

2767

A REPORT

ON

AN INDUCED POLARIZATION SURVEY

Dease Lake Area
Northern British Columbia

FOR

TANZILLA EXPLORATIONS LIMITED

Vancouver, British Columbia

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, British Columbia

NOVEMBER, 1970

Department of Mines and Petroleum Resources ASSESSMENT REPORT NO. 2767 M.P.
--

TABLE OF CONTENTS

	<u>Page</u>
Introduction	1
Property, Location and Access	2
Previous Work	3
Purpose	4
Geology	5
Survey Specifications	6
Discussion of Results	7
Summary, Conclusions and Recommendations	8

APPENDIX

Cost of Survey	(i)
Personnel Employed on Survey	(ii)
Certification	(iii)

ACCOMPANYING MAPS (Scale 1" = 400 feet)

MAP POCKET

Profiles of Apparent Chargeability and Apparent Resistivity	W-118-1
---	---------

INTRODUCTION

Between September 5th and 14th, 1970, Peter E. Walcott & Associates Limited carried out a limited induced polarization (I.P.) survey over part of a property, located in the Dease Lake Area, British Columbia, held by Tanzilla Explorations Ltd.

The survey was carried out over preselected handcut lines which were turned off at right angles from two N 29° W baselines.

Measurements of apparent chargeability (the I.P. response parameter) were made over the lines using the "three electrode array" method of surveying with a basic electrode separation of 300 feet and a station interval of 200 feet. Simultaneous measurements of apparent resistivity were also made.

The data are presented in profile form on Map W-118-1 that accompanies this report.

PROPERTY, LOCATION AND ACCESS

The property consisting of the following mineral claims is located in the Liard Mining District of British Columbia:

KING 1 - 10, 21 - 30, 61 - 88, 1 Fr - 7 Fr.
BOX 1 - 10
KAY 1 - 74
KIM 1 - 14
KO 1 - 10

The claims are located between elevations of 4,000 and 5,300 feet some three miles west of the Cassiar - Stewart road near Gnat Lakes, about 12 airmiles south southeast of Dease Lake. They adjoin the holdings of Dease Lake Mines to the southeast, where a reported occurrence in excess of 50 millions grading 0.4 to 0.5% copper is said to exist.

Access to the property is obtained by means of a four wheel drive vehicle road that turns off from the Cassiar - Stewart highway. The distance from the turnoff to the camp is approximately 5.7 miles.

PREVIOUS WORK

Previous work done on the claim group includes:

- (a) soil and silt sampling by P.H. Sevensma Consultants Ltd. and Tanzilla Explorations Ltd;
- (b) magnetic surveys by Ace R. Parker & Assoc. Ltd. and P.H. Sevensma Consultants Ltd.

The results of these surveys are well documented in a report by D. Scott, P.Eng. of P.H. Sevensma Consultants Ltd., dated August 1970.

PURPOSE

The purpose of the survey was to try and detect by the induced polarization technique the presence of economic sulphide mineralization that could exist on the property, as suggested by the favourable geology and soil sampling anomalies.

GEOLOGY

The reader is referred to a report by D. Scott of P.H. Sevensma Consultants Ltd. dated August 1970.

Briefly the claims cover an area near and over the assumed buried contact of offshoots of the Cake Hill granodiorite to hornblende quartz monzonite batholith with the surrounding Triassic volcanics.

SURVEY SPECIFICATIONS

The induced polarization (I.P.) survey was carried out using a pulse-type system manufactured by Hunted Limited of Toronto, Ontario. Measurements with this system are made in the time domain.

The system consists basically of three units, a receiver, a transmitter and a motor-generator. The transmitter, which provides a maximum of 7.5 kw d.c. to the ground, obtains its power from the 7.5 kw 400 cycle, three phase generator driven by a gasoline engine; the cycling rate of the transmitter is 1.5 seconds "current-on" and 0.5 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes C₁ and C₂, the primary voltage (V) appearing between the two potential electrodes, P₁ and P₂, during the "current-on" part of the cycle, and a secondary or overvoltage (Vs) appearing between P₁ and P₂ during the "current off" part of the cycle.

