92I/11E 4516

GEOPHYSICAL REPORT ON THE HOPE GROUP SUPPLEMENTAL, AND THE MAG GROUP OF MINERAL CLAIMS IN THE NICOLA M . D.

Lat. 49° 41' N, Long. 121° 01' W, May 27 - June 3, 1973

FOR

DENISON MINES LIMITED

BY

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

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

ATLED EXPLORATION MANAGEMENT LTD.

Vancouver, B.C.

June 30, 1973

HOPE GROUP SUPPLEMENTAL		MAG GROUP	
RIP 1-3	44104-106	RIP 77,79,81,83,	49266,68,70,72
RIP 9-12	49198-201	BIG JULIE 1-2	47281-282
RIP 55-56	49244-245	ZINC 1-6	46429-434
RIP 58-62	49247-251	BONNIE LYNN 3-4	37091-092
RIP 67	49256	MAG 1-4	15083-086
RIP 69-72	49258-261	NOV 1-2	57727-728
TAB 1-2	41757-758	NOV 9-10	58221-222
JULIE 1-2	22707-708	NOV # 1 Fr	58223
LUCKY 1-4	21403-406	LAVERNE 1-2	24841-842
HOPE 5-6	18789-790	LAVERNE 3	25156
HDD 1-5	47956-960	LAVERNE 4	25145
RANDY 1-4	40961-964	LAVERNE 5-6	25199-200
BONNIE LYNN 1-2	37089-090	CAP 1-4	25201-204
		CRISP 1-7	58774-780

GEOPHYSICAL REPORT

on the

INDUCED POLARIZATION AND GROUND MAGNETOMETER SURVEYS

on the

CORVAL RESOURCES' DRY CREEK PROPERTY

COQUIHALLA VALLEY AREA, B. C.

on behalf of

DENISON MINES LTD.

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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INTRODUCTION

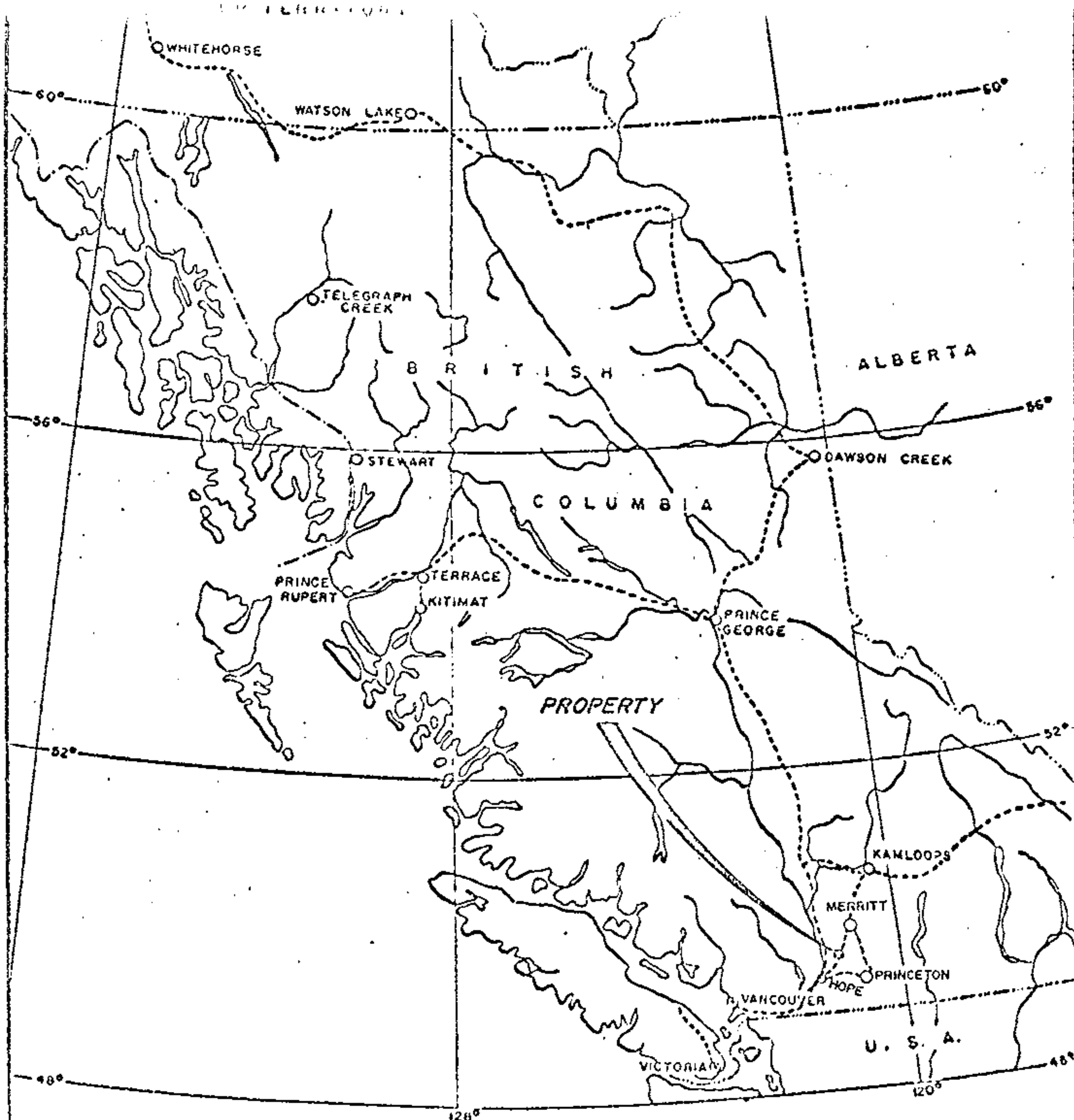
Commencing August 7, 1972 Ground Magnetometer and Reconnaissance Induced Polarization surveys were carried out on the Dry Creek property on behalf of Corval Resources Ltd.

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 installing an additional 3.0 line-miles of lines concurrently with this program.

Between May 27 and June 3, 1973 further I. P. coverage totalling 8.02 line-miles was executed to delimit the open chargeability anomaly at the northeast sector of the initial grid. A detailed traverse was also run normal to the anomaly strike in the adit area and wide separations were used to explore the Coquihalla valley floor along lines spaced 1,200 feet apart *and along the main road. Other electrode separations were also employed along the road to determine maximum depth to the bedrock.*

This portion of the survey was conducted on behalf of Denison Mines Ltd. who have recently optioned the property from Corval Resources Ltd. (N.P.L.)



CORVAL RESOURCES LTD.

DRY CREEK PROPERTY

LOCATION MAP

4516 M1

49° 41' N 121° 01' W

NICOLA MINING DIVISION

0 120 240 360

MILES (APPROX.)

FIG. 1

CLAIMS

The geophysical survey herein described was performed on parts of two groups of mineral claims called HOPE GROUP SUPPLEMENTAL, and MAG GROUP. The claims comprising the two groups are as follows:

HOPE GROUP SUPPLEMENTAL		MAG GROUP	
RIP 1-3	44104-106	RIP 77,79,81,83,	49266,68,70,72
RIP 9-12	49198-201	BIG JULIE 1-2	47281-282
RIP 55-56	49244-245	ZINC 1-6	46429-434
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HDD 1-5	47956-960	LAVERNE 4	25145
RANDY 1-4	40961-964	LAVERNE 5-6	25199-200
BONNIE LYNN 1-2	37089-090	CAP 1-4	25201-204
		CRISP 1-7	58774-780

K. G. Sanders

K. G. Sanders, P.Eng.

Western Manager, Denison Mines Limited

August 1, 1973

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*
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*
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Rip 9 - 12	*49198-210*	*April 16, 1975*
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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*

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. Water was used at each electrode position to overcome this problem.

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.

The Noise level during the later I. P. coverage was very low and no problems were encountered even at the 800 foot electrode separations.

LINECUTTING

1972 PROGRAM

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.

1973 PROGRAM

Many lines were extended further east to the Coldwater River in May, 1973 by Denison Mines Ltd. A line was also cut on a northwest bearing as shown on the contour map. Lines 24N and 28N were also installed from station 20W to 24E.

This additional line-cutting totalled 5.3 line-miles.

THE GROUND MAGNETOMETER SURVEY

1972

(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. (γ)

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 800 γ - 1,000 γ 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

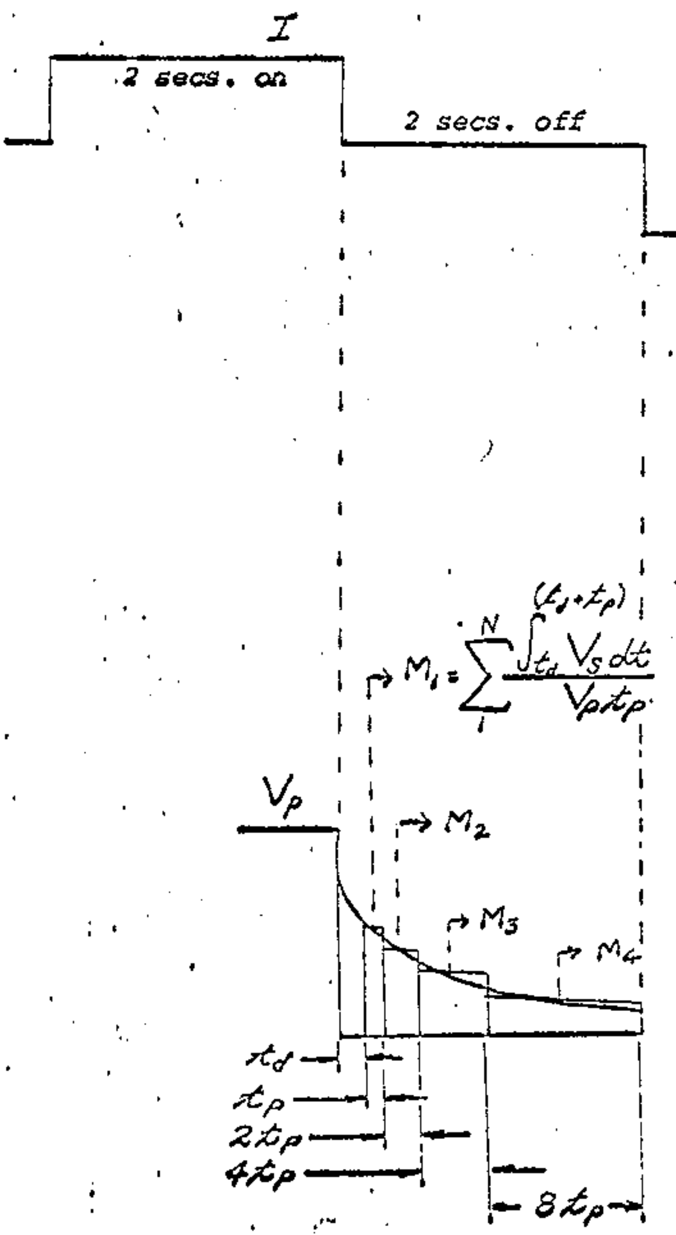
Induced Polarization refers to the polarized distribution of electrical charges throughout a medium to which an electric field has been applied.

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.

Primary Current Waveform



Transient Voltage Waveform

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.

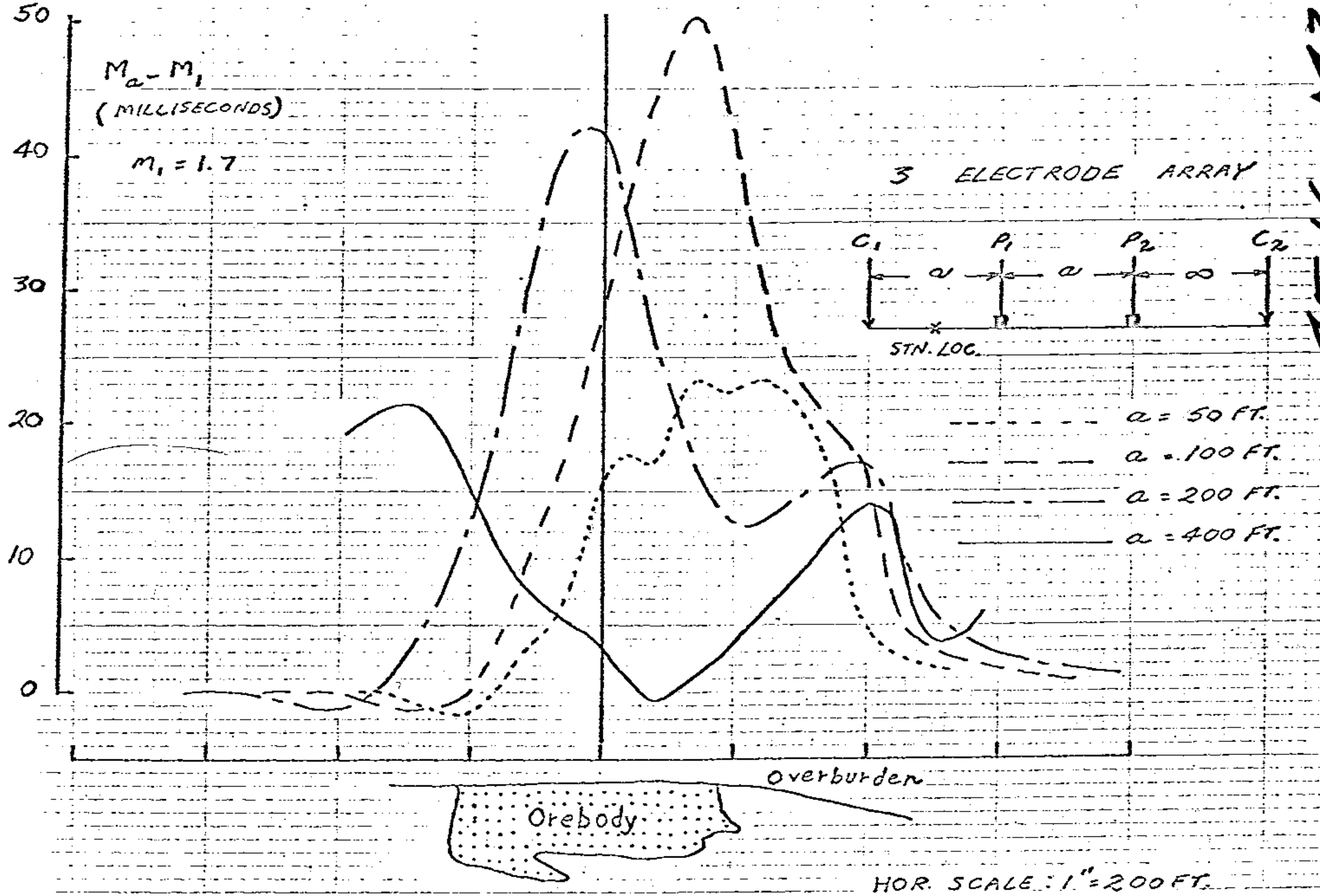
This allows one to obtain the actual decay curve shape and to better estimate the size, depth and type of the causative source.

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



45/6-M3

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 lagging 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 30×10^{-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 and plotting 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.

Horizontal scale is 1" = 400 feet. Certain lines include profiles at 200, 400 and 800 feet electrode spacings (a) and some spot readings for a = 100 and 200 feet are shown on the Main Road Line.

3. Contours

All apparent resistivity and apparent chargeability values for electrode separations of 400 and 800 feet have been plotted on the values and contour maps at a horizontal scale of 1" = 400 feet with a heavy dashed line indicating the change in spacing.

