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EXPLORATION LICENCE 33/79

WARATAH, TASMANIA

REPORT FOR THE YEAR ENDED 14TH JULY, 1984

DEPT. OF MINES	A.O.	C.G.	E.O.	Reg. No.
D. DIR.	26 NOV 1984			E&H
DEPT. OF MINES				
REF. No. 12,205/84				

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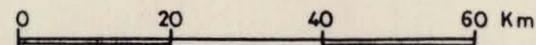
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Scale 1:1,000,000



Centre Melbourne

THE BROKEN HILL PROPRIETARY CO. LTD.  
E.L. 33/79, WARATAH, TASMANIA.

Project N<sup>o</sup>: T 65

Date: 26-1-84

LOCATION MAP

Drawing N<sup>o</sup>: A4-2444

EXPLORATION LICENCE 33/79WARATAH, TASMANIAREPORT FOR THE YEAR ENDED 14TH JULY, 1984

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1. GENERAL

Exploration Licence 33/79 of 150 square kilometres was granted to The Broken Hill Proprietary Company Limited on 11th January, 1980. The current expiry date is 14th January, 1985.

2. EXPLORATION PHILOSOPHY

The Exploration Licence lies within a mineralised belt that includes the Mt. Bischoff and Cleveland mines. It also covers the northern extension of the sedimentary sequence that hosts the Renison Bell and Mt. Lindsay deposits.

The exploration target is a major cassiterite - massive sulphide carbonate - replacement deposit.

Because of the basalt cover, modern exploration methods were not applied to the area until 1977. Our current exploration is largely dependent upon the generation of drill targets by interpretation of geophysical anomalies.

3. SUMMARY OF PREVIOUS WORK

A literature search and preliminary Landsat interpretation was completed on the licence area prior to any field work. Between 1979 and 1982 various geochemical sampling techniques, designed to detect any "leakage" through the basalt, were tried without success. Orientation Dighem II and I.P. surveys were conducted, but these techniques proved unsuitable for the region.

The most successful technique for defining drill targets was found to be detailed aeromagnetics, with back-up data obtained from regional susceptibility measurements on the basalts.

A total of 2073 metres of drilling has been done to date, to test both stratigraphic and aeromagnetic targets. Fig. 4 shows total magnetic intensity contours obtained from the detailed survey, as well as follow-up drill sites.

#### 4. REGIONAL GEOLOGY

The solid and interpretative geology of the Waratah Exploration Licence is summarised in Figure 3.

The Mt. Bischoff series, consisting of siltstones, laminated mudstones, occasional spillites and dolomite (at Mt. Bischoff only) is characteristic of the unmetamorphosed rocks that surround the edges of the Rocky Cape, Forth and Tyennan Blocks. From the time of deposition of these rocks (late Proterozoic), the environment was a marginal trough. This depositional environment persisted until the Mid-Devonian Tabberabberan orogeny, after which there is a depositional hiatus until the Wynyard Tillite of the Parmeener Super Group (Permo-Carboniferous). During the Cambrian, the trough underwent syntectonic deformation producing a north-west trend of folds. At this time, there was extensive alkali volcanism. Unconformably following the Cambrian lavas and volcanoclastics is the basal Roland conglomerate of the Ordovician sequence (Junee Group Correlate). These are conformably overlain by the Eldon Group (Silurian-Devonian).

The Tabberabberan orogeny exaggerated the earlier Cambrian fold patterns in the first period of deformation and produced north-trending folds. The second period of deformation resulted in northwest trending folds.

During the Late-Devonian to Early Carboniferous, the Meredith and Housetop Granites were emplaced. The tin and silver/lead deposits of the Mt. Bischoff, Cleveland, Magnet and Mt. Lindsay areas are associated with this emplacement.

After this, a period of erosion occurred, that terminated with the glacial, glacio-marine, and freshwater sequences of the Parmeener Super Group. The basal unit is the Wynyard Tillite.

The Tertiary system unconformably overlies all previous successions and consists of basalts and interflow sediments, with large fluvial quartz sandstones and gravels. The Waratah basalts are interrupted by a large lake during the early Oligocene (Brown & Forsyth 1984). Evidence from drilling is that the pre-Tertiary relief is very rugged, perhaps more so over areas of Precambrian sub-outcrop than over the Cambrian.

## 5. GEOPHYSICS

Prior to the commencement of the 1983-84 summer field season further interpretation of the detailed aeromagnetic data was carried out and promising anomalies with probable basement sources were identified.

It was decided to apply a filtering technique to our exploration work, by doing preliminary EM37 geophysical surveys on cut lines in an attempt to define conductors that could be drill tested. Surveys conducted by Geoterrex Pty. Ltd. using this transient EM system were initiated in three areas (Fig. 5). In the event no indication of any sub-basalt conductors was obtained so no further work was warranted. Soundings in each anomalous area gave an interpretative estimate of basalt thickness.

Details of the EM37 surveys over anomalies H, I and N are presented in Appendix 1.

6 DRILLING6.1 General

Because of the lack of success in defining conductors during the EM37 programme, only one borehole was drilled during the 1983-84 field season.

Drillhole WA7 was sited to test anomaly 'O' from the BHP 1982 aeromagnetic survey (Fig. 2). The anomaly was of a suitable size for a possible orebody target and spectral modelling of the aeromagnetic data indicated a basement source.

This site lies at the edge of a button grass plain, within 200 metres of a forestry road that connects to the Murchison Highway.

A blow-out of the collar/bedrock junction was caused by water bearing strata encountered while hammer drilling. This necessitated casing from 72 metres, onward.

6.2 Results

The drill hole intersected 169.5 metres of Tertiary basalts and sediments, underlain by 50 metres of Cambrian metavolcanics.

The Tertiary succession consists of two series of basalt flows (from 0-102.40 metres, and from 116.20 to 167.40 metres) separated by interflow sediments overlying a thin ash-fall tuff. Directly on the basal Tertiary unconformity is a thin (20cm) coal bank formed from carbonised plant litter.

Palynological investigations of previous BHP drill holes (Brown & Forsyth 1984) indicates the presence of a large Oligocene lake over the area, and it seems likely that the interflow sediments are part of this (see Figure 3).

Below the unconformity are a sequence of Cambrian andesites and tuffs, metamorphosed to green schist facies. The Tertiary weathering profile extends 11 metres into the succession (181.50 metres depth). The sequence is veined with quartz/carbonate/pyrite veins, and up to three percent disseminated pyrite occurs in patches. Petrological investigation showed trace quantities of chalcopyrite, sphalerite and galena intergrown with the vein pyrite.

The core was chip sampled from 169.5 to 220.0 metres. Rock chips were taken at approximately ten centimeter intervals, weighted towards any mineralised sections. The chips were bulked over five metre intervals and despatched for analysis to Analabs (Burnie) Pty. Ltd.

Samples were analysed for copper, lead, zinc, silver and, arsenic by AAS, and for tin and tungsten by XRF. No significantly anomalous results were obtained.

7. FUTURE PROGRAMME

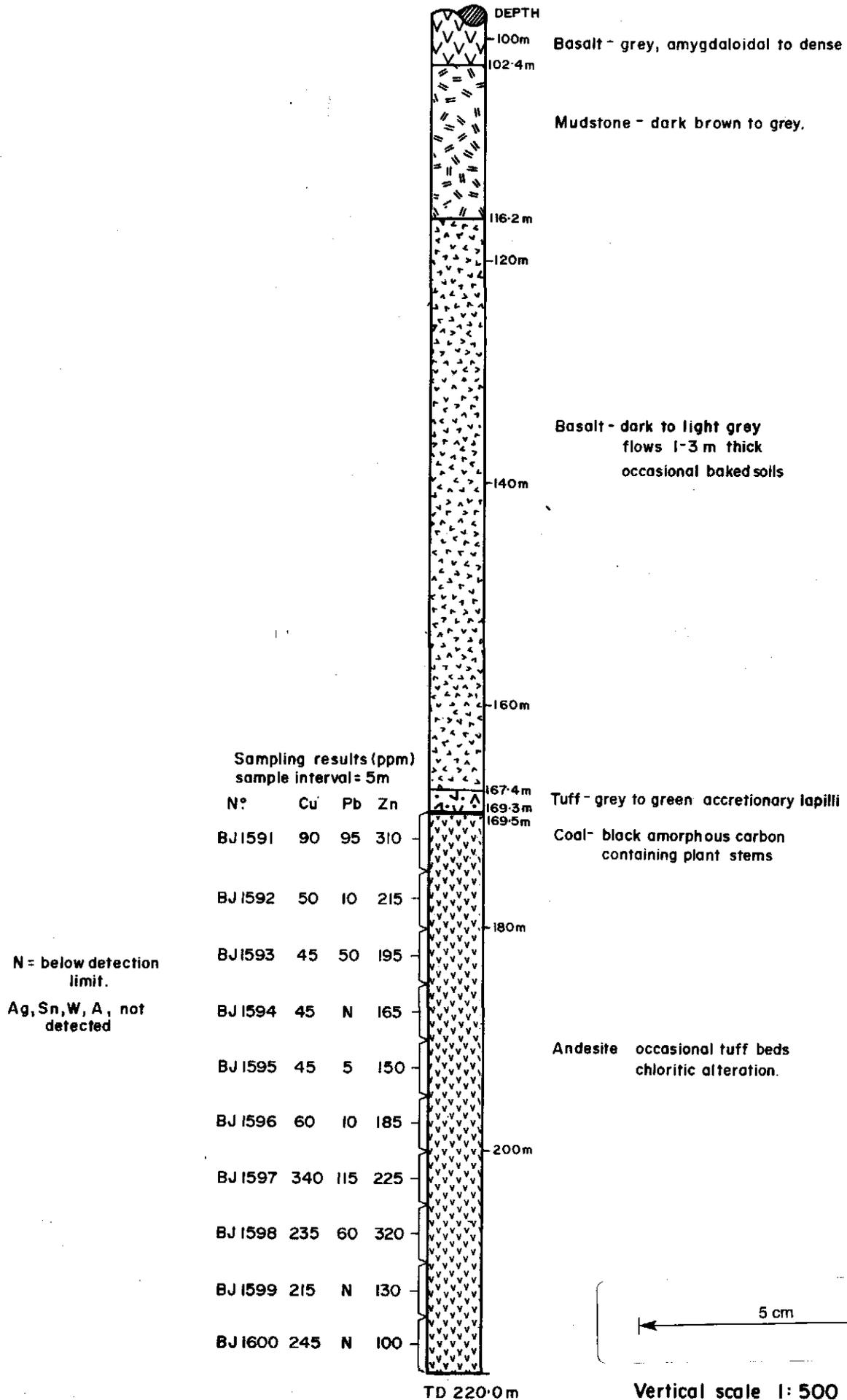
A further detailed compilation and research phase is now in progress, incorporating results from our exploration programme to data in Northwest Tasmania and making use of available data from surrounding areas. The most obvious aeromagnetic targets within E.L. 33/79 have now been tested. Future work will be dependent on positive conceptual ideas arising from on-going geological and geophysical research.

Borehole WA7 - Apparent Magnetic Susceptibilities

Measurements taken on chips/core with hand-held instrument.

