0 amps

Measurements taken in the field were:

1. The current flowing through the current electrodes C_1 and C_2.
2. Primary voltage V_p between measuring electrodes during "current on" time.
3. Secondary voltage V_s between measuring electrodes during "current off" time.

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 is calculated by dividing V_p by the current and multiplying by the geometrical factor appropriate to the electrode array being used.

Electrode Configuration

Both the reconnaissance and detailed parts of the survey were carried out in the pole/dipole configuration. In this array the current electrode C_1 and the two potential electrodes P_1 and P_2 are moved in unison along the line to be surveyed. The quantity "a", or "electrode separation" is the distance between C_1 and P_1. In this array the distance between P_1 and P_2 is kept equal to one-half "a". For the reconnaissance phase of this survey the value of "a" was kept at 400 ft.

Since the value of "a" is a rough approximation to the depth penetration, detailing of anomalies discovered in the reconnaissance phase was done by profiling the anomalies at the different values of "a". This additional data provides information from which depth, dip and location of detected causative bodies may be calculated more easily than from a single profile.

For reasons of operational convenience some detailing was done using the "three-array" which is the same as the pole/dipole array except that the distance $P_1 - P_2$ is equal to $C_1 - P_1$. The response is almost identical and the two types of data may be used in combination for interpretation of the causative body. The two types of array will be distinguished on the profiles by a "p.d" or "3".

RESULTS AND INTERPRETATION

Presentation

The entire results of the survey are shown on the accompanying map, Drawing No. 1, which is located in the map pocket inside the back cover of the report. The reconnaissance data is shown as contours of apparent chargeability and apparent resistivity. The portion of the line which was detailed with several electrode separations is indicated with the double line and arrows.

The results of the detail work are shown separately as profiles of apparent chargeability and apparent resistivity. Outlines of the interpreted causative bodies are shown in section below the profiles.

Interpretation

The I.P. survey has detected an anomalous zone at the north end of the line grid. The apparent chargeability values in this region rise to a "high" of 10.0 milliseconds which contrasts with a background of about 3.0 milliseconds to the south. The zone is open to the north, east and west, and the southern limit is at approximately station 22N.

The main anomaly was detailed using narrower electrode separations along Line 0 and the greater resolution of the multiple separation data indicates at least three near-surface extensions of the causative bodies. A cross-section of the interpreted sources is shown under the profiles in Drawing No. 1.

A relatively narrow, steeply dipping body is interpreted as the source of the

anomaly at station 27N. The strongest I.P. response was obtained using the narrowest electrode array, which indicates that the body is shallow and contains a greater percentage by volume of source material (probably sulphides) in the upper portion of the body. The volume percentage of sulphide probably decreases with depth but not rapidly as the I.P. response on the widest electrode array is still strong.

A vertical drill hole is recommended to test this body and the hole should be drilled to at least 200 ft. The main "centre" of the body is estimated at about 100 to 120 ft. below surface and the shallowest part of the body could well be at bedrock surface.

The I.P. response on the narrower electrode separation to the north is generally speaking, weaker than the widest separation. This is particularly true in the section 30N to 38N except for a small anomaly at 34+60 N on the 100-ft. array. A deep source in interpreted in this section with a narrow (about 100 ft. wide), shallow extension centred on station 34+60 N.

The main causative body north of station 39N is shallow and also extends to depth. A vertical drill hole at 39+80 N is sited to intersect the main source at depth but should encounter the shallower parts of the causative body about 100 ft. below surface. The strongest response comes from the 400-ft. electrode array which suggests the hole should be extended to about 450 ft. to ensure the deeper sections of the body are thoroughly tested.

The overall strike of the main body appears, from the contour map, to be about N 45°W. The detail profiles therefore are probably at quite an oblique angle to the main body which accounts for the broadening of anomaly peaks on the wide, 400-ft. electrode array. However, this does not invalidate the interpretation which made allowance for strike corrections and the drill holes, as shown, are considered to be in the best positions

to test the causative bodies.