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) Bias or contour elongation due to irregular sampling interval used.

(iii) "Double peaking" phenonum 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 in 1972 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.

In the spring of 1973 the adit area anomaly was extended across the gas pipeline to the Coldwater River where high water levels prevented further coverage to the east. This feature was closed off to the north, however. The same survey parameters were used as in 1972 in this area.

The remainder of the eastern extension of the grid adjacent to non-anomalous previous I. P. coverage was surveyed using a = 800 feet across the Coquihalla Valley to ensure sufficient depth investigations through anticipated deep overburden.

2. Apparent Chargeability Contours (Ma)

For an "a" spacing of 400 feet the values vary from 4.9 milliseconds at Line 33S, Stn. 4W to 44.8 milliseconds at Line 16N, Stn. 8E resulting in a total relief of 39.9 milliseconds.

A background of 10 milliseconds has been determined with readings greater than 25 milliseconds considered to be anomalous. Peak values, then, are approximately 3 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 southwesterly 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.

Amonaly 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 2,000 feet across the gas pipeline where it starts to bend southeasterly. The anomaly at this electrode spacing occupies an area of 1,200 feet by 4,800 feet and continues to the east and south on the a = 800' contours. The 1973 coverage resulted in the closing off of this anomaly to the north by surveying Line 24N and Line 28N.

The magnetic contours indicate that the contact probably swings southeasterly east of the baseline. Although no magnetics were carried out east of the pipeline there is good inferred correlation with the Ma contours in this area. There are no strong photo lineaments to support the geophysical observations in this region.

The main aditas 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 possibly to a minor degree pyrolusite. Drilling in this vicinity might therefore be confined to the western half of this anomaly between the 15 and 35 msecs. contours.

Anomaly 3

This feature was covered by an electrode separation of 800 feet along Line 41S, but is supported by sub-anomalous chargeabilities along Line 29S which is 1,200 feet to the north and by multi-spaced traverses at right angles to these lines along the main road (called the "Main Road Line"--see "profiles").

Limited available time prevented further delineation of this feature, but appears from recent drilling to be due to a highly altered quartz-porphyry intrusive rock containing appreciable amounts of pyrite and minor visual chalcopyrite.

The hole was spotted near the Ma peak amplitude of 61.4 milliseconds and encountered an overburden thickness of only 30 feet which confirmed the depth-sounding carried out along the main road just to the east of this high chargeability reading.

3. *Apparent Resistivity Contours (Pa)*

Over the a = 400 feet coverage, the resistivity portion of the survey ranged in value from 94 ohm meters at Line O, 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.

On the a = 800 feet coverage, a large southeaterly trending "low" (less than 200 ohm meters) is observed which occurs from Line 16N to Line 29S along the main road. The centre of the low is at approximate grid coordinates Line 17S, Station 12E.

4. *Correlation of Contour Data*

Although a detailed discussion of Ma - Pa correlation is made below under "Profiles", an interesting feature observed in the contours is found in the southeast quadrant of the grid whereby sub-anomalous Ma's of between 15 and 20 milliseconds are coincident with ρ*a's of less than 200 ohm meters.*

At the time of the survey, it was thought that this was due to deep conductive over-burden which had attenuated or masked the effects interpreted due to near-surface, sulphide-bearing rocks to the north and south as seen in the detailed coverage along the main road in those areas.

A recent vertical diamond drill hole collared at Line 15S, Station 9+00E encountered only 50 feet of overburden and then about 450 feet of what is visually described as a highly altered volcanic rock containing sections of fine-grained disseminated pyrite and narrow zones of coarse-grained sphalerite, galena, pyrite and minor chalcopyrite.

It is therefore reasonable to suppose that overburden thicknesses might not exceed 200 feet within this large "low" on the valley floor and that further drilling within and adjacent to the low is now the primary target for a large, low-grade copper deposit.

Generally, it appears that the low ρa's are a reflection of rock type (i.e. volcanics) rather than a change of overburden thickness. Intermediate ρa's might be caused by fine-grained pyrite-bearing intrusive rocks exhibiting high Ma's, low ρa's and sub-anomalous Ma's could be due to altered volcanics containing less pyrite but higher concentrations of the other sulphides such as sphalerite, galena, and chalcopyrite which might be more coarsely-grained offering a lower but still significant chargeability response.

5. Profiles

Line 28N

This line was surveyed to determine the northern extent of Anomaly #1.

The Ma's are considered to be background and the line has closed off the anomaly to the north. Underlying rocks are thought to be non-mineralized granodiorite.

Line 24N

Occuring along the northern edge of Anomaly #1, the Ma peaks are probably not due to conductors crossing the line but rather due to the irregular conductive zone boundary as well as due to side effects. (See contour map.)

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 concentrations of magnetite.

The Ma profile exhibits amplitudes greater than 20 msecs. from Stn. 7W to 18E, a length of 2,500 feet. As the contour map indicates, this traverse is parallel to strike of the causative source and is therefore of little interpretive value.

Most noteworthy is that there is a sharp increase in ρ_a and decrease in Ma at Stn. 7W. Barren granitic rocks are interpreted west of this point. The remainder of the line is thought to be underlain by sulphide bearing altered granitic and/or volcanic rocks.

The bi-modal peaks centred at Stn. 10E is coincident with the gas pipeline and is likely caused by it. This phenomenon is not observed on many other lines, however.

Line 16N

The line is anomalous from Stn. 7W to the eastern end which is also along strike of the conductive zone. The pipeline which crosses this line at Stn. 9+50E has probably influenced the data to some extent although the whole line segment east of Stn. 7W is thought to be underlain by sulphides. At Stn. 16E, the ρ_a *profile is decreasing significantly while the Ma profile is increasing.*

It is believed that the gravel terraces between Stns. 6E and 16E account for the fluctuations in the data, but that the higher chargeabilities are caused by underlying bedrock material.

Line 12N

Similar to the preceding line, this profile more clearly illustrates the Ma-ρ_a *reversal at the eastern and western ends of the line.*

Values west of Stn. 11W are again due to barren granodiorites which are represented by high ρ_a*'s and low Ma's.*

The eastern end of the line exhibits very low ρ_a*'s and high Ma's near Coldwater Creek in the valley bottom and suggests either a change in rock type and/or high sulphide content in an area of thin overburden. This is supported by the detail coverage carried out along the main road adjacent to Coldwater River which crosses this line at Stn. 16E.*

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 centre of the body beginning at or very near surface at Stn. 12W. The contact is at Stn. 16W-17W.

The small ρ_a and Ma peaks at Stn. 10E and Stn. 8E respectively are likely due to the pipeline which crosses this line at Stn. 10+50E.

The low ρ_a -high Ma correlation is also observed on the east end of this line.

Line 4N

This line roughly parallels the southern flank of Anomaly #1 and is not too definitive over most of its length.

The high Ma-low ρ_a at Stn. 20E is still present.

Little influence from the pipeline is observed.

Line 0

The Ma values have flattened out to near background response with the contact occurring at Stn. 18W. This line represents the southern limit of Anomaly #1 as far as Stn. 12E.

Line 5S

This line was surveyed only east of the baseline with an electrode separation of 800 feet and a station interval of 400 feet. The Ma's are sub-anomalous, but a good correlation exists between higher Ma's and low ρ_a's east of Stn. 12E as seen in the above-mentioned profiles.

Lines 9S and 13S

These lines show background to sub-anomalous chargeabilities and are quite uninteresting. They were only surveyed west of the baseline with a=400 feet.

Line 17S

Both the 400-foot and 800-foot electrode spacings were used on portions of this line.

West of the baseline, two narrow vertical dike-like conductors are evidenced at Stn. 14W and Stn. 8W.

East of the baseline, using the wider "a" spacing, the higher Ma- low ρ_a *correlation persists.*

Line 21S

The two-vertical conductors cross this line at Stn. 12W and Stn. 6W.

The high ρ_a*'s observed at the western ends of the northern lines are apparent here and are interpreted as a continuation of the contact between fresh, Eagle granodiorites to the west and the altered sulphide-bearing rocks to the east.*

Line 29S

An 'a" spacing of 400 feet was used west of the baseline; an a= 800 feet was used east of the baseline.

It appears that the two vertical conductors observed on Line 21S and Line 17S merge on this line at Stn. 11W.

On the wide "a" spacing, the resistivities are quite low and coincident with sub-anomalous chargeabilities likely caused by altered *bedrock containing approximately one percent by volume equivalent conducting sulphides.*

Line 33S

The Ma peak at Stn. 20W could be a continuation of the bi-modal peak centred at Stn. 20W on Line 29S, and is interpreted as a narrow, vertical conductor striking north-south.

The Ma peak at Stn. 12W is a continuation of the conductor observed at Stn. 11W on Line 29S.

A fault could cross this line at Stn. 9W.

Line 37S

The fault continues southwesterly across this line at Stn. 16W.

The Ma peak at Stn. 18W could be an extension of the north-south striking conductor discussed above. Another narrow conductor could be developing at Stn. 24W. It is also possible that these two Ma peaks are due to double-peaking with the conductor actually occuring in the trough between them at Stn. 22W. More detail would be required in this area to remove this ambiguity.

Line 41S

NOTE: The data is plotted relative to the eastern baseline whereas the stations on the actual survey line are tied into the western baseline. Therefore, Stn. 16E on the profile coincides with Stn. 20E in the field.

The fault postulated above crosses this line at Stn. 18+50W with the conductive zone occuring west of this point. A good, narrow, vertical local conductor is seen at Stn. 25+50W.

A very high-amplitude Ma anomaly is seen on the east end of the line peaking to 61.4 msecs. and still open to the east. This feature was recently tested by drilling and reported to be due to sulphide-bearing, highly altered quartz-porphyry intrusive rock. No estimation of the volume percent sulphide content was reported to the author, but it should run over five percent.

Line N45°W

This line was surveyed to enhance the interpretation of Anomaly #1 perpendicular to its main conductive axis.

Electrode separations of 100, 200 and 400 feet were used. The ρ_a and Ma data are plotted on separate axes for clarity.

The various spacings used indicate that the conductive zone is very near-surface, less than 50 feet, and a comparison of this traverse for a=400 feet with a section taken from the contour map along the same line indicates an extremely close correlation even though the contour data is obtained from lines parallel to the strike of the conductive zone.

The resistivity profile illustrates variations in surface conductivity due to talus and ground water levels.

The chargeabilities indicate a broad conductive zone from Stn. 5W to Stn. 16W with a vertical, narrow, near-surface, good conductor at Stn. 10W. This could be due to a mineralized shear or a fault.

This line has assisted in attaching more validity or importance to Anomaly #1 as determined from the east-west lines.

Main Road Line

A lack of time prevented a full detailed investigation along the total length of the traverse.

Detail was done principally to ascertain quickly maximum depths to bedrock in high Ma regions and to determine if thick conductive overburden was causing the higher responses.

Generally, higher Ma values coincide with higher ρ_a 's outruling the possibility of conductive overburden.

Although spot checks of one station are tenuous at best, the traverse has shown that the overburden is not nearly as deep as anticipated. Bedrock at Station 50S was interpreted to be less than 100 feet deep at Stn. 45+50S. Later drilling in this area encountered bedrock at 30 feet.

An east-west striking fault is postulated crossing the road at Stn. 20S and another exists at Stn. 8N.

The broad low ρ_a through the central portion of the traverse contributes to the low seen on the contour map and coincides with subanomalous Ma's which could be caused by sulphides in a relatively shallow overburden environment.

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 1972 surveys indicated 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 northwest quadrant of the grid, there appears to be 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 to the west of the adit.

APPENDICES

The 1973 I.P. coverage has assisted in projecting the contact east to Coldwater River on the north part of the grid and has indicated a large area in the southeast quadrant of the grid which could be underlain by a large "porphyry" type copper deposit. This area has recently been partially tested by two vertical 500-foot diamond drill holes which have proven the presence of favourable host rocks containing sulphides overlain by less than 100 feet of overburden.

The highly anomalous chargeability zones appear to be the geophysical expression of a pyrite halo containing zinc, lead and silver mineralization in shears and veins.

The large low resistivity area in the southeast quadrant coincides with chargeabilities in the 15 - 20 millisecond range which could represent the "core" of a typical porphyry copper environment geophysically similar to the Gibraltor property.

Further detailed I.P. coverage should be carried out in areas of suspected veins and shears containing Zn-Pb-Ag mineralization to establish drill targets.

The postulated porphyry copper target has been adequately covered by geophysics to warrant a gridded drilling program within and adjacent to the large resistivity low described above.

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 July 6/73

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 6th day of July, 1973.

PERSONNEL

1972 PROGRAM

P. P. Nielsen - Geophysicist, I.P. Operator and Supervisor

M. Beretta - Geophysicist, Magnetometer Operator

M. Leevers)
W. Culbert)
E. Smith) - I. P. Crewmen and Linecutters
W. McKenzie)

1973 PROGRAM

P. P. Nielsen - Geophysicist, I.P. Operator

R. Klanjscek)
A. T. LaRose) - I. P. Crewmen
D. Wright)

J

COSTS

The following are Atled's charges for conducting the 1973 Induced Polarization Survey. The linecutting costs incurred by Denison Mines Ltd. are not included.

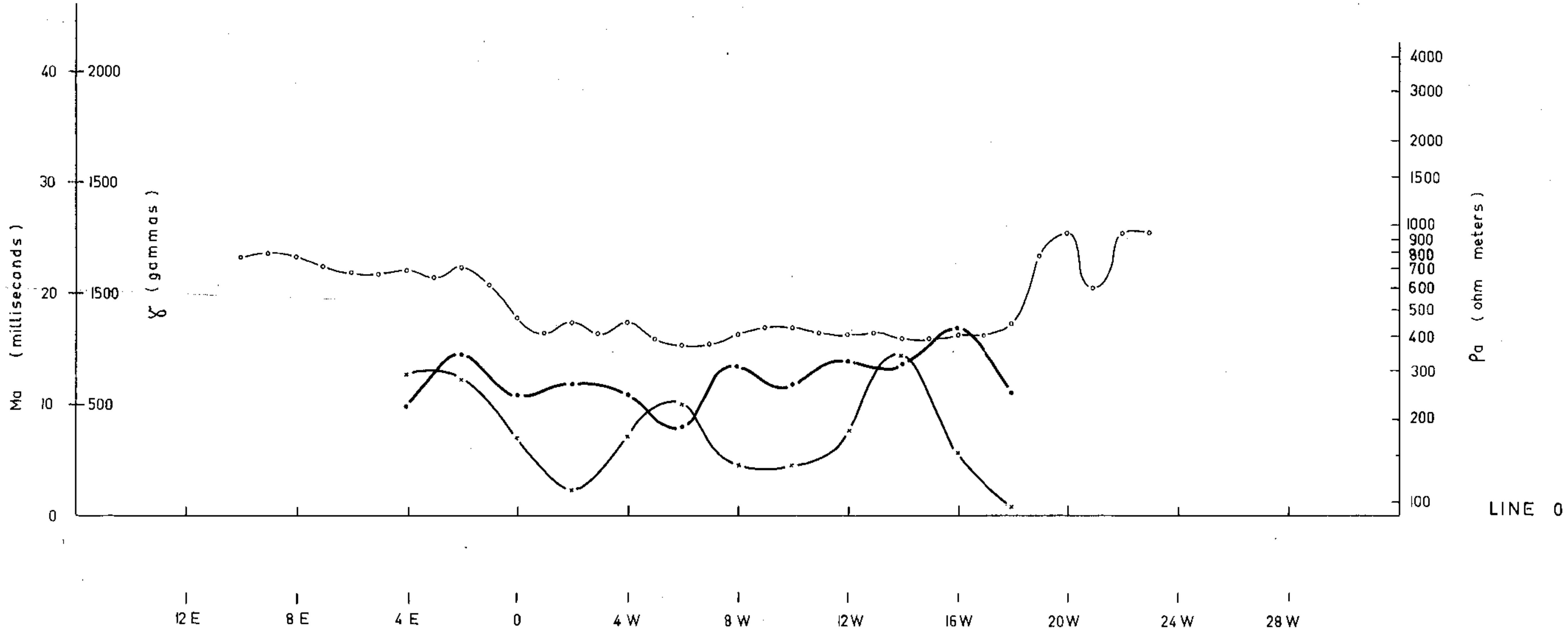
1.	*I. P. Crew and Equipment* *7 days @ $350/day*		*$ 2,450*
2.	*Transportation*		*$ 540*
3.	*Food and Accommodation* *28 man-days @ $10/man-day*		*$ 280*
4.	*Report*		*$ 350*
		TOTAL AMOUNT	*$ 3,620*

Line Mileage Cost

$3,620 for 8.02 miles = $451.37 per line mile

I certify that the above charges of #3620 were paid to Atled Exploration Management by Denison Mines Ltd. for the geophysical work herein described.

