4173

GEOPHYSICAL REPORT

on the

INDUCED POLARIZATION AND GROUND MAGNETOMETER SURVEYS

on the

DRY CREEK PROPERTY

COQUIHALLA VALLEY AREA, B. C.

92H/11E

on behalf of

CORVAL RESOURCES LTD. (N.P.L.)

Claim Name	Record Number	Expiry Date
Rip 1 - 3	44104-06	January 15, 1974
Tab 1 & 2	41747-58	August 6, 1973
Julie 1 & 2	22707-08	August 24, 1973
Lucky 1 - 4	21403-06	September 13, 1974
Hope 5 & 6	18789-90	September 4, 1976
HDD #1 Fr.	47956	January 4, 1975
Rip 9 - 12	49198-210	April 16, 1975
Rip 55 & 56	49244-45	April 16, 1975
Rip 58 - 61	49247-50	April 16, 1975
Rip 62	49251	April 16, 1973
Rip 67	49256	April 16, 1974
Rip 69 - 72	49258-61	April 16, 1974
Rip 77	49266	April 16, 1973
Rip 79	49268	April 16, 1973
Rip 81	49270	April 16, 1973
Rip 83	49272	April 16, 1973

Nicola Mining Division N.T.S. 92H/11E

by

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ATLED EXPLORATION MANAGEMENT LTD.

Vancouver, B. C.

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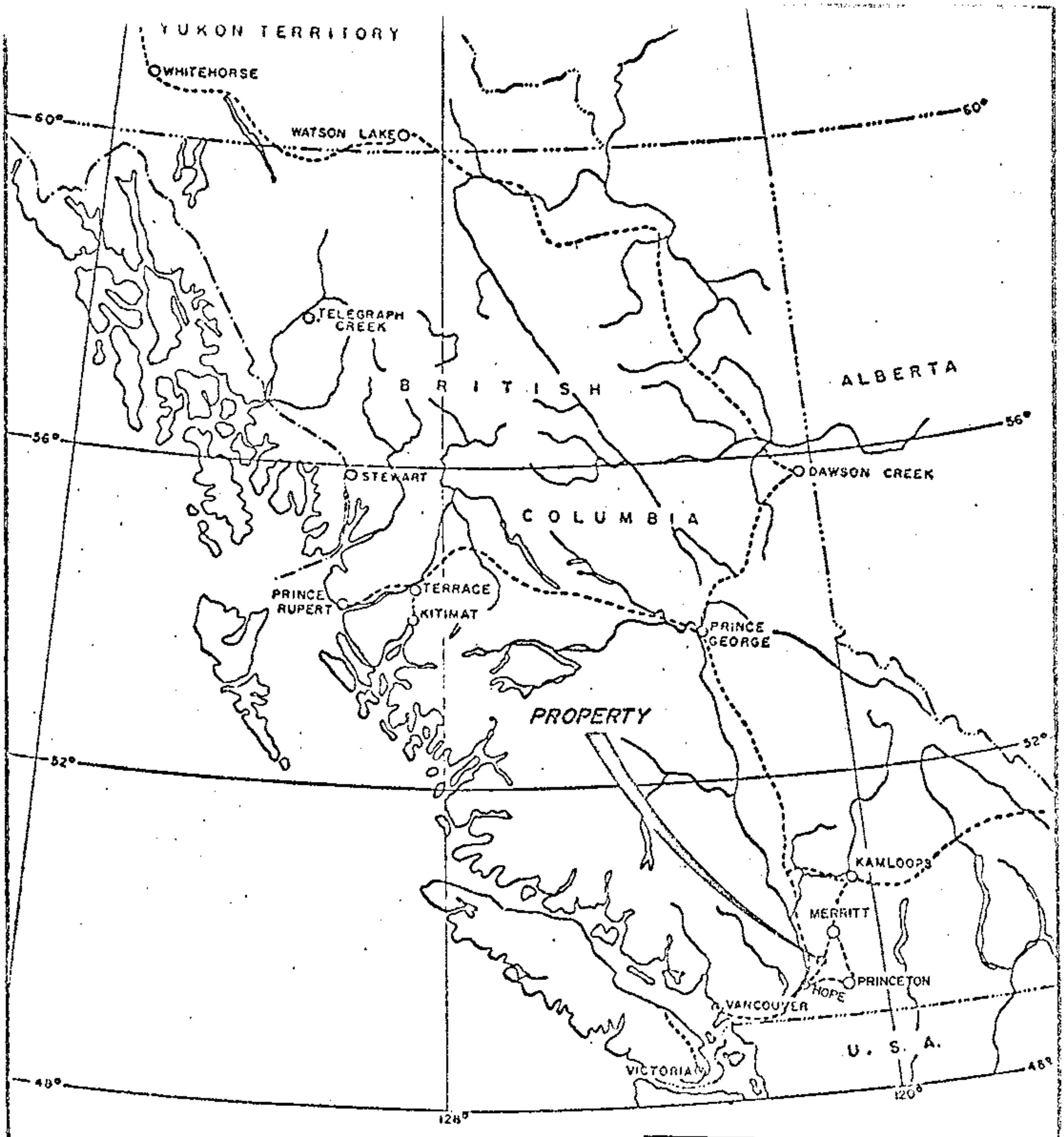
INTRODUCTION

Commencing August 7, 1972 Ground Magnetometer and reconnaissance Induced Polarization surveys were carried out on the Dry Creek property on behalf of Corval Resources Ltd.

The work was executed under the field supervision of P. P. Nielsen of Atled Exploration Management Ltd. to explore for mineralization zones along a poorly defined altered contact zone between intrusive and volcanic rocks adjacent to two known old workings over areas primarily covered by overburden.

A total of 8.4 line-miles of magnetometer and 6.0 line-miles of induced polarization surveying was completed on an old grid on which previous geochemical and geological investigations were made. It was necessary to re-condition and extend portions of the grid which involved the additional installation of 3.0 line-miles of lines concurrently with this program .



CORVAL RESOURCES LTD.

DRY CREEK PROPERTY

LOCATION MAP

49° 41' N 121° [illegible] W

NICOLA MINING DIVISION

0 120 240 360

MILES (APPROX.)

FIG. 1

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
No. 4173 MAP #1

LOCATION AND ACCESS

The property is located in the Coquihalla valley 30 miles northeast of Hope, B. C. and 30 miles southwest of Merrit. The grid straddles Dry Creek on the west side of the main road and is 4 miles north of Coquihalla Lake. Co-ordinates are 49°41'N Latitude and 121°01'W Longitude.

The property can be reached by good gravelled road from Hope or Merrit. This road runs through the eastern portion of the claim group parallel to the Trans Canada and West Coast Transmission oil and gas pipelines.

Good local roads allow vehicular access to the two known mineralized zones on the grid.

CLAIMS

The following 38 claims including one fraction on which this work was carried out are presently owned by Corval Resources Ltd.

Claim Name	*Record Number*	*Expiry Date*
Rip 1 - 3	44104-06	January 15, 1974
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Rip 67	49256	April 16, 1974
Rip 69 - 72	49258-61	April 16, 1974
Rip 77	49266	April 16, 1973
Rip 79	49268	April 16, 1973
Rip 81	49270	April 16, 1973
Rip 83	[illegible]	April 16, [illegible]

GEOLOGY

A. General Geology

The property is located on the northwesterly trending east contact of the Coast Range Batholith of Jurassic age. Composition is chiefly granodiorite with local dioritic phases. Nicola group volcanics of Upper Triassic age are in contact with this intrusive rock to the east. Nicola rocks consist primarily of andesitic flows, tuffs, related pyroclastics and minor intercalated sediments.

B. Local Geology (Summary)

The main area of interest straddles a highly altered, brecciated and sheared contact zone between granodiorites to the west and Nicola volcanics (mainly andesites) to the east.

On the northern mineralized zone sphalerite, pyrite, pyrolusite, minor galena, tetrahedrite and chalcopyrite occur in quartz-carbonate veins or veinlets within the wide contact zone. Disseminated sphalerite, chalcopyrite and pyrite occurs along very narrow east-west trending shear zones cutting the granodiorite.

Approximately 6,000 feet to the south another zone contains a similar mineral assemblage with the best mineralization occuring in small massive lenses of specular hematite. Magnetite has also been observed in this area.

Much of the remaining area on the grid is covered by thick vegetation, river terrace gravels, slide material and glacially transported overburden.

C. References

For a more detailed and comprehensive description of the geology and previous investigations of the property the reader is referred to the following:

1. G.S.C. Geological Map 737A - Hope by C.E.Cairnes (1942)

2. G.S.C. Paper 69-47-Hope Map Area - West Half by J.W.H.Monger

3. Report on the Corval Resources Property by E. Livgard (April 26,1971)

4. Progress Report on the Corval Resources Property by G.C.Gutrath (January 20, 1972)

5. Geological Report on the Rip #1 Adit Zone by G. C. Gutrath (March, 1973)

TOPOGRAPHY AND GROUND CONDITIONS.

The claim group occurs from an elevation at the valley floor of 3,500 feet, rises gently in a series of gravel benches (river terraces) to the old workings at about 3,750 feet and then rises steeply into the intrusive rocks to a maximum elevation of 6,500 feet.

Dry Creek flows easterly through the centre of the grid forming a steep canyon on the west.

Vegetation consists of small open pine and spruce cover on the gravel benches and along the valley bottom. The steeper slopes to the west are covered by thicker stands of fir, spruce and some cedar. There are numerous local areas of dense underbrush including slide alder, berry bushes and willow groves.

At the time of the survey it was difficult to obtain good electrical contact with the sub-surface on the gravel benches. This was due mainly to very dry soil conditions and thick beds of relatively unconsolidated gravel.

A number of solar magnetic storms also hindered the progress of the geophysical surveys and resulted in a few days of virtually no work being carried out.

LINECUTTING

Due to the rapid growth of underbrush it was found necessary to brush-out and re-cut some existing geochemical soil survey lines. Many lines had to be re-flagged as well.

The occurrence of anomalous I.P. chargeability readings at the northeast corner of the grid resulted in the extension of these lines to the east up to the gas pipeline where the surveys were ultimately terminated.

A total of 3 line-miles of linecutting was carried out during this time.

THE GROUND MAGNETOMETER SURVEY

(a) General Comments

A total of 8.4 line-miles (including the Baseline) was magnetically surveyed over cut lines spaced 400 feet apart using a 100 foot station interval.

(b) Method

A vertical force, portable fluxgate magnetometer was used. Readings were taken at a constant height above the ground facing one direction. A harness ensured that the instrument was held a fixed distance from the body.

An orientation traverse along the roads was carried out to assist in adjusting the instrument to the most sensitive scale.

Loop times of less than 1 1/2 hours were encountered resulting in good control of the diurnal variation. A nearby base station and base-line readings ensured additional control as well as providing a means of monitoring magnetic storms.

(c) Instrumentation

A McPhar M-700 model fluxgate magnetometer was used. This instrument measures the relative vertical force variations of the earth's magnetic field on a meter having five ranges for a total of ± 100,000 gammas.

The M-700 has an internal battery pack, is very light and portable, has excellent temperature stability,has negligible orientation error and is of rugged construction.

The M-700 is read after levelling of a bubble level on the face of the instrument.

(d) Data Compilation and Presentation

The readings and the time of readings were recorded in a metal-free field book and transferred to a planimetric map for contouring at the end of each day's surveying after the necessary diurnal, day-to-day, and base-station corrections were made.

The scale of the contour map is 1" = 400 feet. A logarithmic contour interval was used (i.e. 100, 200, 400, 800, etc. gammas). Areas of relative high magnetic susceptibility (i.e. areas above 1,200 gammas) are shown hatched and lows below 700 gammas are "ticked".

The magnetics are also shown in profile form on those lines which were covered by the Induced Polarization survey. Vertical scale is 1" = 500 gammas.

(e) Discussion of Magnetic Contour Results. (8)

NOTE: Magnetic profiles are discussed under the I.P. results.

The contour map illustrates a range in relative magnetic susceptibilities from a low of 0 gammas at Line 41S , Stn. 13 W to a high of 1,590 gammas at Line 15W , St. 19 W for a total magnetic relief of 1,590 gammas.

Generally, the contours trend across the survey lines as was expected due to the strike of the mapped and inferred contact between the intrusive and volcanic rocks. Some north-south bias in the contours is due to the rectangular grid sampling used. That is, the north-south sampling interval is 400 feet as opposed to an east-west sampling interval of 100 feet.

A correlation of this map with the geology as shown on the included claim map indicates that the 8 gamma - 10 gamma contours outline the contact although it is known to be quite wide (i.e. an altered zone) in the adit and trenched areas. Known concentrations of magnetite within this contact zone have influenced the data.

In the southern trench area a dipolar magnetic feature is apparent suggesting a south-east striking fault or dike-like source through Line 41S, Stn. 19W. The east-west elongated 1,000 gamma contour across the trenches to Dry Creek is believed to reflect higher magnetite concentrations in a shear or fracture zone along the contact.

Over the northern adit area, the magnetic contours swing south-west parallel to the survey lines. The 1,000 to 1,100 gamma contours are thought to represent the contact fairly well although it is more gradational around the adit.

The east-west shear along the main drift is not evident from the magnetics. The magnetics south of the baseline vear sharply to the east then south suggesting that the contact does so as well.

Areas hatched above 1,200 gammas could be representative of more fresh, unaltered Eagle granodiorites which have a characteristic relative susceptibility of about 1,300 gammas as opposed to a background of about 800 gammas for the Nicola andesites in the central grid area.