<u>Depth m</u>	<u>cgs x 10<sup>6</sup></u>		<u>Depth m</u>	<u>cgs x 10<sup>6</sup></u>
0 - 4	-		54 - 56	230
4 - 6	120		56 - 58	330
6 - 8	110		58 - 60	260
8 - 10	90		60 - 62	190
10 - 12	80		62 - 64	120
12 - 14	100		64 - 66	140
14 - 16	140		66 - 68	90
16 - 18	210		68 - 70	170
18 - 20	130	<u>Non core</u> →	70 - 72	300
20 - 22	150	NQ	72 - 74	520
22 - 24	130		74 - 76	620
24 - 26	130		76 - 78	360
26 - 28	120		78 - 80	340
28 - 30	90		80 - 82	190
30 - 32	60		82 - 84	190
32 - 34	120		84 - 86	200
34 - 36	100		86 - 88	120
36 - 38	200		88 - 90	180
38 - 40	170		90 - 92	100
40 - 42	170		92 - 94	140
42 - 44	130		94 - 96	190
44 - 46	110		96 - 98	130
46 - 48	130		98 - 100	150
48 - 50	70	<u>Tertiary Basalt</u> →	100 - 102	180
50 - 52	300	Mudstone	102 - 104	2
52 - 54	280		104 - 106	4

<u>Depth m</u>	<u>cgs x 10<sup>6</sup></u>		<u>Depth m</u>	<u>cgs x 10<sup>6</sup></u>
106 - 108	9		164 - 166	210
108 - 110	13		166 - 168	200
110 - 112	18	<u>Tertiary Basalt</u> →	168 - 170	290
112 - 114	12	Cambrian	170 - 172	6000
Mudstone → 114 - 116	14	Andesite	172 - 174	5500
Basalt → 116 - 118	210		174 - 176	5200
118 - 120	190		176 - 178	5700
120 - 122	100		178 - 180	6000
122 - 124	140		180 - 182	6500
124 - 126	110		182 - 184	6800
126 - 128	210		184 - 186	7100
128 - 130	160	<u>NQ</u> →	186 - 188	7300
130 - 132	120	BQ	188 - 190	5500
132 - 134	380		190 - 192	5800
134 - 136	250		192 - 194	4000
136 - 138	280		194 - 196	5400
138 - 140	150		196 - 198	3900
140 - 142	50		198 - 200	1900
142 - 144	14		200 - 202	2600
144 - 146	29		202 - 204	3400
146 - 148	30		204 - 206	2500
148 - 150	20		206 - 208	2300
150 - 152	1200		208 - 210	2100
152 - 154	1100		210 - 212	1500
154 - 156	430		212 - 214	3400
156 - 158	3400		214 - 216	4000
158 - 160	1300		216 - 218	3400
160 - 162	300		218 - 220	2400
162 - 164	660			



APPENDIX 1

E M 37

GEONICS LIMITEDEM37 Ground Transient Electromagnetic System  
Technical SpecificationsTransmitter

- Current Waveform - See Fig. 1
- Repetition rate - 3Hz or 30Hz in countries using 60Hz power line frequency; 2.5Hz or 25Hz in countries using 50Hz power line frequency; all four base frequencies are switch selectable.
- Turn-off time ( $\Delta t$ ) - fast linear turn-off of maximum 300 usec. at 20 amps into 300x600m loop. Decreases proportionally with current and (loop area)<sup>1/2</sup> to minimum of 20 usec. Actual value of  $\Delta t$  read on front panel meter.
- Transmitter loop - any dimensions from 40x40m to 300x600m maximum at 20 amps. Larger dimensions at reduced current. Transmitter output voltage switch adjustable for smaller loops. Value of loop resistance read from front panel meter; resistance must be greater than 1 ohm on lowest voltage setting to prevent overload.
- Transmitter protection - circuit breaker protection against input over-voltage; instantaneous solid state protection against output short circuit; automatically resets on removal of short circuit. Input voltage, output voltage and current indicated on front panel meter.
- Transmitter output voltage - 150 volts (zero to peak) maximum;  
20 volts (zero to peak) minimum
- Transmitter output power - 2.8 kw maximum.
- Transmitter wire supplied - 1800m. #10 copper wire PVC insulated with nylon jacket; transmitter wire contained on 6 reels (supplied); 2 reel winders supplied.
- Transmitter motor generator - 5 HP Honda gasoline engine coupled to 120 volt, 3 phase, 400Hz alternator. Approximately 8 hours continuous operation from full (built-in) fuel

## Receiver

- Measured quantity - time rate of decay of magnetic flux along 3 axes.
- Sensor - air-cored coil of bandwidth 40 kHz; 100cm dia. by 7x5cm cross-section. Coil holder supplied to facilitate measurement along 3 axes.
- Time channels - 20 time channels with locations and widths as shown in Fig. 2. Successive operation at 30Hz, then 3Hz, effectively gives 30 channels covering range from 80  $\mu$ sec. to 80 msec.
- Output display - 4 digit plus sign LED display; display also shows channel number and gain.
- Integration time -  $2^n$  cycles at 30Hz; n=4,6,8,10,12,14 (switch selectable); similar integration times at other base frequencies.
- Receiver output noise referred to input - typically  $1.5 \times 10^{-10}$  volt/m<sup>2</sup> at last gate at 30Hz with integration time of 34 seconds. Noise will be higher during intense local spherics activity.
- Output connector - all 20 channels in analogue format and house-keeping functions in digital format available from output connector.
- Synchronization to Tx - any of the following (switch selectable)  
 (1) reference cable  
 (2) primary pulse  
 (3) 27 MHz radio link (40 channels)  
 (4) high stability (oven controlled) quartz crystals.
- Noise rejection circuitry - Selective clipping of atmospheric noise pulses at all times. Audio output of Rx coil (transmitter pulse blanked out) is available on built-in loud speaker for ready identification of interference.
- Receiver batteries - 12 volt rechargeable Gel-cell; 9 hours continuous operating time at 17°C. Two batteries and a battery charger supplied to permit charging of second battery from transmitter motor generator during survey.

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Component Dimensions

Transmitter console	25x42x36 cm
GPU	35x74x48 cm
Wirewinder	42x38x35 cm each (2 off)
Wire reels (20 amp)	33x31 (dia.) cm each (6 off)
Receiver console	38x37x27 cm
Receiver coil	100 cm dia. 7x5 cm cross-section

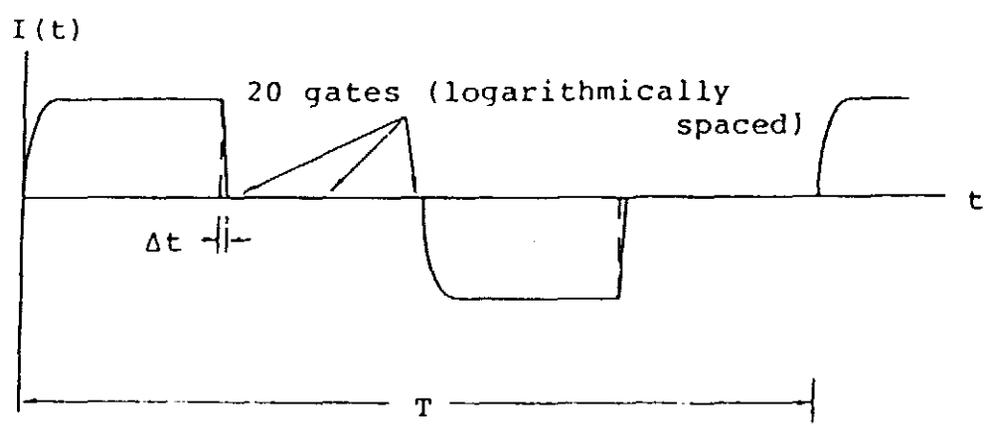
Component Weights

Transmitter console	20 kg
GPU	60 kg
Wirewinders and loaded reels (20 amp)	120 kg (total)
Receiver console (incl. 20 amp-hour battery)	21.8 kg
Receiver coil	8.0 kg

Shipping Information

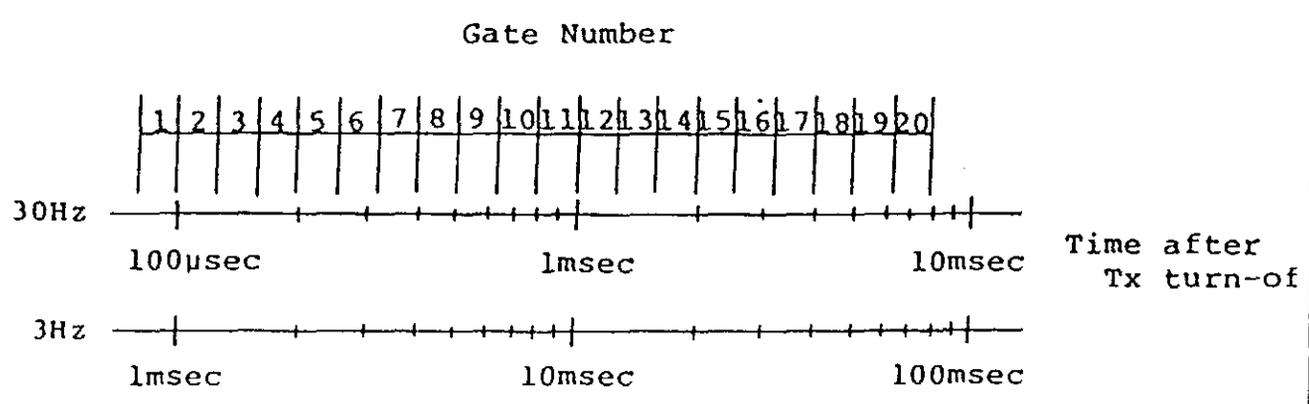
Shipment consists of 5 boxes	
Two wire boxes	116x62x48 cm @ 186 kg (total)
GPU box	96x61x73 cm @ 90 kg
Receiver/transmitter box	96x75x73 cm @ 86 kg
Receiver coil/coil-holder box	110x110x20 cm @ 34 kg
Total shipping volume	1.90 cubic metres
Total shipping weight	590 kg

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Transmitter Current Waveform

FIG. 1



Gate Location and Widths (30 and 3Hz)

FIG. 2

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EM-37 PLOTTING AND  
INTERPRETATION CONVENTIONS

The Geotrex fixed-loop time-domain convention system has been designed with consistency in mind. Given the great diversity of grid and loop orientations, it is most important that anomalies are of a predictable shape.

To fully understand the convention, four basic rules must be laid down:

- 1) The vertical primary field (Z component) is positive within any loop. To be consistent with a Cartesian co-ordinate system, the  $Z^+$  direction is defined as 'up', i.e. the field vectors point up within the loop and down when outside the loop.
- 2) The X component is defined as that which points along the grid lines. Depending upon which direction the lines run, W or S is defined as  $X^+$ .
- 3) Using a right hand orientation where  $X^+$  is direction of the middle finger, and  $Z^+$  is the direction of the thumb, then  $Y^+$  is the direction defined by the index finger.
- 4) North or East is always plotted to the right on the page.

With these four rules, the shapes of the half space responses for late times for all three components are uniquely defined as shown in Figures 1, 2, 3a and 3b.

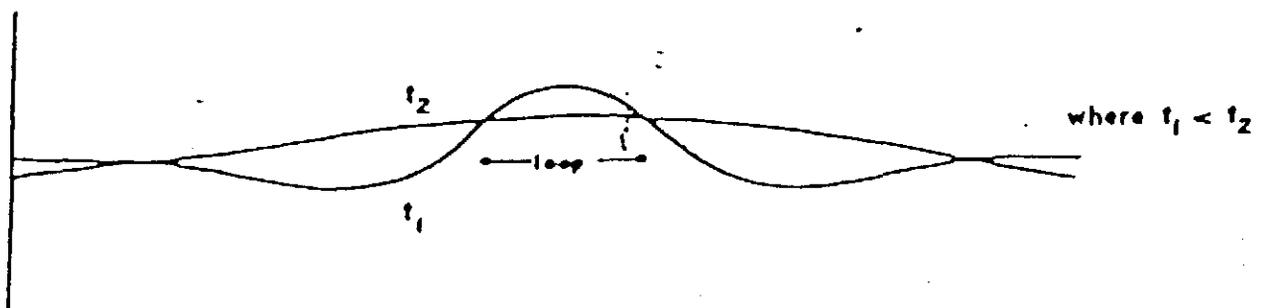


Fig. 1 Half-space response : Z component

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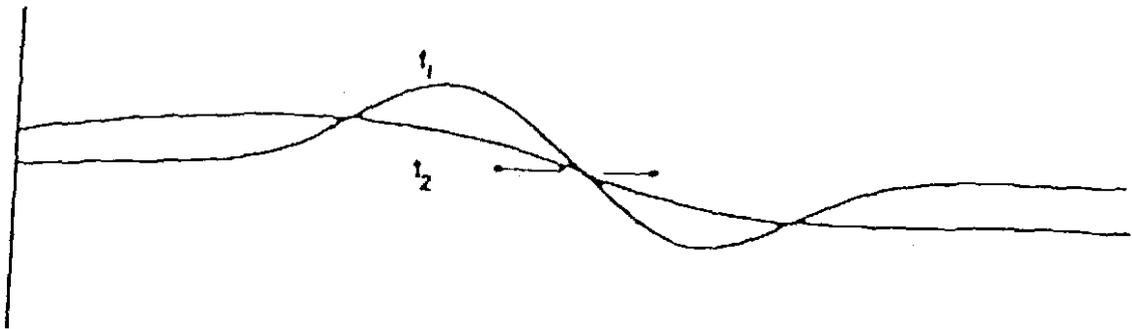


Fig. 2 Half-space response : X Component

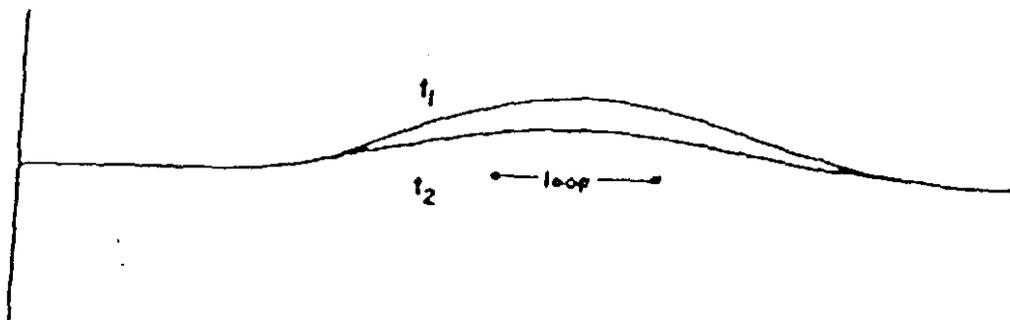


Fig. 3(a) Half-space response : Y component (Positive half of loop)

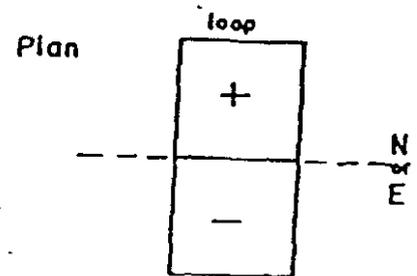


Fig. 3(b) Half-space response : Y component (Negative half of loop)

Note: Unlike the Z component, there is only one maxima or minima for the Y component for a homogeneous half space.