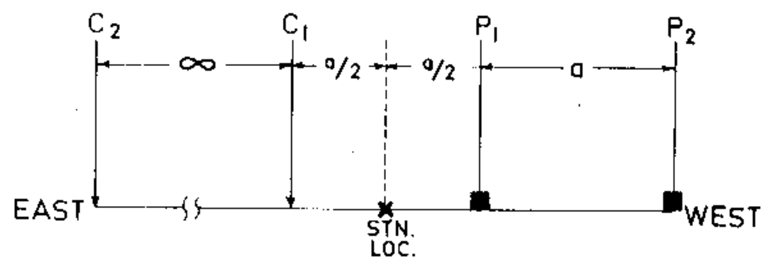
K. B. Sanders, P. Eng.
Western manager, Denison Mines Ltd.
August 1, 1973.



PROFILE LINE 0

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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

4516

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

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JUNE, 1973

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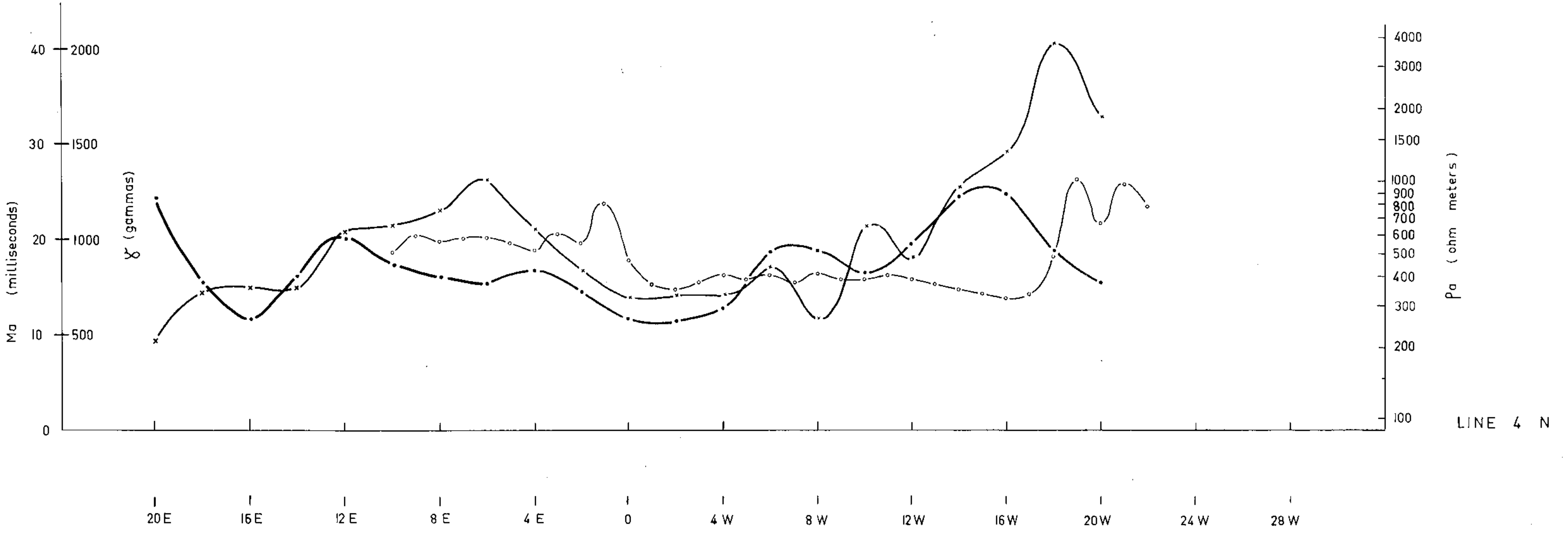
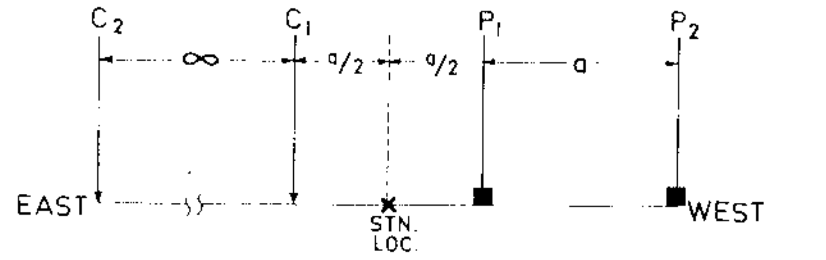
PROFILE LINE 4 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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400 0 400

Scale in feet

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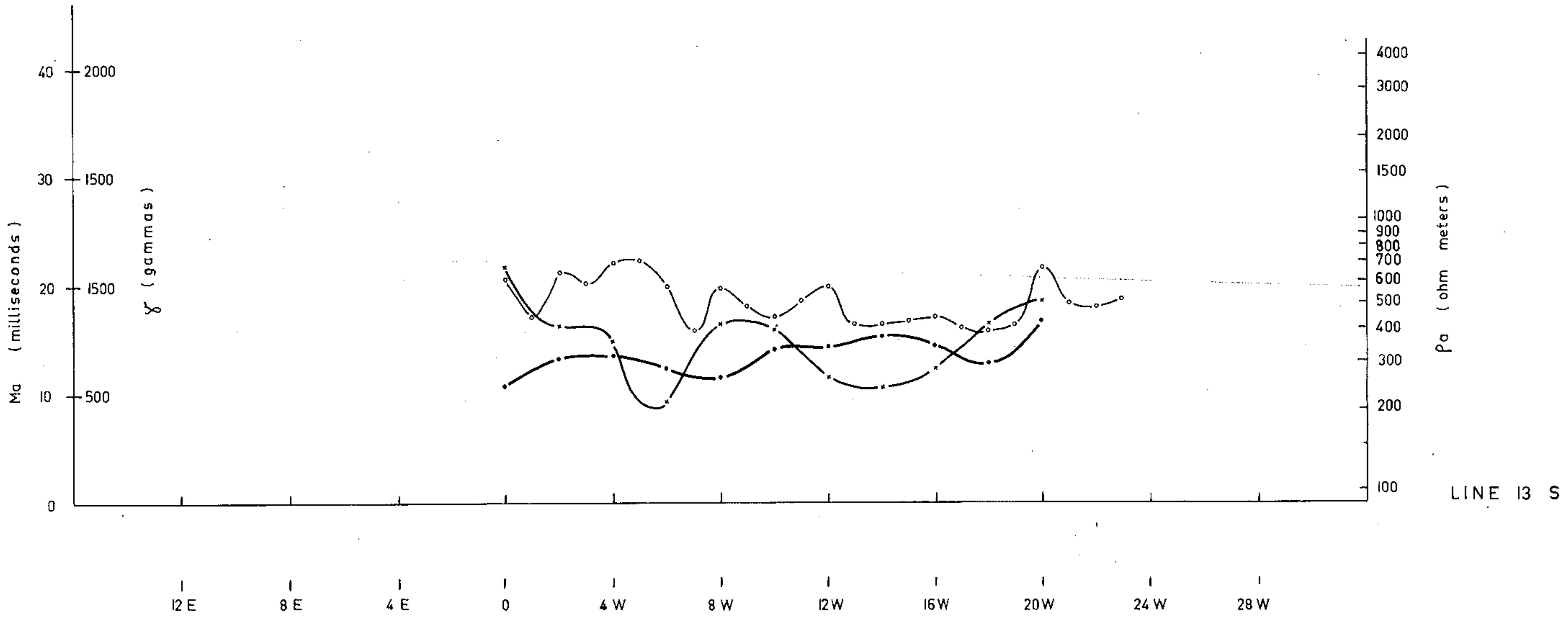
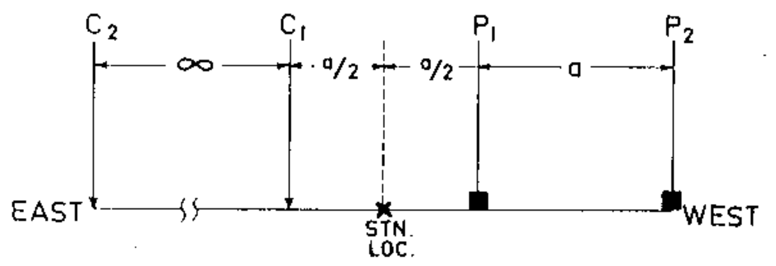
PROFILE LINE 13 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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DRY CREEK PROPERTY

COQUIHALLA PASS AREA, B.C.

400 0 400

Scale in feet

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

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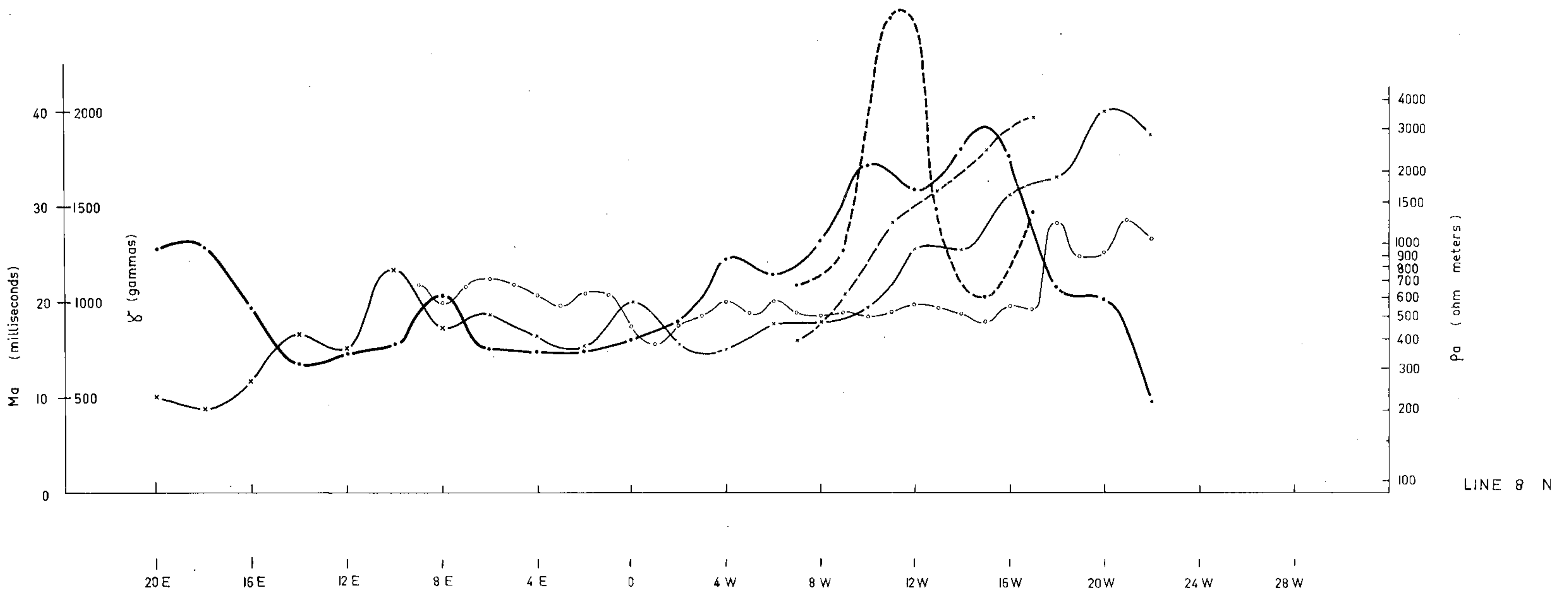
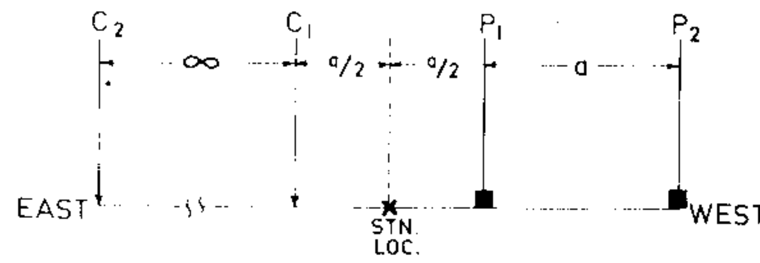
PROFILE LINE 8 N

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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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DRY CREEK PROPERTY
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400 0 400
Scale in feet

NICOLA M.D.