THE INDUCED POLARIZATION SURVEY

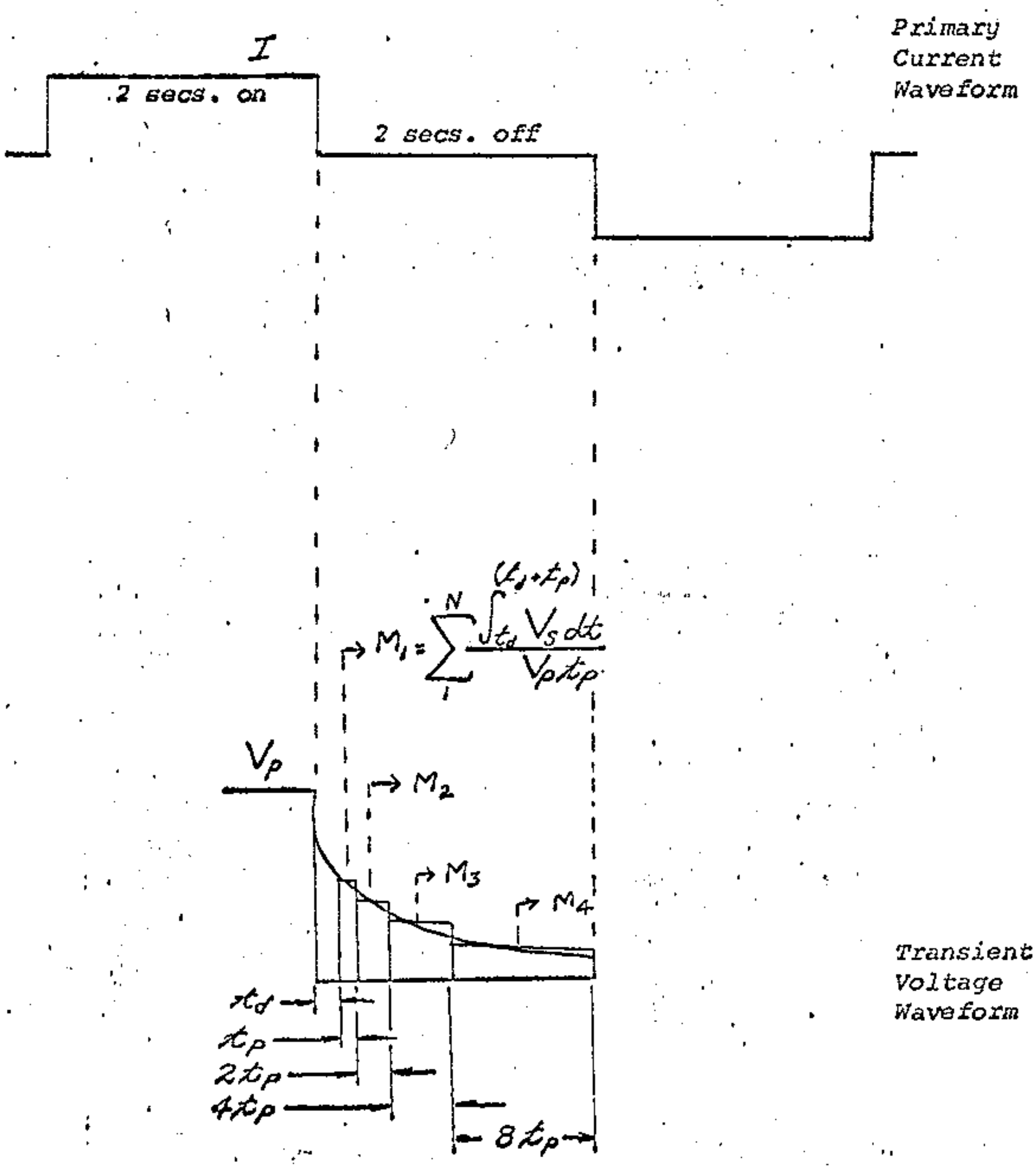
(a) Theory of Method Used

Induced Polarization refers to the polarized distribution of electrical charges throughout a medium to which an electric field has been applied.

When current is passed across an interface between an electrolyte and a metallic conducting body, double layers of charge build up at the interface creating the phenomenum known as "overvoltage" or the "I.P. effect".

This effect can be used for the detection of conducting metallic material such as disseminated sulphides ("porphyry" copper deposits) or massive sulphides containing appreciable amounts of non-conducting sphalerite. Other materials likely to give rise to anomalous responses are pyrite, magnetite, specular hematite, graphite and certain clay-micas such as montmorillonite, vermiculite, saponite and bentonite.

In time-domain (Pulse) I.P., a transmitter injects an alternating square wave signal into the ground at two electrodes C_1 *and* C_2*. The signal seen by the receiver at two other electrodes* P_1 *and* P_2 *provides an indication of the apparent chargeability* (M_a)*. By observing the input current (I) and primary "on-time" voltage,* (V_p) *the apparent resistivity* ρ_a *is calculated using Ohm's Law and a geometric factor dependent upon the electrode array used and the units (ohm-meters or ohm-feet) desired.*



I
2 secs. on
2 secs. off
Primary
Current
Waveform
$M_1 = \sum_{1}^{N} \frac{\int_{t_d}^{(t_d+t_p)} V_s\,dt}{V_p t_p}$
V_p
M_2
M_3
M_4
Transient
Voltage
Waveform
t_d
t_p
$2t_p$
$4t_p$
$8t_p$

The polarization voltages established during the current "on" time decay (discharge) slowly during the current "off" time. The receiver amplifies and integrates the decay curve at four pre-selected positions in time, normalizes these amplitudes with respect to the primary voltage Vp and presents the results as M_1, M_2, M_3, and M_4 readings on digital display for logging.

The times at which the decay curve is sampled, are selected by means of a switch making it possible to obtain up to 56 distinct points on the decay curve.

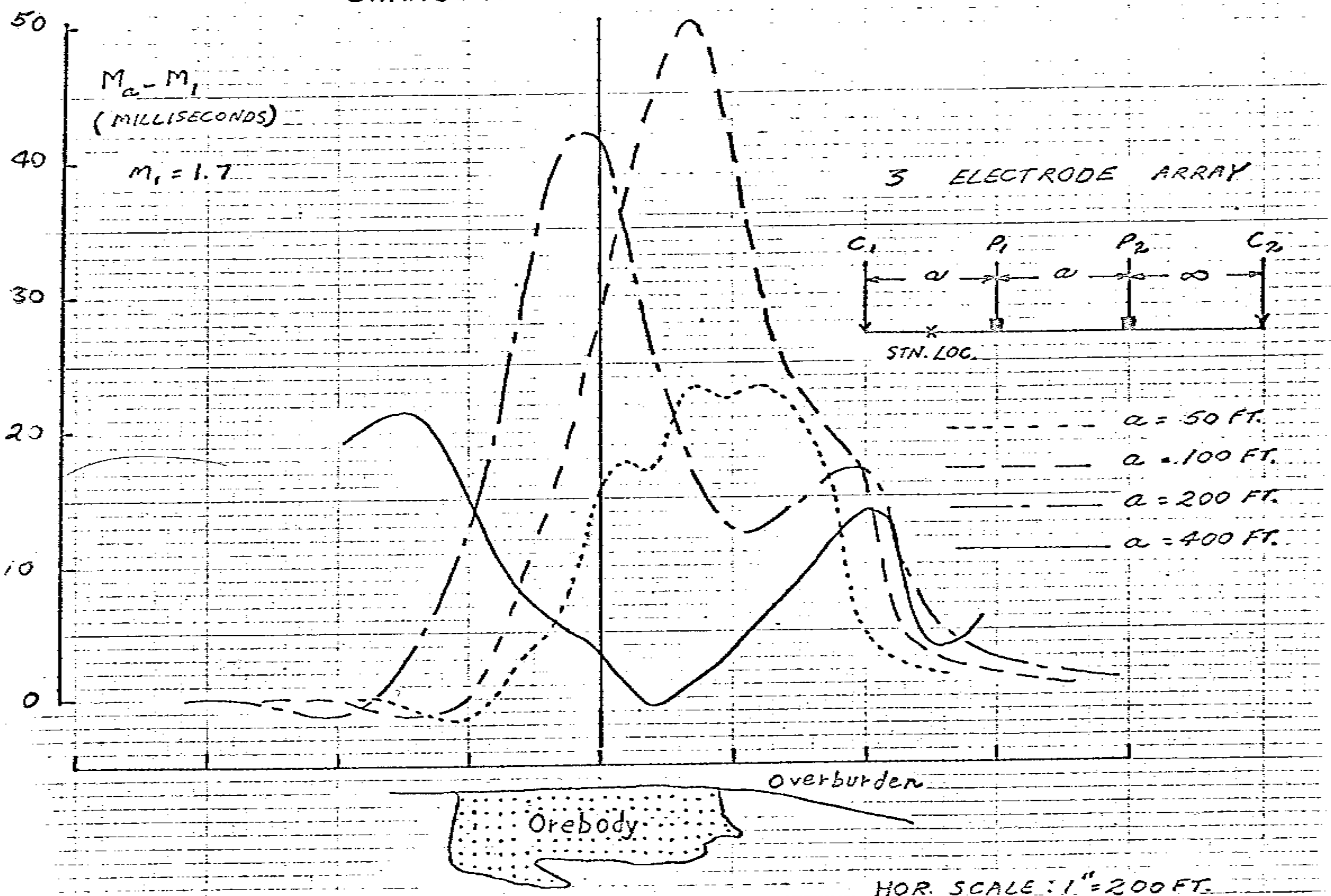
This allows one to obtain the actual decay curve shape and to better estimate the size, depth and type of the causative source.

A further step which can be taken is to factor the decay curve to separate the unwanted electromagnetic transient coupling effects and background effects from the true overvoltage effects. This extends the usefulness of the I. P. method in areas of high overburden conductivity. It also assists the geophysicist in distinguishing between effects of metallic and nonmetallic conductive material, between oxides and sulphides, between large and fine-grained particules, and between massive and disseminated portions of a polarizable body.

(b) Theory of the 3-array Electrode Configuration

The I. P. response due to a particular distribution of polarizable material is dependent upon the electrode array employed, the geometry of the polarized body and its location relative to the array, and on the resistivity and polarization contrast between the body and surrounding environment.

CHARGEABILITY PROFILE EXAMPLE



Although anomalies are asymmetrical and the anomaly peaks do not always fall directly over the center of the causative source, the advantages of the 3-array more than outweigh this one disadvantage This array requires only three men on the survey line, has good depth penetration, responds well to both flat-lying and steeply-dipping bodies and permits a minimum number of electrode spacings to be used during reconnaissance surveying resulting in faster coverage.

As mentioned above, contour maps of the data should be treated with caution and are used to enhance the interpretation made primarily from the profiles. An example of a typical multiple electrode spacing response over a sulphide lens is included to illustrate the asymmetrical nature of this array as well as to point out the phenomenum of "double-peaking" which occurs when the electrode spacing is larger than the depth to the center of the body. The larger peak occurs when the first potential electrode (P_1) is in the vicinity of the body.

The maximum anomaly is obtained for the spacing equal to the depth to the center of an idealized sphere, although spacings of 3/4 to 1 1/2 times the depth give at least 90% of the maximum likely anomaly.

The use of two or more spacings gives a more reliable estimate of depth, attitude and continuity with depth. An accurate estimate of resistivity and polarization of the body cannot be made since the variables of size, conductivity, and polarizability cannot be separated, hence the term "apparent" chargeability is used.

(c) Field Procedure

(i) Electrode Configuration Used

A 3-electrode array was used whereby the current electrode C_1 and two potential electrodes, P_1 and P_2, were separated by a distance "a" from each other and moved in unision along the survey lines taking measurements at regular intervals. The second current electrode C_2 is fixed at "infinity" (∞) which is a minimum distance of 5a to the nearest station measured.

The station location is halfway between the current electrode C_1 and the nearest potential electrode P_1. All lines were surveyed with C_1 to the east of the potential electrodes as the three men moved along the survey lines.

(ii) Measurements Taken in the Field

1. *The Primary voltage Vp between the measuring (potential) electrodes during "current on".*
2. *The current flowing through the current electrodes C_1 and C_2.*
3. *Four pre-selected gates called M factors (M_1, M_2, M_3 and M_4) using timing settings of:*

   (a) delay time t_d = 240 msecs.

   (b) Basic integration time t_p = 60 msecs.

   (c) Total integration time t_t = 900 msecs.

   (d) Basic period t_c = 8 secs. (2 secs. On and 2 secs. Off).

(d) *Equipment Description and Specifications*

(i) *Receiver*

The Huntec MKIII Receiver is a portable, remote sensing pulse-type instrument incorporating the following features:

- *Adjustable timing cycle.*
- *Up to 56 distinct sample points measured on the decay curve.*
- *Automatic S.P. buck-out.*
- *Direct digital read out of Vp and M factors including sign.*
- *High noise rejection allows operation in Vp levels down to 30 micro volts with 0.1 micro volt resolution.*
- *Greater than 10 megohm input impedance.*

Specifications

- *Sensitivity: Vp =* 10^{-7} *to* 10^{-6} *volts for low noise 1% resolution.*

  Vp = 10^{-6} *to 10 volts for 0.1% resolution.*

  Total Range 30 X 10^{-6} *volts to 10 volts in 11 ranges.*

- *Self Potential: MAXIMUM* ± *1 volt.*
- *Power consumption: 0.7 ampere at 12 volts.*
- *Dimensions: 16" x 9" x 5 3/4".*
- *Weight: 12.5 lbs. (without battery pack).*

(ii) *Transmitter - Alternator*

The Huntec Pulse type transmitter alternator is a high-powered, 7.5 Kilowatt system utilizing the following:

- *Solid state power control and switching mechanism.*
- *Produces high currents into low resistance loads.*
- *Accurate and adjustable timing using Crystal Clock.*
- *Voltage regulator with push-button field energizer.*
- *Dummy Load.*
- *2 cylinder ONAN engine driving a Bendix alternator.*

Specifications

1. *Transmitter*

- Output: 100 to 3,250 volts in 10 steps
  16 amps maximum.
- Cycling Rates: Normally 2 sec. ON, 2 sec. OFF.
- Dimensions: 21 in. x 17 in. x 17 in.
- Weight: 75 lbs.

2. *Alternator*

- Output: 18 K.V.A. 120/208 volts 3 phase 400 Hz.
  52 amps/phase.
- Engine: 2 cylinder, 4 cycle, air-cooled 16.5 H.P.
  ONAN at 3,600 R.P.M.
- Alternator: 3,600 R.P.M. direct driven Bendix with sealed bearings and rotating field.
- Dimensions: 42 in. x 17 in. x 26 in.
- Weight: 225 lbs.

