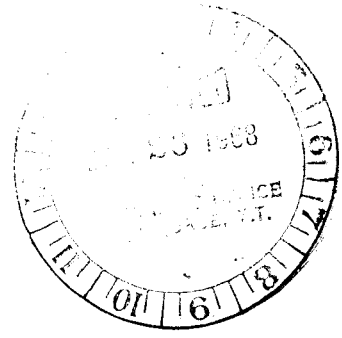
WHITEHORSE TEL.: 667-4281
AREA CODE: 403, TELEX 049-834
CABLE ADDRESS: ANVLMINE

ANVIL MINING CORPORATION LIMITED
P.O. BOX 2470
103 POLARIS BLOCK
WHITEHORSE, YUKON TERRITORY
CANADA

January 24, 1968



Mr. G. McIntyre,
Chief Mining Recorder,
Federal Building,
Whitehorse,
Yukon Territory.

Dear Mr. McIntyre:

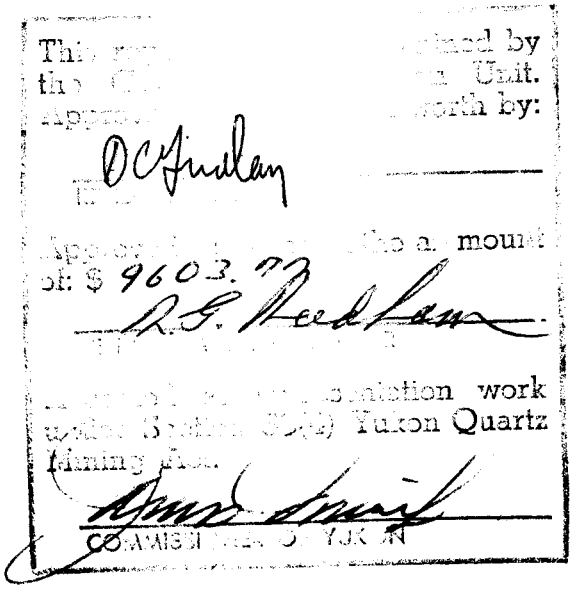
The accompanying I.P. Report by Mr. Roger Watson, Huntec Limited, is submitted to support applications for Certificates of Work on the RAM claim group.

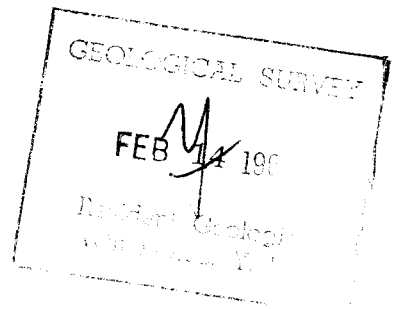
Huntec employees taking part in the survey and report compilation may be contacted at 606 - 837 West Hastings Street, Vancouver 1, B. C.

Anvil employees may be contacted through P. O. Box 2470, Whitehorse, Y. T.

Yours truly,

M. O. Hampton, P. Eng.,
Chief of Exploration for
ANVIL MINING CORPORATION LTD.





REPORT ON

AN INDUCED POLARIZATION (I.P.) SURVEY

RAM CLAIM GROUP

WHITEHORSE MINING DISTRICT, YUKON TERRITORY

FOR

ANVIL MINING CORPORATION LIMITED

BY

HUNTEC LIMITED

VANCOUVER B.C.

NOVEMBER 1967

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APPENDIX A - Assessment Data		

ACCOMPANYING MAPS		MAP POCKET Scale
Plate 1	Apparent Chargeability Contours with Interpretation	1" = 200 ft.
Plate 2	Apparent Resistivity Contours	1" = 200 ft.
Fig. A	Map showing approximate location of survey area	1" = 4 miles
Detail Profiles of Apparent Chargeability and Resistivity		
Fig. 1	Line 4 W	1" = 200 ft.
Fig. 2	Line 0 E	1" = 200 ft.
Fig. 3	Line 8 E	1" = 200 ft.
Fig. 4	Line 16 E	1" = 200 ft.
Fig. 5	Line 20 E	1" = 200 ft.

INTRODUCTION

General

This report contains the results of an Induced Polarization survey carried out by Huntec Limited for the Anvil Mining Corporation Limited on the Ram Claim Group in the Whitehorse Mining District, Yukon Territory.

The project was part of a larger program studying the capability of the Induced Polarization method for detecting the type of sulphide mineralization which has been found in commercial quantities during the last few years in this district, and to prospect for additional ore. Part of this test included several test profiles over the Faro ore body.

The survey of the Ram grid was specifically designed as a follow-up investigation of an earlier airborne survey which detected coincident EM and magnetic anomalies trending in a general north-west direction across the property.

Field work was carried out between July 25th and July 28th, and between September 9th and September 18th. The field party chief for the first part of the survey was Mr. John James and for the remainder of the time, Mr. Mark Samilski. The project was supervised from Vancouver by Mr. R. K. Watson.

The Property

The property lies approximately eleven miles, almost due north, of the Anvil airstrip and base camp. It is accessible by helicopter or on foot. Detailed geology is not available to the writer at this time, but the area is situated just to the north of a large granitic

intrusive body and lies partly within a quartz-sericite-schist formation and partly within the overlying andesites and basalt flows.

The former formation is known to be the favourable host rock for much of the mineralization in the general area, but it is noted that the only economic ore bodies so far developed have all been located on the south side of the granite intrusive.

The greater part of the survey was carried out along a grid of lines at 800 ft. intervals. In the southern part of the grid a 400 ft. line interval was used. Readings were taken at 200 ft. intervals along the line in the reconnaissance phase of the survey.

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
Frequency	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

The entire survey was carried out using the pole-

dipole electrode configuration or array. 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" of "electrode separation" is the distance between C_1 and P_1. The distance between P_1 and P_2 is kept at some convenient distance equal to "a" or a simple fraction of "a". For the reconnaissance phase of this survey the value of "a" was kept at 200 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 different electrode separations. This additional data provides information from which depth, dip and location may more easily be calculated than from a single profile.