The apparent chargeability (M_a) 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 (P_a) in ohm-meters is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity obtained are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "three electrode array" method of surveying. In this method the current electrode C₁ and the two potential electrodes P₁ and P₂ are moved in unison along the survey lines. The spacing between these three electrodes is kept constant for each traverse at a distance roughly equal to the depth to be explored by that traverse. The second current electrode is kept fixed at "infinity".

Thus, in a "three electrode array" traverse with an electrode spacing of 300 feet, a body lying at a depth of 150 feet will produce a strong response, whereas the same body lying at a depth of 300 feet will only just be detected.

DISCUSSION OF RESULTS

The results of the I.P. survey, as carried out with a 300 foot electrode separation along the picket lines with the exception of Line 104 N where 200 and 400 foot separations were used, show relatively low chargeability conditions to exist over most of the area surveyed and anomalous chargeability conditions to exist on Line 0, Line 16 N and Line 32 N in the vicinity of the assumed intrusive - volcanic contact as shown on Map W-118-1.

Higher resistivity values, i. e. lower conductivity, are obtained over the anomalous zones but these are most probably caused by a decrease in the depth of overburden cover, as the anomalous zones are located near the top of the hill and the picket lines run westwards over the hill from a starting point in the valley bottom.

No discernible magnetic highs are associated with the I.P. anomalies but the magnetic coverage in these regions is incomplete.

Anomalous geochemical values are scattered throughout the anomalous zones with no clear cut soil anomalies really discernible. However overburden depth, poor soils and sampling from different soil horizons could severely influence this pattern.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Between September 5th and 14th, 1970, Peter E. Walcott & Associates Limited carried out a limited induced polarization survey over part of a property held by Tanzilla Explorations Ltd.

The property is located some 12 miles south southeast of Dease Lake in the Liard Mining District of British Columbia.

The I.P. survey, as performed for the most with a 300 foot electrode separation, indicated the presence of anomalous conditions on Line 0, Line 16 N and Line 32 N respectively in the vicinity of the assumed intrusive - volcanic contact.

Slightly higher resistivity readings were obtained over these anomalous zones, but these are considered by the writer to be attributable to a decrease in the depth of the more conductive overburden.

No magnetic correlation is apparent with the anomalous I.P. zones thereby suggesting that magnetite is not the cause of the I.P. effects. However the magnetic survey cover does not extend far enough westwards to really justify the above premise.

No well defined geochemical copper anomalies are coincident or associated with the forementioned chargeability highs. Instead scattered anomalous values exist in the region of the I.P. zones. However this geochemical pattern could be attributable to varying overburden thickness, poor soils and sampling from different soil horizons.

As a result the writer concludes that the chargeability anomalies are most probably caused by sulphide mineralization, and recommends the following programme to delineate them:

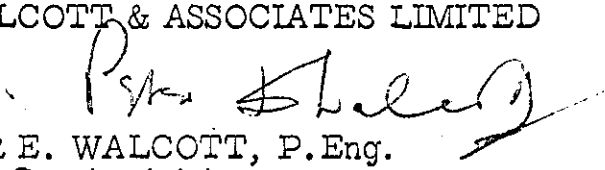
- (a) Extension of the line grid some 3500 feet westwards to cover the assumed intrusive - volcanic contact.
- (b) Survey coverage of the new grid by geological mapping and geochemical surveying.
- (c) Survey coverage of this new grid by ground magnetics to endeavour to trace the contact and to investigate possible magnetic and I.P. coincidences.
- (d) Survey coverage of the new grid by the I.P. method to completely outline the known and perhaps some new anomalous zones.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS cont'd

- (e) Diamond drilling to investigate the cause of the I.P. and other anomalies if considered warranted after the completion of the above surveys.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED


PETER E. WALCOTT, P.Eng.
Geophysicist

Vancouver, British Columbia

November 1970

COST OF SURVEY

Peter E. Walcott & Associates Limited provided two operators and the I.P. equipment on a daily basis. Mobilization and drafting charges were extra so that the total cost of services provided were \$3,232.35.