(e) *Data Presentation*

1. *Calculations*

(i) The apparent resistivity ρ_a is calculated by dividing Vp by I and multiplying by a factor appropriate to the electrode array used and the ohm-meter units desired.

(ii) The four M factors were weighted and added to obtain a single apparent chargeability parameter (called M_a) for contouring purposes.

$$M_a \, {}^{t_f}_{t_d} = t_p \, (M_1 + 2M_2 + 4M_3 + 8M_4) \times .01$$

where M_a = milliseconds

t_d = initial delay time

t_f = final time at end of $M_4 = t_d + 15\, t_p$

t_p = integrating time of M_1

2. Profiles

The apparent chargeability Ma is plotted at a vertical scale of 1" = 10 Msecs. and ρ_a is plotted at a vertical scale of 1 logarithmic cycle = 2 1/2 inches in ohm. meters.

All lines are illustrated with an "a" spacing of 400 feet at a horizontal scale of 1" = 400 feet. A portion of Line 8N includes readings using an "a" spacing of 200 feet.

3. Contours

All apparent resistivity and apparent chargeability values for electrode separations of 400 feet have been plotted on the values and contour maps at a horizontal scale of 1" = 400 feet.

The reader is cautioned as to the errors inherent within this type of data presentation which include:

(i) Upslope displacement of readings over steep terrain.

(ii) Grid bias or contour elongation due to rectangular sampling interval used.

(iii) "Double peaking" phenomenum in which causative source is located between "highs".

(iv) Some skewness of anomaly peaks due to assymetrical array used.

(v) Topographic or terrain effects in resistivity data.

(f) Discussion of I. P. Results and Interpretation

1. General Comments

At the commencement of the I. P. survey the east-west survey lines seemed to be of good orientation for most of the I. P. coverage in that they were approximately perpendicular to most of the contact strike length. In the adit area, however, it was found that the long axis of the large chargeability anomaly was sub-parallel to the survey lines.

The 400 foot electrode separation was chosen to ensure that the terrace gravels and leached bedrock would be penetrated, that sufficient signal-to-noise ratios would be obtained, and yet there would be good resolution of possible narrow, near-surface features along the contact.

It was also appreciated that known uneconomic minerals such as pyrite, magnetite, specular hematite and pyrolusite which have been observed in the trenched and adit areas would yield anomalous chargeabilities. It was felt, however, that these "responders" might outline areas for further investigation since there is an intimate association of these minerals with economic grades of sphalerite (a non-conductor), galena and, possibly, chalcopyrite.

Line 5S was not surveyed due to lost time caused chiefly by considerably high magneto-telluric interference from magnetic storms. For this reason and because of the close promimity of the gas pipe-line, the chargeability anomaly at the eastern ends of the north lines was not closed off. Very little detail using other "a" spacings, electrode configurations, or line directions was carried out at this time, although the gradient array was attempted but abandoned due to low current levels.

2. Apparent Chargeability Contours (Ma)

The values vary from 4.9 milliseconds at Line 33S, Stn. 4W to 43.9 milliseconds at Line 16N, Stn. 6E resulting in a total relief of 39.0 milliseconds.

A background of 10 milliseconds has been determined with readings greater than 20 milliseconds considered to be anomalous. Peak values, then, are approximately 4 times background response.

Anomaly 1

This feature occurs over and adjacent to the southern known mineralization area which has been partially explored by trenching by Anaconda in 1956-66 and by trenching and drilling by Dorian Mines Ltd.

Livgard's report (April 26, 1971) mention's that the drilling consists of relatively shallow holes (Pacsac and AXT) which examined a mineralized area 600 feet long striking north-south being 150 to 400 feet wide.

The present I.P. survey indicates a local north-south trending conductive zone through the trench area which crosses Dry Creek in the "slide" area (see claim map) and is terminated about 600 feet on the north side of the Creek. This local trend is within a stronger larger conductive zone striking southeasterly from the valley floor near Dry Creek and is still anomalous and open to the southwest at the west end of Line 41S. This anomaly is presently 1,200 feet wide and 3,200 feet long. Two narrow northwesterly trending conductive zones are observed on the Lucky #2 and Hope #6 claims.

Although there is no strong evidence on the aerial photos of a southwest structure coincident with the major axis of this anomaly, a mineralized fault zone or southeast embayment of the contact is postulated for this area. The magnetics favour the first possibility.

Anomaly 2

This anomaly occurs coincident with the old workings - adit area on the northern half of the grid but extends about 1,400 feet to the west of the main portal past the mapped contact embayment and on into an area previously thought to consist of barren, fresh Eagle granodiorites.

To the south the conductive zone continues over 1,600 feet to the gas pipeline where it is still open and of very high amplitude. The anomaly presently has dimensions of 1,200 by 2,900 feet and appears to be widening at the east end.

The magnetic and resistivity contours indicate that the contact probably swings southeasterly east of the baseline rather than continuing northeasterly as inferred previously. Again, there are no strong photo lineaments to support the geophysical observations in this region.

The main adit as illustrated on the claim map (Rip #1 claim) includes a haulage tunnel 250 feet long driven on a northwesterly bearing. Perpendicular to the tunnel is an adit 650 feet long which was driven both ways along a shear zone containing veins of sphalerite up to 10 feet wide in a highly altered brecciated intrusive rock. (See Mr. Gutrath's report, 1973.) Due to the reconnaissance nature of the I. P. survey whereby a wide electrode separation was used, local features such as *this shear are not noticeable in the data.*

It appears, however, that the areas of highest chargeabilities (over 35 msecs.) might be caused mainly by pyrite and pyrolusite. Further investigations in this vicinity might therefore be confined to the western half of this anomaly between the 15 and 35 msecs. contours.

3. Apparent Resistivity Contours (ρ_a)

The resistivity portion of the survey ranged in value from 94 ohm•meters at Line 0, Stn. 18W to 3,930 ohm·meters at Line 16N, Stn. 8W for a total relief of 3,836 ohm•meters.

Interpretation is hampered by variable overburden thicknesses, very dry top-soil in some areas, marked changes in terrain and poor orientation of the north lines relative to the contact strike in this area as suggested by the magnetics.

Generally,outcropping barren or fresh intrusive rocks have an apparent resistivity of about 3,000 ohm meters while the overburden covered areas believed to be underlain by Nicola andesites show low resistivities from 100 to 400 ohm•meters. The altered and mineralized contact areas are observed to vary from 700 to 1,200 ohm meters.

4. Profiles

Line 20N. - The magnetic profile indicates the likely presence of a number of closely-spaced veins or shears striking across the line which contain local concetrations of magnetite.

The chargeability profile shows a 600 foot wide zone of conducting material which appears to be sharply cut off to the east by the contact at Stn. 7W.

The correlation of the data shows that the magnetite has contributed little to the chargeability response and that the area above 25 msecs. is probably caused by sulphides and/or pyrolusite. The conductive zone is open to the east. The contact is believed to swing back to the south crossing this line at Stn. 2 +50E.

Line 16N. - This line exhibits a similar geophysical response to the above mentioned line. The contact is interpreted crossing this line at Stn. 8W where there is a distinct reversal in the Ma and ρ_a levels. The contact is also believed to cross the line at Stn. 3E.

Line 12N. - Similar to the above lines, this profile indicates a widening of the conductive zone of over 800 feet east of the contact which is interpreted occurring at Stn. 10 + 50W. The contact crosses the line again at Stn. 4E.

Line 8N. - The narrower 200 foot "a" spacing traverse over the bi-modal Ma peak on the a = 400 feet profile implies double-peaking whereby the causative source is about 200 feet wide and is 200 feet deep to the center *of the body beginning at or very near surface. The contact is at Stn. 16W.*

<u>Line 4N.</u> - Although no detail was carried out on this line, it is believed that the bi-modal Ma peak is not due to double-peaking but due to a widening of the zone or due to poor line orientation. The contact is at approximately Stn. 16W.

<u>Line 0</u> - The Ma values have flattened out to near background response with the contact occurring at Stn. 18W. This line represents the southern limit of the northern chargeability anomaly. Hence, no discussion of Line 5S, 9S, 13S, and 17S.

<u>Line 21S.</u>- The two Ma peaks are northerly continuations of narrow conductive zones from the main southern trench area anomaly. The coincident low resistivity values suggest a good conductor possibly containing massive sulphides other than sphalerite. The intrusive-volcanic contact appears to cross this line at Stn. 24W.

<u>Line 29S.</u>- The two narrow conductors appear to cross Dry Creek and merge into one Ma peak of higher amplitude centered at Stn. 11W on this line.

The 25.6 msec. high at Stn. 17W is likely caused by a local magnetite concentration within the N - S conductive trend across the trenches.

<u>Line 33S.</u>- The Ma peak at Stn. 20W is a continuation of the N - S trend discussed above and is coincident with a subtle magnetic high of 1290 gammas. The contact is not well defined in this area but could pass through Stn. 22W.

Line 37S. - The profile illustrates good direct ρ_a and γ correlation with the highest values coinciding with the Ma peak at Stn. 19W. Less magnetic material seems to be associated with the other smaller Ma peak at Stn. 24W.

The steep Ma gradient at Stn. 16W - 18W suggests that a fault crosses this line at Stn. 16 + 50W.

Line 41S. - The fault postulated above crosses this line at Stn. 18 + 50W. The conductive zone is observed west of this point and peaks at Stn. 25 + 50W which coincides with a local ρ_a low.

CONCLUSIONS AND RECOMMENDATIONS

All the exploration work carried out to date and particularly the Induced Polarization Survey have enhanced the knowledge of the property and have indicated definite areas meriting further investigation.

The geophysics have suggested or supported the feeling that the geochemical results are somewhat confusing and misleading. Strong evidence of contamination from the old workings and the occurrence of three or more populations make interpretation of the geochemical data difficult.

The recent surveys indicate that in the trench area south of Dry Creek a large conductive zone striking southeasterly roughly perpendicular to the inferred and observed contact is of possible economic significance. Within this zone there are local north-south conductive trends which likely contain sulphides in shears and/or breccia zones. The main conductive trend is interpreted as a fault cutting the volcanic and granitic rocks and is possibly a structural control to mineralization.

In the adit area on the northern half of the grid, there appears to be a more direct relationship between the chargeability anomaly direction and the suspected contact strike although here too the conductive zone appears to continue far into the intrusive rocks.

The surveys have assisted in projecting the contact to the east on the north part of the grid and have indicated a large area south of the baseline which could be of economic importance. This anomalous chargeability area is still open to the east and northeast over a gravel bench possibly up to 400 feet thick near the gas pipeline. This gravel probably accounts for the marked fall off in the geochemical results south of the baseline.

An extension of the I. P. and magnetometer surveys in this area is recommended to close off the chargeability anomaly. It is possible that the area of interest could extend into the valley bottom and up the east slope although the valley is likely coincident with a major north-south fault which could terminate or offset zones of mineralization. Wide electrode separations up to 800 feet should be used along the eastern extensions of the present survey lines. Lines should also be cut and surveyed by I. P. on a north bearing east of the baseline using multiple electrode spacings for depth soundings and to provide a meaningful interpretation leading to the spotting of drill targets.

The southern, trench area (anomaly #1) should be closed off to the south-east. Detail using narrow electrode spacings should be executed and a few traverses normal to the major southeast trend of the chargeability high should be carried out.

Multiple "a" spaced traverses are recommended along Line 21S to further define possible narrow mineralized zones which appear to cross Dry Creek from the trench area.

APPENDICES

Respectfully submitted,

P. P. Nielsen, B.Sc., Geophysicist

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. C. GUTRATH

G. C. Gutrath, B.Sc., P.Eng. Geologist

ATLED EXPLORATION MANAGEMENT LTD.

STATEMENT OF AUTHOR'S QUALIFICATIONS

I DO HEREBY STATE THAT:

1. I am the author of this report.

2. I have been actively and responsibly involved in mining exploration using airborne, ground and computer applied geophysics in Western Canada and the United States for the past seven years.

3. I graduated with a B.Sc., degree in Geophysics from the University of British Columbia in 1969.

4. I am presently Manager, Geophysical Division, Atled Exploration Management LTD., at #420 - 475 Howe Street, Vancouver, B. C.

5. I am a member of the Society of Exploration Geophysicists, the Canadian Institute of Mining and Metallurgy and the B. C. Geophysical Society.

Signed P.P. Nielsen

P.P.Nielsen

Date March 1, 1973.

ENGINEER'S CERTIFICATE

I, GORDON C. GUTRATH, of 3636 Lakedale Avenue, in the Municipality of Burnaby, in the Province of British Columbia, DO HEREBY CERTIFY:-

1. *That I am a consulting geologist with a business address of #420-475 Howe Street, Vancouver 1, B. C.*

2. *That I am a graduate of the University of British Columbia where I obtained my B.Sc., in geological science in 1960.*

3. *That I am a registered Professional Engineer in the Geological Section of the Association of Professional Engineers in the Province of British Columbia.*

4. *That I have practised my profession as a geologist for the past twelve years, and*

5. *That I am a director of Corval Resources Ltd. (N.P.L.)*

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. C. GUTRATH

Gordon C. Gutrath, B.Sc., P.Eng.

DATED at the City of Vancouver, Province of British Columbia, this 1st day of March, 1973.

PERSONNEL

P. P. Nielsen	-	*Geophysicist, I. P. Operator and Supervisor*
M. Beretta	-	*Geophysicist, Magnetometer Operator*
M. Leevers) *W. Culbert)* *E. Smith)* *W. McKenzie)*	-	*I. P. Crewmen and Linecutters.*

DOMINION OF CANADA:
PROVINCE OF BRITISH COLUMBIA.
TO WIT:

In the Matter of THE COSTS INCURRED IN EXECUTING THE GEOPHYSICAL AND LINECUTTING PROGRAM ON THE DRY CREEK PROPERTY OF CORVAL RESOURCES LTD. (N.P.L.)