An extension of the I.P. survey to "close off" the anomalous zone is recommended. A strong magnetic anomaly is reported to exist to the east of the main anomalous zone and magnetite in this region could be contributing to the anomaly. A ground magnetic survey is recommended in order to resolve those I.P. "highs" disassociated from magnetic anomalies, which are probably indicative of metallic sulphides.

SUMMARY

1. The Induced Polarization survey of the ACT Claim Group consisted of 5.85 miles of reconnaissance surveying and 1.35 miles of detail surveying.

2. An anomalous zone of high apparent chargeability was detected at the northern end of the line grid. The zone has a north-south extent of 2000 ft. and an east-west extent of 1600 ft., and remains "open" to the north, west and east.

3. Detail work on Line 0 across the centre of the zone indicates the causative bodies are deep with three near-surface extensions between stations 26+50 N and 27+80 N, 34+00 N and 35+30 N, 39+00 N and the northern boundary of the area.

4. The causative body at the south end of the zone shows the highest grade material is nearer surface but the body probably has depth extent to about 200 ft.

5. The causative body at the north end of the zone extends to depth in excess of 400 ft. and the results suggest that the higher grade material is associated with increasing depth.

6. The source material is probably metallic sulphides and/or magnetite occurring in disseminated form.

7. Two vertical diamond drill holes are recommended to test the main anomalies. These are located on Line 0 at station 27+00 N and station 39+80 N.

Respectfully submitted,

HUNTEC LIMITED

W. A. Finney

W. A. Finney, B. Sc.,
Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
NORMAN R. PATERSON

N. R. Paterson, Ph. D., P. Eng.

Expiry Date: September 24, 1969

APPENDIX A

ASSESSMENT CREDIT DATA

Miles Surveyed

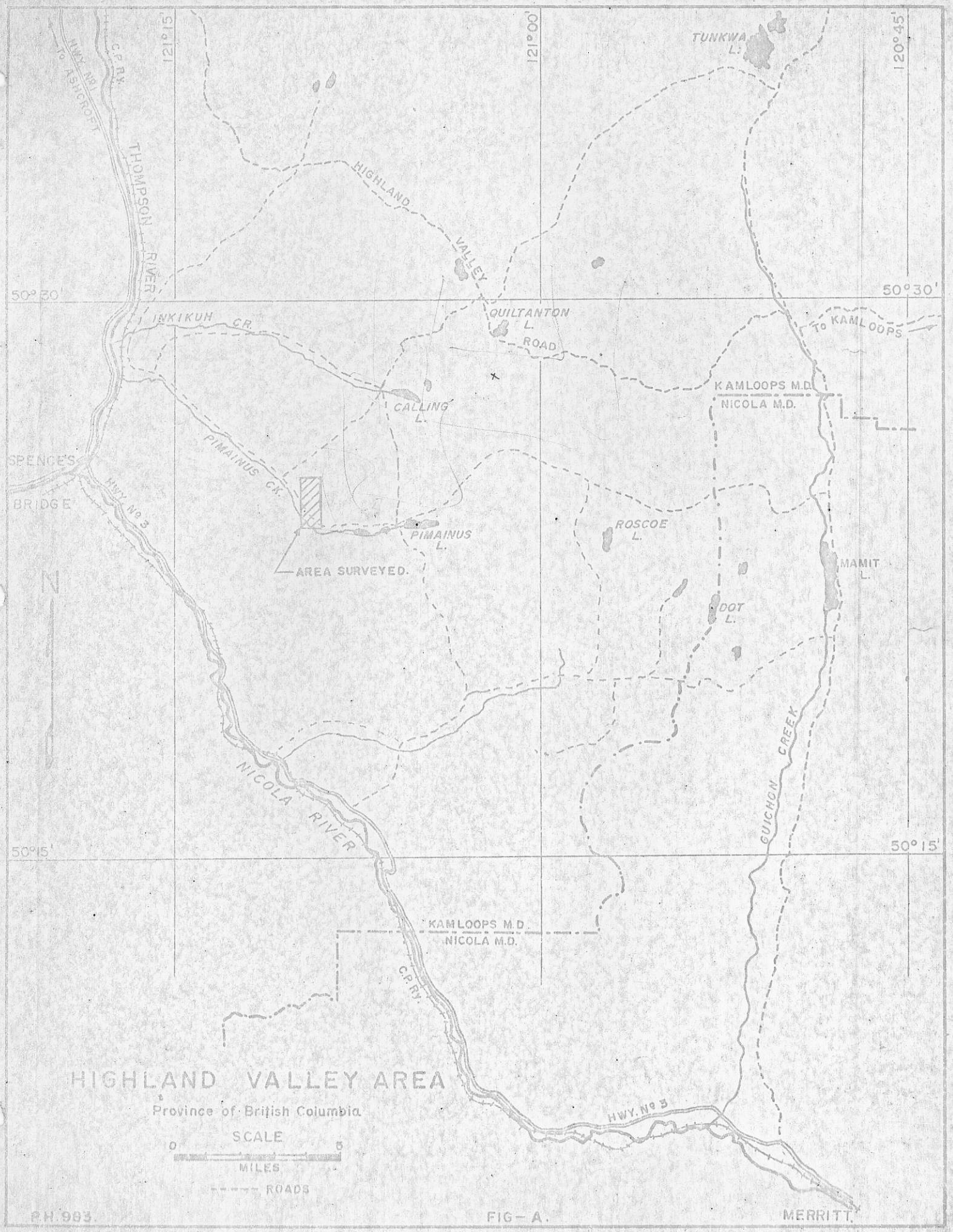
Reconnaissance	5.85 line miles
Detail	1.35 line miles
Total	7.20 line miles