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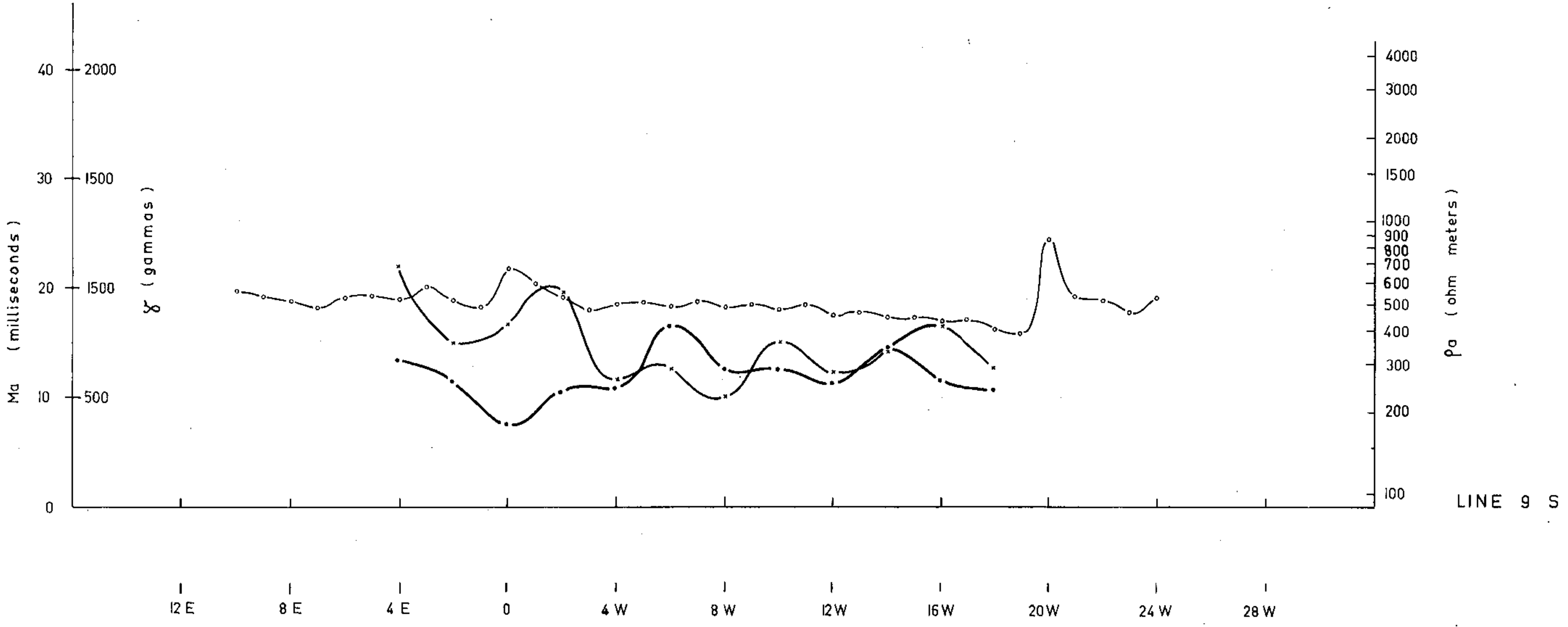
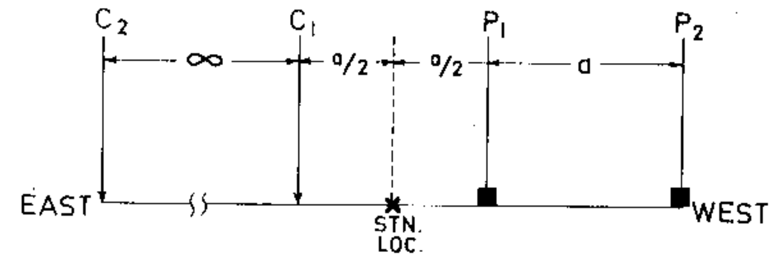


PROFILE LINE 9 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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DRY CREEK PROPERTY
COQUIHALLA PASS AREA, B.C.

400 0 400
Scale in feet

NICOLA M.D.

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N.T.S. 92 H/IIE

P.P. Nielson

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JUNE, 1973

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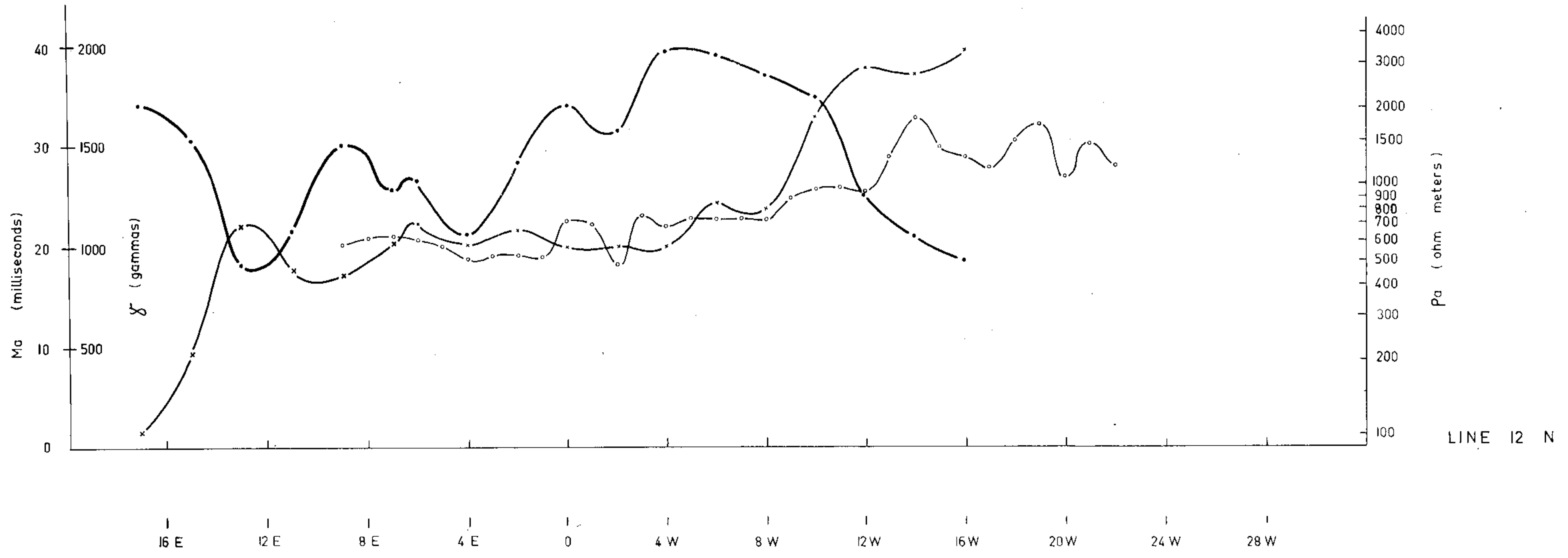
PROFILE LINE 12 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



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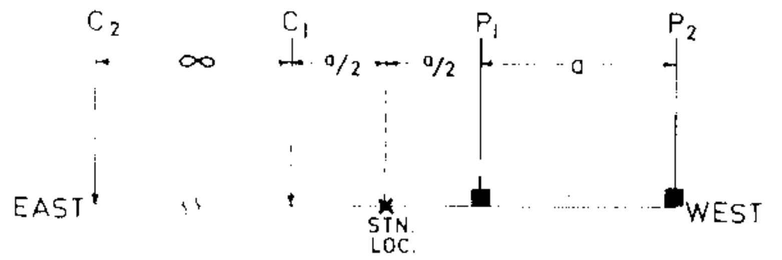
THREE ELECTRODE ARRAY



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

DRY CREEK PROPERTY

COQUIHALLA PASS AREA, B.C.

400 0 400

Scale in feet

NICOLA M.D.

4516

N.T.S. 92 H/11E

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ATLED EXPLORATION MANAGEMENT LTD.

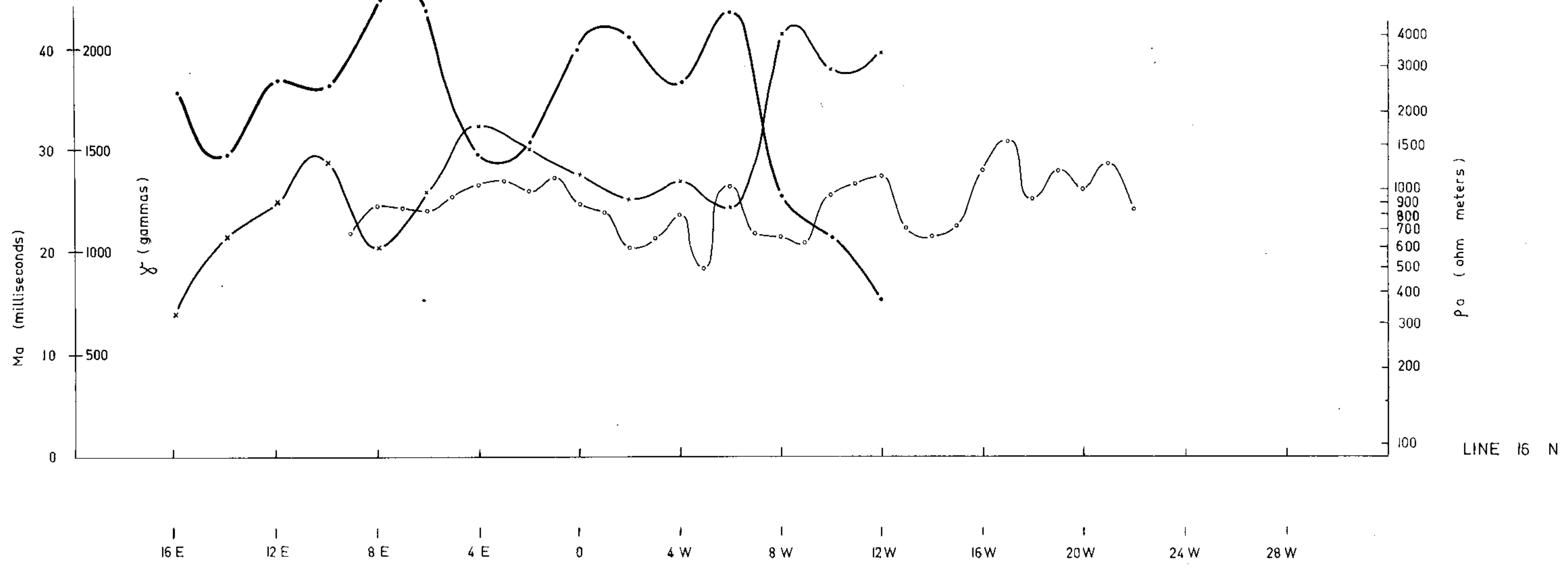
VANCOUVER, B.C.

JUNE, 1973

DRAWN BY: NCL

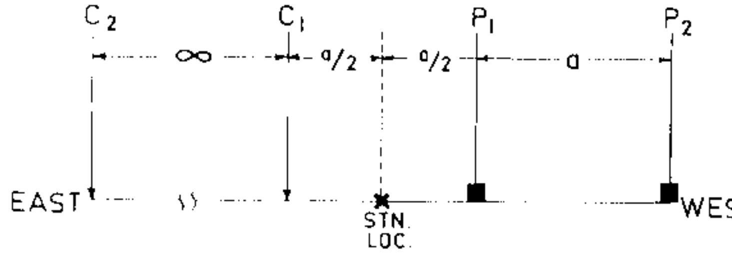
PROFILE LINE 16 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



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)	=	240 MILLISECONDS
INTEGRATE	=	900 MILLISECONDS

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

4516

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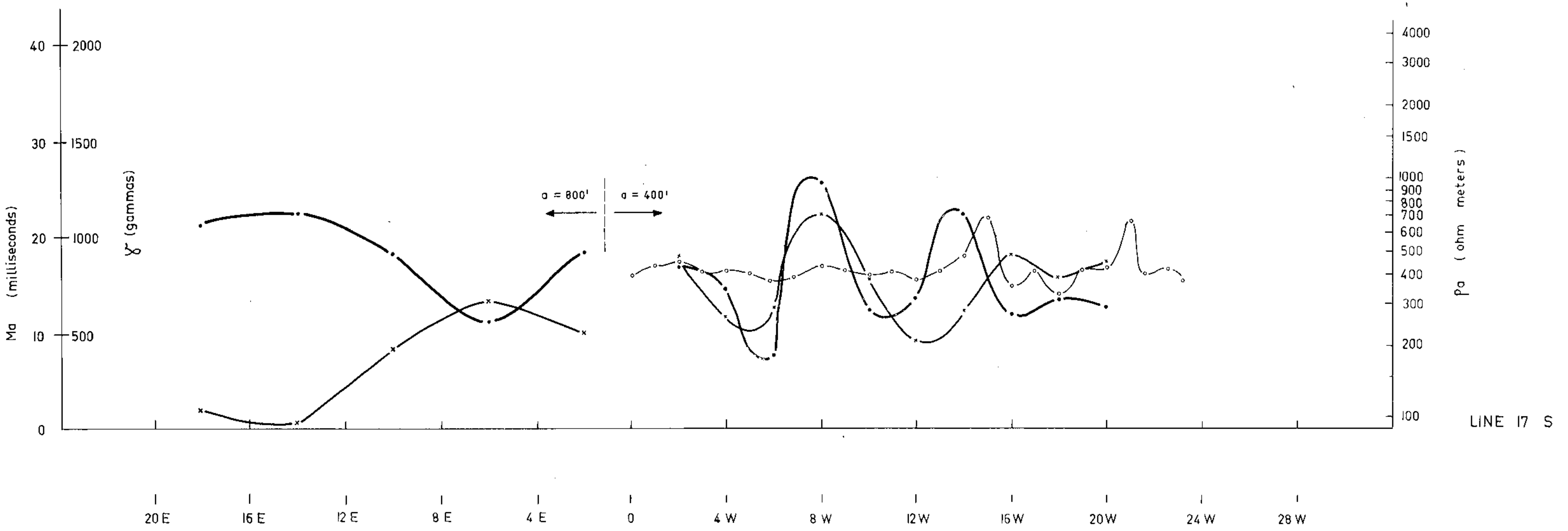
VANCOUVER, B.C.

JUNE, 1973

DRAWN BY: NCL

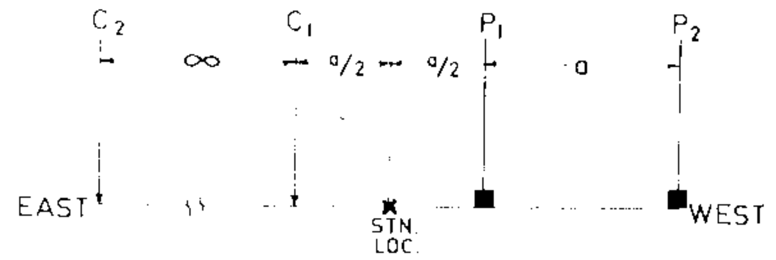
PROFILE LINE 17 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



a = 400 + 800 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (γ)

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

4516

P. P. NIELSON, B.Sc., GEOPHYSICIST &

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. C. GUTRATH

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JUNE, 1973

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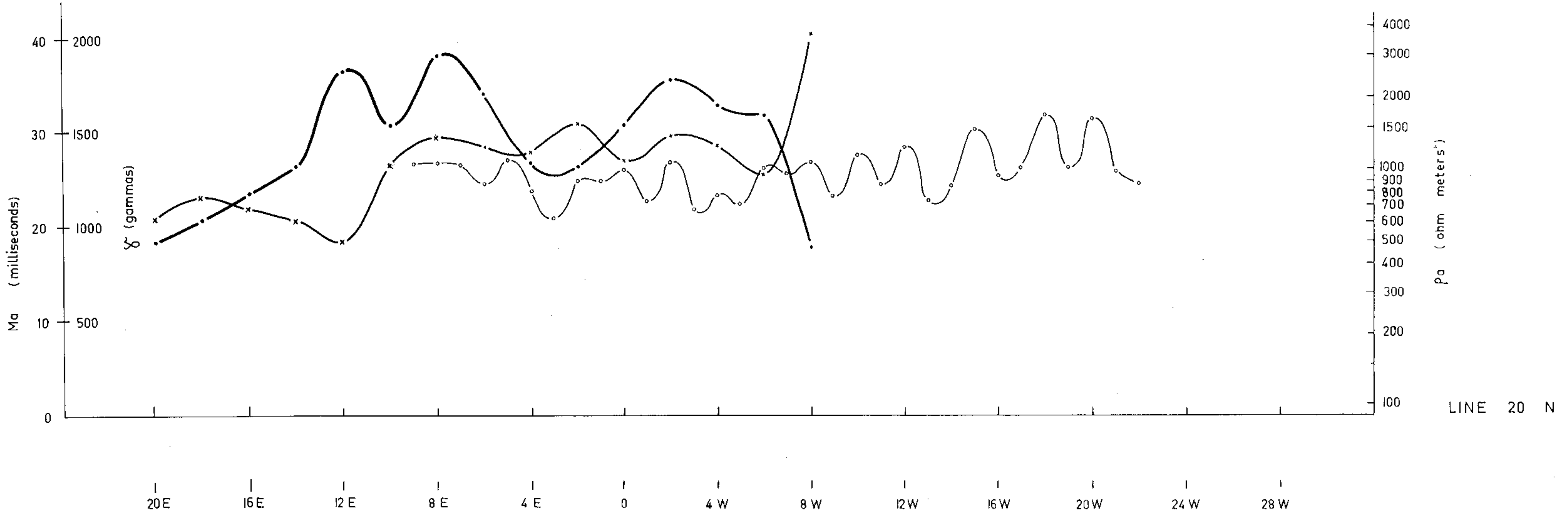
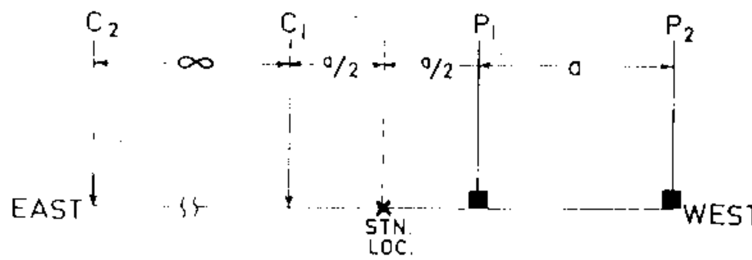
PROFILE LINE 20 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



a = 400 feet

CHARGEABILITY (Ma)

RESISTIVITY (Pa)

MAGNETIC SUSCEPTIBILITY (γ)

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

400 0 400
Scale in feet

NICOLA M.D.