I, PHILIP P. NIELSEN

of 785 Premier Street, North Vancouver, B. C.

in the Province of British Columbia, do solemnly declare that the following costs apply:

1.	INDUCED POLARIZATION SURVEY 6 miles @ $475.00/mile	$ 2,850.00
2.	GROUND MAGNETOMETER SURVEY 8.35 miles @ $80.00/mile	668.00
3.	LINE CUTTING 3 miles @ $117.00/mile	350.00
4.	REPORT	510.00
	TOTAL COST	$ 4,378.00

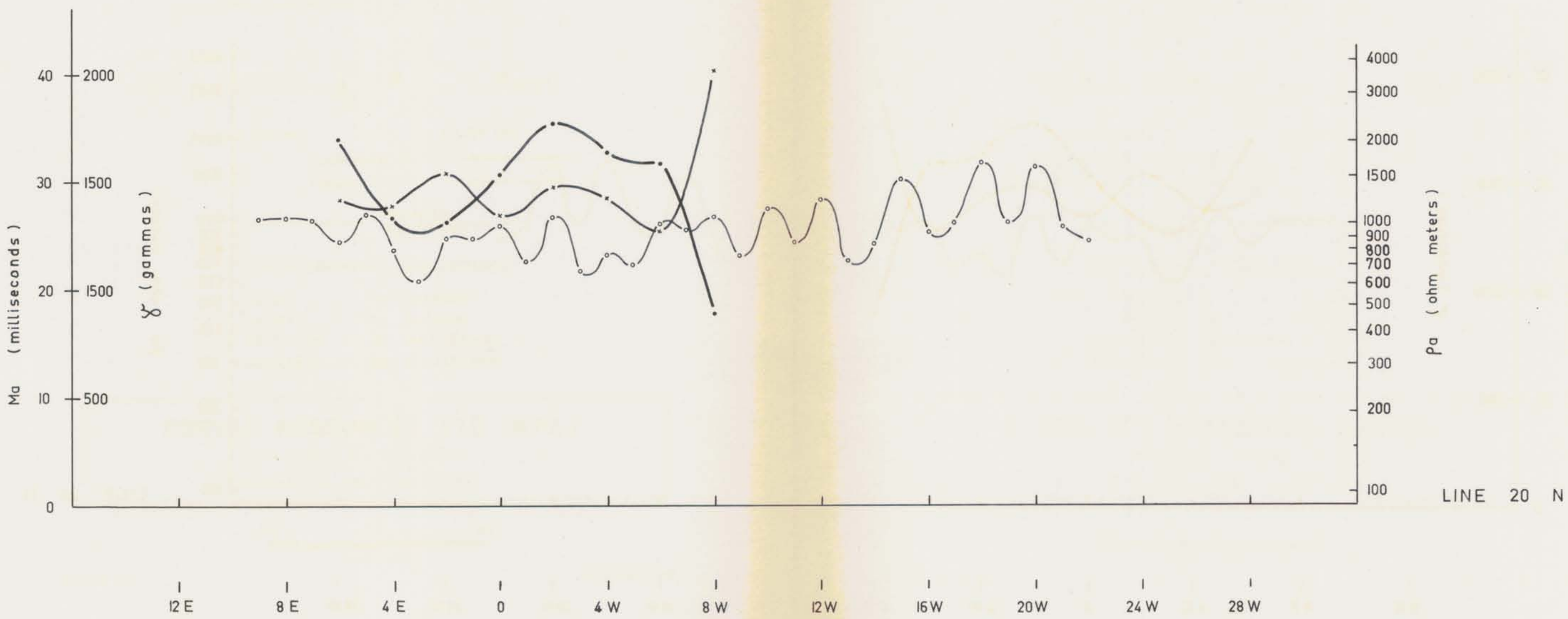
And I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of the "Canada Evidence Act."

Declared before me at the city of Vancouver, in the Province of British Columbia, this 1st day of March, 1973, A.D.

P.P. Nielsen

B. C. Irwin

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

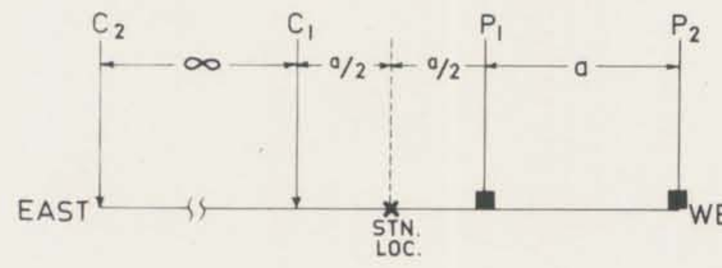


PROFILE LINE

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



a = 200 feet   a = 400 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (ɣ)

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 60	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

4173

CORVAL RESOURCES LTD. (N.P.L.)
DRY CREEK PROPERTY
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400 0 400
Scale in feet

NICOLA M.D.   N.T.S. 92 H/11E

P. P. Nielsen

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G. C. GUTHRATH, B.Sc., P.ENG., GEOLOGIST

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. C. GUTHRATH

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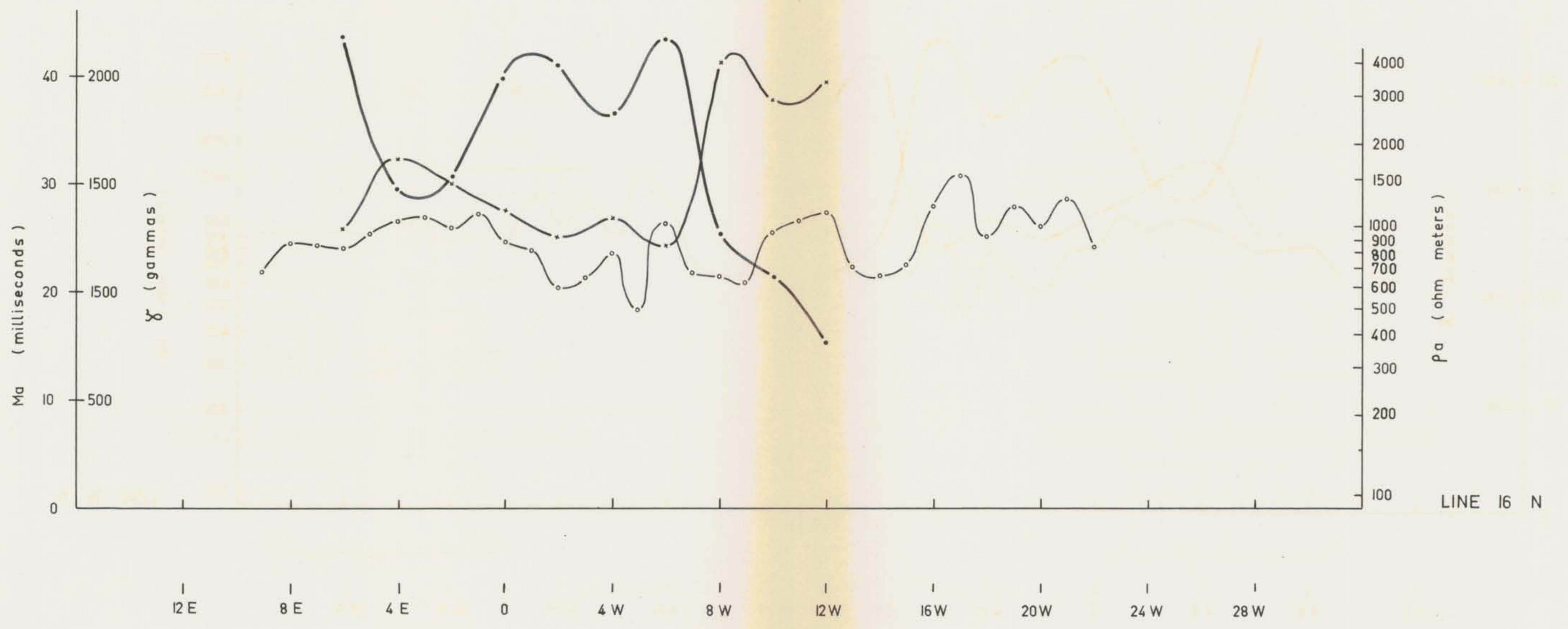

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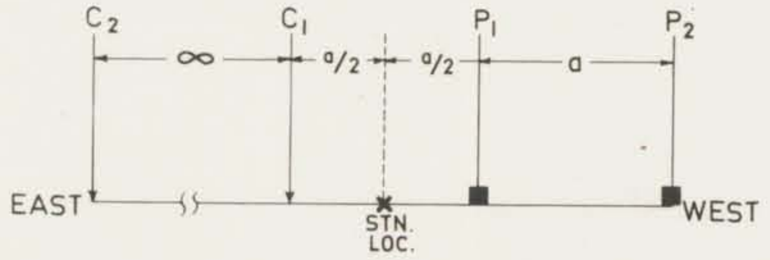

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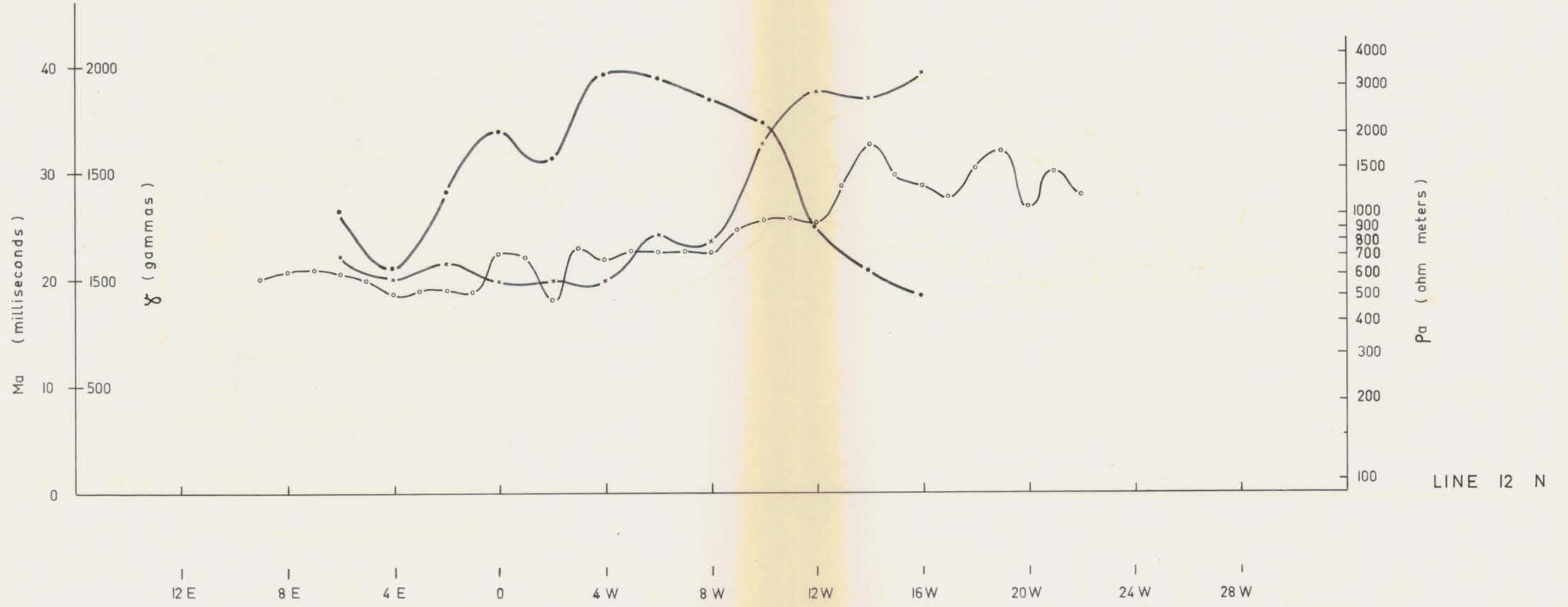

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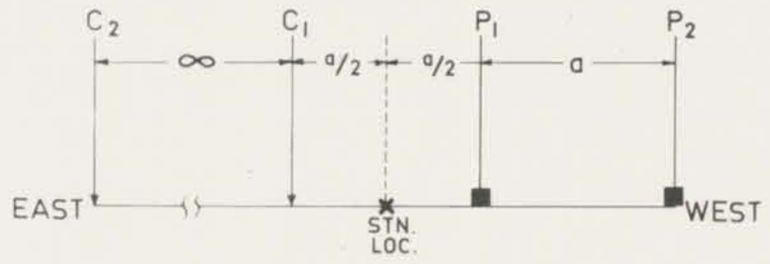

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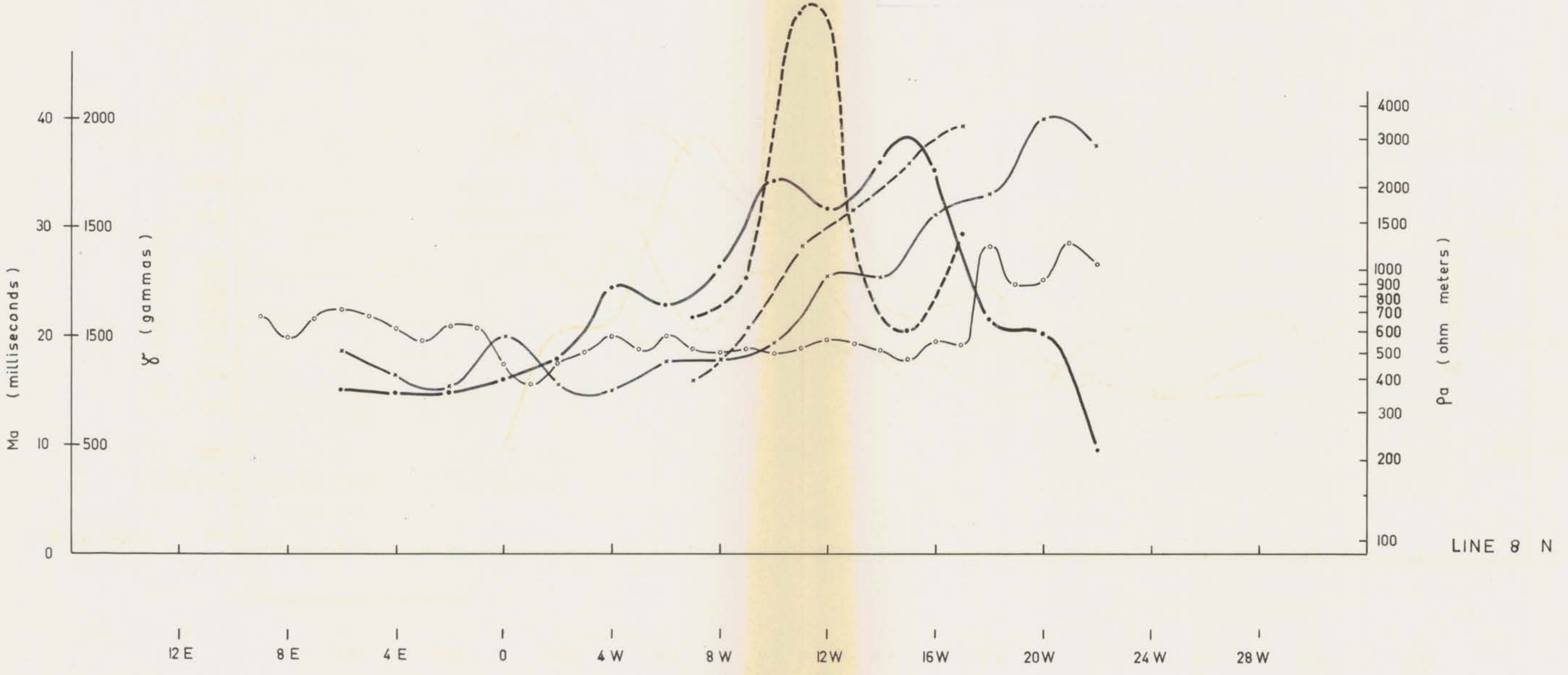