Data Presentation

The data for the reconnaissance phase of the survey is shown on Plates 1 and 2 located in the pocket inside the back cover of this report. These maps show contours of apparent chargeability and apparent resistivity respectively at a scale of 1" to 200 ft. Interpretation data is also shown on Plate 1 and includes the outline of interpreted causative bodies associated with the main anomalies. Those portions of lines which were surveyed in detail are shown with double lines and arrows.

The results of the detail phase of the survey are shown on Figs. 1 to 5, which are included as separate fold-outs bound into this report. These show profiles of apparent chargeability and resistivity at a horizontal scale of 1" to 200 ft. and also show sections of the interpreted causative bodies.

RESULTS AND INTERPRETATION

The results of the reconnaissance survey, as seen in contour form on Plates 1 and 2, show an extremely variable chargeability and resistivity response over the entire area. Chargeabilities range from 3.5 milliseconds to 35 milliseconds and resistivities from 31 ohm/metres to 6500 ohm/metres. Despite this complexity it is possible to resolve the chargeable areas into five more or less well-defined zones. These are shown on Plate 1 and marked A to E.

Zone A

This zone is distinguished by having a resistivity anomaly directly coincident with the high chargeability response. It is the strongest resistivity anomaly on the property, reaching apparent resistivity values as low as 31 ohm/metres and is quite possibly the zone which gave the strong airborne EM anomaly.

The zone was detailed on lines 16E and 20E, using the pole-dipole electrode array at several different spacings varying from 50 ft. to 400 ft. From this detail data the zones of high and intermediate chargeability are determined and are shown respectively by cross-hatched and single-hatched sections on the plan map and under the profiles. In some cases the true chargeability (M_2) of the anomalous body has been estimated and has been shown above the profile and plan map. These are all very conservative estimates and the true chargeability could be several times higher.

The detail work on line 20E indicates that the anomalous body lies at an approximate depth of 120 ft. below ground surface with two stronger peaks coming to within 25 ft. of ground surface, (i.e. probably to bedrock surface), which have a minimum true chargeability of 50 and 60 milliseconds. It is not possible with present day interpretation techniques

to relate true chargeability directly to percentage conductive material. It can be done with some approximation in a particular area when enough drilling data has been amassed over I.P. anomalies to develop a correlation factor. In this particular case it would be reasonable to state that the minimum percentage of conductive particles would be ten per cent (10%) by volume and the more likely figure would be five or six times as much.

The detail resistivity results show a strongly conductive zone which could coincide with the highly chargeable anomalous body. The body appears to have a definite upper and lower surface. Normally these surfaces could be computed from standard resistivity depth curves, but there are no standard curves available for anomalies having as great a resistivity contrast as this one shows. A rough estimate would put the upper and lower surfaces of this body at 50 ft. and 200 ft. A more accurate interpretation could be made by measuring an expansion array centred at about station 28N and computing curves for the extreme resistivity contrast that isppresent here.

It may be generally concluded that this anomaly represents a subsurface conductor having both high chargeability and conductivity, and that its most probable cause is metallic sulphides and/or graphite in a fairly massive form.

Zone B

Zones B and C are shown as separate bodies although they may be expressions of shallower portions of the same anomalous body. Zone B appears to be a relatively narrow body trending east-west with a minimum true chargeability of 30 milliseconds and having a directly coincident resistivity anomaly. The resistivity does not appear to be as low as Zone A. The depth to the upper surface cannot be computed

with any accuracy but it is probably within the order of 100 feet. Metallic sulphides and/or graphite would be likely causes of the anomaly.

Zone C

This zone finds its chief expression on line 8E which was detailed with electrode spacings of 100 ft. and 200 ft. The chargeability response is very strong and the estimated true chargeability of the two peaks centred at 13N and 17N is a minimum of 50 milliseconds. There is a resistivity anomaly coincident with the Zone which reaches a peak low value of 120 ohm/metres (apparent resistivity) coinciding with the centre of the northern chargeability peak. Like A, this zone appears to be caused by a sub-surface conductor having enough interconnection between particles to be partially massive. It may be sulphides or graphite or a combination of both.

Zone D

Zone D was explored in detail by electrode spacings of 100 ft., 200 ft. and 400 ft. The detailing work resolved the anomaly into one very strong narrow peak centred at about 27+30N. The depth to the upper surface here is approximately 90 feet and its true chargeability should be in excess of 60 milliseconds. This narrow body shows a definite resistivity anomaly as well. The drop-off in response on the 400 ft. electrode spacings for both resistivity and chargeability indicates that the body is narrow and very likely has a lower surface which is less than 300 feet from ground surface. The rest of the zone shows a chargeability of approximately 9 milliseconds above background, but shows very little resistivity contrast from background. It is concluded that the zone is comprised of a relatively massive but small core surrounded by a zone of disseminated conductive particles.

Again there is no means of telling from the I.P. data whether or not the conductive particles are composed of graphite or sulphides of a mixture of both.

Zone E

This zone is the largest in the group, being in excess of 1300 ft. in length. The narrow extension to the east is cut off very abruptly at line 16. Line 4W was detailed and the data indicates that the zone is formed of material having an average chargeability of 25 milliseconds and a resistivity of approximately 600 ohm/metres. It centres at stations 45 and 55 N as shown on the profiles. There are zones of stronger chargeability and lower resistivity which would indicate more massive zones of the conductive material causing the whole anomaly. The section centred at 45N, which appears to continue on to the east, is a long, narrow extension of the main anomaly, and shows a high conductivity as well as a high chargeability which is estimated to be greater than 60 milliseconds. This strong anomaly very likely continues to the west as indicated by the high reading of 34.5 milliseconds at station 53N on line 12W. The narrow portion running off to the east from the main body shows a definite resistivity anomaly which continues over to line 12W, but the conductivity of the anomalous body causing this anomaly is clearly not as high as most of the other anomalies.