4516

N.T.S. 92 H/11E

P. P. Nielson

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. C. GUTHRATH

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JUNE, 1973

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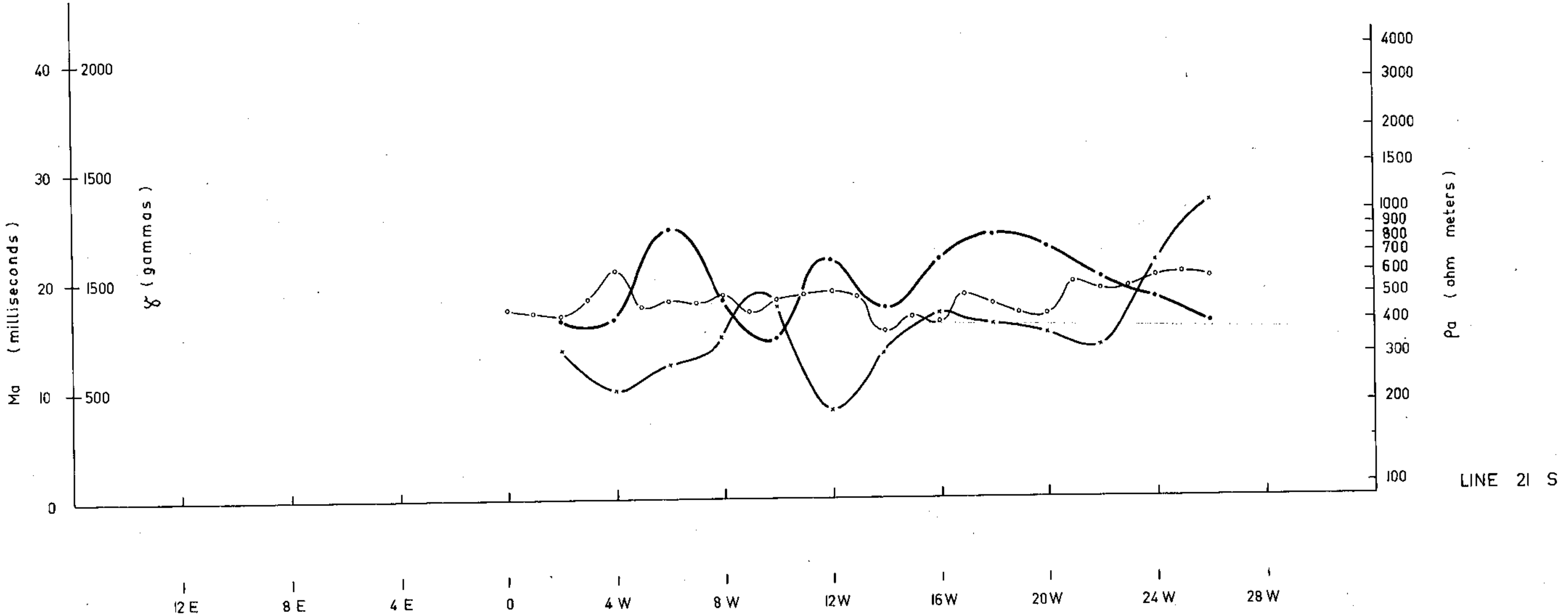
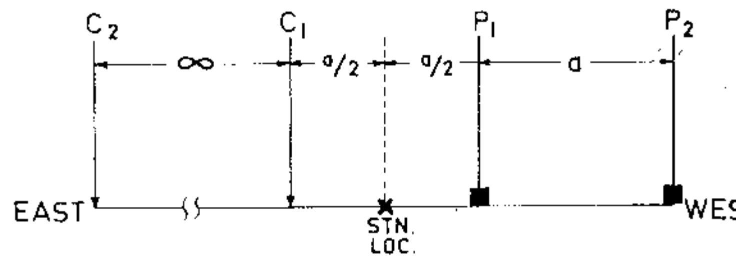
PROFILE LINE 21 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

400 0 400
Scale in feet

NICOLA M.D.

4516

N.T.S. 92 H/11E

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

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
G. C. GUTHRATH

JUNE, 1973

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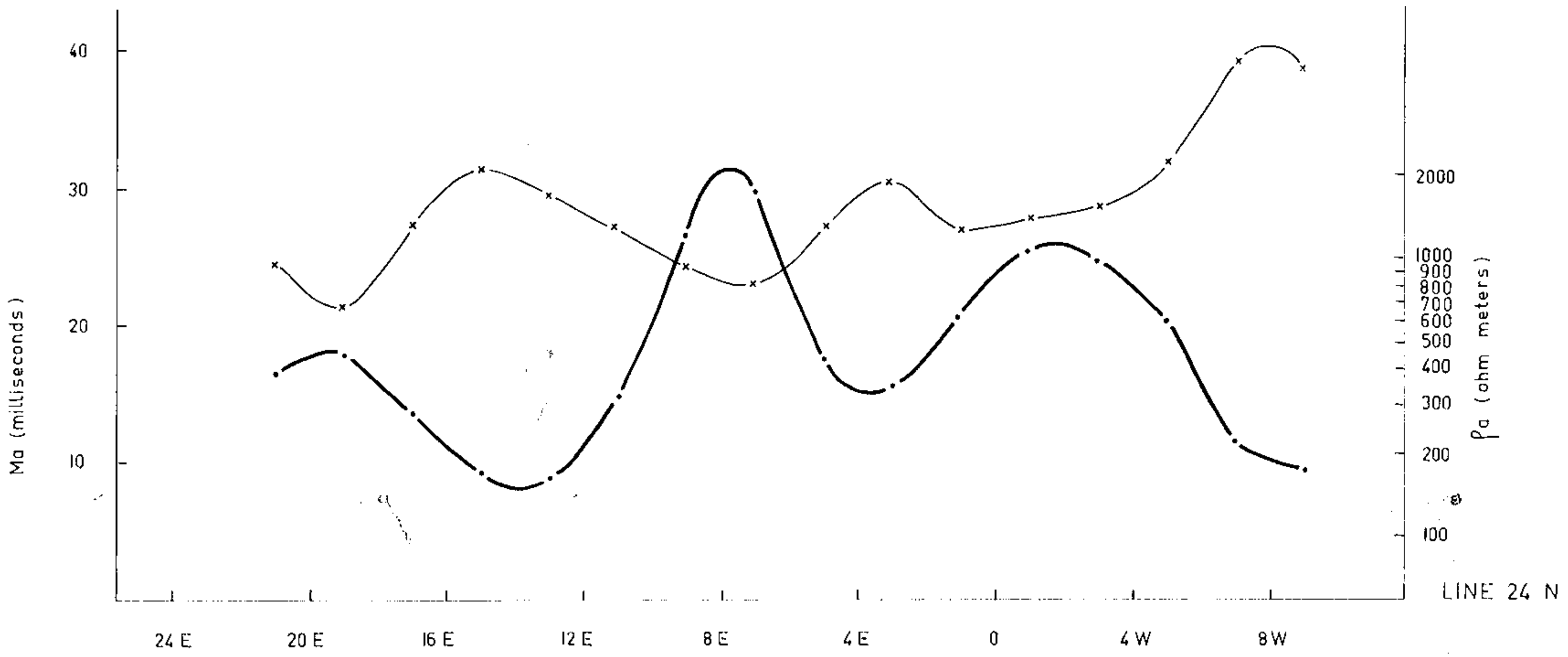

PROFILE LINE 24 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY

EAST — STN LOC — WEST

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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

DRY CREEK PROPERTY

COQUIHALLA PASS AREA, B.C.

400 0 400

Scale in feet

NICOLA M.D. 4516 N.T.S. 92 H/11E

P. P. Nielson

P. P. NIELSON, B.Sc., GEOPHYSICIST &

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

PROFESSIONAL ENGINEER — PROVINCE OF BRITISH COLUMBIA — G. C. GUTRATH

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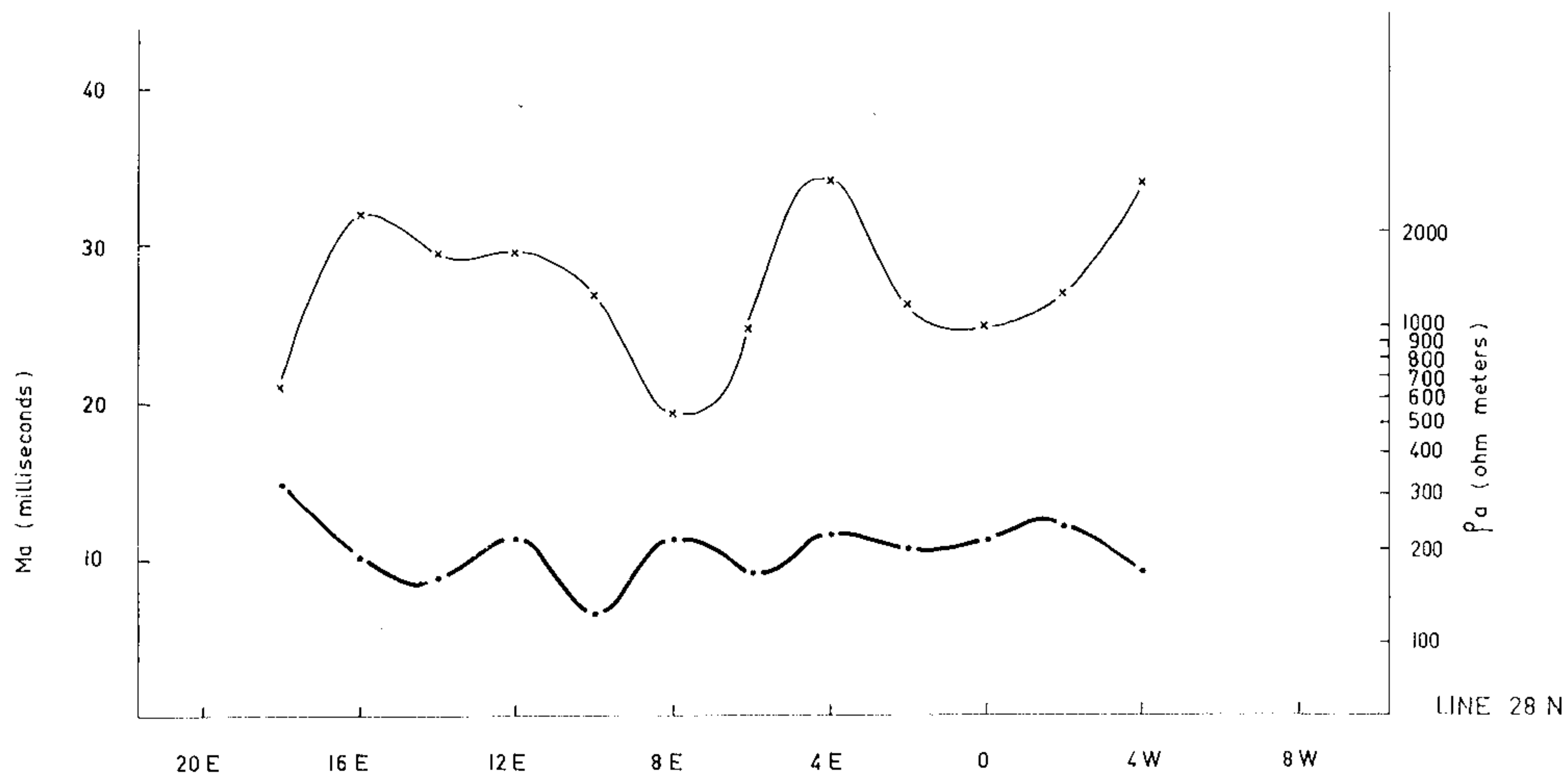
VANCOUVER, B.C.

JUNE, 1973

DRAWN BY



PROFILE LINE 28 N

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

L E G E N D

THREE ELECTRODE ARRAY

C_2 ∞ C_1 a/2 a/2 P_1 a P_2

EAST STN LOC WEST

a = 400 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY

I P INSTRUMENT PARAMETERS

Tx ON 2.0 SECONDS

Tx OFF 2.0 SECONDS

DELAY (td) = 240 MILLISECONDS

INTEGRATE = 900 MILLISECONDS

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

DRY CREEK PROPERTY

COQUIHALLA PASS AREA, B.C.

400 0 400

NICOLA M.D.

4516

N.T.S. 92 H/2 E

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.

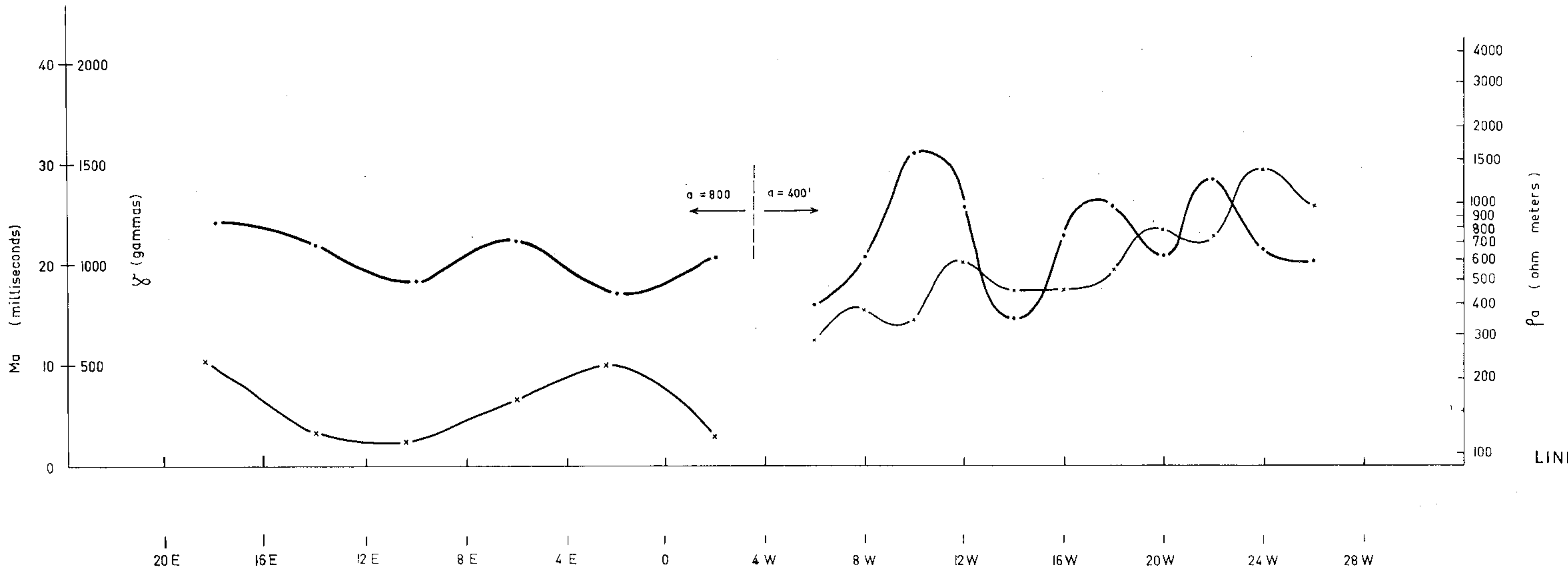
VANCOUVER, B.C.