Declared before me at the *City*
of *Victoria*, in the
Province of British Columbia, this *21st*
day of *December* 1970, A.D.

Daniel Smith

[Signature]
A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia.

SUB-MINING RECORDER

PERSONNEL EMPLOYED ON SURVEY

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Ct., Coquitlam, B.C.	Nov. 14th & 15th, 1970
Gary MacMillan	Geophysical Operator	" "	Sept/ 5th - 14th, 1970
V. Pashniak	"	" "	" "
J. Walcott	Typing	" "	Nov. 16th, 1970
S. Ash <i>p.</i>	Helper	Tanzilla Explor. Ltd., 715 - 850 W. Hastings St., Vancouver, B.C.	Sept. 6th - 14th, 1970
A. Stone	"	" "	" "

Declared before me at the *City*
of *Vancouver*, in the
Province of British Columbia, this *21st*
day of *December* 1970, A.D.

David A. Smith

W. Phillips

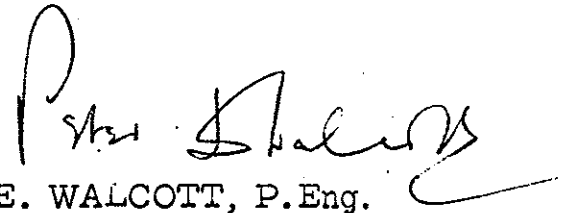
A Commissioner for taking Affidavits within British Columbia or
A Notary Public in and for the Province of British Columbia,

SUB-MINING RECORDER

CERTIFICATION

I, Peter E. Walcott, of the Municipality of Coquitlam, British Columbia, hereby certify that:

1. I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
2. I have been practising my profession for the last eight years.
3. I am a member of the Association of Professional Engineers of British Columbia, Ontario and the Yukon Territory.
4. I hold no interest, direct or indirect, in the securities or properties of Tanzilla Explorations Limited, nor do I expect to receive any.



PETER E. WALCOTT, P.Eng.