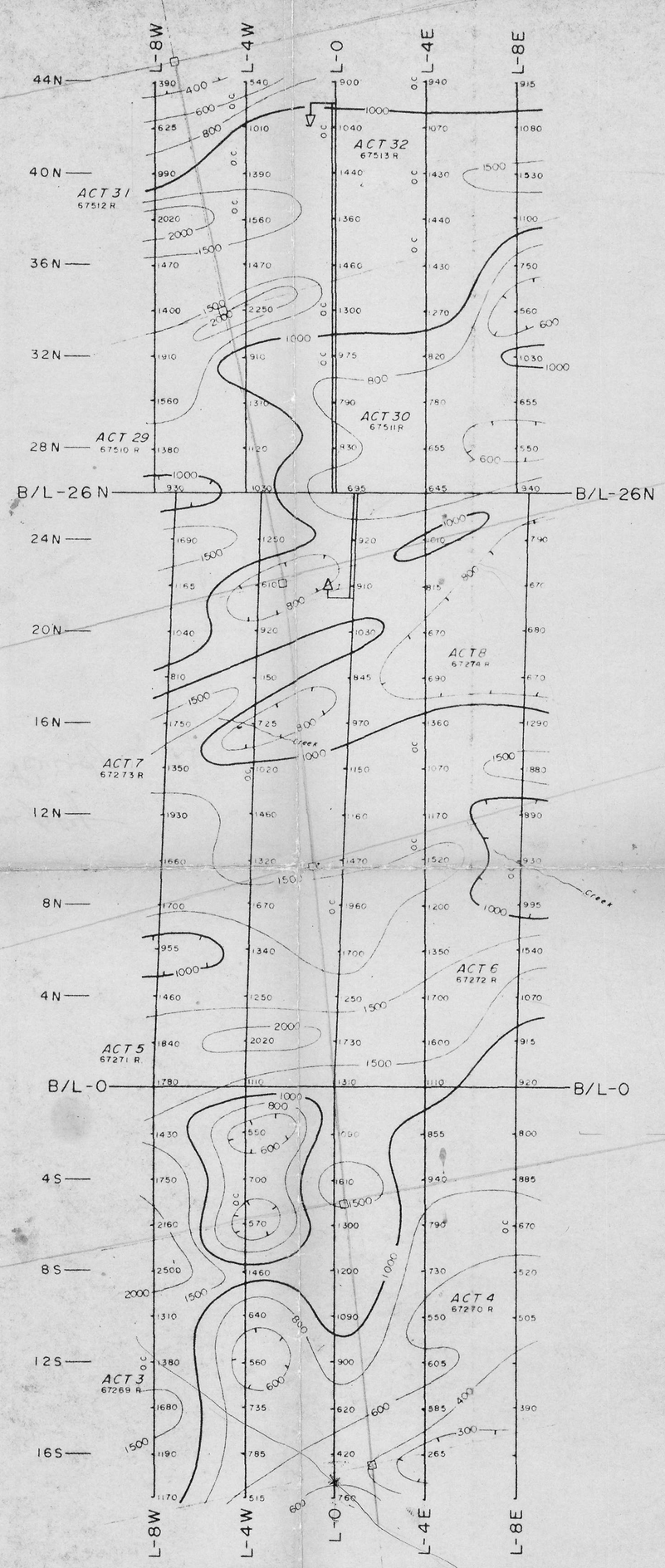
Personnel - Huntec Limited

Name	Position	Dates	Charge Rate/day	Charges
W. Mairs	Operator/Party Chief	Nov. 18 - 27	$ 90.00	$ 900.00
J. Cox	Operator	Nov. 18 - 27	75.00	750.00
E. Helkio	Draftsman	Nov. 29, Dec. 13, Dec. 17, Dec. 18	75.00	240.00
W. Finney	Geophysicist	Nov. 28, Dec. 18, Dec. 27	125.00	362.50
M. Cody	Typist	Dec. 30	35.00	17.50
I.P. System		Nov. 18 - 27	50.00	500.00
4 x 4 Truck		Nov. 18 - 27	25.00	250.00
		Total		$3,020.00

Personnel - Taseko Mines Limited

R. Robertson	Helper	Nov. 18 - 27
J. Foster	Helper	Nov. 18 - 27


121°15'
121°00'
120°45'
50°30'
50°15'
TUNKWA L.
HIGHLAND VALLEY
THOMPSON RIVER
C.P.R.Y.
HWY. No 1 TO ASHCROFT
INKIKUH CR.
QUILTANTON L.
ROAD
TO KAMLOOPS
KAMLOOPS M.D.
NICOLA M.D.
CALLING L.
PIMAINUS CK.
SPENCE'S BRIDGE
HWY. No 3
PIMAINUS L.
ROSCOE L.
AREA SURVEYED.
MAMIT L.
DOT L.
N
NICOLA RIVER
GUICHON CREEK
KAMLOOPS M.D.
NICOLA M.D.
C.P.R.Y.
HWY. No 5
MERRITT
HIGHLAND VALLEY AREA
Province of British Columbia
SCALE
0
5
MILES
ROADS
P.H. 983.
FIG - A.