JUNE, 1973

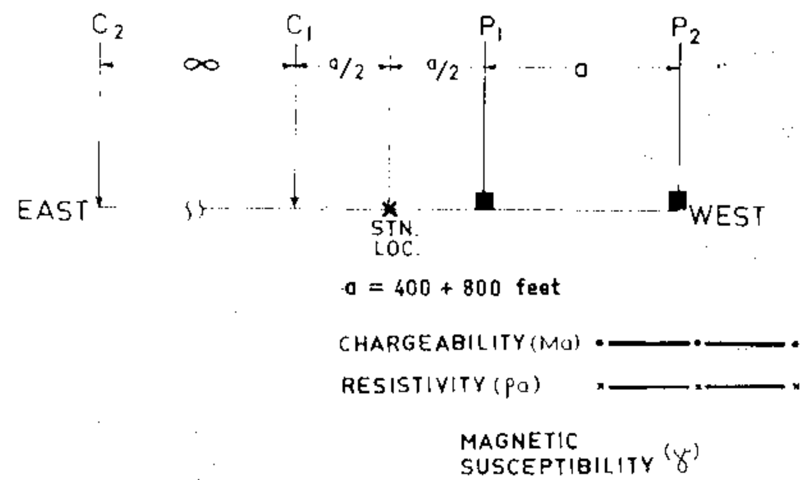
DRAWN BY

PROFILE LINE 29 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



LEGEND



I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

4516

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. C. GUTHRATH

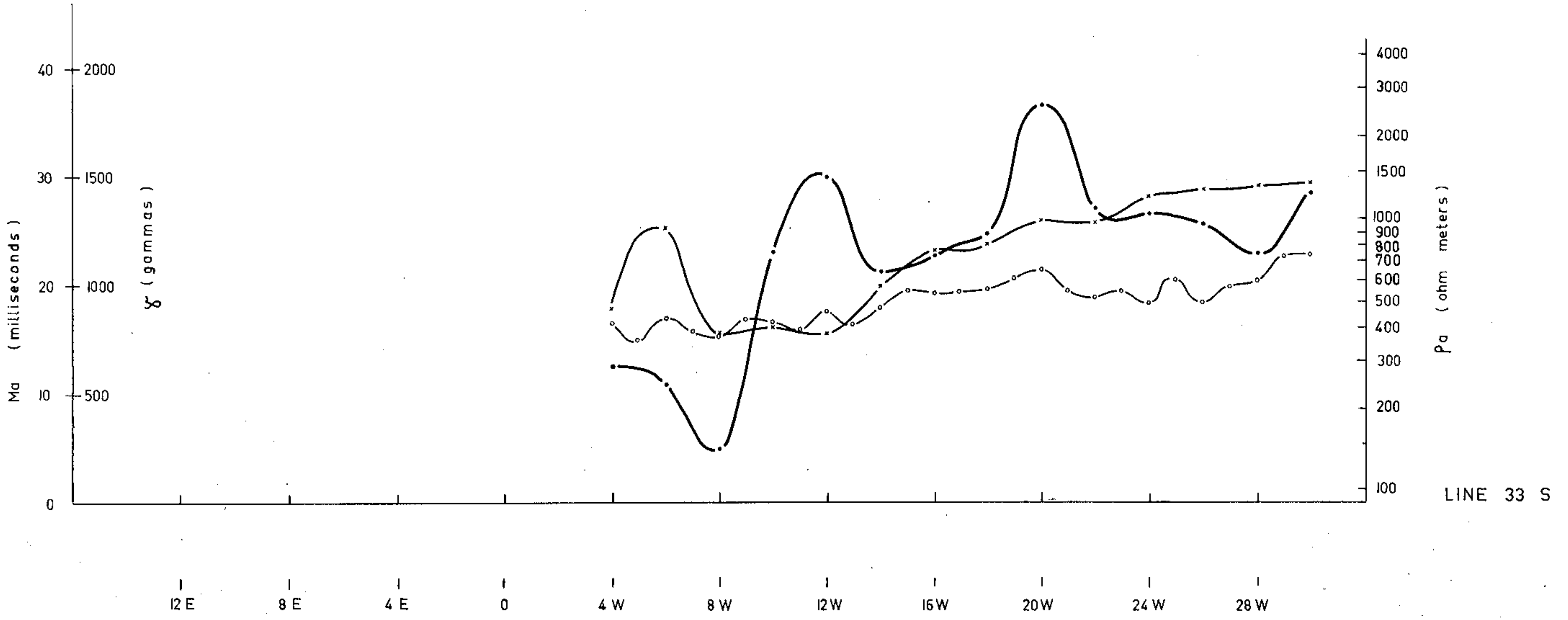
ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

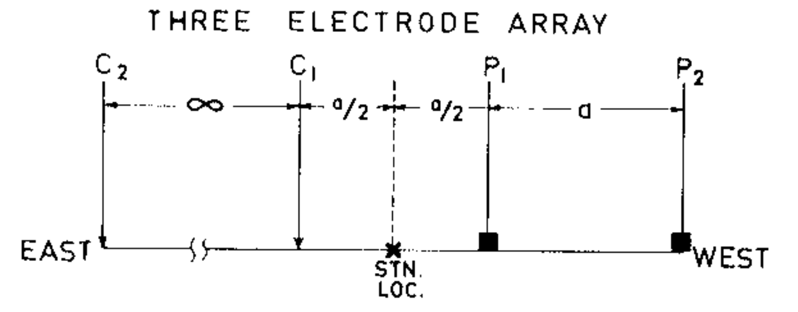
DRAWN BY: N.C.

PROFILE LINE 33 S

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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

400 0 400
Scale in feet

NICOLA M.D.

4516

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. GUTHRATH

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

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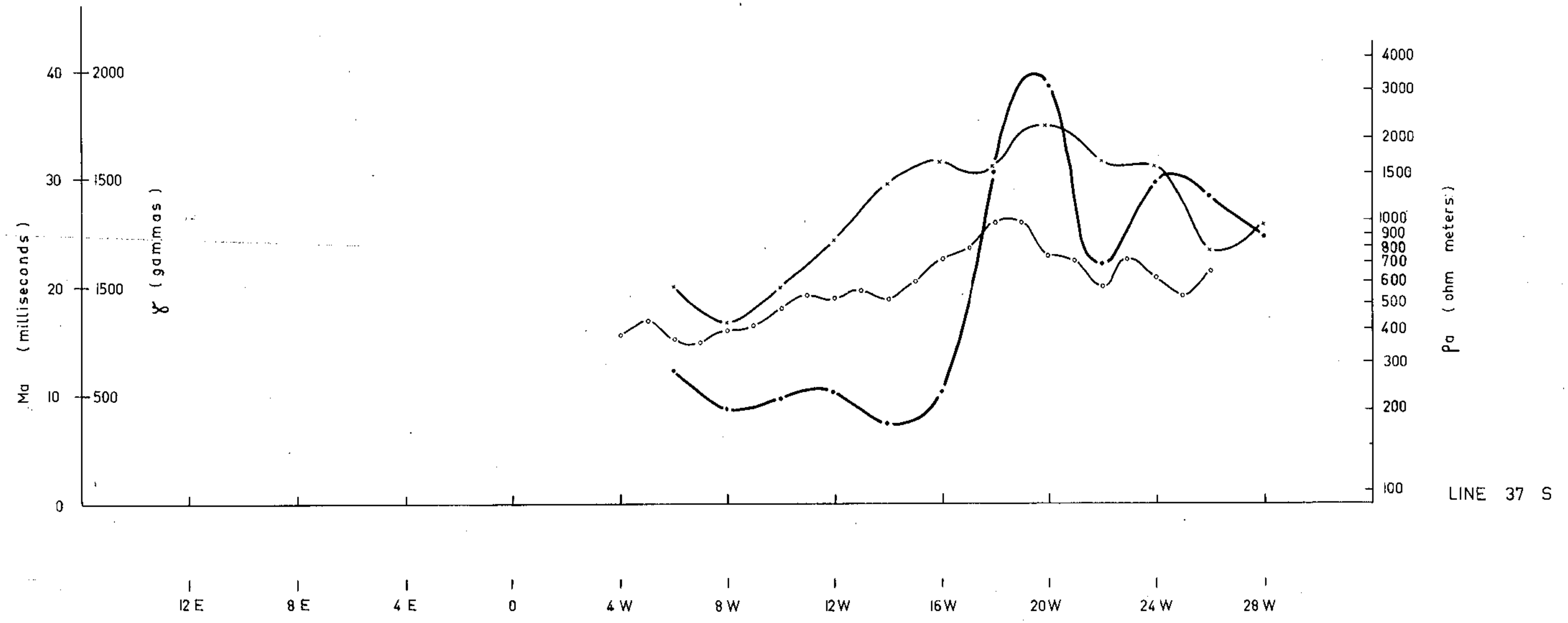
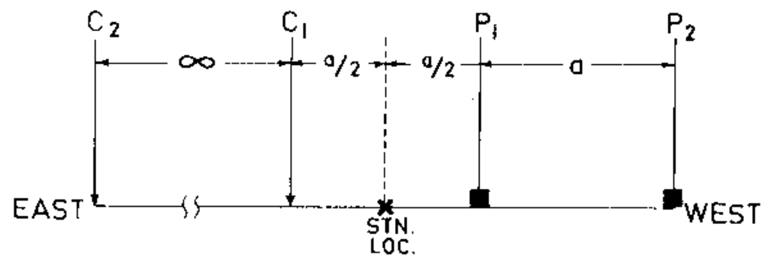
PROFILE LINE 37 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



LEGEND



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)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

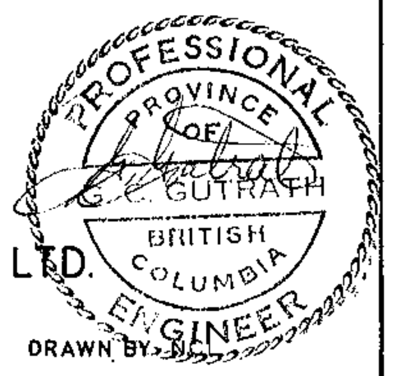
4516

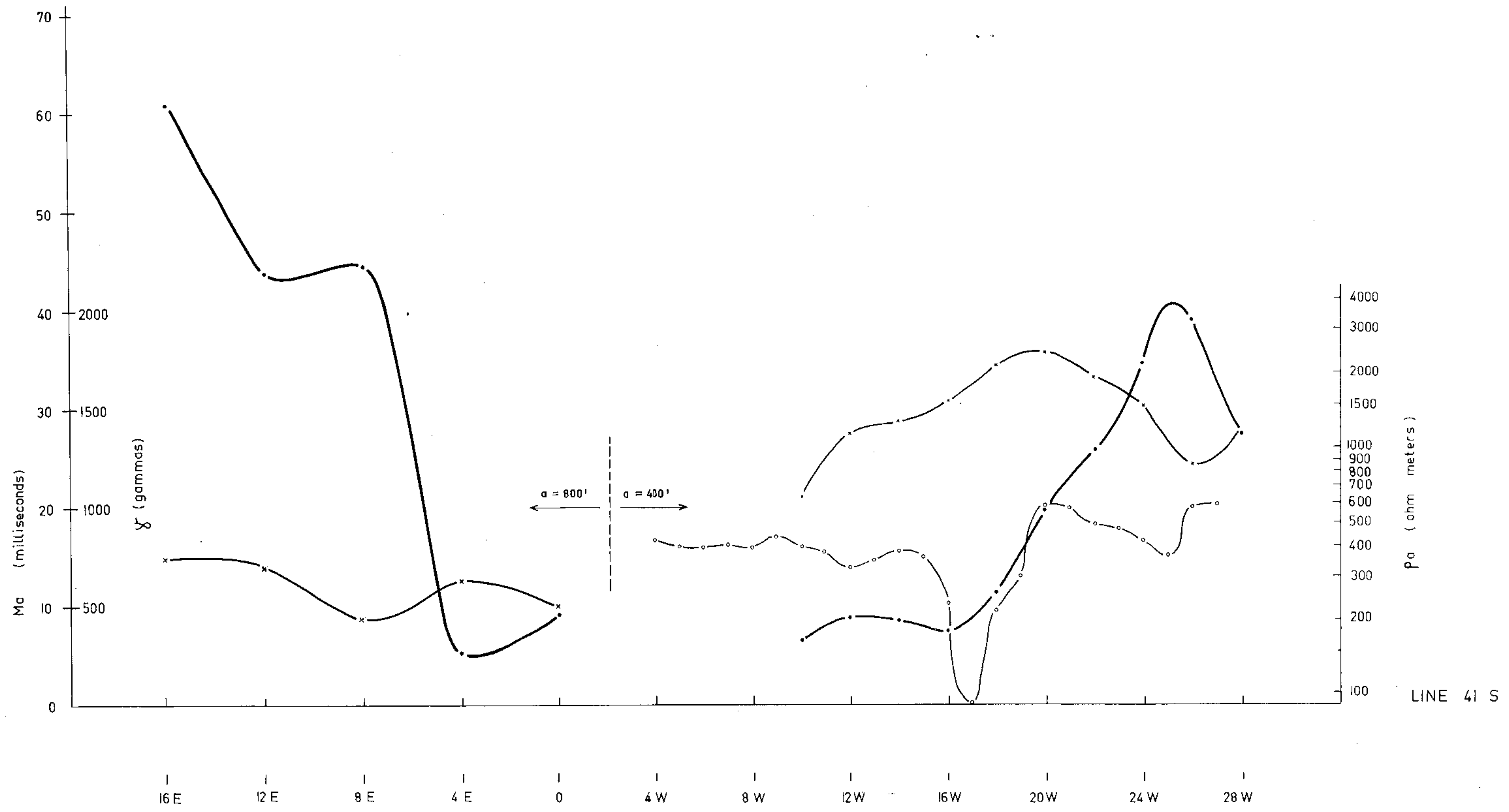
P. P. NIELSON, B.Sc., GEOPHYSICIST &
G. C. GUTHRATH, B.Sc., P.ENG., GEOLOGIST

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

DRAWN BY



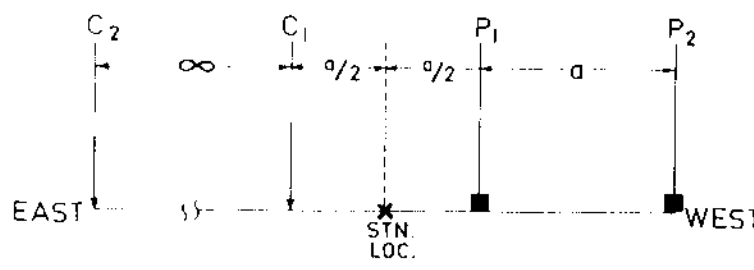


PROFILE LINE 41 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

L E G E N D

THREE ELECTRODE ARRAY



a = 400 + 800 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (γ)

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

400 0 400
Scale in feet

NICOLA M.D.