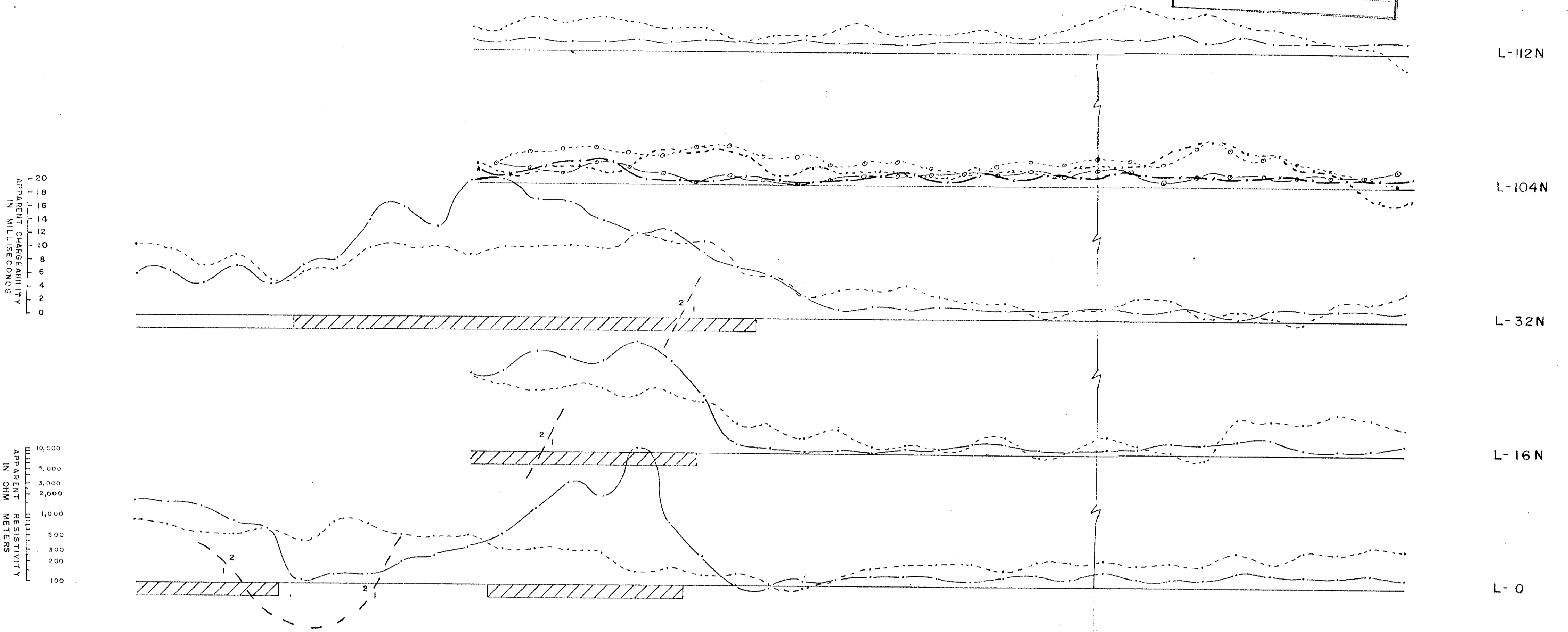
Vancouver, British Columbia

November 1970

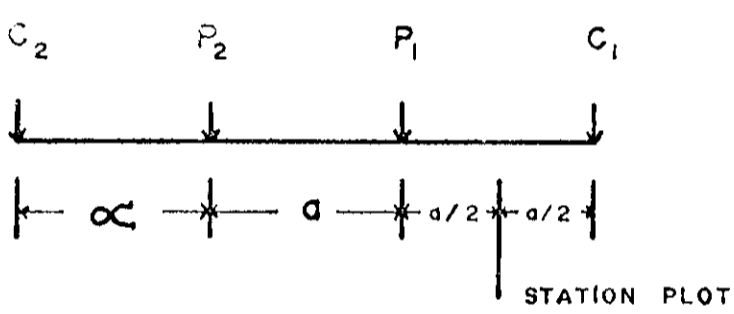
A P P E N D I X

60W 56W 52W 48W 44W 40W 