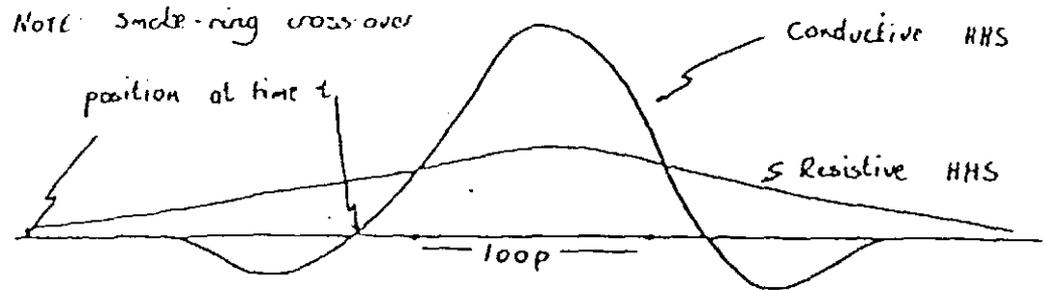


Fig 4. Comparison of conductive and resistive homogeneous half-space responses for Z-component.

A conductive homogeneous half-space is characterised by an early channel high amplitude response with a slow migration of the smoke-ring crossover from the loop.

By comparison, a resistive HHS will exhibit a lower early channel amplitude response and a rapid migration of the smoke-ring.

Note that the rate of decay of the channel amplitude responses for both conductive and resistive HHS is the same, and is proportional to  $t \cdot \exp(-5/2)$ .

The migration of the smoke-ring determines the detection of a conductor with respect to time and space. For example, a conductor located beyond the smoke-ring in a relatively conductive environment will not be energised by intermediate times but may be evident at late times if the smoke-ring has passed beyond it. In short, only conductors within the limits of the smoke-ring at a given time can possibly be detected.

Confined Conductor Responses

The response due to a confined conductor is closely related to the aforementioned half-space responses and to the conductor's position with relation to the loop. Figures 5, 6, 7a and 7b show the responses for a vertical plate.

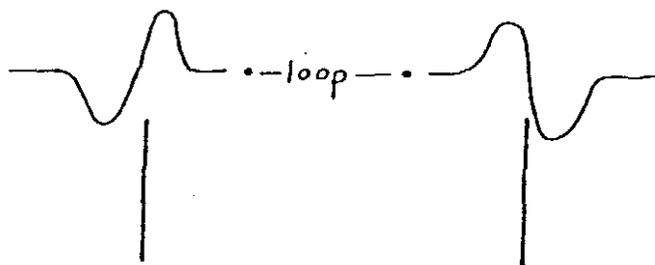


Fig. 5 Vertical conductor: Z component

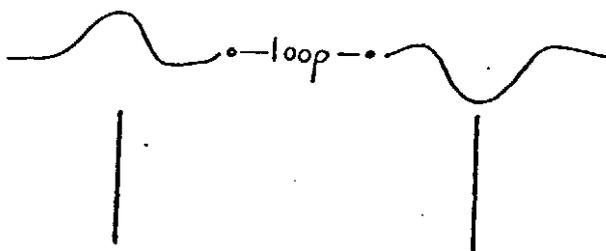
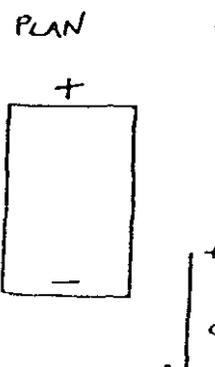


Fig. 6. Vertical conductor: X component



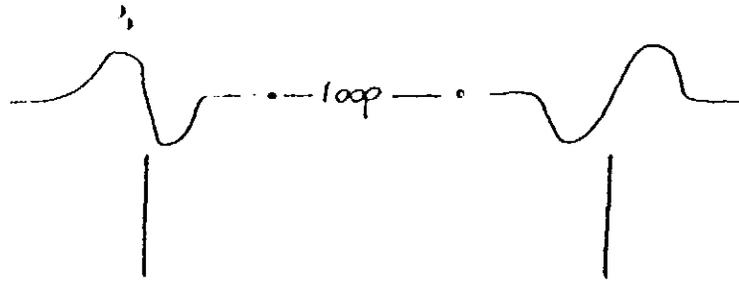


Fig. 7b Vertical conductor : Y component  
(Negative side of conductor)

When the dip of the conductor is allowed to vary, the responses become more complicated. Figures 8 through to 12 show how the dip effects the vertical and horizontal components.

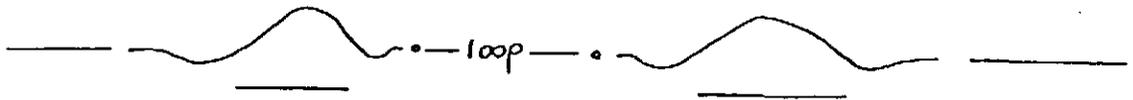


Fig. 8 Horizontal conductor : Z component

NOTE: Late-time response character both inside and outside loop the same.

NOTE: difference of amplitude

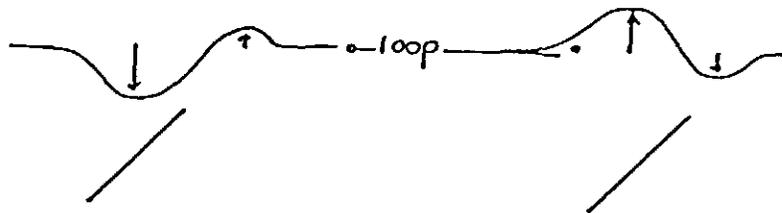


Fig. 9. Dipping conductor : Z component

NOTE: That the positive shoulders in Fig 9. are on the loop side of the anomaly.

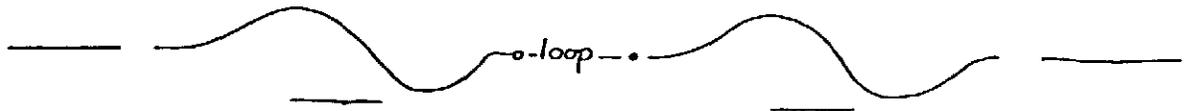
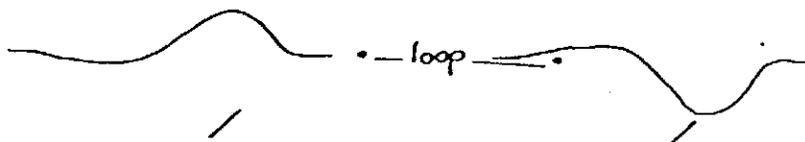


Fig. 10. Horizontal conductor : X component



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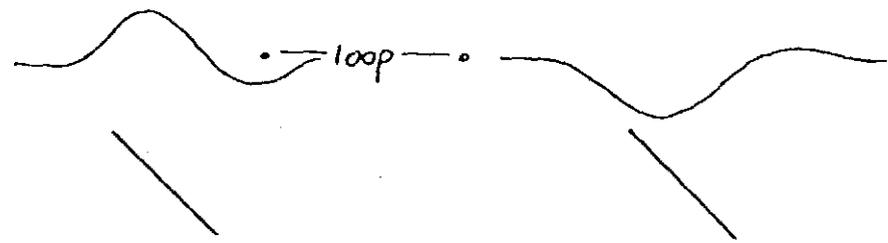


Fig. 12 Dipping conductor : X component

By remembering the shapes of the responses for these few simple geometrics, the identification of false anomalies can be avoided.

In conclusion, by identifying features which appear to have stable (non-diffusing) responses with respect to an appreciable length of time one can isolate confined targets from the half-space. After these interesting features have been identified, the geometry of the situation can be ascertained.

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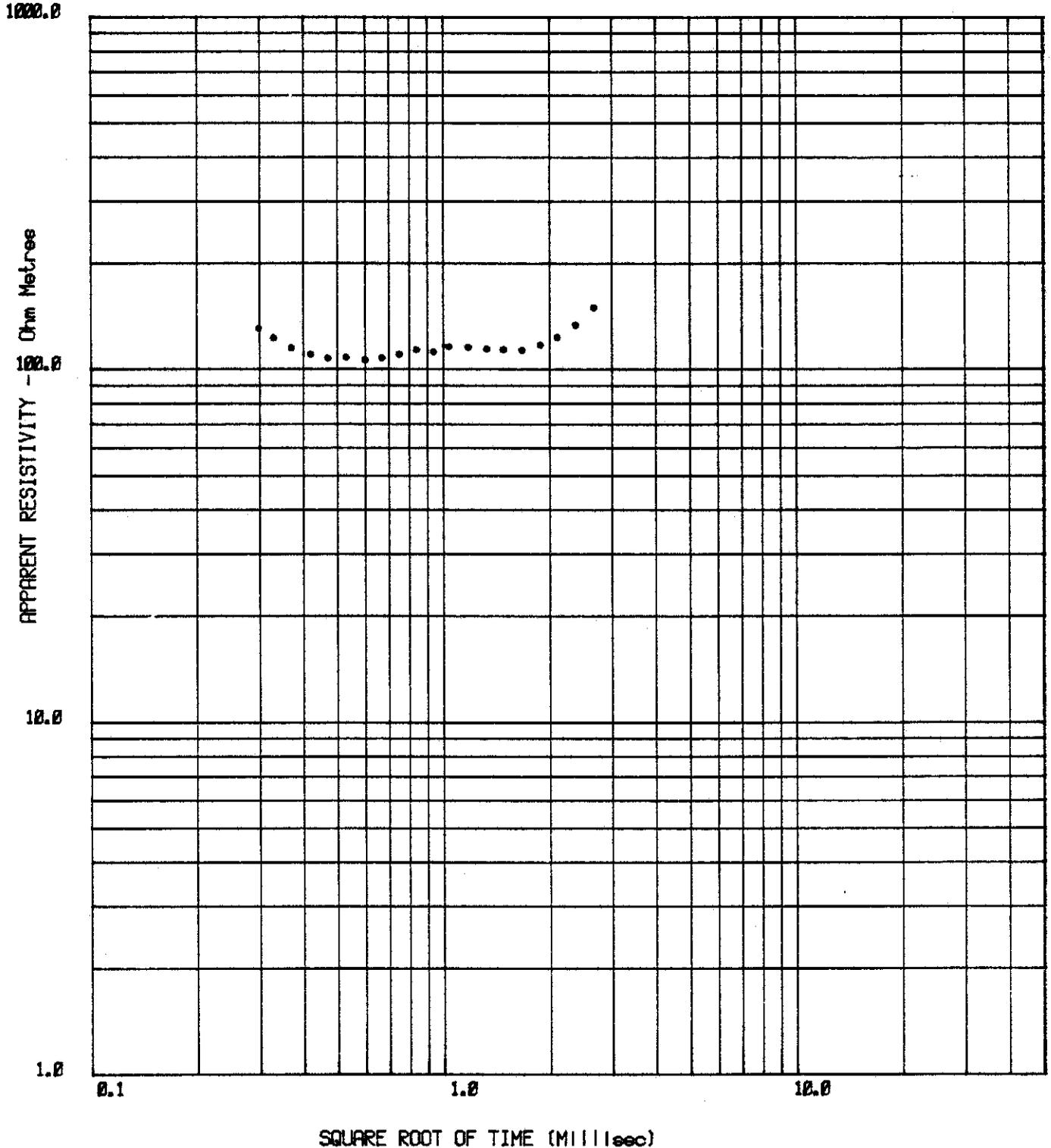
# EM-37 SOUNDING

269025

## VERTICAL COMPONENT B (Z)

RX POSITION : 2700E  
          : 1450N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 17.0 ampe  
TX TURNOFF   : 264 microsecs  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA H  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 29-NOV-1983  
SOUNDING No.: H1