Of all the zones on the Ram grid Zone E covers the most area and has the highest chargeability. It is also reported to coincide rather well with the magnetic anomaly of approximately 2,000 gammas. The conductivity is not as high as the other anomalies but this could be due to the absence of graphite which has a tendency to form stringers and appear considerably more conductive than the equivalent

percentage of metallic sulphides. In this light Zone E appears to be the best of the anomalies. However, its large size may work against it in that the graphite bodies in this general area are usually far larger than the economic sulphide bodies and anything with great length should be viewed with this in mind.

SUMMARY AND RECOMMENDATIONS

1. The I.P. survey covered 10.6 line-miles of I.P. and resistivity profiling on the Ram Group survey grid.

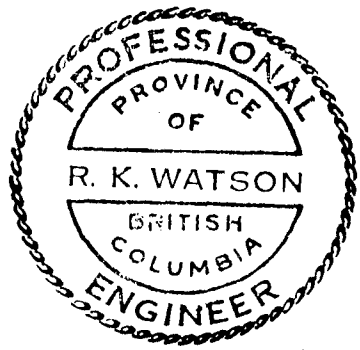
2. From the unusually active chargeability and resistivity background five relatively distinct zones were outlined and examined by detailed readings taken at various electrode separations.

3. From these results all of the zones appear to be caused by subsurface masses of conductive material, some in massive form and some in disseminated form. Those portions of the zones which have the strongest chargeability and highest conductivity are marked by cross-hatching on the interpretation map and detailed profiles.

4. It is concluded that these anomalous zones are caused by conductive material. However, it is recommended that some means of discriminating between the ever-present graphite and metallic sulphides be attempted before a drilling program is set up to explore these zones. A gravity survey is probably the least expensive way of doing this and it is recommended that each zone be surveyed with this method at line intervals of 200 ft. and station intervals of 100 ft. Any gravity anomalies coinciding with chargeability, resistivity, and magnetic anomalies should be given top priority. Gravity anomalies that are not supported by magnetic anomalies might well be investigated by shallow refraction seismic methods to determine if they are caused by local bedrock highs within the overburden.

5. The regional geology map (G.S.C. 13-1961) indicates that the basic volcanics of late Mississippian age (Unit No.8) occupy part of the Ram grid.

Basic volcanics generally have a higher chargeability background than most other rock types and therefore there exists the possibility that the unusually active chargeability response in this area may be in part caused by these volcanics. The interpretation of the anomalies on this property has been made on the assumption that the chargeability and resistivity response is due to conductive particles in the host rock of type number 7. This, then, should be borne in mind and allowances made if subsequent geological examination should indicate the presence of large areas of basic volcanics. As a start, a careful examination of the aeromagnetic map might be a means of mapping the volcanics on a more accurate regional basis than the G.S.C. map provides.



HUNTEC LIMITED

R K Watson

R. K. Watson, B.A.Sc.,P.Eng.
Geophysicist

APPENDIX A

ASSESSMENT CREDIT DATA

Miles Surveyed:

	Line-Miles
Reconnaissance Phase	7.7
Detail Phase	2.9
Total	10.6

Personnel:

Name	Occupation	Date
J. James	Operator/Party Chief	July 25 - July 28, 1967
M. Samilski	Operator/Party Chief	July 25 - July 28, Sept. 9 - Sept. 18, 1967
A. Hovi	Operator	July 27 - July 28, Sept. 9 - Sept. 18, 1967
P. Bucholtz	Helper	July 25 - July 28, 1967
D. Fleming	"	July 25 - July 28, 1967
R. Johns	"	Sept. 9 - Sept. 18, 1967
M. Lowey	"	Sept. 9 - Sept. 18, 1967
D. Wilson	Drafting	Nov. 1 - Nov. 17, 1967
E. Helkio	"	Nov. 14 - Nov. 17, 1967
R. K. Watson	Geophysicist	Nov. 8, 9, 10 & 13, 1967
W. A. Finney	"	Nov. 7, 1967
M. Vatcher	Typing	Nov. 16, 1967

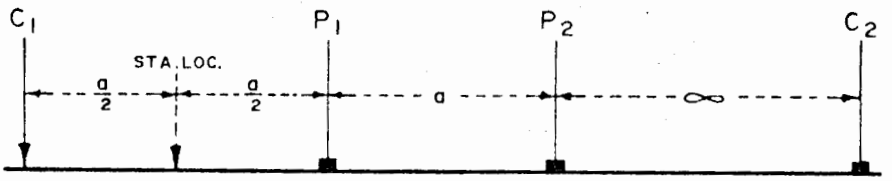
DETAIL PROFILES of APPARENT CHARGEABILITY & RESISTIVITY

ANVIL MINING CORPORATION LIMITED.

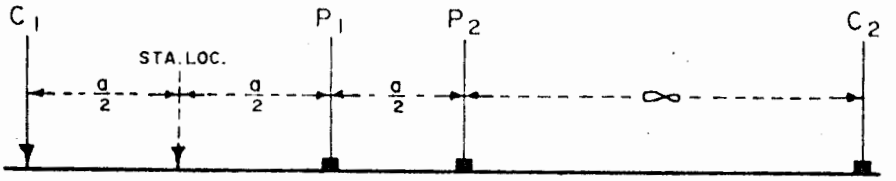
(RAM GRID)

FIGS.- - - 1 to 5

3 - ELECTRODE ARRAY



POLE - DIPOLE ARRAY



NOTE:

P_1 P_2 are Receiver Electrodes.

C_1 C_2 are Transmitter Electrodes.

LEGEND

- a = 50'
- a = 100'
- a = 200'
- a = 300'
- a = 400'
- a = 600'
- a = 800'

ESTIMATED VALUES OF:

d – DEPTH TO TOP.

M_2 – CHARGEABILITY.

ρ_2 – RESISTIVITY.

Horizontal Scale: 1 inch = 200 feet.

Vertical Scales:

Chargeability 1 inch = 10·0 milliseconds.