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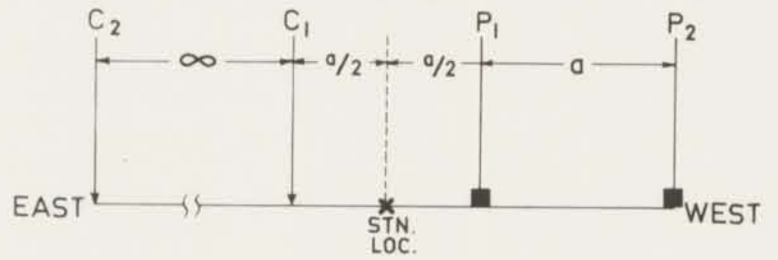

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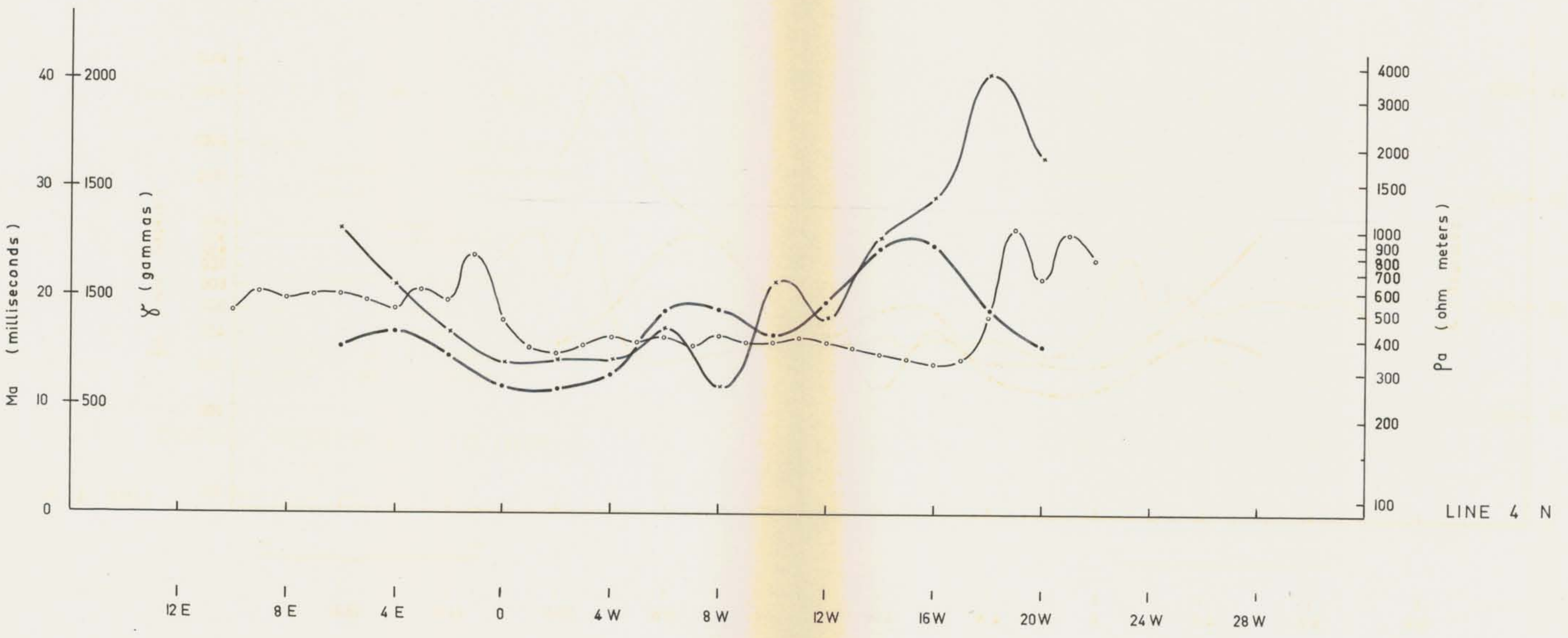

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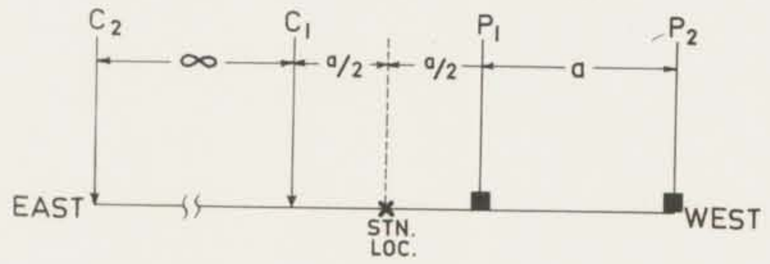

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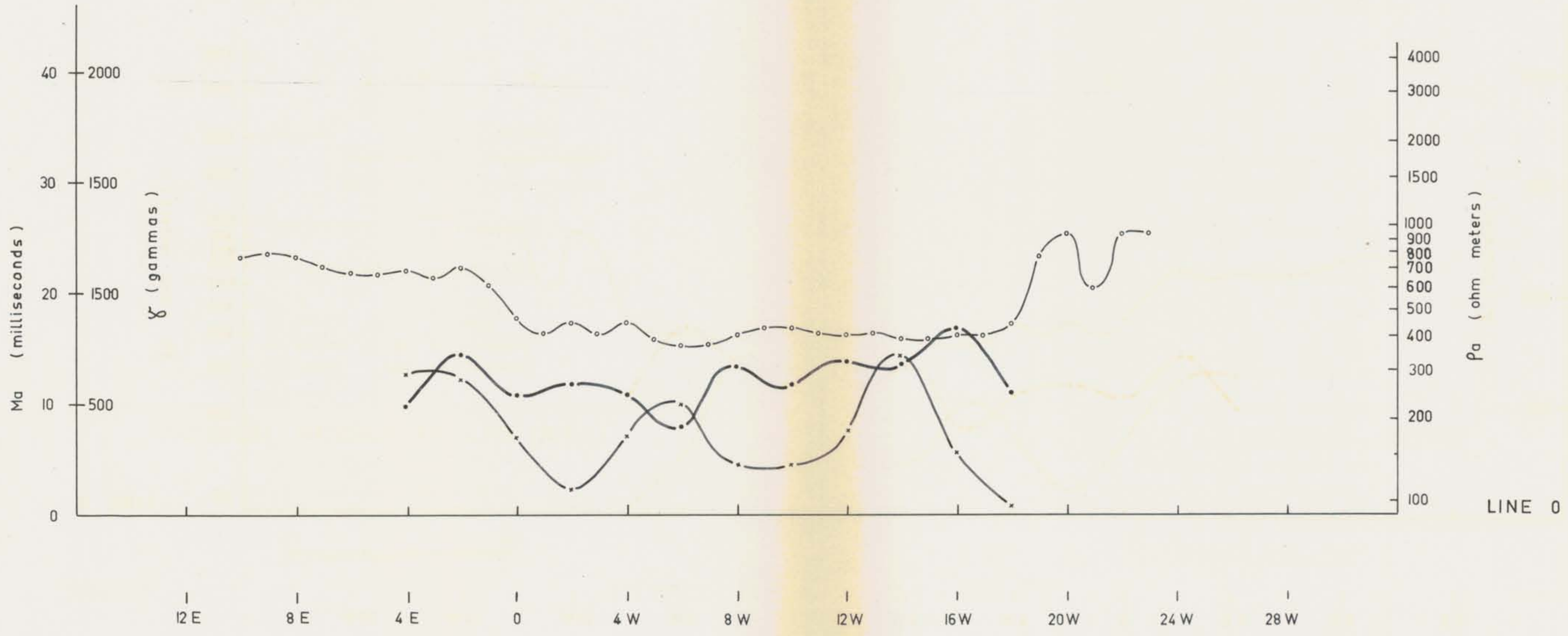

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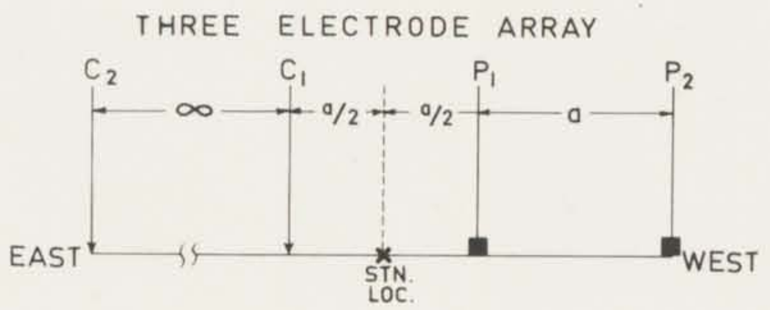

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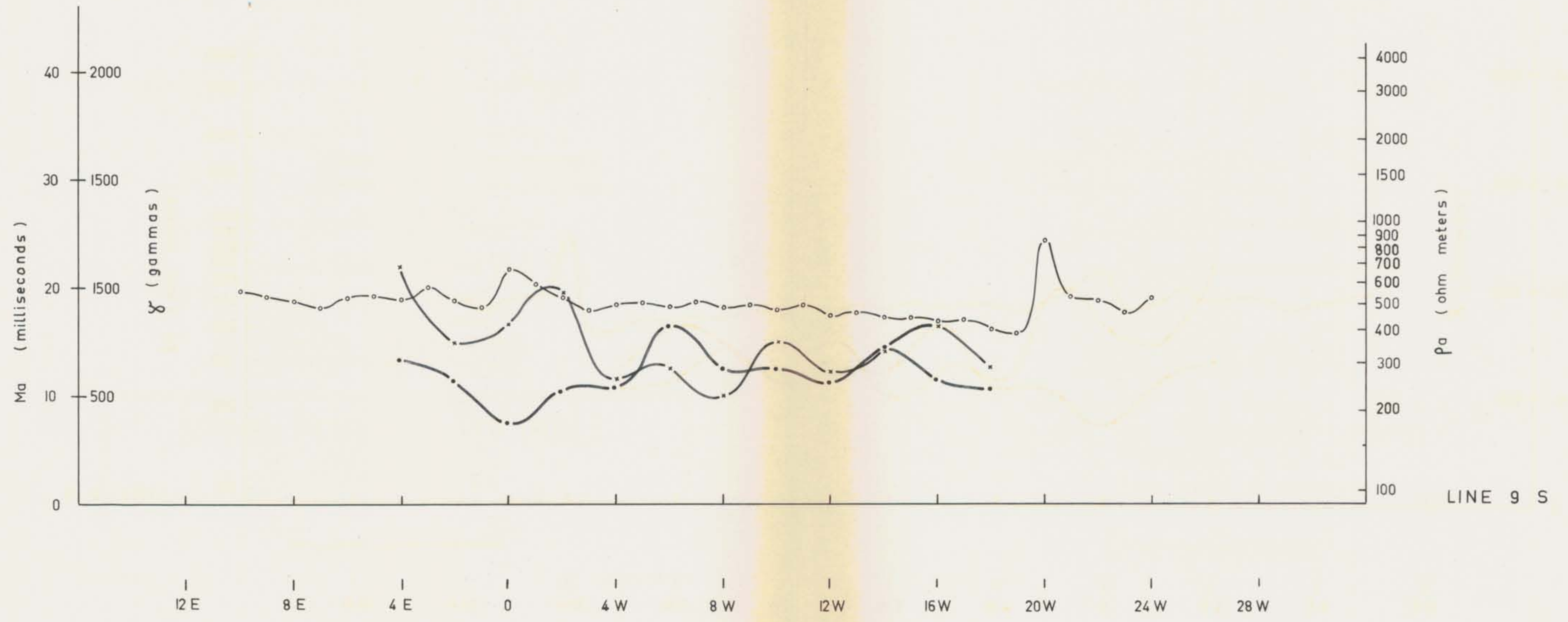

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APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

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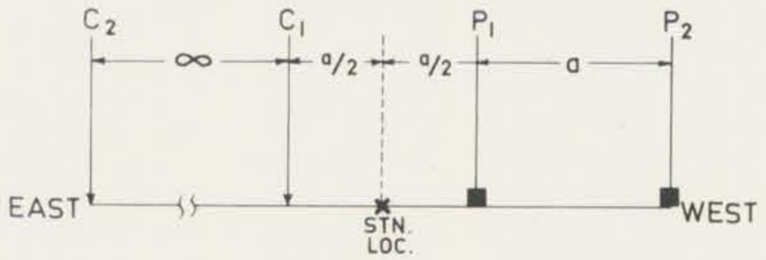