025

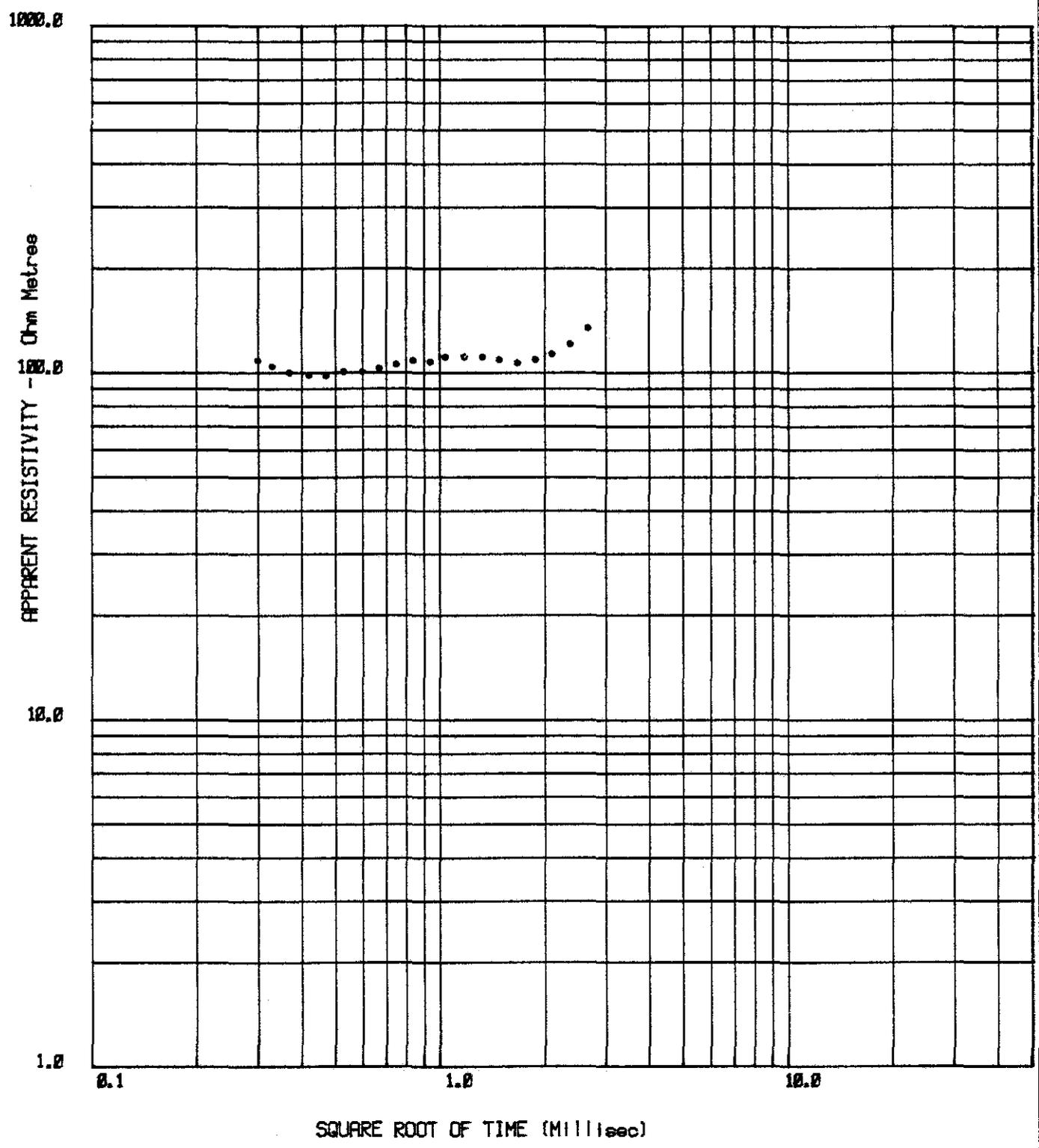
# EM-37 SOUNDING

269026

## VERTICAL COMPONENT B (Z)

RX POSITION : 2700E  
          : 1150N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 18.3 amps  
TX TURNOFF   : 280 microsecs  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA H  
AREA        : Waratah Tasmania.  
JOB No.     : 65-1499  
SURVEYED BY : JP,RL  
DATE        : 29-NOV,1963  
SOUNDING No.: H2



026

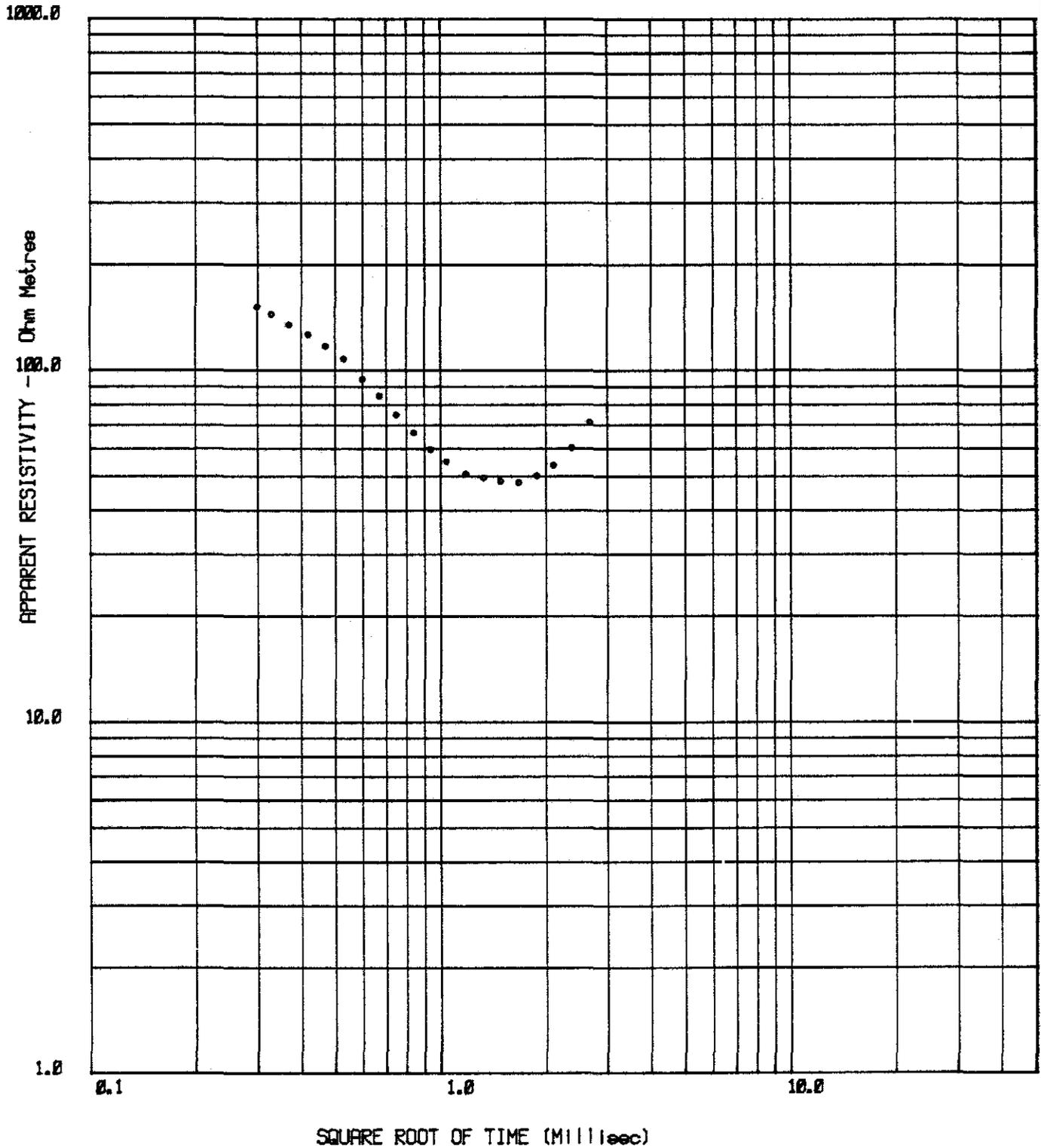
# EM-37 SOUNDING

269027

## VERTICAL COMPONENT B (Z)

RX POSITION : 10850E  
          : 10650N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 16.5 amps  
TX TURNOFF   : 246 microsecs  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA I  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 24-NOV,1983  
SOUNDING No.: 11

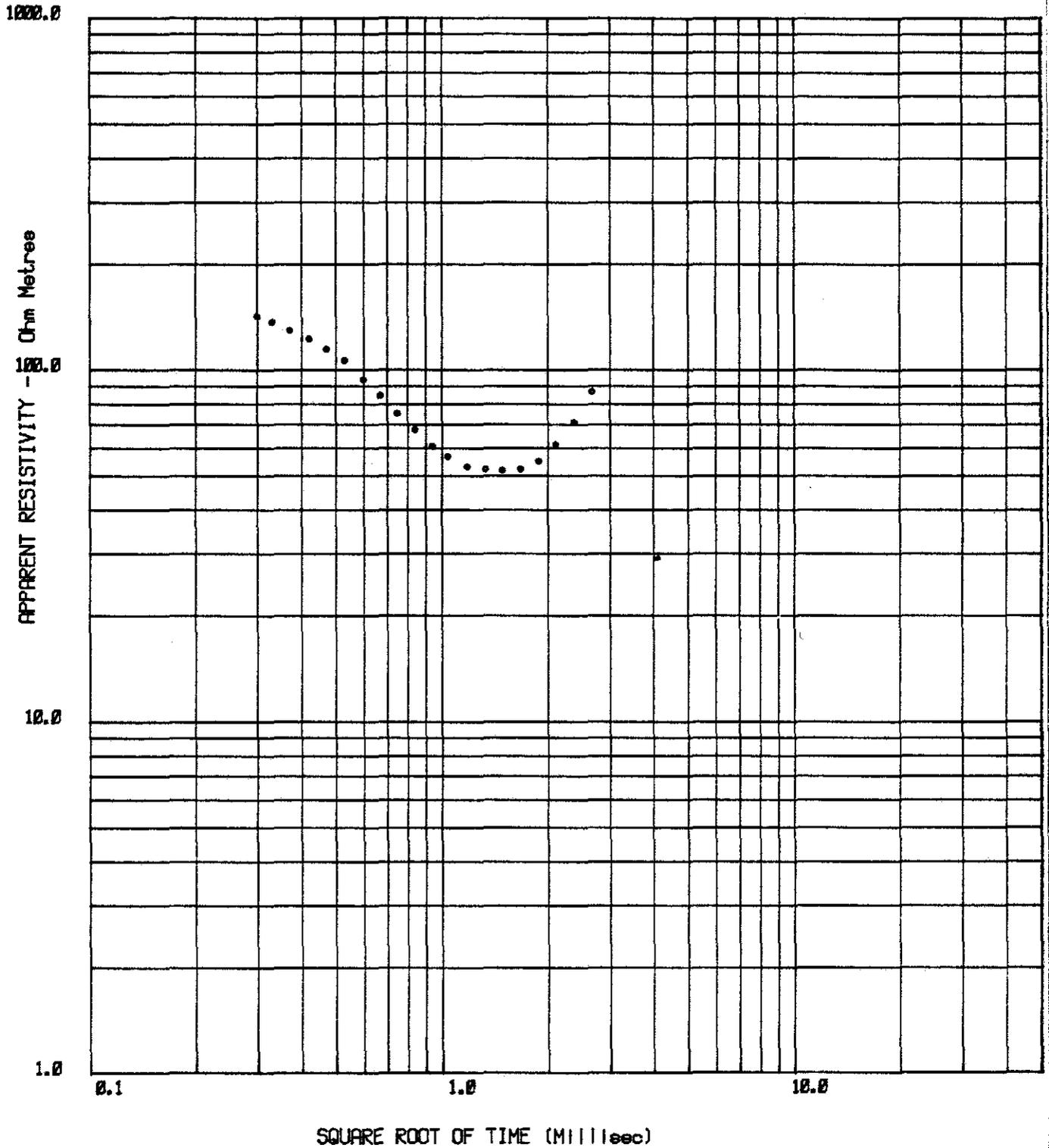


027

VERTICAL COMPONENT B (Z)

RX POSITION : 10850E  
 : 10350N  
 TX LOOP SIZE : 300 metres  
 : 300 metres  
 TX CURRENT : 18.3 ampe  
 TX TURNOFF : 270 microsecs  
 FREQUENCY : 25 Hz

CLIENT : The BHP Co. Ltd.  
 PROJECT : AREA I  
 AREA : Waratah Tasmania.  
 JOB No. : 85-1499  
 SURVEYED BY : JP,RL  
 DATE : 25-NOV,1983  
 SOUNDING No. : 12