4516

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. GUTHRATH

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

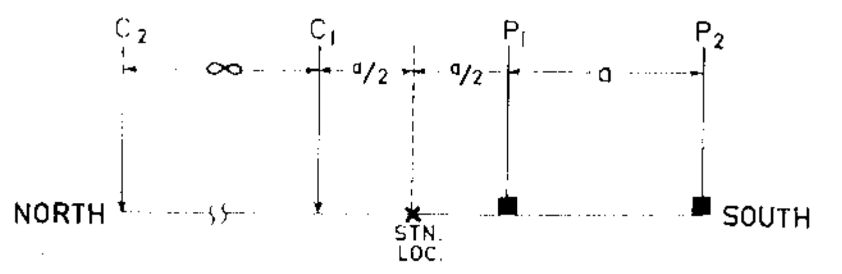
DRAWN BY: NCL

PROFILE LINE - MAIN ROAD

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



	CHARGEABILITY (Ma)	RESISTIVITY (ρa)
a = 200 feet	—•———•—	-•—— ——•—
a = 400 feet	—x———x—	--x--------x----
a = 800 feet	—o———o—	—o— — —o— —

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

4516

P. P. Nielsen

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

PROFESSIONAL ENGINEER PROVINCE OF BRITISH COLUMBIA G. GUTRATH

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

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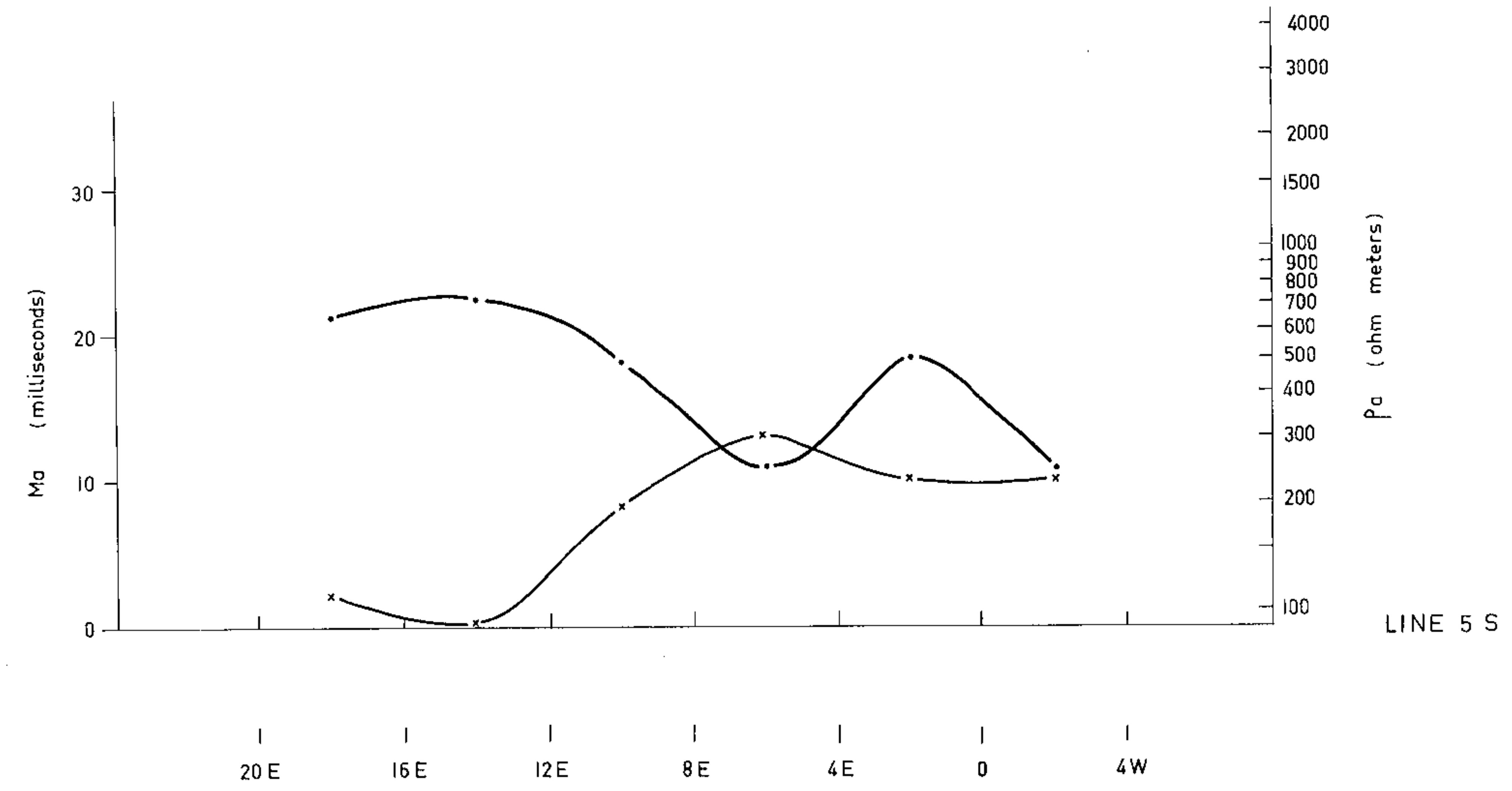
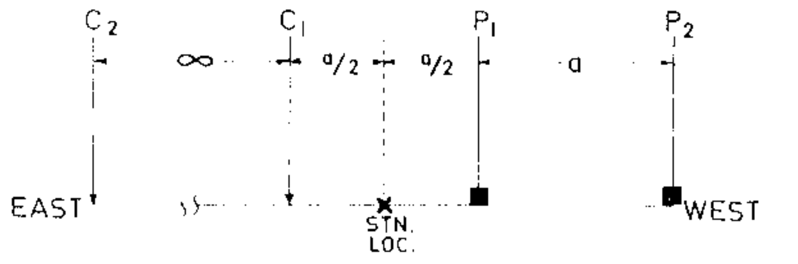
PROFILE LINE 5 S

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY



L E G E N D

THREE ELECTRODE ARRAY



a = 800 feet

CHARGEABILITY (Ma)

RESISTIVITY (ρa)

MAGNETIC SUSCEPTIBILITY (χ)

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

DRY CREEK PROPERTY

COQUIHALLA PASS AREA, B.C.

400 0 400

Scale in feet

NICOLA M.D.

4516

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. GUTHRATH

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JUNE, 1973

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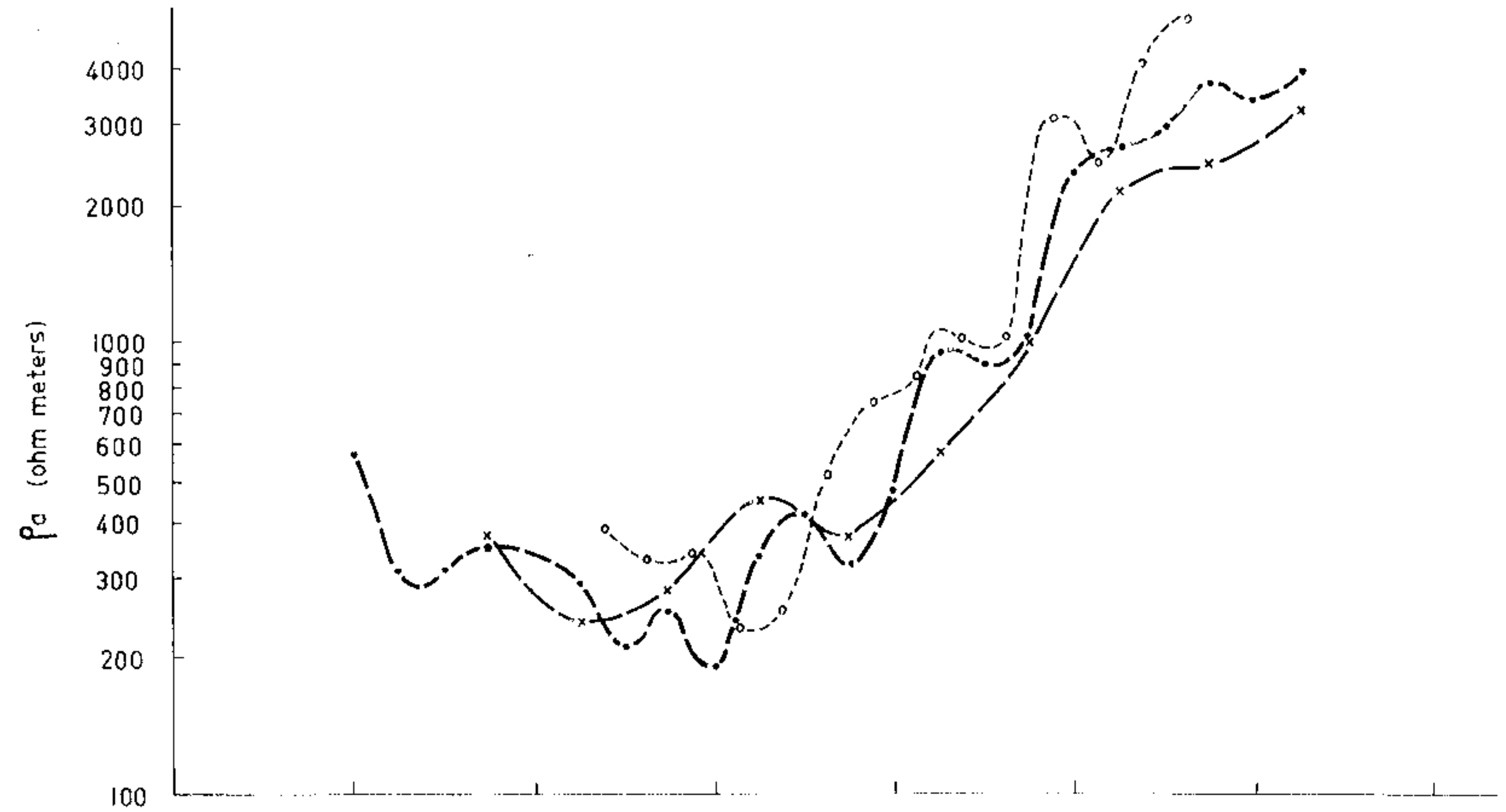
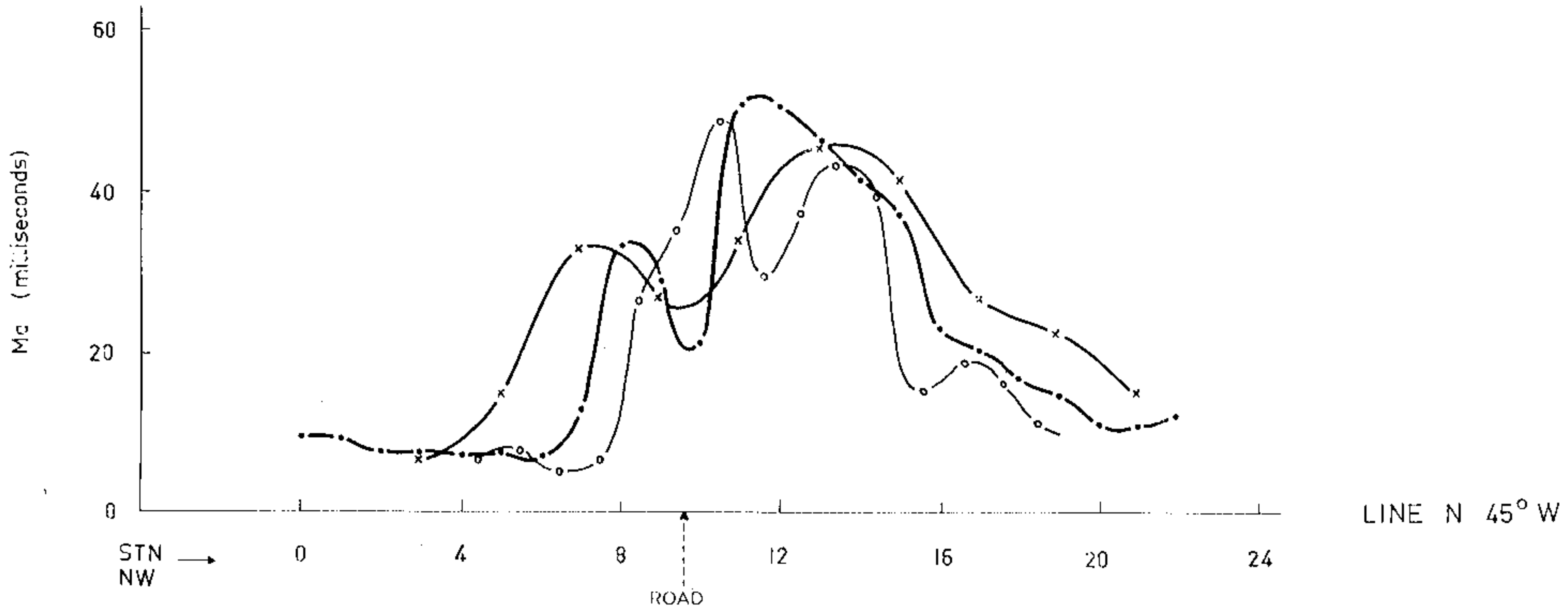


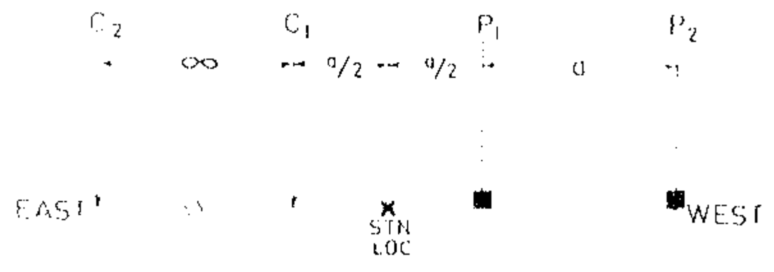


PROFILE LINE N 45° W

APPARENT RESISTIVITY, CHARGEABILITY & MAGNETIC SUSCEPTIBILITY

LEGEND

THREE ELECTRODE ARRAY



	CHARGEABILITY (Ma)	RESISTIVITY (ρa)
a = 100 feet	—o————o—	--o--------o---
a = 200 feet	—•————•—	-•-—-•-
a = 400 feet	—x————x—	—x————x—