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400 0 400
Scale in feet

NICOLA M.D.   N.T.S. 92 H/11E

R.P. Nielsen

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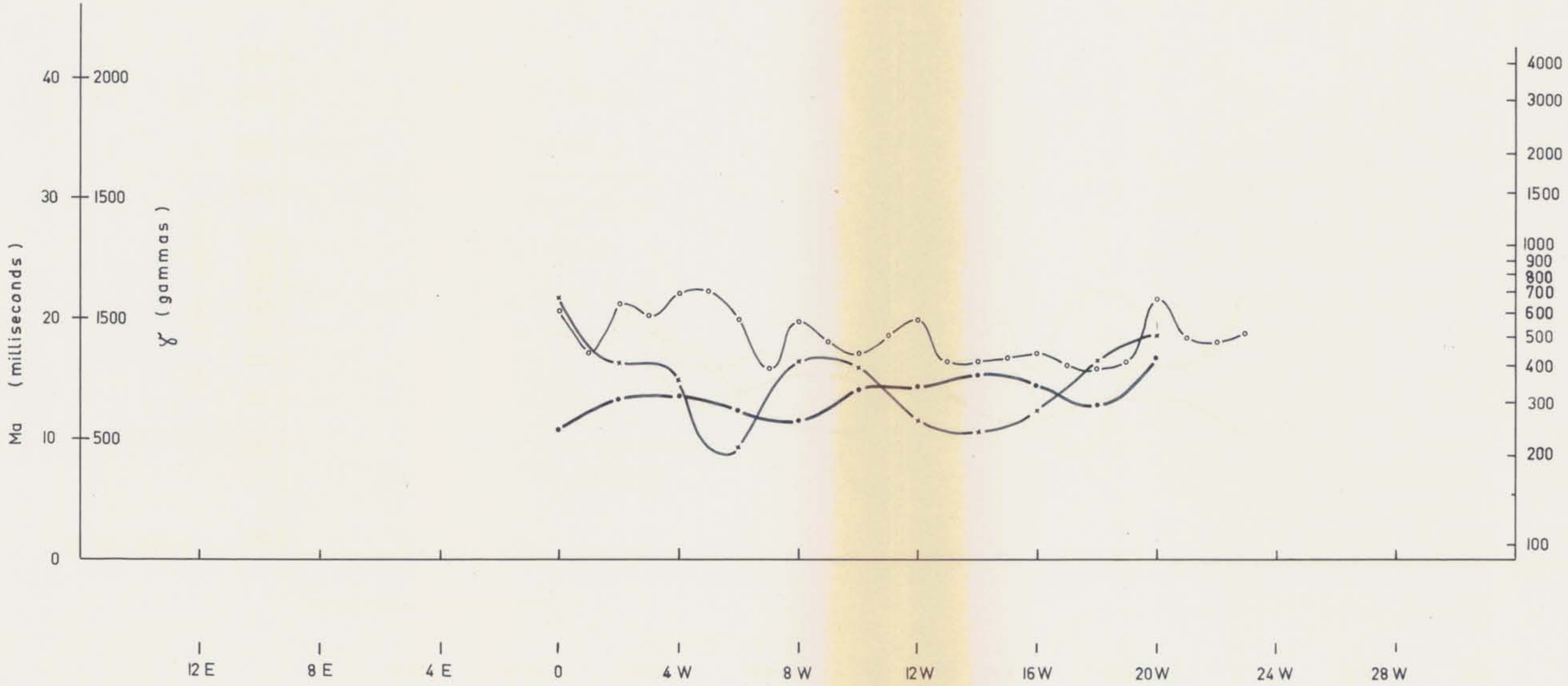

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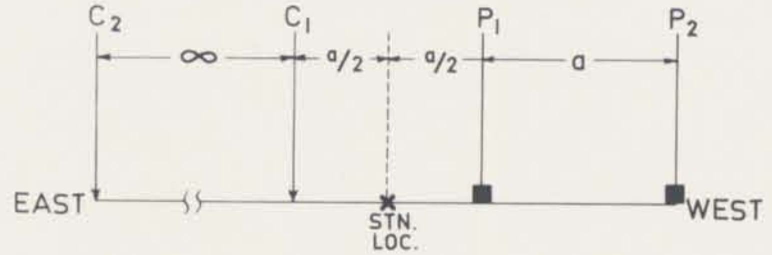
PROFILE LINE

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



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PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. C. GUTRATH

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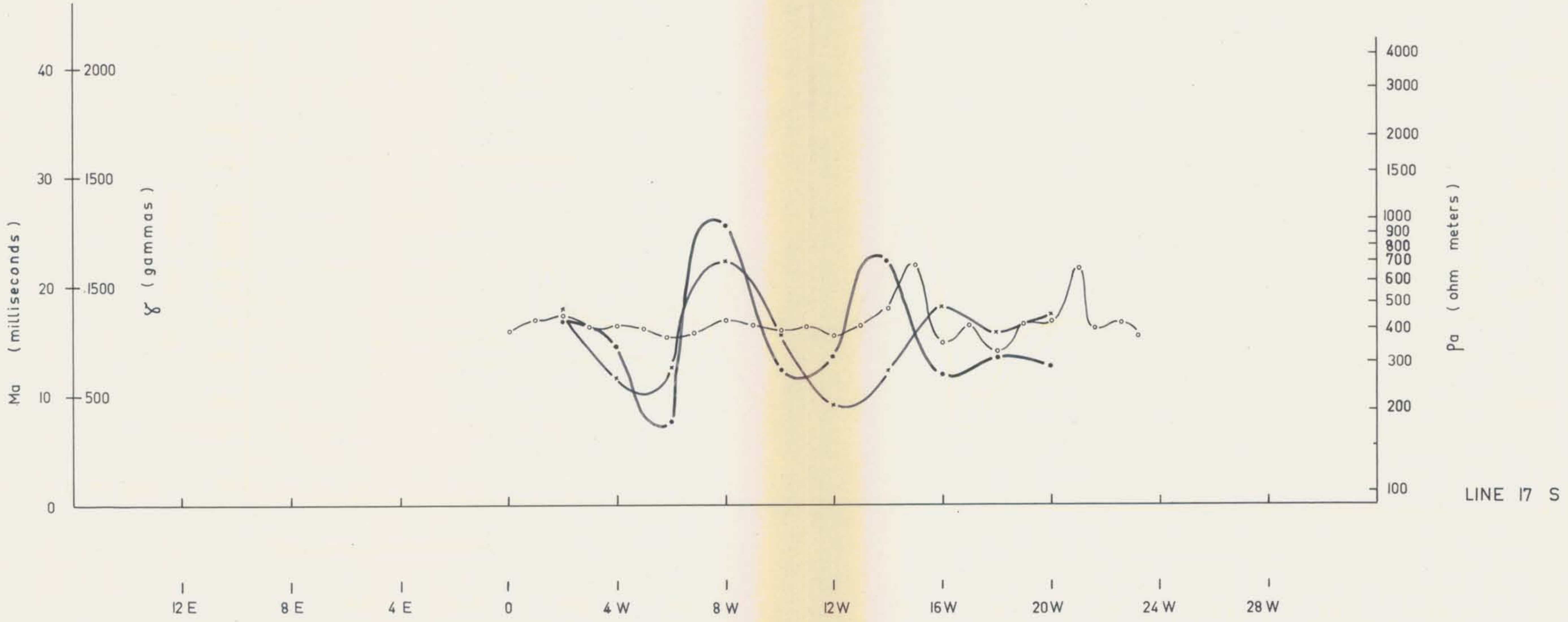
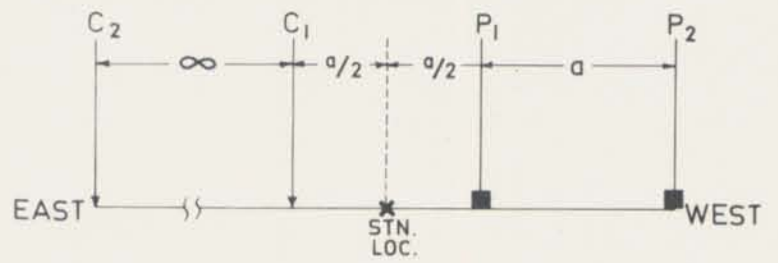


PROFILE LINE

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



a = 200 feet a = 400 feet

CHARGEABILITY (Ma)

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I.P. INSTRUMENT PARAMETERS

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400 0 400
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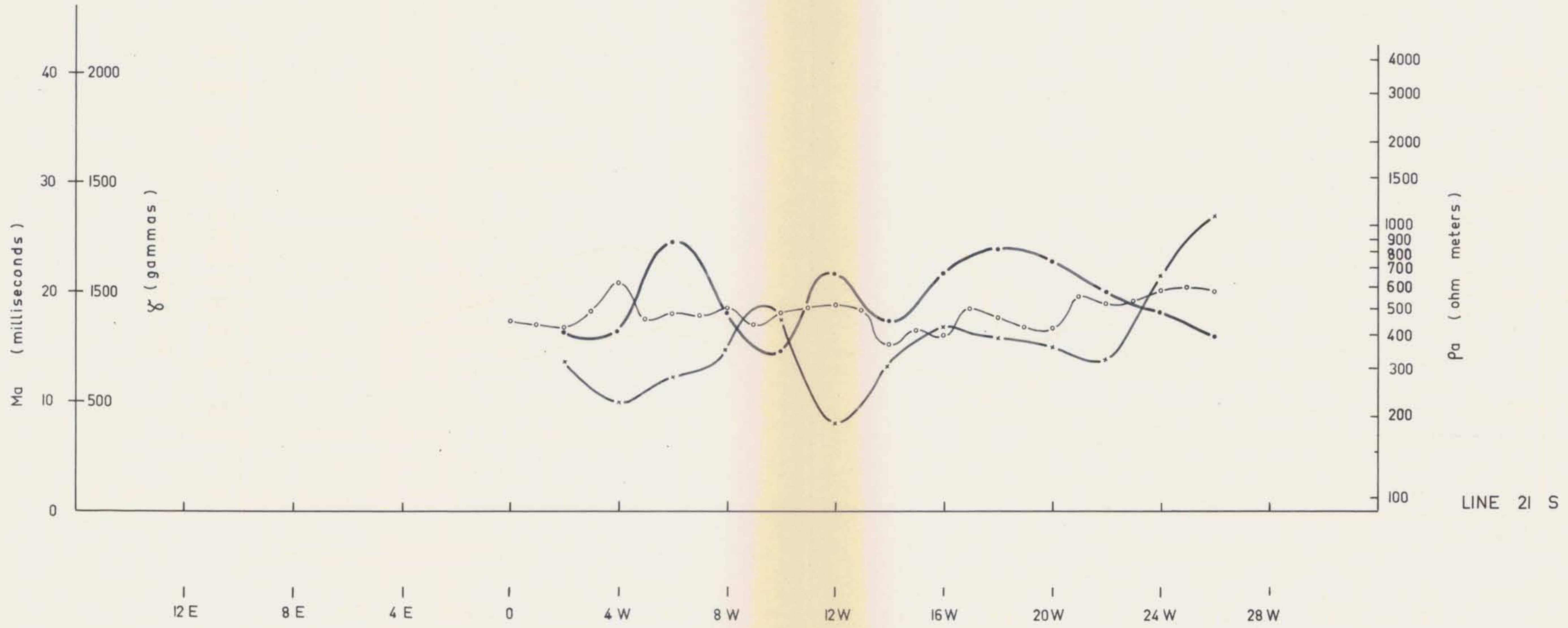
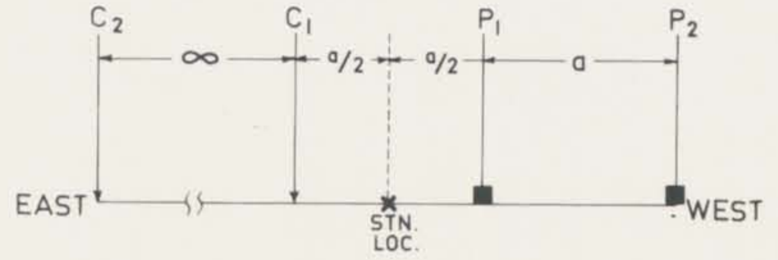
PROFILE LINE

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



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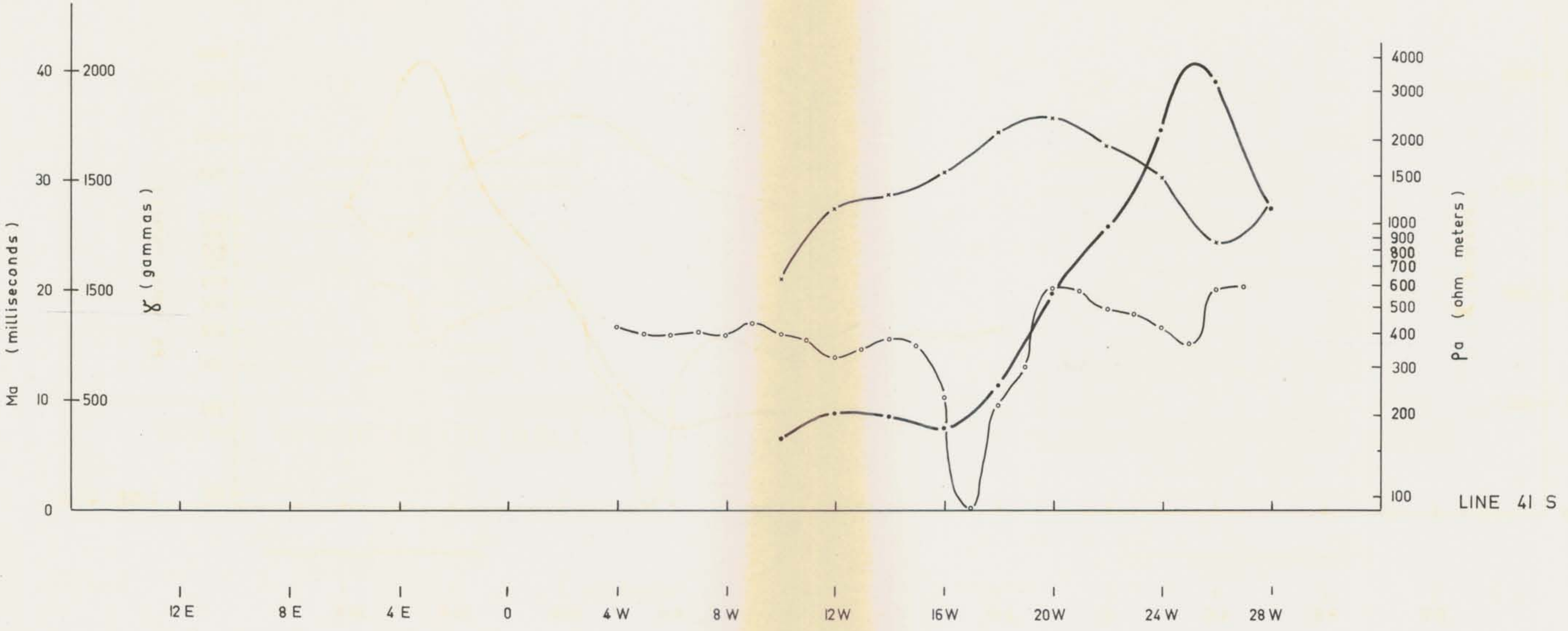