028

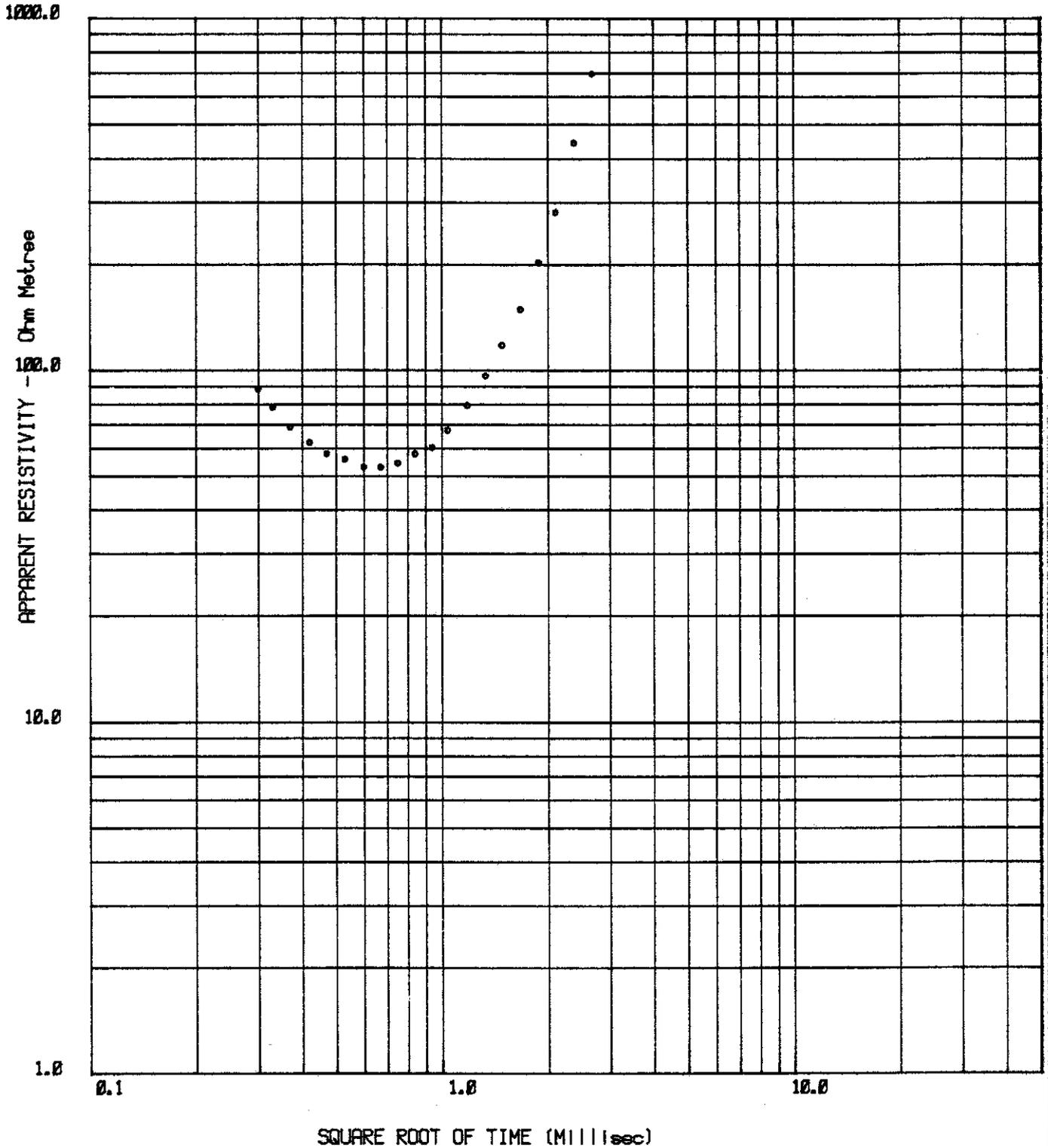
# EM-37 SOUNDING

269029

## VERTICAL COMPONENT B (Z)

RX POSITION : 10650E  
          : 10650N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 17.5 amps  
TX TURNOFF   : 264 microseconds  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA N  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 30-NOV,1983  
SOUNDING No.: N1



VERTICAL COMPONENT B (Z)

RX POSITION : 10650E  
 : 10350N  
 TX LOOP SIZE : 300 metres  
 : 300 metres  
 TX CURRENT : 16.8 amps  
 TX TURNOFF : 270 microseconds  
 FREQUENCY : 25 Hz

CLIENT : The BHP Co. Ltd.  
 PROJECT : AREA N  
 AREA : Waratah Tasmania.  
 JOB No. : 65-1499  
 SURVEYED BY : JP,RL  
 DATE : 30-NOV,1983  
 SOUNDING No. : N2

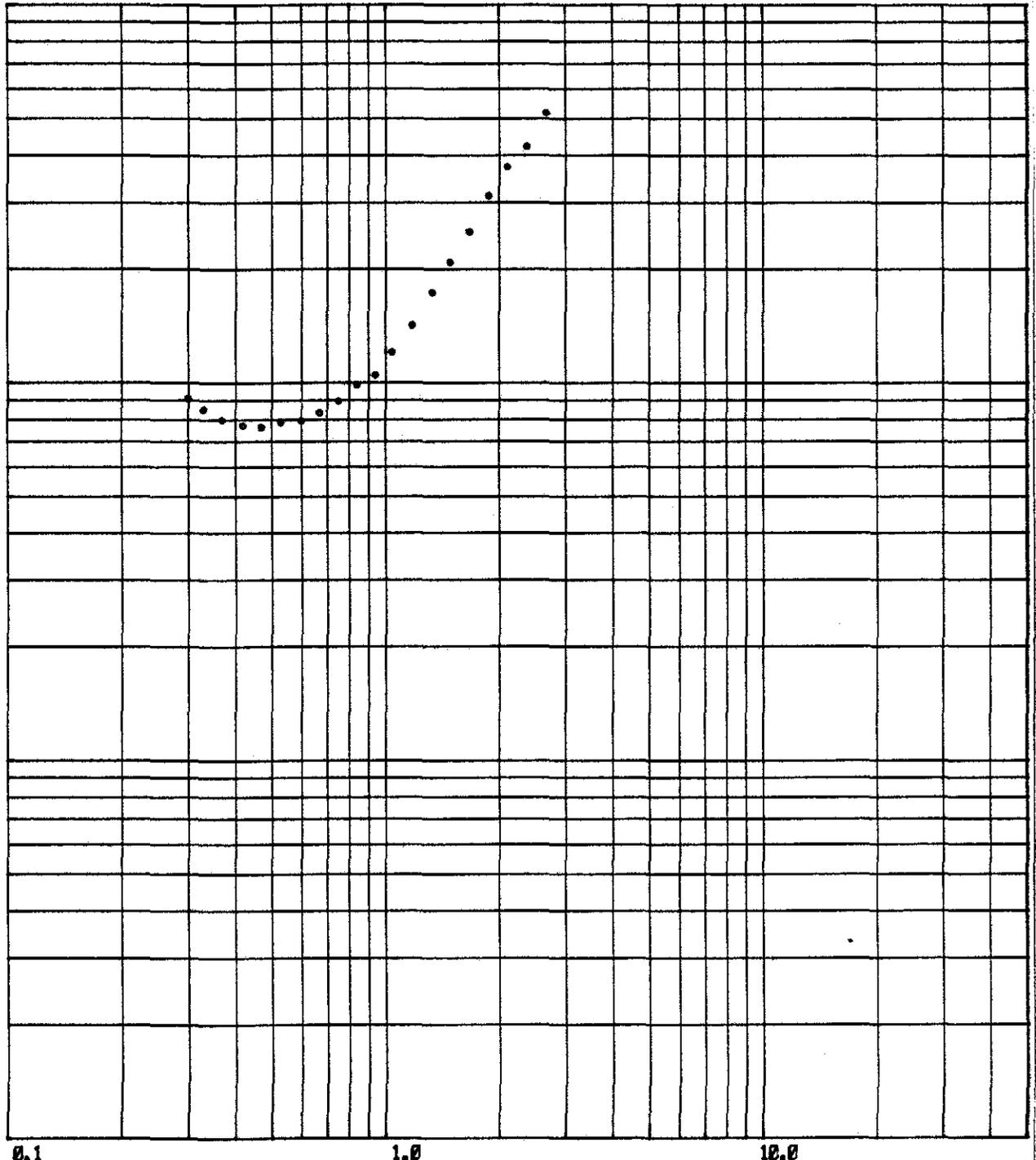
1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0

1.0



SQUARE ROOT OF TIME (MilliSec)

030

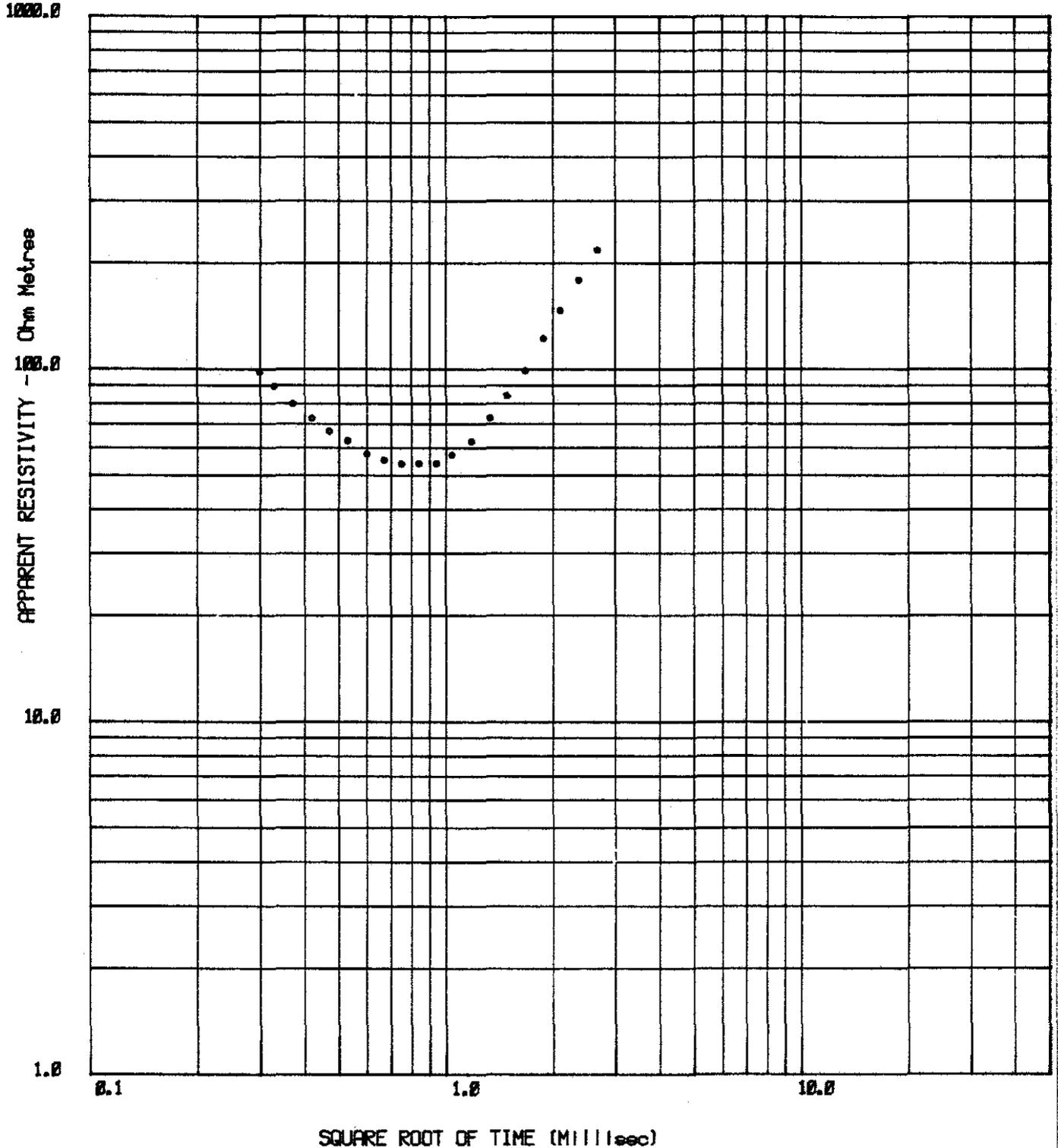
# EM-37 SOUNDING

269031

## VERTICAL COMPONENT B (Z)

RX POSITION : 10750E  
          : 10650N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 18.5 amps  
TX TURNOFF   : 330 microseconds  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA G  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 21-NOV,1983  
SOUNDING No.: Q1



EM-37 SOUNDING

031

VERTICAL COMPONENT B (Z)

RX POSITION : 10750E  
 : 10350N  
 TX LOOP SIZE : 300 metres  
 : 300 metres  
 TX CURRENT : 17.0 ampe  
 TX TURNOFF : 320 microsecs  
 FREQUENCY : 25 Hz

CLIENT : The BHP Co. Ltd.  
 PROJECT : AREA Q  
 AREA : Waratah Tasmania.  
 JOB No. : 85-1499  
 SURVEYED BY : JP,RL  
 DATE : 30-NOV,1983  
 SOUNDING No. : Q2