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

DATE: OCT. 1967

JOB Nº: PH-666-4

L-20W L-12W L-4W L-4E L-12E L-20E

T/L 60N

58N 56N 54N 52N 50N 48N 46N 44N 42N 40N 38N 36N 34N 32N 30N 28N 26N 24N 22N 20N 18N 16N B/L 15N 14N 12N 10N 8N 6N 4N 2N 0

ZONE - "E"

ZONE - "E1"

ZONE - "A"

ZONE - "B"

ZONE - "C"

ZONE - "D"

LAKE

L-8E L-16E

L-20W L-12W L-4W L-0 L-4E L-8E L-12E L-16E L-20E

POLE - DIPOLE ARRAY

a = 200 feet

Note: Configuration reversed (C, to the North) on Line -4W and also on Lines -20W - 12W - 4E - 12E below heavy dotted lines (— — —)

LEGEND

INTERPRETED ANOMALOUS ZONE WITH STRONG ANOMALOUS SECTION

PORTION OF LINE COVERED BY DETAIL SURVEYING

N

ANVIL MINING CORPORATION LIMITED

RAM GRID

WHITEHORSE MINING DISTRICT, - Y.T.

INDUCED POLARIZATION SURVEY
APPARENT CHARGEABILITY CONTOURS
WITH INTERPRETATION

CONTOUR INTERVAL = 2.0 milliseconds

To accompany report by

R. K. Watson

R.K. Watson, B.A. Sc., P.Eng., Geophysicist

HUNTEC LIMITED VANCOUVER - CANADA

SCALE 1" = 2,000'

DRAWN D.W.

DATE OCT. 1967

CONTR. PH-666-4

JAN 17 1968

PLATE - I

PH-666-4

RAM 6 | RAM 4 | RAM 19 | RAM 20 | RAM 29 | RAM 30 | RAM 17 | RAM 18 | RAM 27 | RAM 28 | RAM 15 | RAM 16 | RAM 25 | RAM 26 | RAM 13 | RAM 14 | RAM 23 | RAM 24 | RAM 11 | RAM 12 | RAM 21 | RAM 22

L-20W | L-12W | L-4W | L-4E | L-12E | L-20E | L-16E | L-8E | L-0 | L-8E | L-16E | L-20E | L-12W | L-4W | L-0 | L-4E | L-8E | L-12E

T/L 60N | 58N | 56N | 54N | 52N | 50N | 48N | 46N | 44N | 42N | 40N | 38N | 36N | 34N | 32N | 30N | 28N | 26N | 24N | 22N | 20N | 18N | 16N | B/L 15N | 14N | 12N | 10N | 8N | 6N | 4N | 2N | 0

C₂ to the South
C₁ to the North

LAKE

C₂ to the South
C₁ to the North

C₂ to the South
C₁ to the North

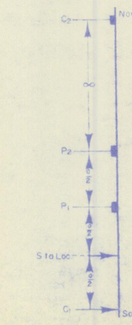
C₂ to the South
C₁ to the North

LEGEND

PORTION OF LINE COVERED BY DETAIL SURVEYING

N

POLE - DIPOLE ARRAY
at 200 feet



Note: Configuration reversed (C₂ to the North) on Line - 4W and also on Lines - 20W - 12W - 4E - 12E below heavy dotted lines (— — —).

ANVIL MINING CORPORATION LIMITED.
RAM GRID
WHITEHORSE MINING DISTRICT, - Y.T.

INDUCED POLARIZATION SURVEY
APPARENT RESISTIVITY CONTOURS
Contours At (logarithmic intervals): 150, 200, 300, 400, 600, 800, 1000 etc., ohm - meters.

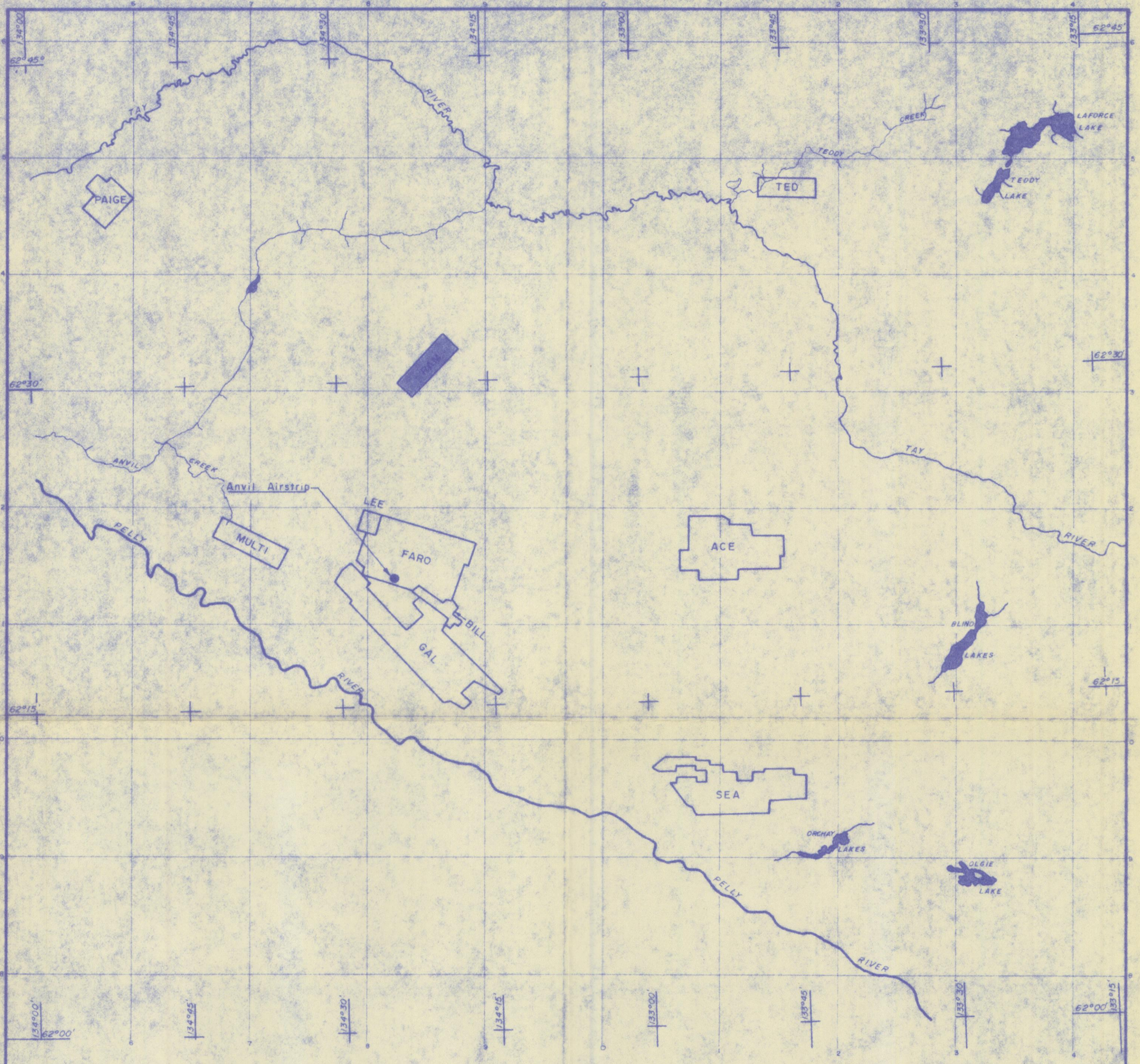
To accompany report by
R. K. Watson
R. K. Watson, B.A. Sc., P.Eng., Geophysicist
HUNTEC LIMITED VANCOUVER - CANADA