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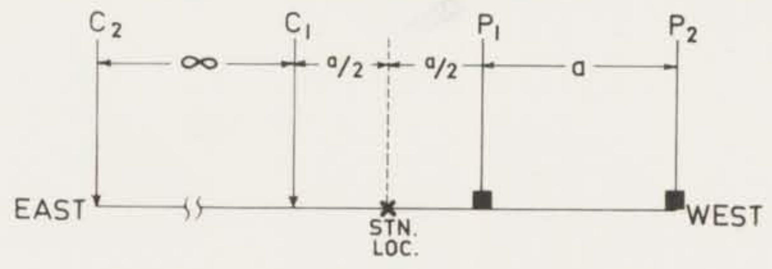

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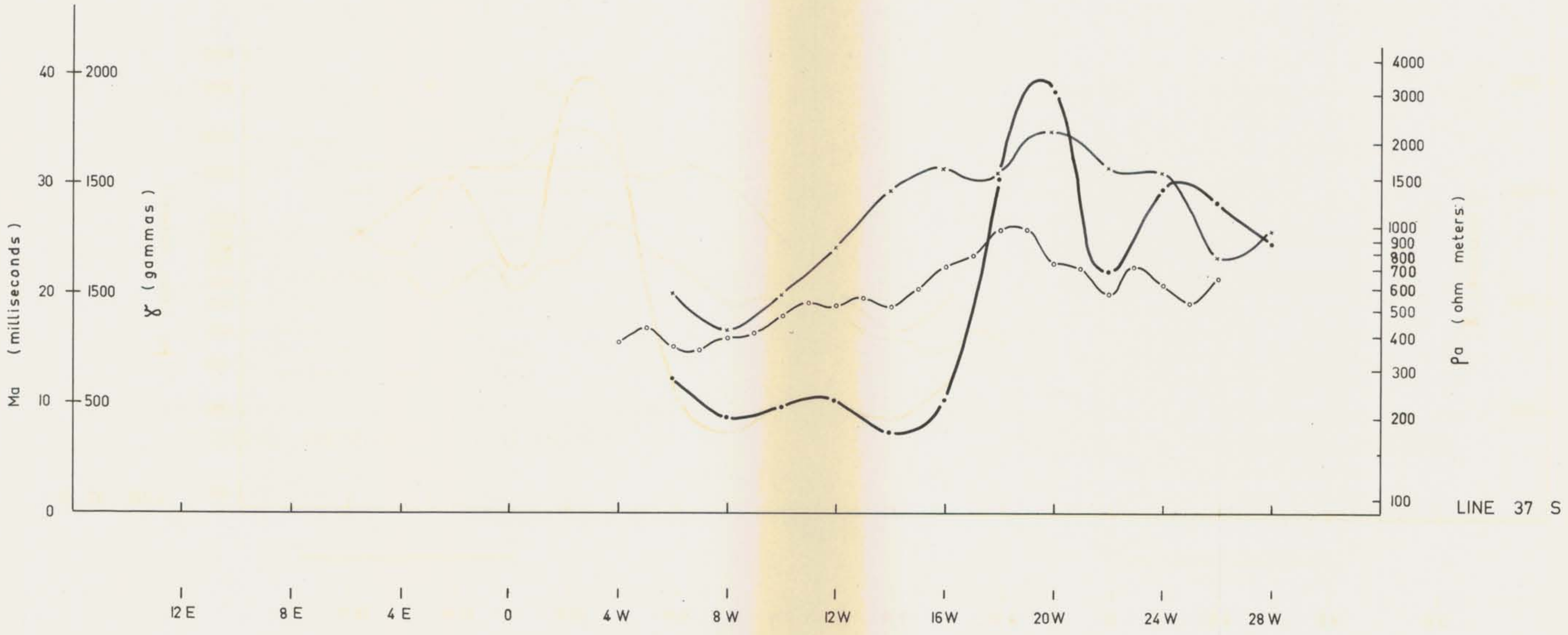

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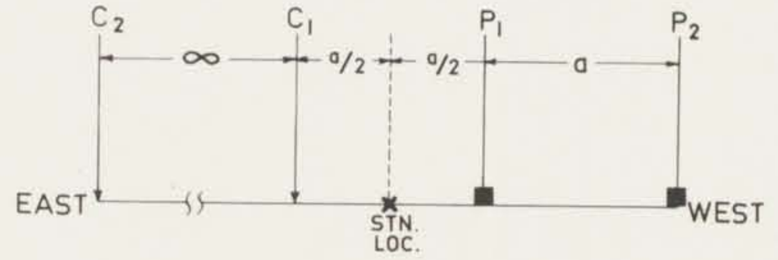

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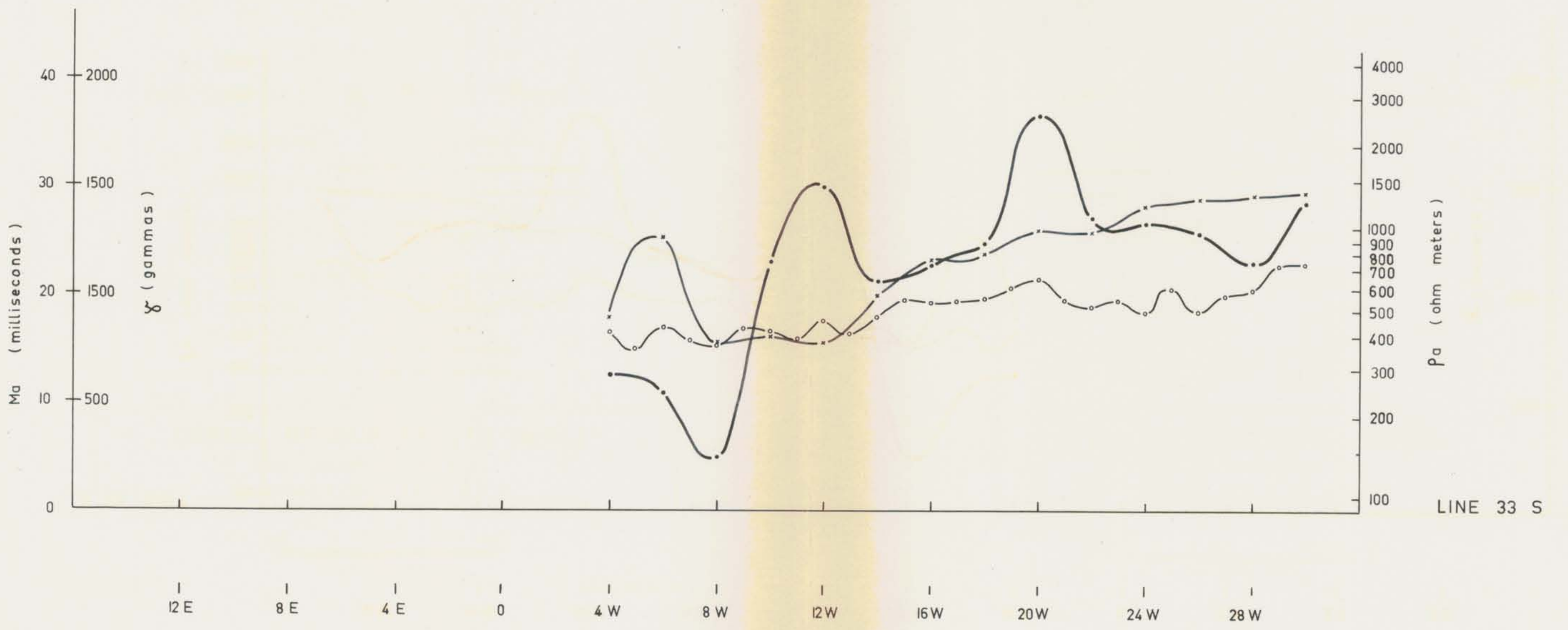
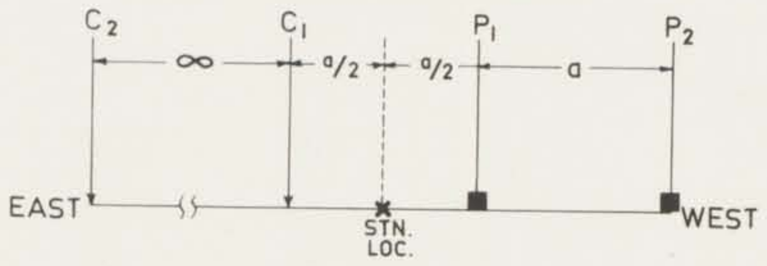
PROFILE LINE
APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



a = 200 feet   a = 400 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (γ)

I.P. INSTRUMENT PARAMETERS

Tx ON		2.0	SECONDS
Tx OFF		2.0	SECONDS
DELAY (td)	=	60	MILLISECONDS
INTEGRATE	=	900	MILLISECONDS

4173

CORVAL RESOURCES LTD. (N.P.L.)
DRY CREEK PROPERTY
COQUIHALLA PASS AREA, B.C.

400 0 400
Scale in feet

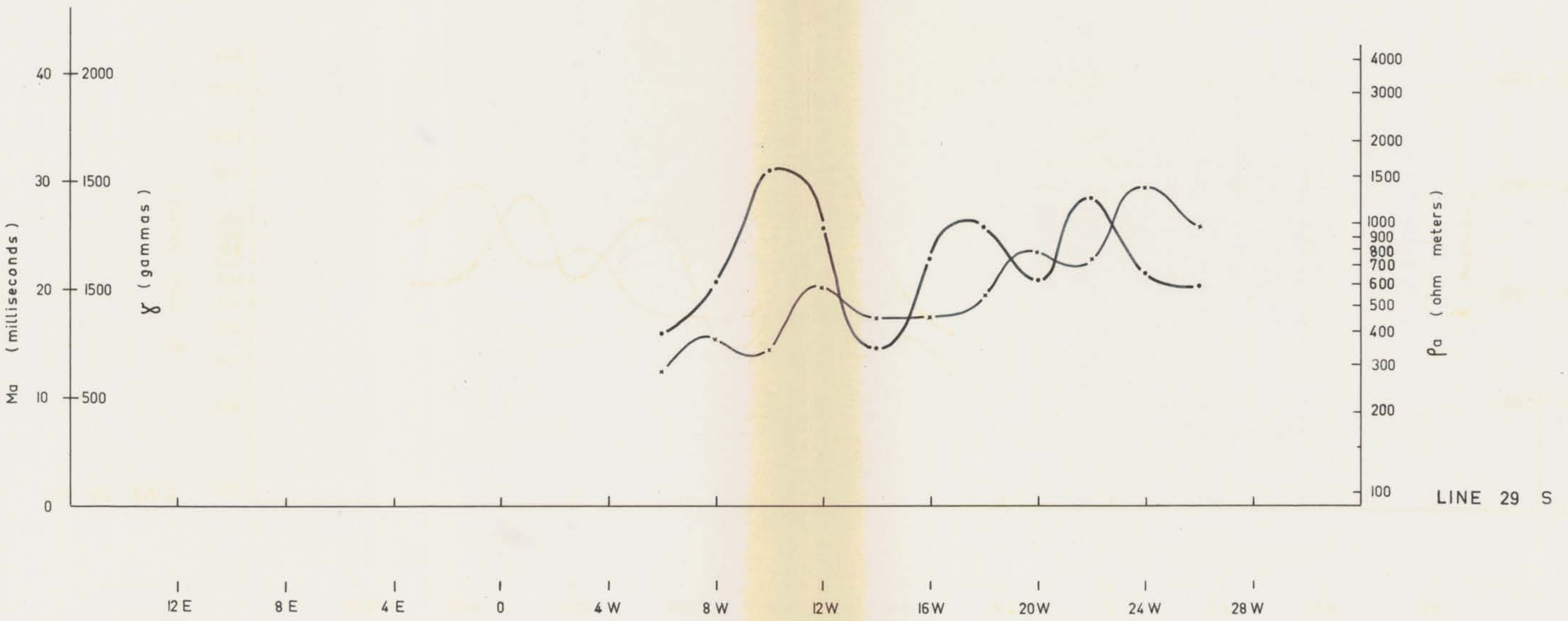
NICOLA M.D.   N.T.S. 92 H/11E

P. P. NIELSON, B.Sc., GEOPHYSICIST &
G. C. GUTHRATH, B.Sc., P. ENG., GEOLOGIST

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. C. GUTRATH

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

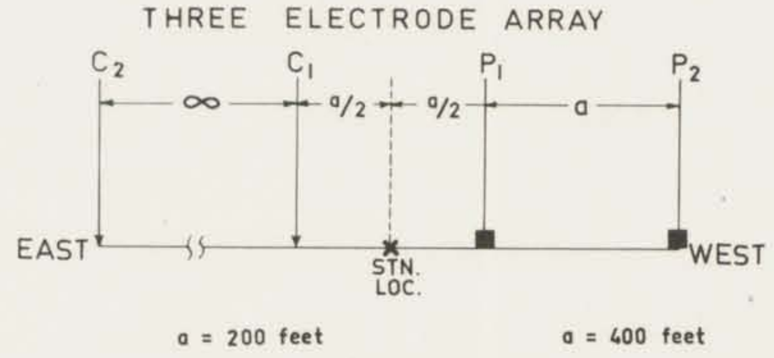
FEBRUARY, 1973   DRAWN BY: NCL



PROFILE LINE

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND



CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (γ)

I.P. INSTRUMENT PARAMETERS

Tx ON		2.0 SECONDS
Tx OFF		2.0 SECONDS
DELAY (td)	=	60 MILLISECONDS
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CORVAL RESOURCES LTD. (N.P.L.)
DRY CREEK PROPERTY
COQUIHALLA PASS AREA, B.C.