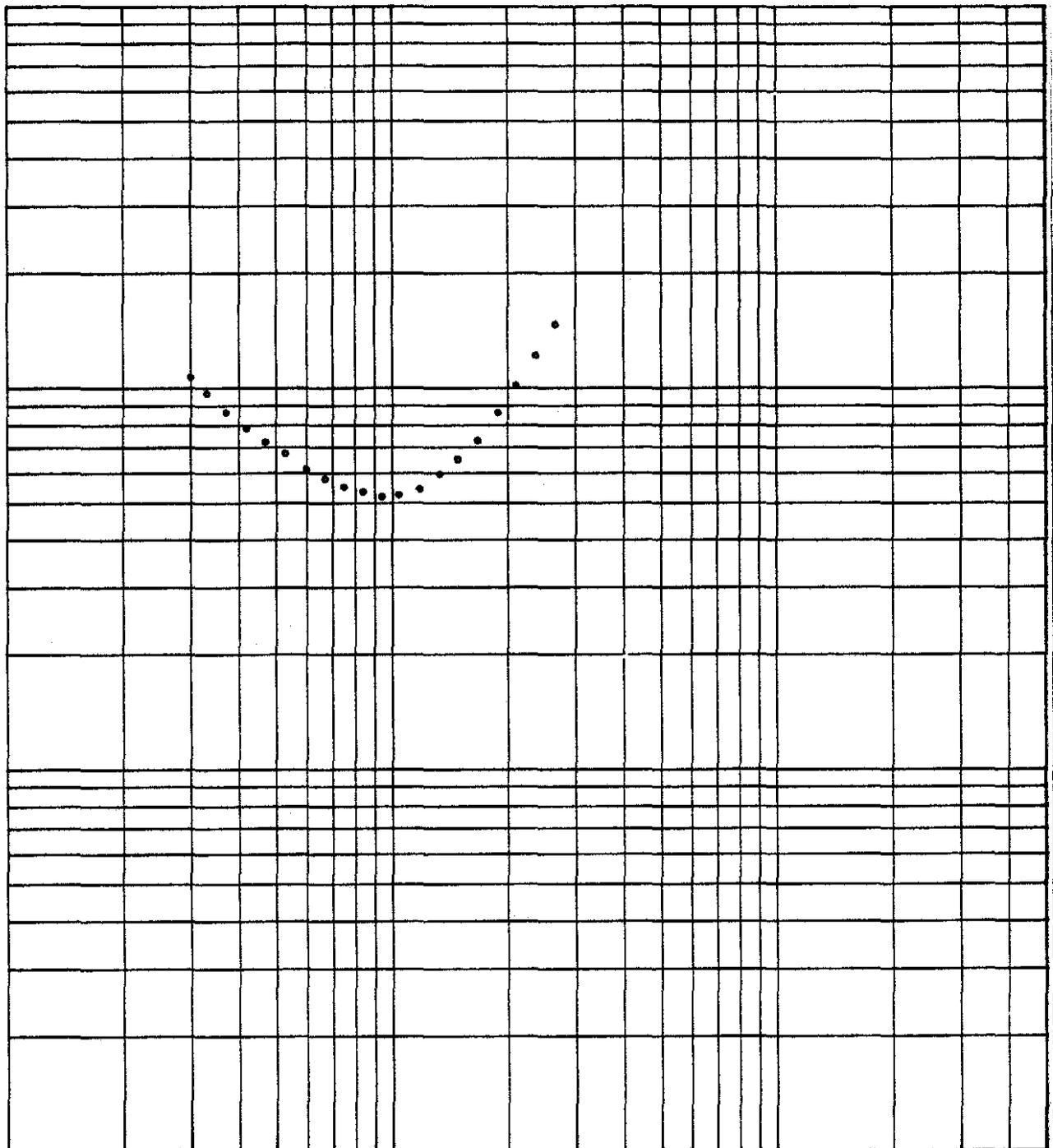
1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0

1.0



SQUARE ROOT OF TIME (Milli-sec)

032

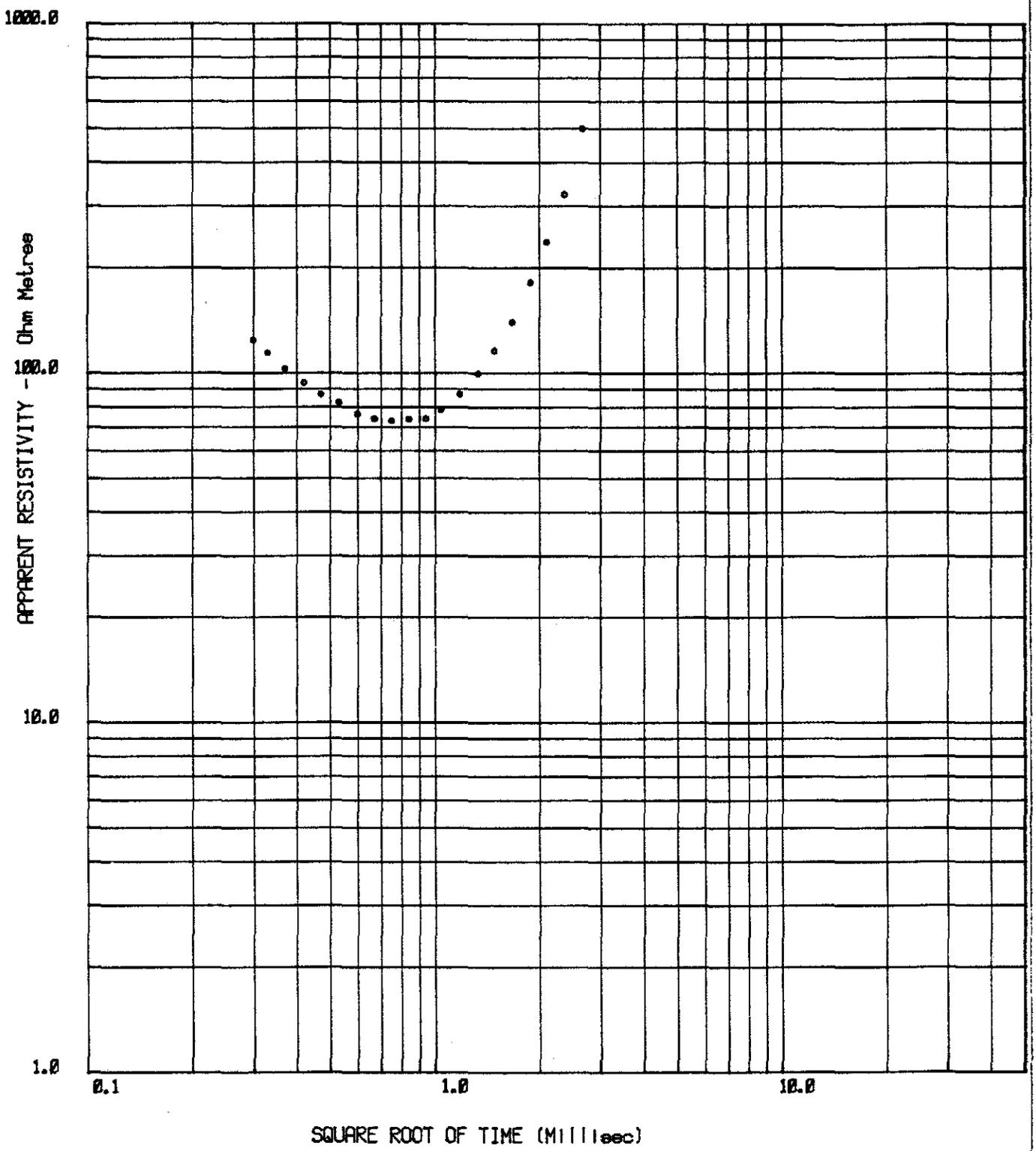
# EM-37 SOUNDING

269033

## VERTICAL COMPONENT B (Z)

RX POSITION : 10650E  
          : 10650N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 18.6 ampe  
TX TURNOFF   : 250 microsecs  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : ARAE S  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 26-NOV,1983  
SOUNDING No.: S1



033

# EM-37 SOUNDING

269034

## VERTICAL COMPONENT B (Z)

RX POSITION : 10650E  
 : 10350N  
 TX LOOP SIZE : 300 metres  
 : 300 metres  
 TX CURRENT : 18.6 amps  
 TX TURNOFF : 270 microseconds  
 FREQUENCY : 25 Hz

CLIENT : The BHP Co. Ltd.  
 PROJECT : AREA S  
 AREA : Waratah Tasmania.  
 JOB No. : 85-1499  
 SURVEYED BY : JP,RL  
 DATE : 25-NOV,1983  
 SOUNDING No. : S2

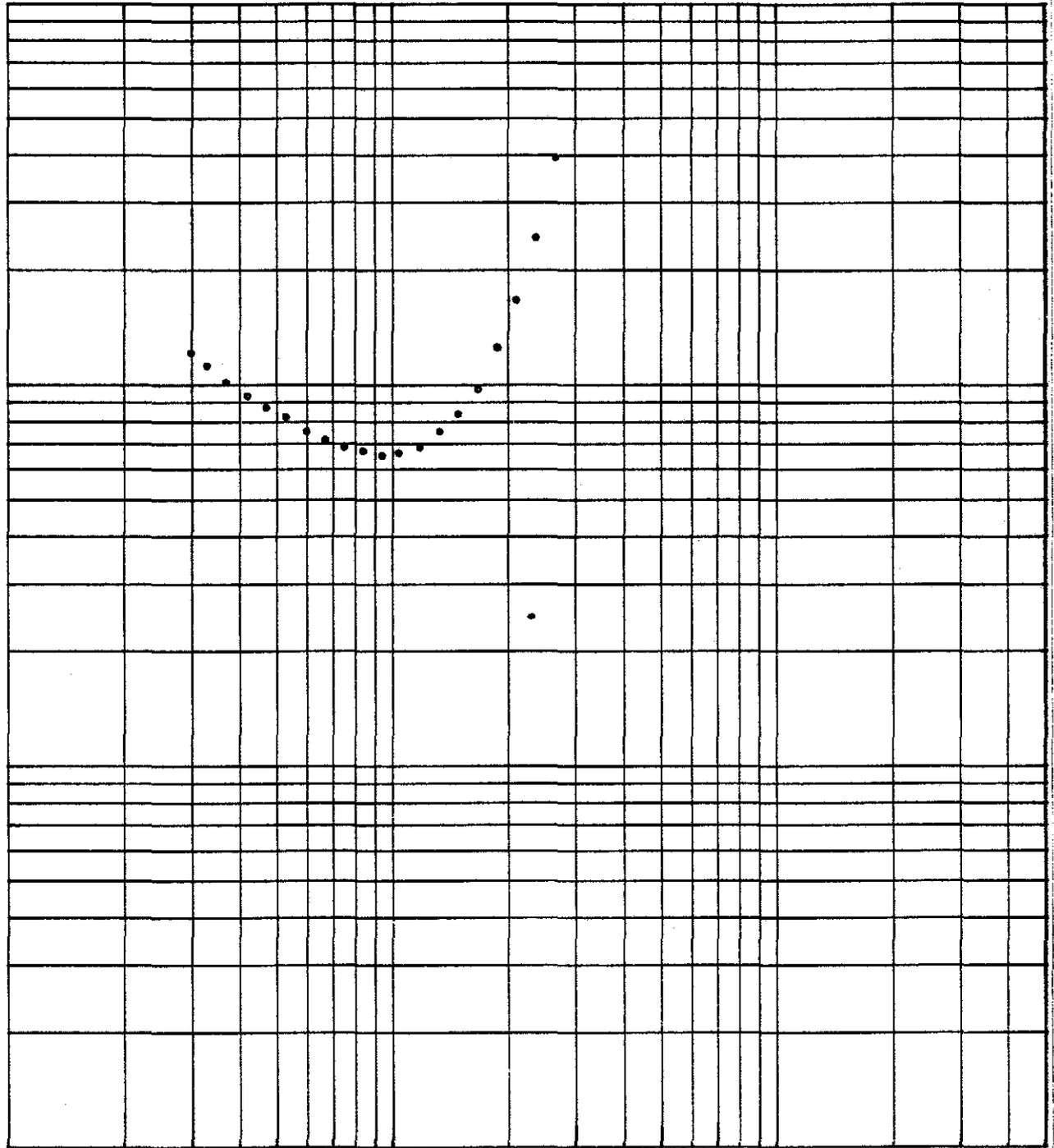
1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0

1.0



0.1

1.0

10.0

SQUARE ROOT OF TIME (Milli-sec)