SCALE: 1" = 200'
DRAWN: D.W.
DATE: OCT, 1967
JOB Nº PH-666-4

JAN 17 1968

PLATE - 2

PH-666-4



NOTE:

MAP DRAWN FROM NATIONAL TOPOGRAPHIC SERIES.
FIRST EDITION, SHEET 105K

PH-666/67

ANVIL MINING CORPORATION LIMITED.

RAM GRID

WHITEHORSE MINING DISTRICT, - Y. T.

SURVEY LOCATION MAP.

To accompany report by: R. K. Watson

R.K. Watson, B.A.Sc., P.Eng., Geophysicist

HUNTEC LIMITED VANCOUVER-CANADA.

SCALE: 1 inch = 4 miles

DRAWN: E.H.

DATE: NOV. 1967

JOB Nº: P.H.-666/67

LEGEND

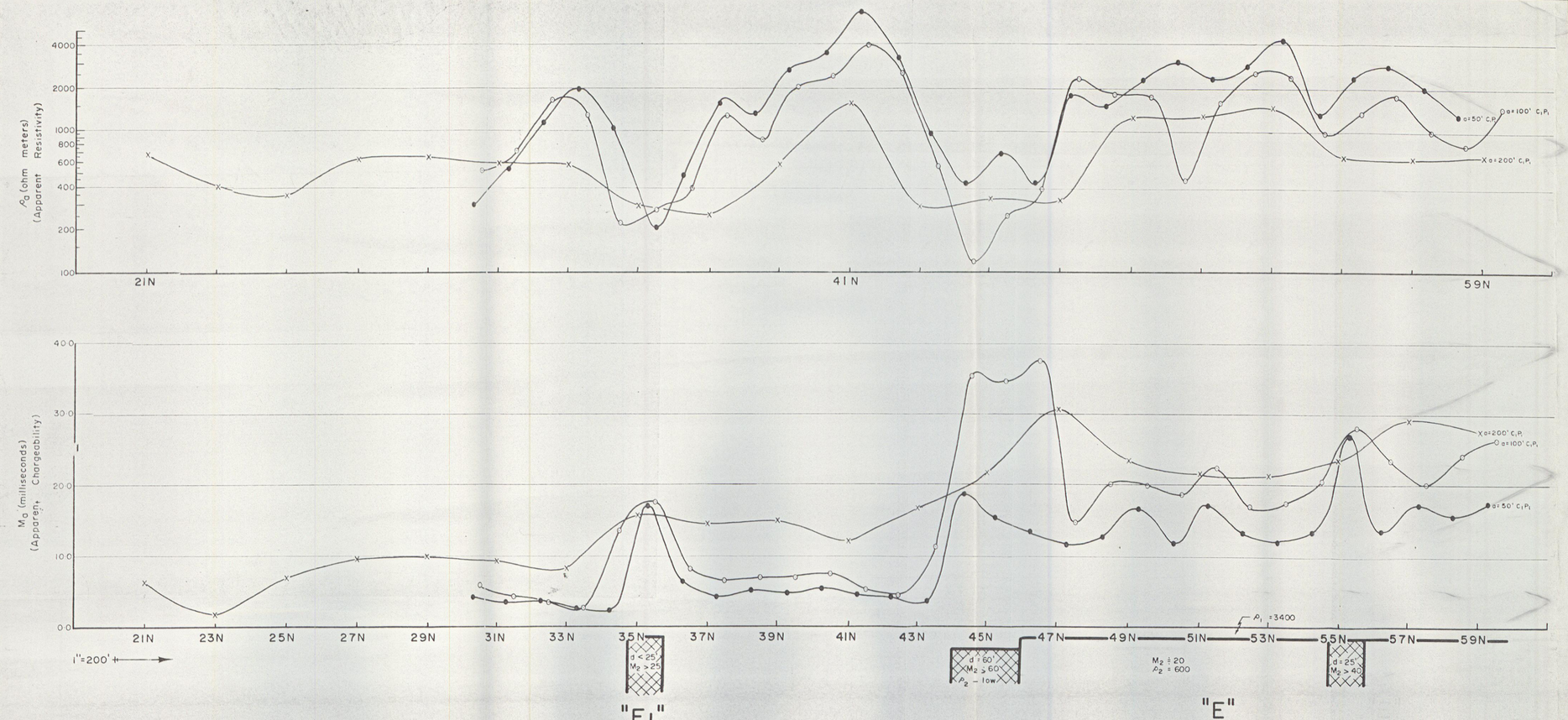
Approx. Area Surveyed.