400 0 400
Scale in feet

NICOLA M.D.

N.T.S. 92 H/11E

P. P. Nielsen

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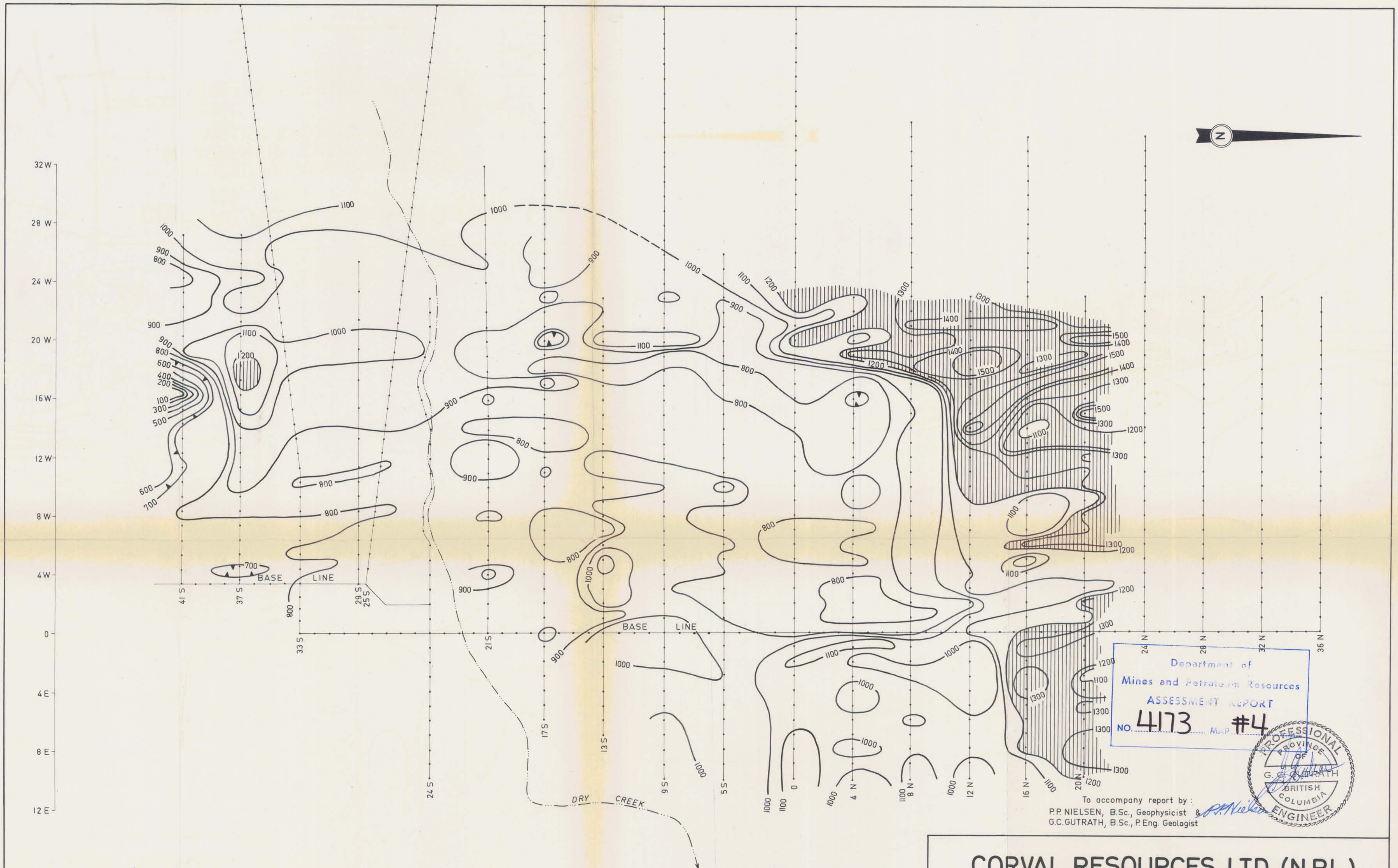

To accompany report by :
P.P. NIELSEN, B.Sc., Geophysicist &
G.C. GUTRATH, B.Sc., P.Eng. Geologist

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DRY CREEK PROPERTY

GROUND MAGNETOMETER SURVEY CONTOUR MAP

NICOLA MINING DIVISION

N.T.S. 92 H/11 E

ATLED EXPLORATION MANAGEMENT LTD.

VANCOUVER, B.C.

400 0 400 800'
Scale in feet

DATE: FEBRUARY 1973.

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LEGEND

- AREAS OF HIGH RELATIVE MAGNETIC SUSCEPTIBILITY (1200)
- AREAS OF LOW RELATIVE MAGNETIC SUSCEPTIBILITY (700)

CONTOUR INTERVAL = 100 γ (gammas)

INSTRUMENT USED

McPHAR M700 VERTICAL FORCE FLUXGATE MAGNETOMETER

4173 M.4

To accompany report by :
P.P. NIELSEN, B.Sc., Geophysicist &
G.C. GUTRATH, B.Sc., P.Eng. Geologist

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DRY CREEK PROPERTY

INDUCED POLARIZATION SURVEY
APPARENT CHARGEABILITY VALUES & CONTOUR MAP

NICOLA MINING DIVISION

N.T.S. 92 H/11 E

ATLED EXPLORATION MANAGEMENT LTD.

VANCOUVER, B.C.

400 0 400 800'
Scale in feet

DATE: FEBRUARY 1973.

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LEGEND

HIGH CHARGEABILITY AREA (25)

LOW CHARGEABILITY AREA (10)

CONTOUR INTERVAL: 5 msecs.

INSTRUMENT PARAMETERS

INSTRUMENT USED: HUNTEC MK III R_x WITH 7.5 KW POWER SOURCE

SPECIFICATIONS:
TRANSMITTER TIMING: 2 secs. ON & 2 secs. OFF
RECEIVER DELAY TIME: 240 msecs.
BASIC INTEGRATING PERIOD: 60 msecs.
TOTAL INTEGRATING TIME: 900 msecs.

THREE ELECTRODE ARRAY

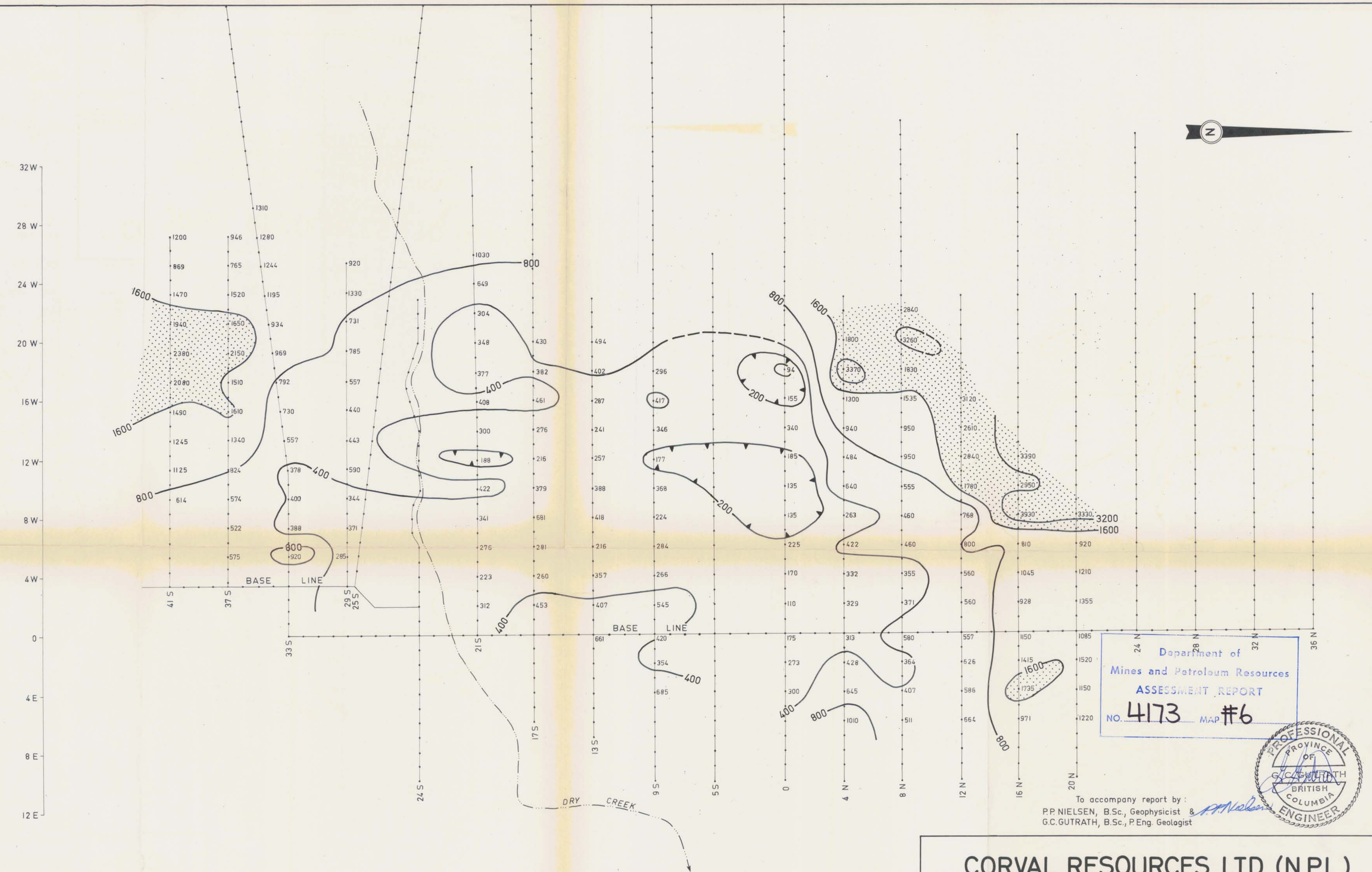
C_2 C_1 P_1 P_2

∞ a/2 a/2 a

EAST STN. LOC. WEST

a = 400 feet

∞ > 5a



To accompany report by :
P.P. NIELSEN, B.Sc., Geophysicist &
G.C. GUTRATH, B.Sc., P.Eng. Geologist

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DRY CREEK PROPERTY

INDUCED POLARIZATION SURVEY APPARENT RESISTIVITY VALUES & CONTOUR MAP

NICOLA MINING DIVISION

N.T.S. 92 H/II E

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

400 0 400 800'
Scale in feet

DATE: FEBRUARY 1973.

DRAWN BY: NCL

LEGEND

1600 HIGH RESISTIVITY AREA

200 LOW RESISTIVITY AREA

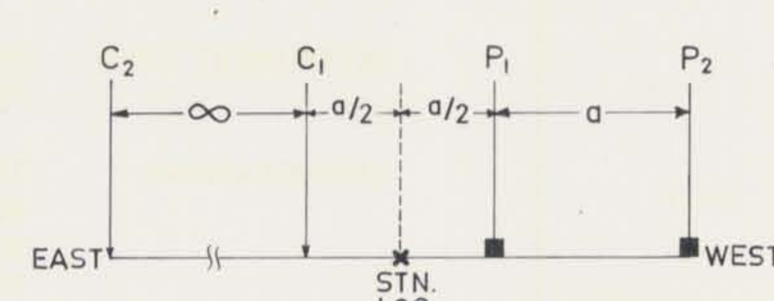
CONTOUR INTERVAL IS LOGARITHMIC
(ie. 100, 200, 400, 800 etc. OHM - METERS)

INSTRUMENT PARAMETERS

INSTRUMENT USED: HUNTEC MK III R WITH 7.5 KW POWER SOURCE

SPECIFICATIONS:
TRANSMITTER TIMING: 2 secs. ON & 2 secs OFF
RECEIVER DELAY TIME: 240 msecs.
BASIC INTEGRATING PERIOD: 60 msecs.
TOTAL INTEGRATING TIME: 900 msecs.

THREE ELECTRODE ARRAY



a = 400 feet
∞ > 5a


RIP 84
RIP 82
RIP 80
RIP 78
RIP 76
RIP 81
RIP 79
RIP 83
BIG JULIE 2
RIP 77
RIP 75
JULIE 1
HDD 4
HDD 5
HDD 2
TRENCH AREA
RIP 67
BIG JULIE 1
LUCKY 4
RIP 3
RIP 69
RIP 71
RANDY 4
JULIE 2
LUCKY 2
HDD 3
LUCKY 3
LUCKY 1
HDD 1 Fr.
MAIN ADIT
HOPE 6
RIP 1
RIP 72
BASE LINE
HOPE 5
TRENCH
RANDY 3
RANDY 1
TAB 1
RIP 59
DRY CREEK
RIP 2
GAS LINE
TAB 2
RIP 55
RIP 57
RIP 56
RIP 58
ROAD FOLLOWING ABANDONED R.R. GRADE
COLDWATER RIVER
LEGEND
Geological contact, assumed
Bedding, dip
Shearing
Fault, assumed
Breccia
Sample location
Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4173 MAP #7
PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
WASHINGTON
CORVAL
Scale 1 inch equals 50 miles
CORVAL RESOURCES LTD.
DRY CREEK PROPERTY
CLAIM MAP
NICOLA MINING DIVISION
COQUIHALLA, B.C.
Feet 200 100 0 200 400 600 800 Feet
Date: July, 1971
Drawn: JRL
ATLED EXPLORATION MANAGEMENT LTD.