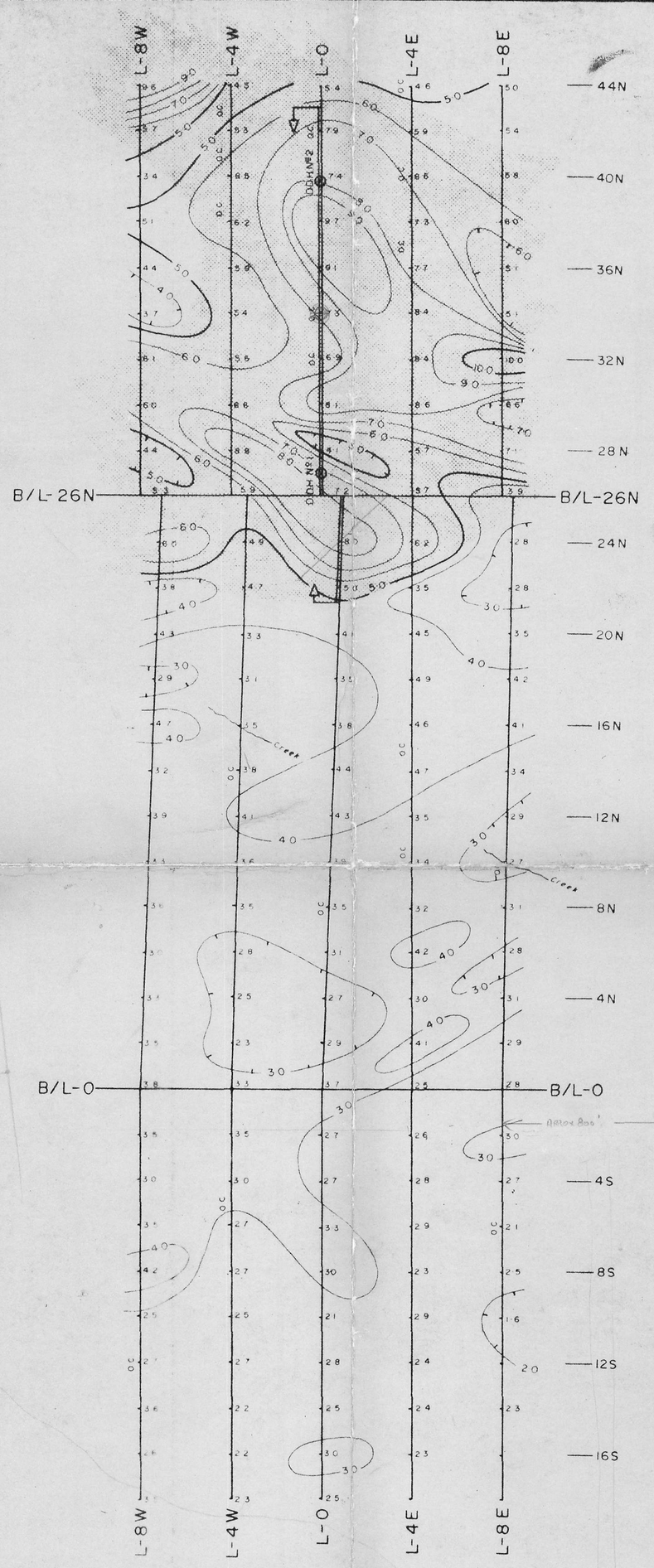
LEGEND

Portion of Line Covered by Detail Surveying

OC - Outcrop

Approx Limit of Anomalous Zone

⊙ Recommended Vertical DD Hole

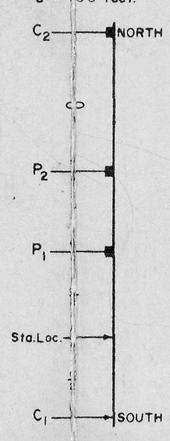


APPARENT RESISTIVITY CONTOURS.

CONTOURS AT (logarithmic intervals) 100, 150, 200, 300, 400, 600, 800, 1000 etc, ohm - meters

POLE - DIPOLE ARRAY

a = 400 feet.