I.P. INSTRUMENT PARAMETERS

Tx ON	2.0	SECONDS
Tx OFF	2.0	SECONDS
DELAY (td)	= 240	MILLISECONDS
INTEGRATE	= 900	MILLISECONDS

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

400 0 400

NICOLA M.D. NTS 92 H/11E

4516

P. P. Nielson

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

PROFESSIONAL PROVINCE OF G. C. GUTHRATH BRITISH COLUMBIA ENGINEER

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

JUNE, 1973

DRAWN

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

DRY CREEK PROPERTY

GROUND MAGNETOMETER SURVEY 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

4516-M4

LEGEND

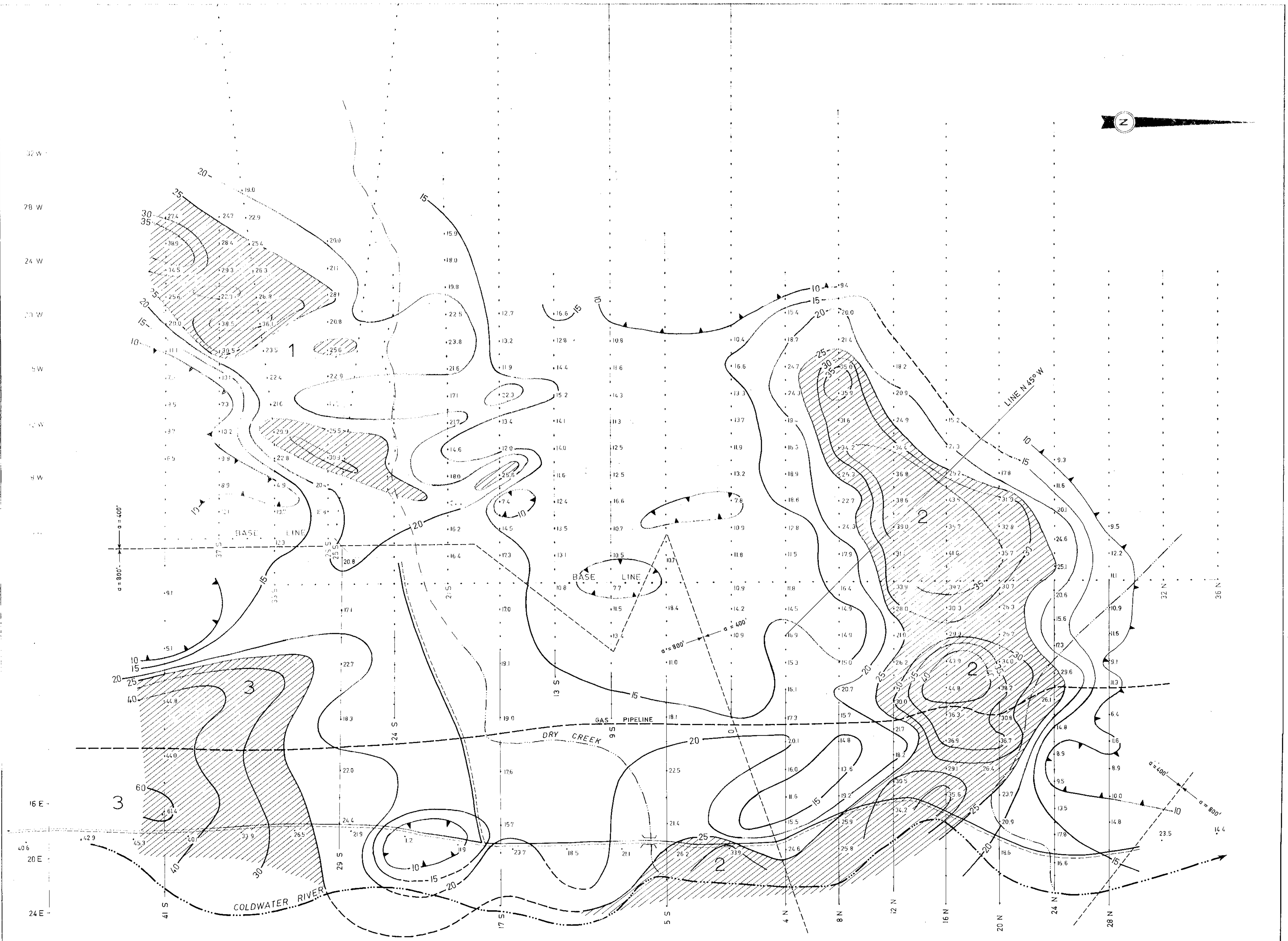
1200 AREAS OF HIGH RELATIVE MAGNETIC SUSCEPTIBILITY

700 AREAS OF LOW RELATIVE MAGNETIC SUSCEPTIBILITY

CONTOUR INTERVAL = 100 γ (gammas)

INSTRUMENT USED

McPHAR M700 VERTICAL FORCE FLUXGATE MAGNETOMETER



Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4516 MAP #5

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA

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

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

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.

Scale in feet: 400 — 0 — 400 — 800'

DATE: JUNE 1973. — DRAWN BY: NCL

4516 - M5

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

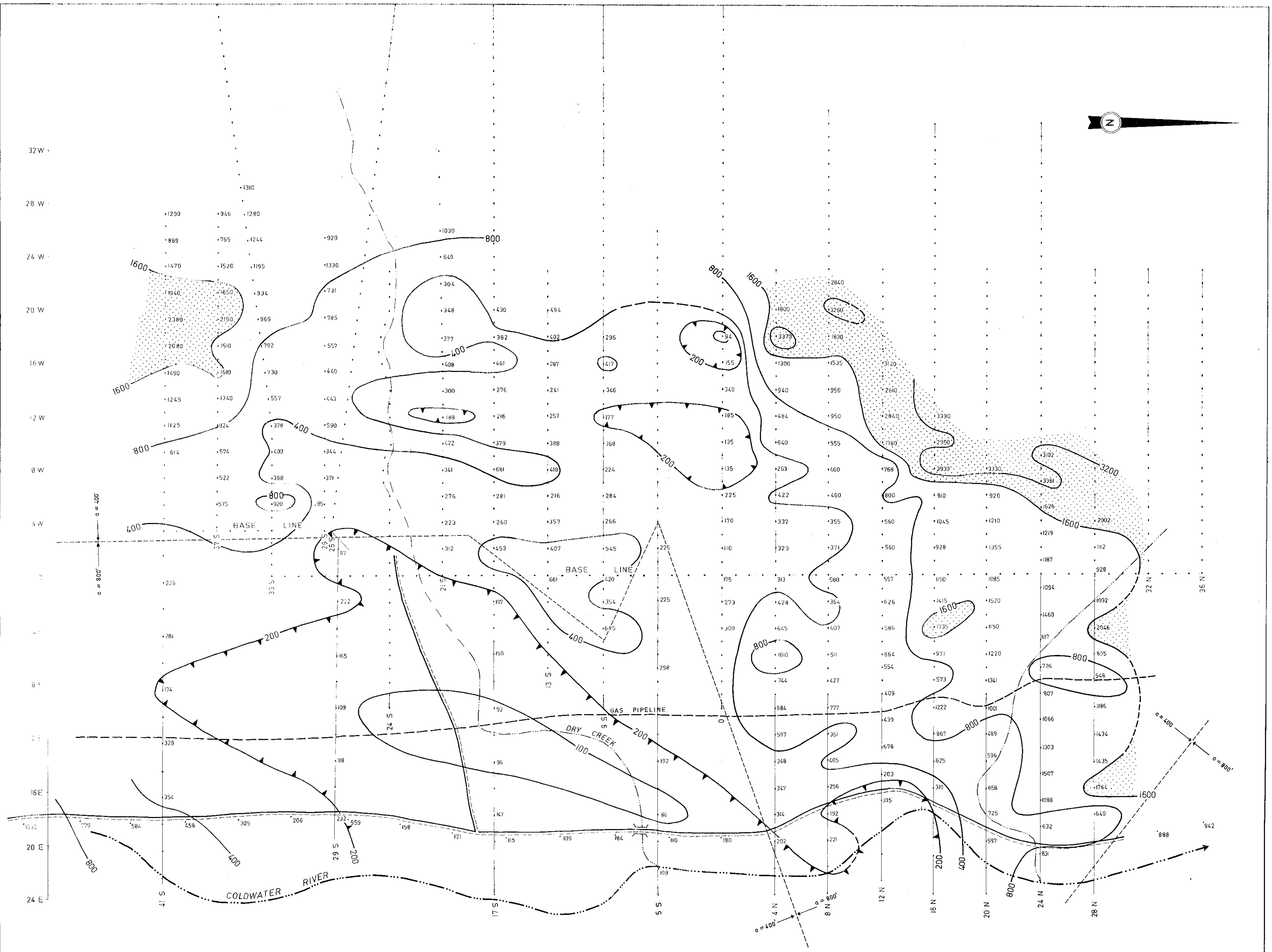
C_2 — C_1 — P_1 — P_2

EAST ∞ a/2 a/2 a WEST

STN. LOC.

a = 400 and 800 feet

∞ > 5a



Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 4516 MAP #6

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

PROFESSIONAL ENGINEER – PROVINCE OF BRITISH COLUMBIA – G. C. GUTRATH

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

DRY CREEK PROPERTY

INDUCED POLARIZATION SURVEY APPARENT RESISTIVITY VALUES & CONTOUR MAP

NICOLA MINING DIVISION N.T.S. 92 H/11 E

ATLED EXPLORATION MANAGEMENT LTD.
VANCOUVER, B.C.

Scale in feet: 400 0 400 800'

DATE: JUNE 1973 DRAWN BY: NCL

4516-M6

LEGEND

1600 – HIGH RESISTIVITY AREA

200 – LOW RESISTIVITY AREA

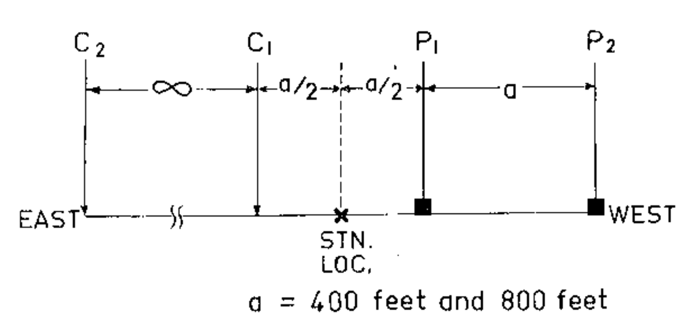
CONTOUR INTERVAL IS LOGARITHMIC
(ie. 100, 200, 400, 800 etc. OHM – METERS)

INSTRUMENT PARAMETERS

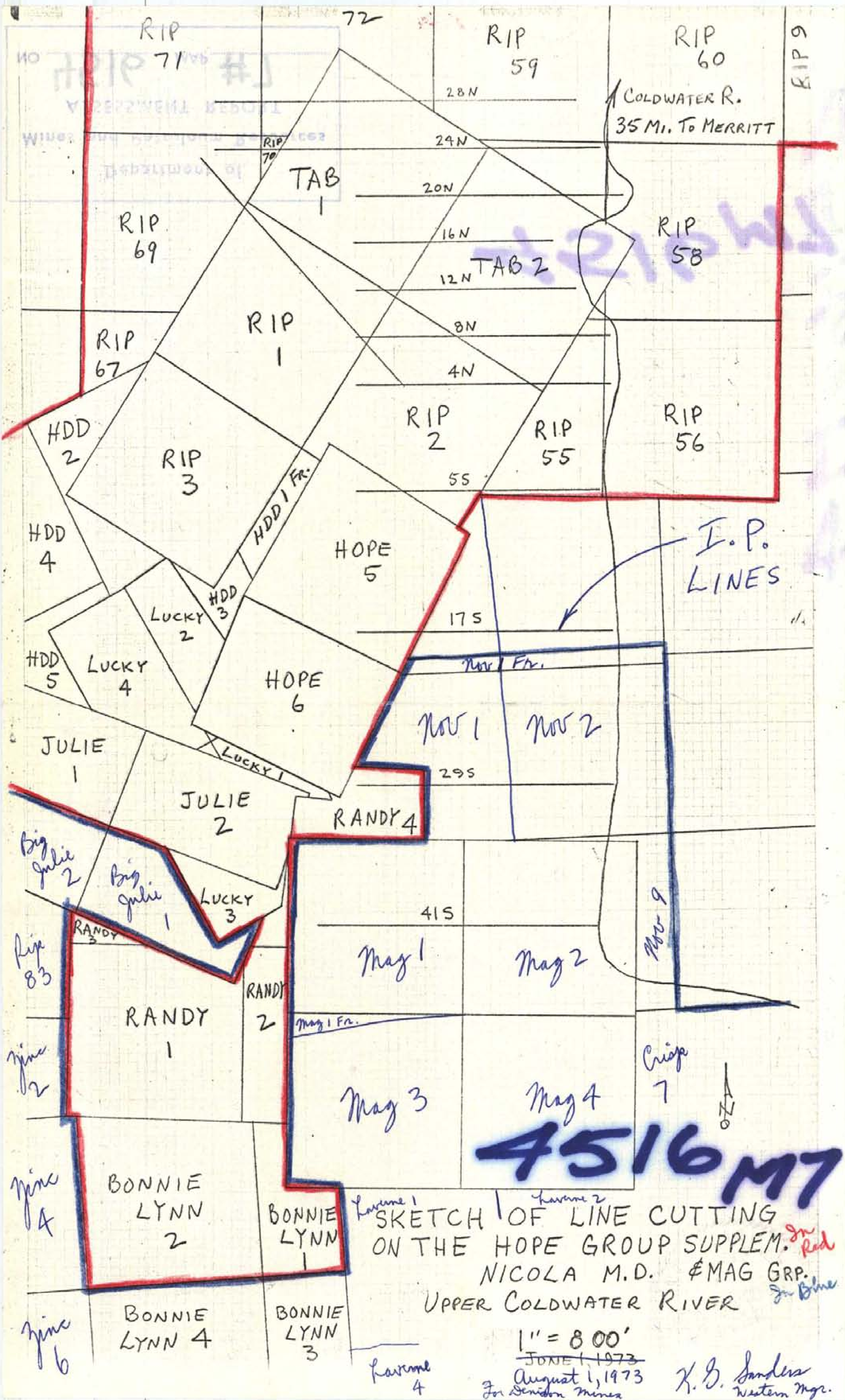
INSTRUMENT USED: HUNTEC MK III R WITH 7.5 KW POWER SOURCE

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 and 800 feet
∞ > 5a



RIP 71
72
RIP 59
RIP 60
RIP 9
28N
COLDWATER R.
35 MI. TO MERRITT
24N
RIP 70
TAB 1
20N
RIP 69
16N
RIP 58
12N
TAB 2
8N
RIP 1
RIP 67
4N
HDD 2
RIP 2
RIP 55
RIP 56
RIP 3
HDD 1 FR.
5S
HDD 4
HOPE 5
I.P. LINES
HDD 3
LUCKY 2
17S
HDD 5
LUCKY 4
HOPE 6
Nov 1 Fr.
Nov 1
Nov 2
JULIE 1
LUCKY 1
29S
JULIE 2
RANDY 4
Big Julie 2
Big Julie 1
LUCKY 3
41S
Nov 9
RANDY 3
Rip 83
Mag 1
Mag 2
RANDY 2
RANDY 1
Mag 1 Fr.
Zinc 2
Crisp 7
Mag 3
Mag 4
N
4516 M7
Zinc 4
BONNIE LYNN 2
BONNIE LYNN 1
Laverne 1
Laverne 2
SKETCH OF LINE CUTTING
ON THE HOPE GROUP SUPPLEM. In Red
NICOLA M.D. & MAG GRP. In Blue
UPPER COLDWATER RIVER
Zinc 6
BONNIE LYNN 4
BONNIE LYNN 3
1" = 800'
JUNE 1, 1973
August 1, 1973
For Denison Mines
Laverne 4
K. B. Sanders
Western Mgr.