JAN 17 1968

FIG. - A.

INDUCED POLARIZATION SURVEY

DETAIL PROFILE: LINE- 4 W.



LEGEND

INTERPRETED ANOMALOUS BODY WITH STRONG ANOMALOUS SECTION

ANVIL MINING CORPORATION LIMITED

RAM GRID

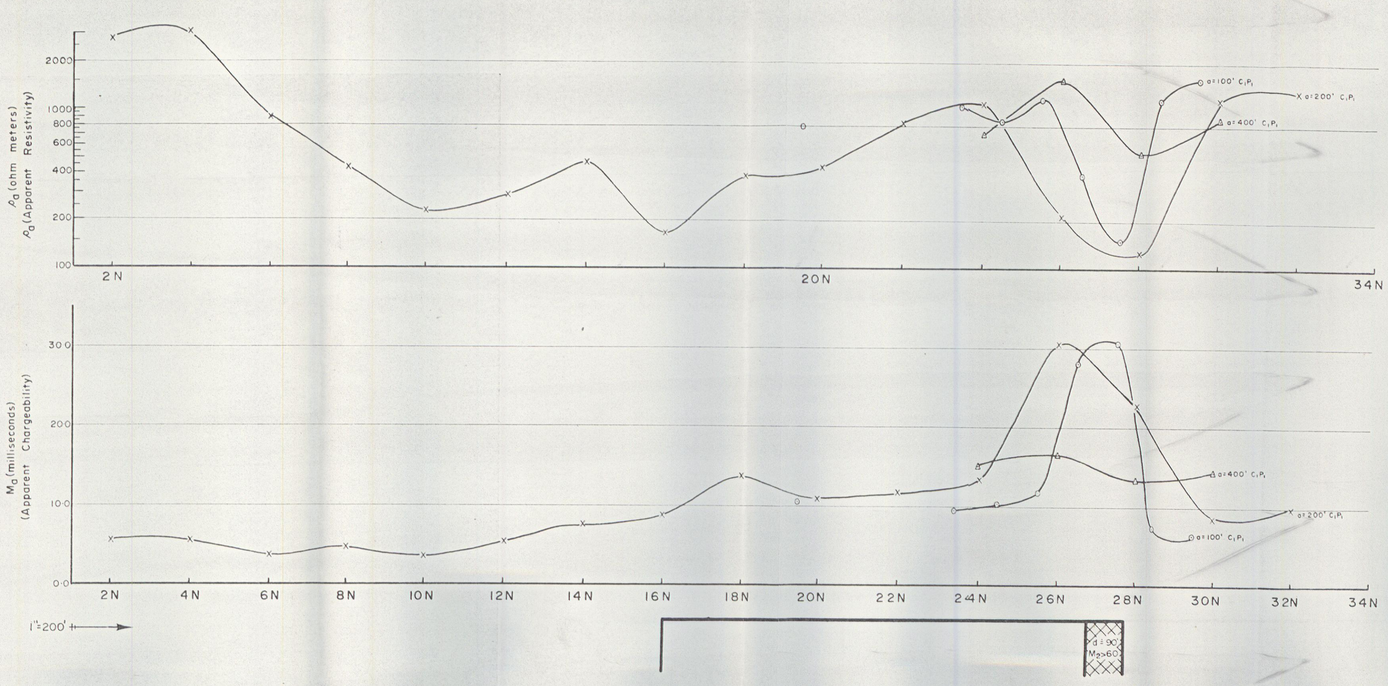
To accompany report by R. K. Watson

R. K. Watson, B.A.Sc., P.Eng., Geophysicist.

HUNTEC LIMITED, Vancouver, Canada, October, 1967.

FIG-1

PH-666-4/67



INDUCED POLARIZATION SURVEY

DETAIL PROFILE: LINE -0+00

LEGEND

INTERPRETED ANOMALOUS BODY WITH STRONG ANOMALOUS SECTION.

ANVIL MINING CORPORATION LIMITED.