36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E

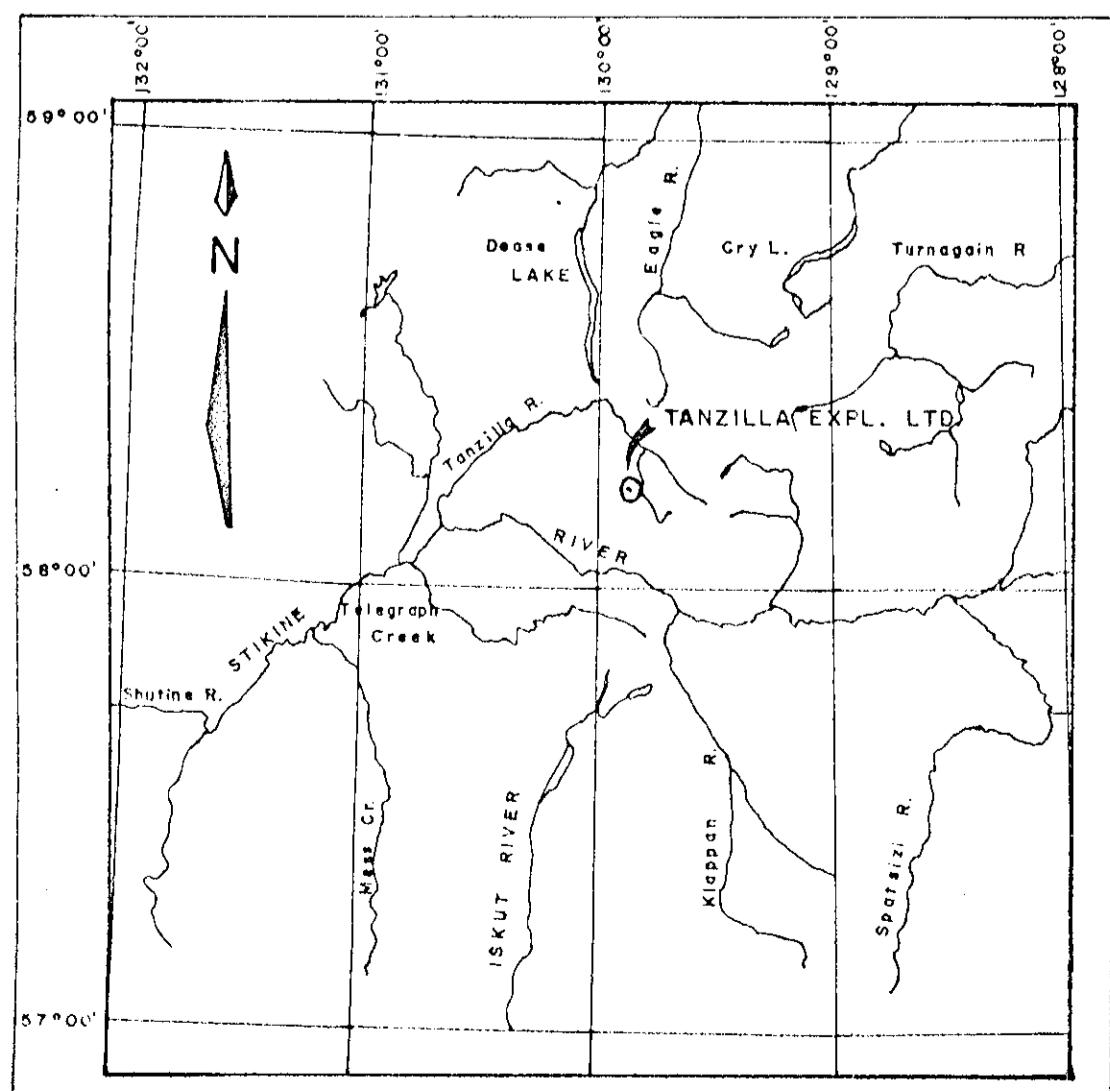
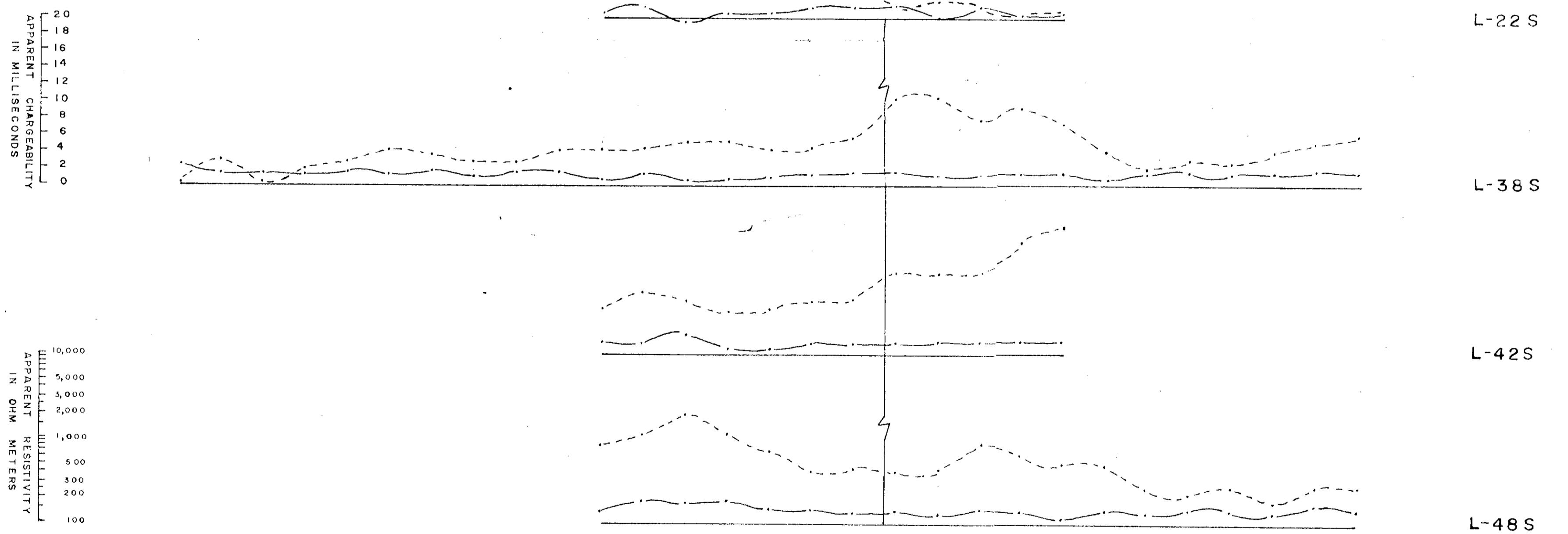
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2767 MAP #1