034

# EM-37 SOUNDING

269035

## VERTICAL COMPONENT B (Z)

RX POSITION : 10750E  
          : 10950N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 16.5 amps  
TX TURNOFF   : 240 microsecs  
FREQUENCY    : 25,2.5 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA T  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 23-NOV,1983  
SOUNDING No.: T1

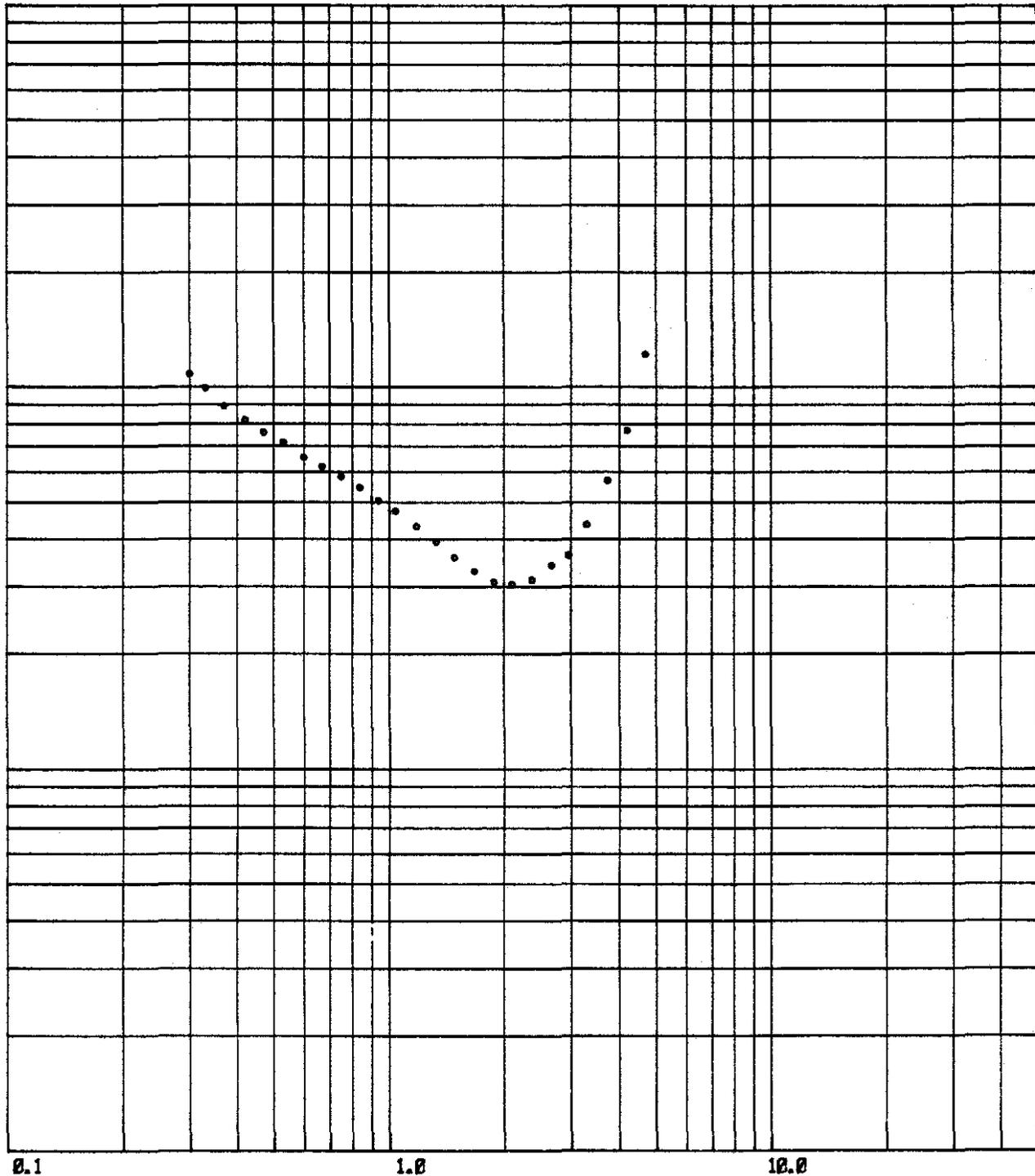
1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0

1.0



SQUARE ROOT OF TIME (MilliSec)

035

# EM-37 SOUNDING

269036

## VERTICAL COMPONENT B (Z)

RX POSITION : 10450E  
          : 10950N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 16.5 amps  
TX TURNOFF   : 348 microseconds  
FREQUENCY    : 25 Hz

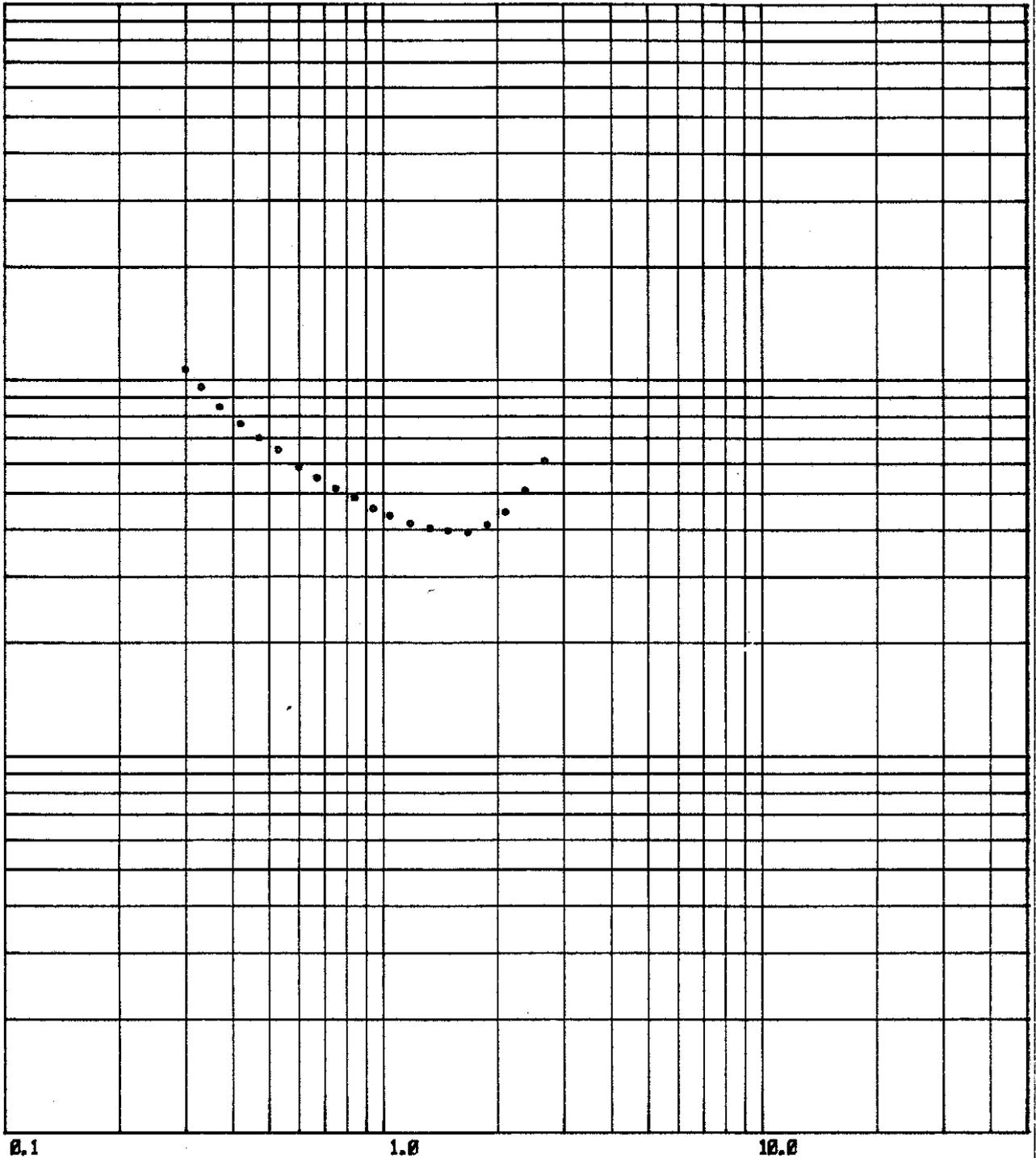
CLIENT      : The BHP Co. Ltd.  
PROJECT     : AREA T  
AREA        : Waratah Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 23-NOV,1983  
SOUNDING No.: T2

1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0



SQUARE ROOT OF TIME (MilliSec)

036

269037

# EM-37 SOUNDING

## VERTICAL COMPONENT B (Z)

RX POSITION : 1850E  
          : 1750N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 15.0 amps  
TX TURNOFF   : 270 microseconds  
FREQUENCY    : 25 Hz

CLIENT      : The BHP Co. Ltd.  
PROJECT     : STYX  
AREA        : Maydena Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : JP,RL  
DATE        : 08-DEC,1983  
SOUNDING No.: STYX 1

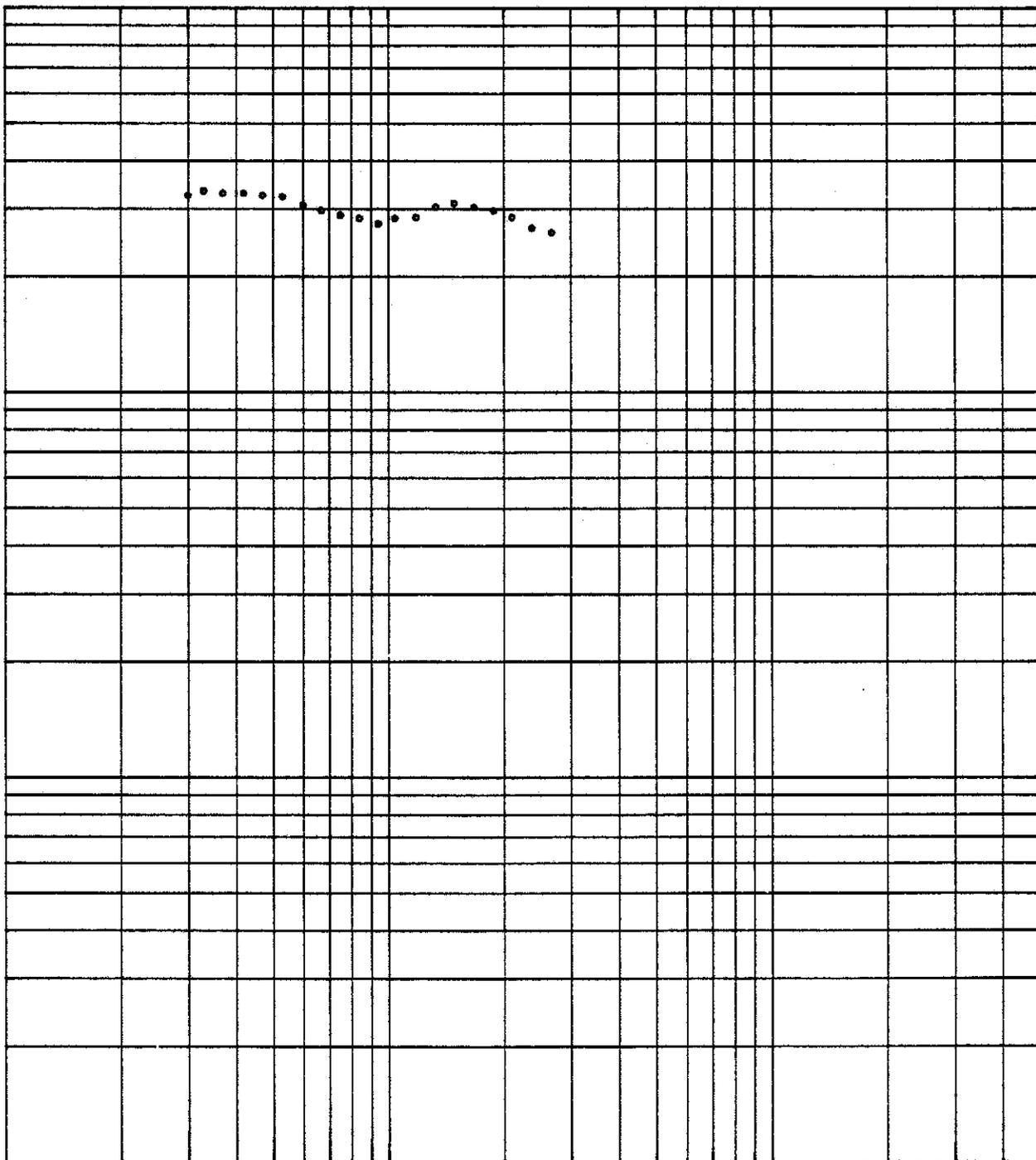
1000.0

APPARENT RESISTIVITY - Ohm Metres

100.0

10.0

1.0



0.1

1.0

10.0

SQUARE ROOT OF TIME (Milli-sec)