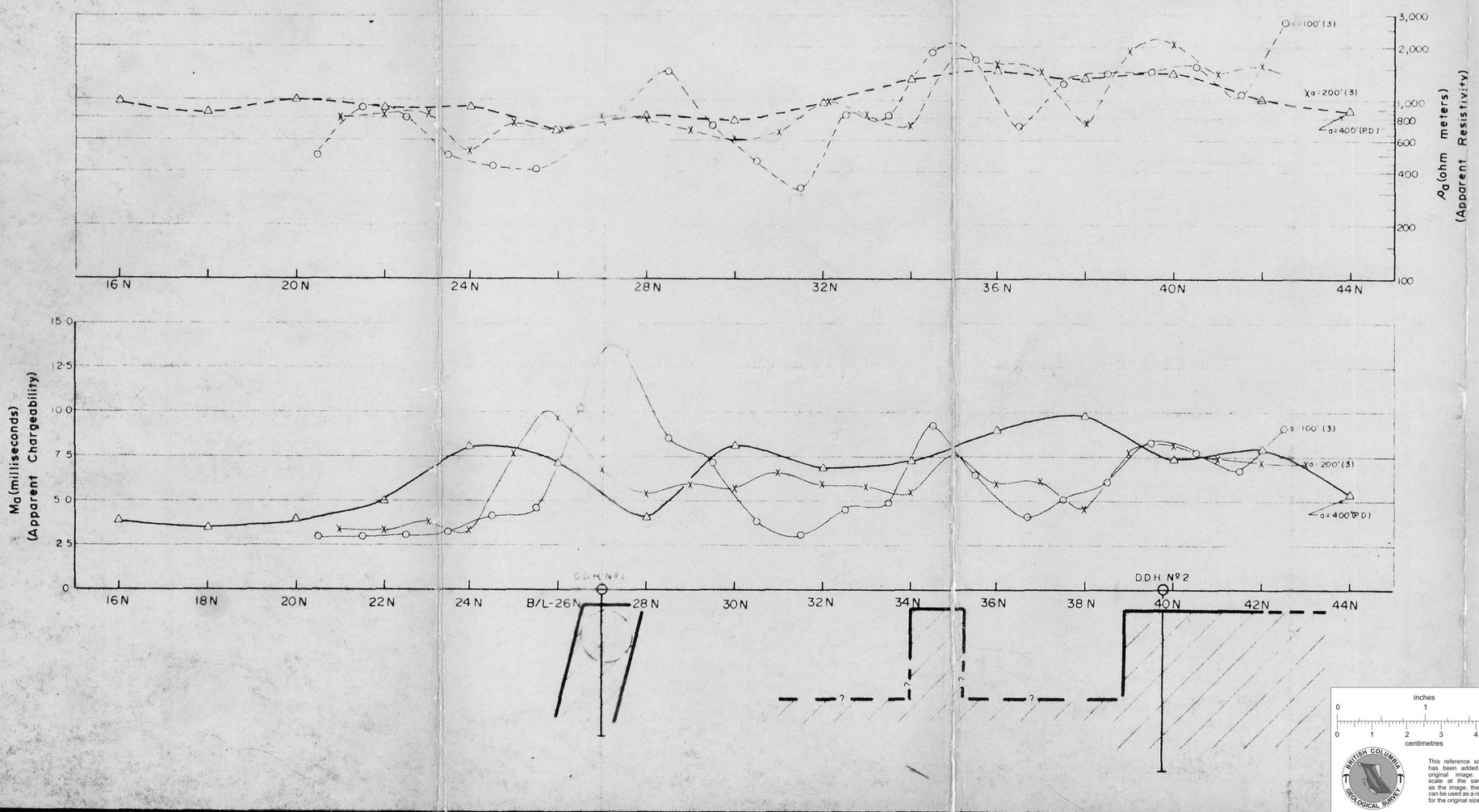


APPARENT CHARGEABILITY CONTOURS WITH INTERPRETATION.

CONTOUR INTERVAL 1.0 milliseconds

Scale: 1 inch = 400 feet.

DETAIL PROFILE LINE- O



LEGEND

Interpreted Causative Body With 'Equivalent Spheroidal' Section

Recommended D D Hole

Horizontal Scale 1 inch = 200 feet

Vertical Scales:

Chargeability - 1 inch = 5·0 milliseconds.

Resistivity - 2 inches = 1 logarithmic cycle (ohm-meters)

TASEKO MINES LIMITED.

ACT CLAIM GROUP

PIMAINUS LAKE AREA, HIGHLAND VALLEY- B C

INDUCED POLARIZATION SURVEY.

To accompany report by: W A Finney

W A Finney, BSc, Geophysicist

HUNTEC LIMITED. CALGARY - CANADA.

SCALE: as indicated

DRAWN: Sept. Date: September 24, 1968

DATE: DEC 1968.

JOB No PH 983

DWG. No - 983- 1