THREE ARRAY

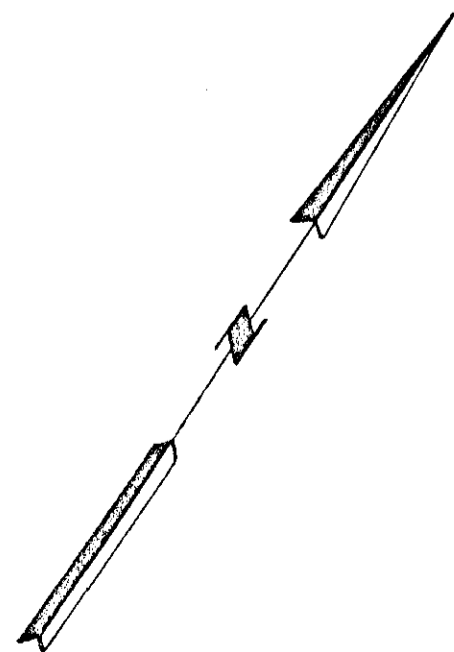


36W 32W 28W 24W 20W 16W 12W 8W 4W 0 4E 8E 12E 16E 20E 24E



LEGEND

- APPARENT CHARGEABILITY PROFILE
 - x — x a = 200'
 - — • a = 300'
 - o — o a = 400'
- APPARENT RESISTIVITY PROFILE
 - x — x a = 200'
 - — • a = 300'
 - o — o a = 400'
- ANOMALOUS ZONE
- POSSIBLE ANOMALOUS ZONE
- ASSUMED GEOLOGICAL BOUNDARY
- INTRUSIVE 2
- VOLCANICS



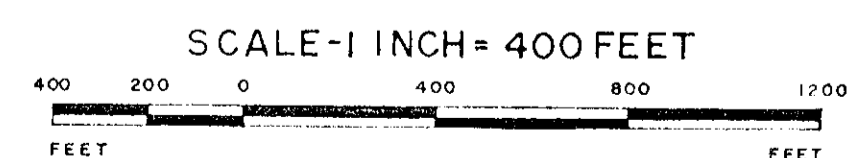
N.B. INTERLINE SPACING NOT TO SCALE

TANZILLA EXPLORATIONS LTD.

KAY, KIM, KING, & KO CLAIMS, LIARD M.D., BRITISH COLUMBIA

INDUCED POLARIZATION SURVEY

PROFILES OF APPARENT CHARGEABILITY AND RESISTIVITY



MAP NO. W-118-1

TO ACCOMPANY A REPORT
PETER E. WALCOTT P. Eng.
DATED - NOVEMBER 1970



PETER E. WALCOTT & ASSOC. LTD.

SEPTEMBER-1970

2767 M-1