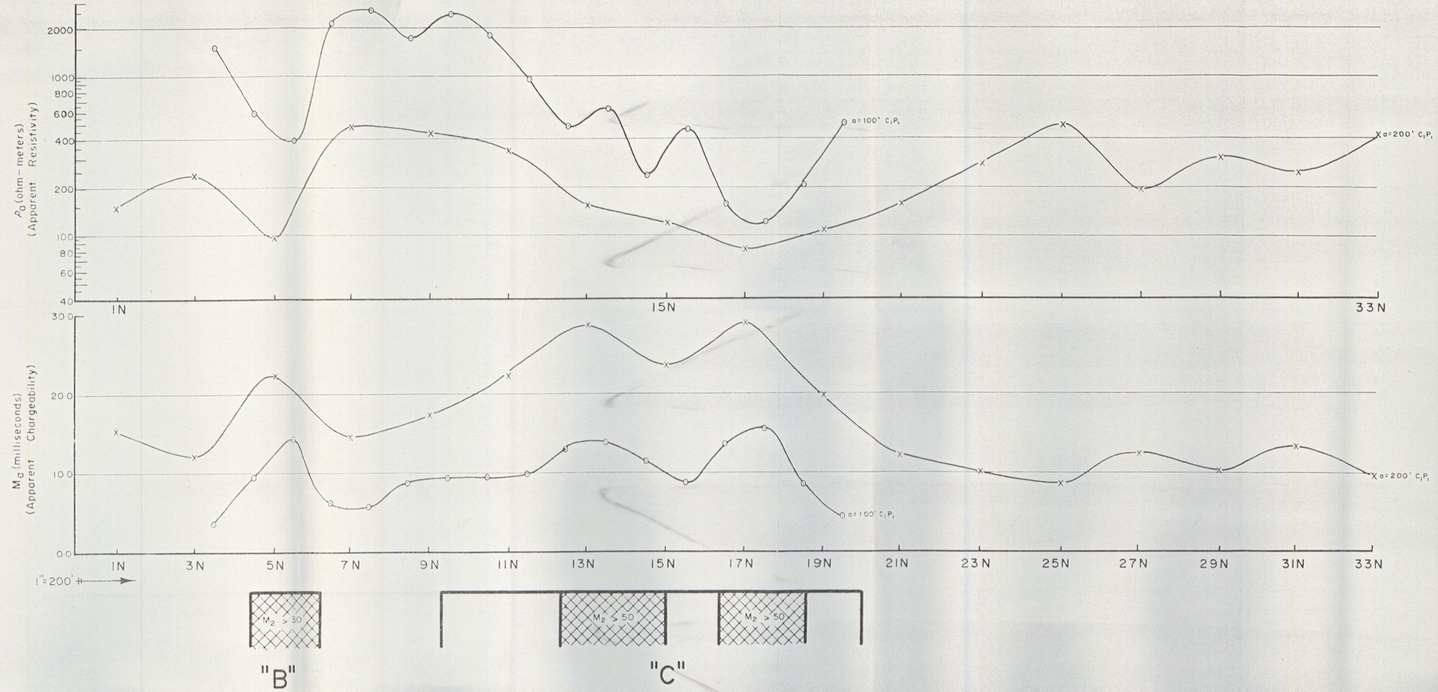
RAM GRID

To accompany report by: R.K. Watson

R.K. Watson, B.A.Sc., P.Eng., Geophysicist.

HUNTEC LIMITED, Vancouver, Canada — October, 1967.

PH-666-4/67.



INDUCED POLARIZATION SURVEY

DETAIL PROFILE: LINE – 8E.

LEGEND

INTERPRETED ANOMALOUS BODY WITH STRONG ANOMALOUS SECTION

ANVIL MINING CORPORATION LIMITED.

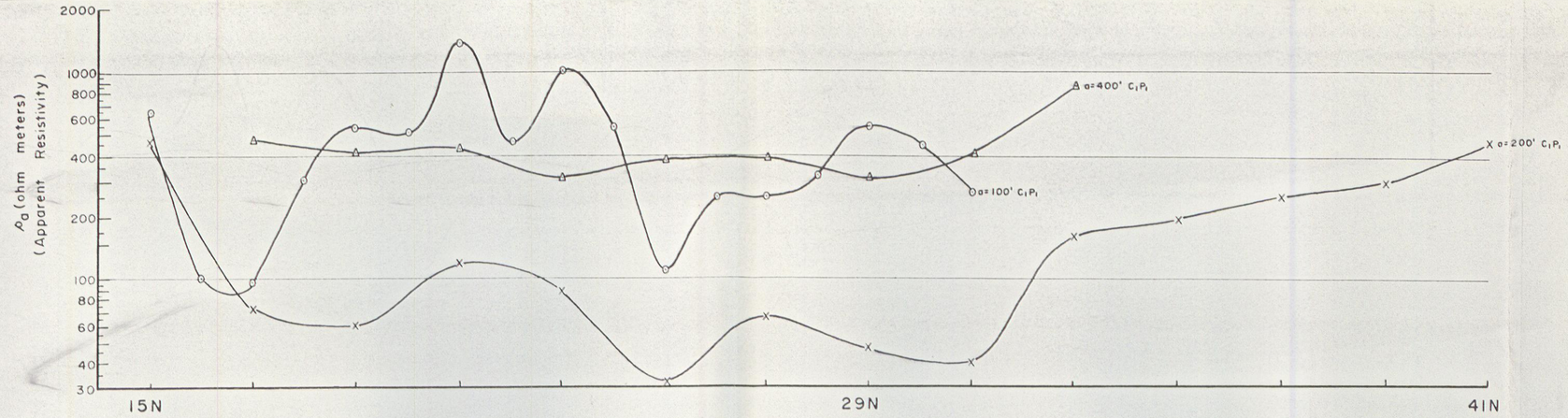
RAM GRID

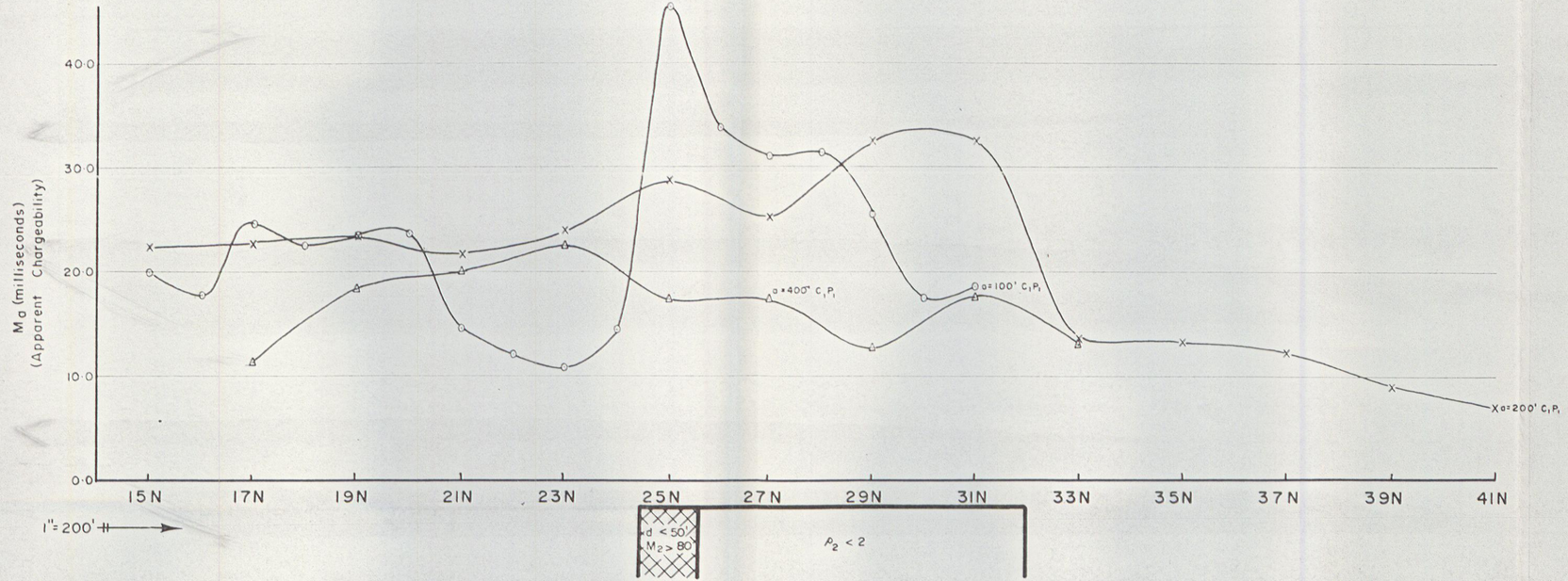
To accompany report by: R.K. Watson

R.K. Watson, B.A.Sc., P.Eng., Geophysicist.

HUNTEC LIMITED, Vancouver, Canada – October, 1967.

FIG-3





"A"

PH-666-4/67

INDUCED POLARIZATION SURVEY

DETAIL PROFILE: LINE-16E

LEGEND

INTERPRETED ANOMALOUS BODY WITH STRONG ANOMALOUS SECTION

ANVIL MINING CORPORATION LIMITED

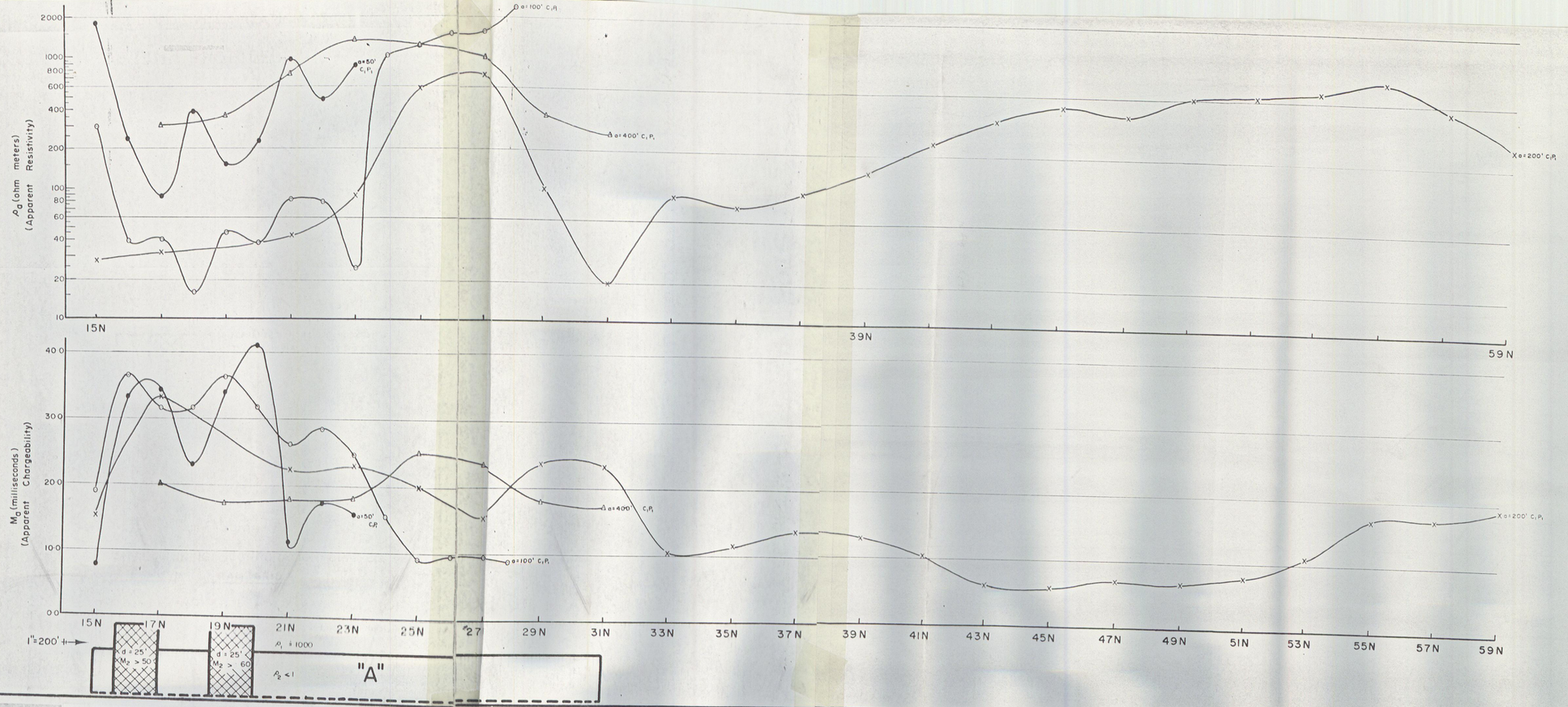
RAM GRID

To accompany report by: R. K. Watson

R.K. Watson, B.A.Sc., P.Eng., Geophysicist.

HUNTEC LIMITED, Vancouver, Canada — October, 1967.

FIG-4



PH-666-4/67

INDUCED POLARIZATION SURVEY

DETAIL PROFILE: LINE – 20E.

LEGEND

INTERPRETED ANOMALOUS BODY WITH STRONG ANOMALOUS SECTION.

ANVIL MINING CORPORATION LIMITED.

RAM GRID

To accompany report by: R.K. Watson

R.K. Watson, B.A. Sc., P. Eng., Geophysicist.

HUNTEC LIMITED, Vancouver, Canada – October, 1967.

FIG-5