037

# EM-37 SOUNDING

269038

## VERTICAL COMPONENT B (Z)

RX POSITION : 1850E  
          : 1450N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT : 16.0 ampe  
TX TURNOFF : 252 microsecs  
FREQUENCY : 25 Hz

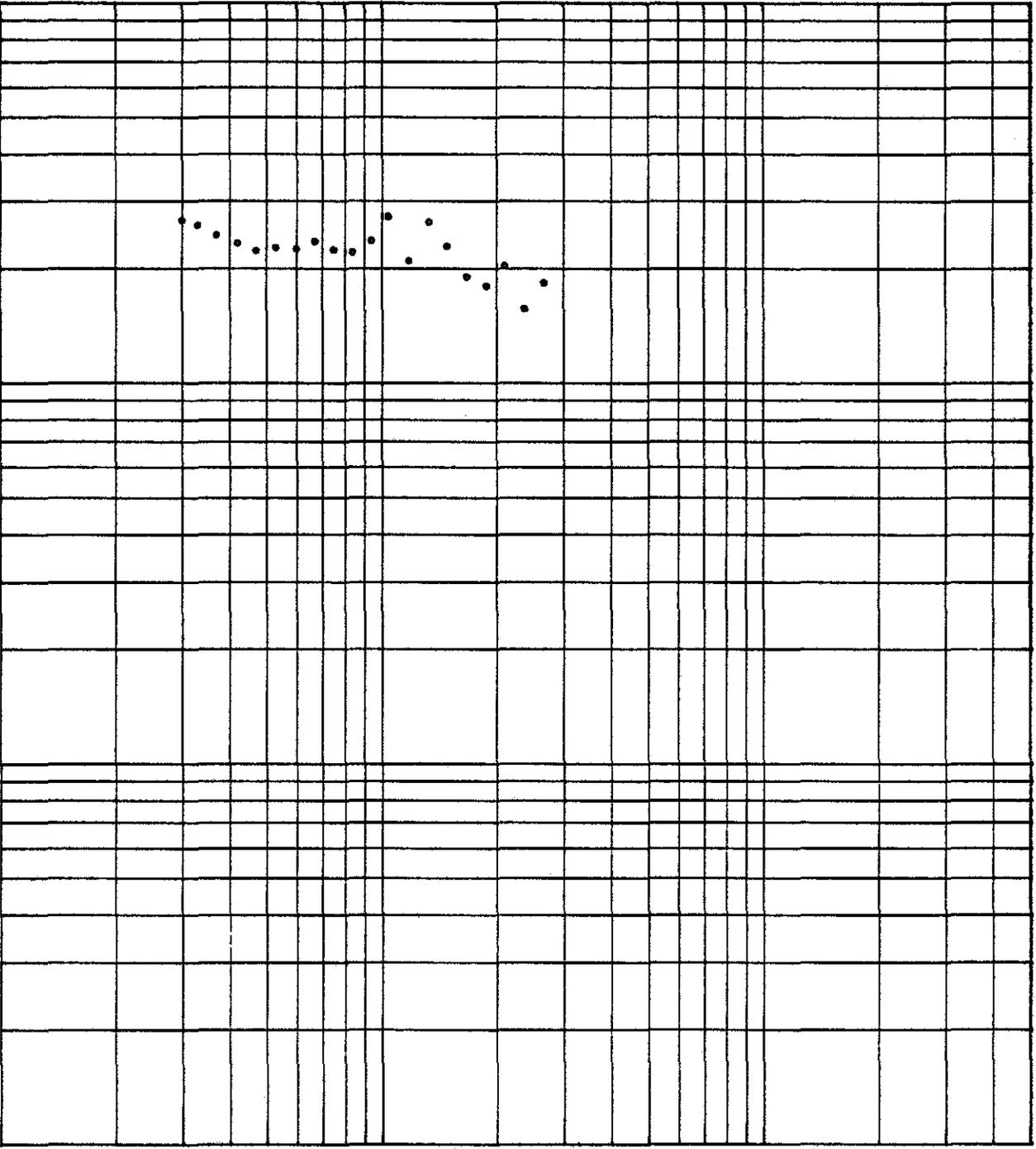
CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena Tasmania.  
JOB No. : 85-1499  
SURVEYED BY : JP,RL  
DATE : 08-DEC,1983  
SOUNDING No. : STYX 2

1000.0

Ohm Metres  
APPARENT RESISTIVITY -

100.0

10.0



SQUARE ROOT OF TIME (MilliSec)

038

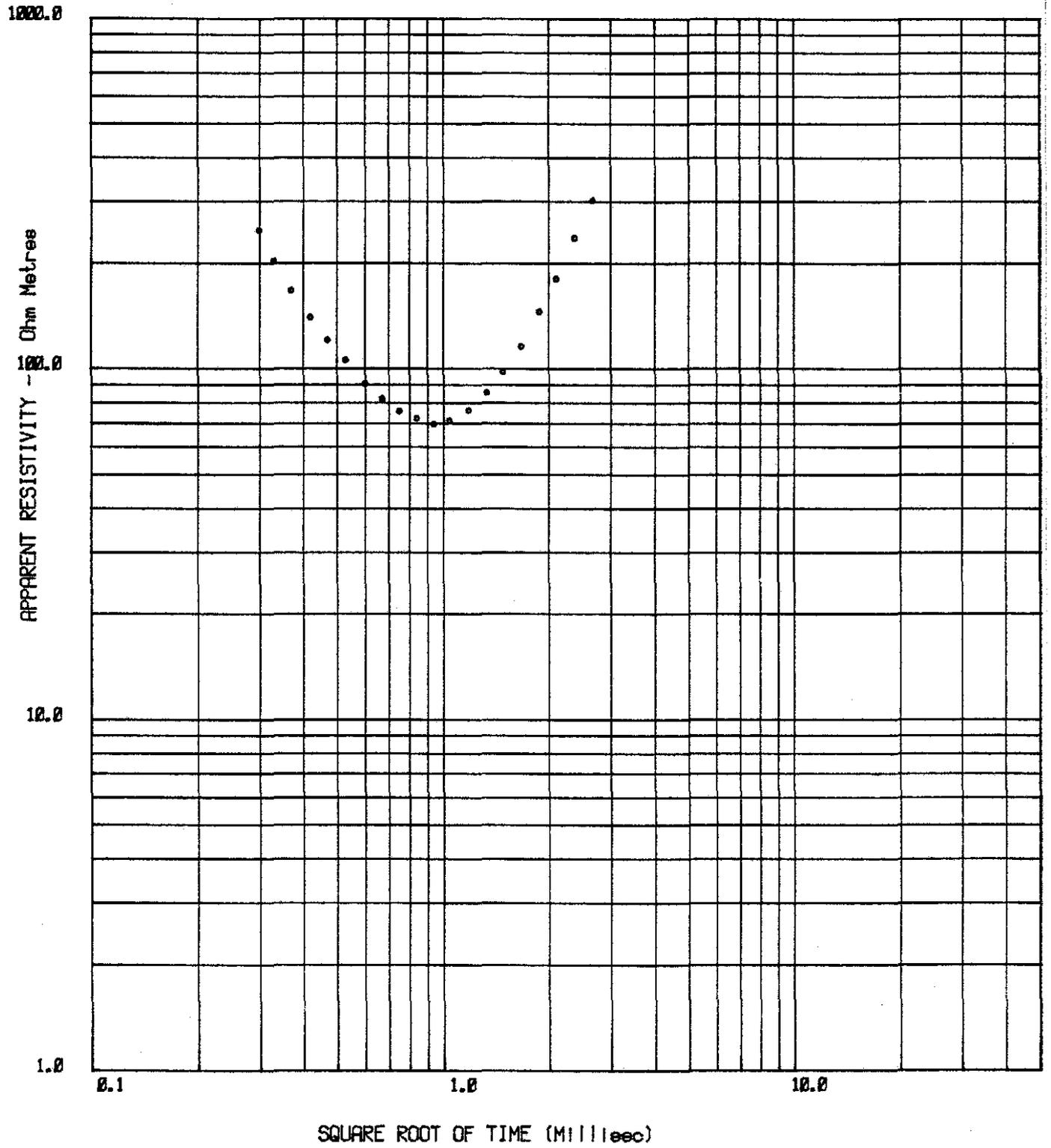
269039

# EM-37 SOUNDING

## VERTICAL COMPONENT B (Z)

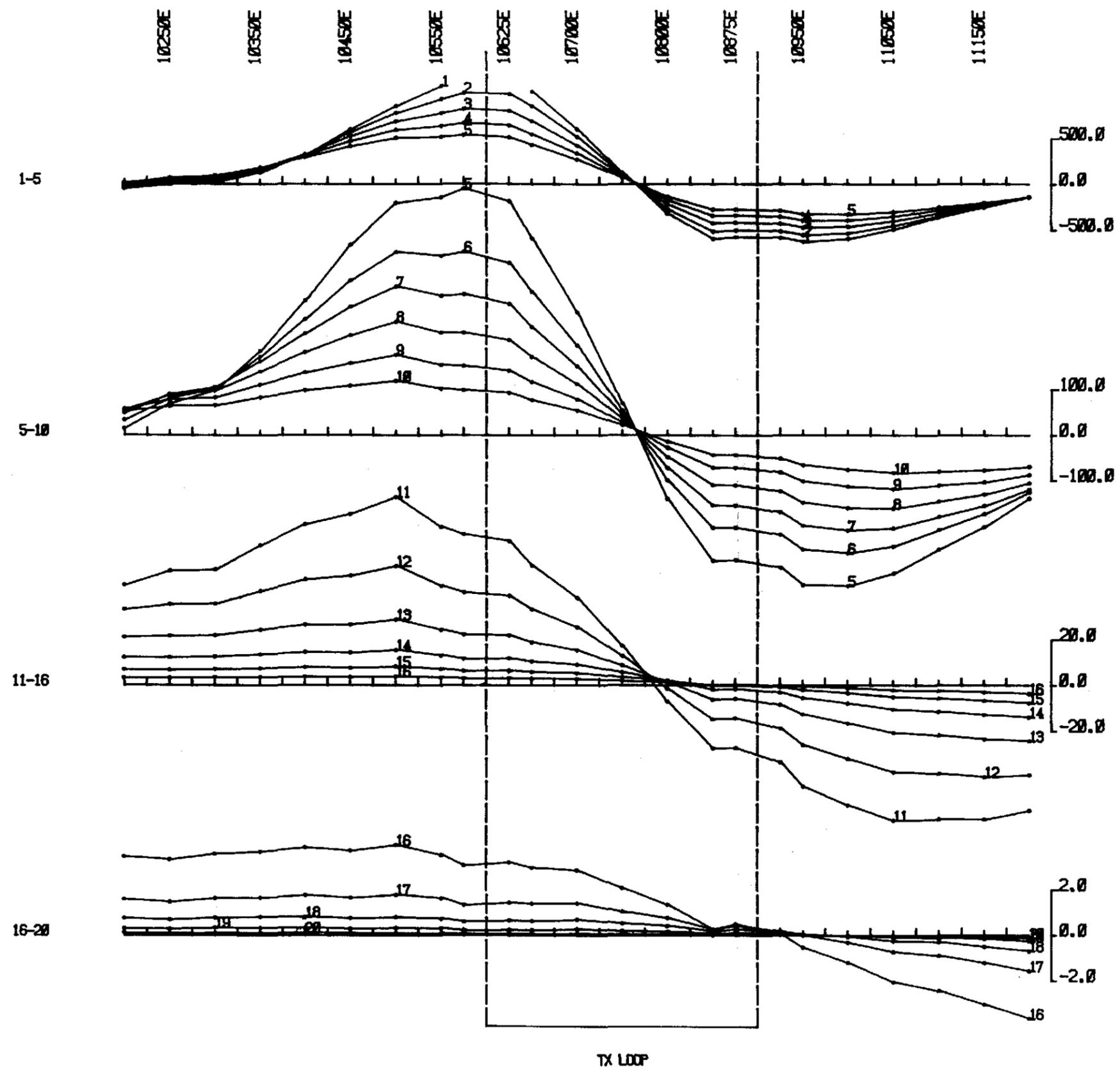
RX POSITION : 1350E  
          : 1650N  
TX LOOP SIZE : 300 metres  
             : 300 metres  
TX CURRENT   : 17.0 ampe  
TX TURNOFF   : 322 microsecs  
FREQUENCY    : 25 HZ

CLIENT      : The BHP Co. Ltd.  
PROJECT     : STYX  
AREA        : Maydena Tasmania.  
JOB No.     : 85-1499  
SURVEYED BY : RL  
DATE        : 09-JAN, 1984  
SOUNDING No.: STYX 3



039

HORIZONTAL COMPONENT B (X)

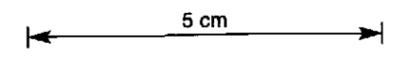


269040

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp. metre squared

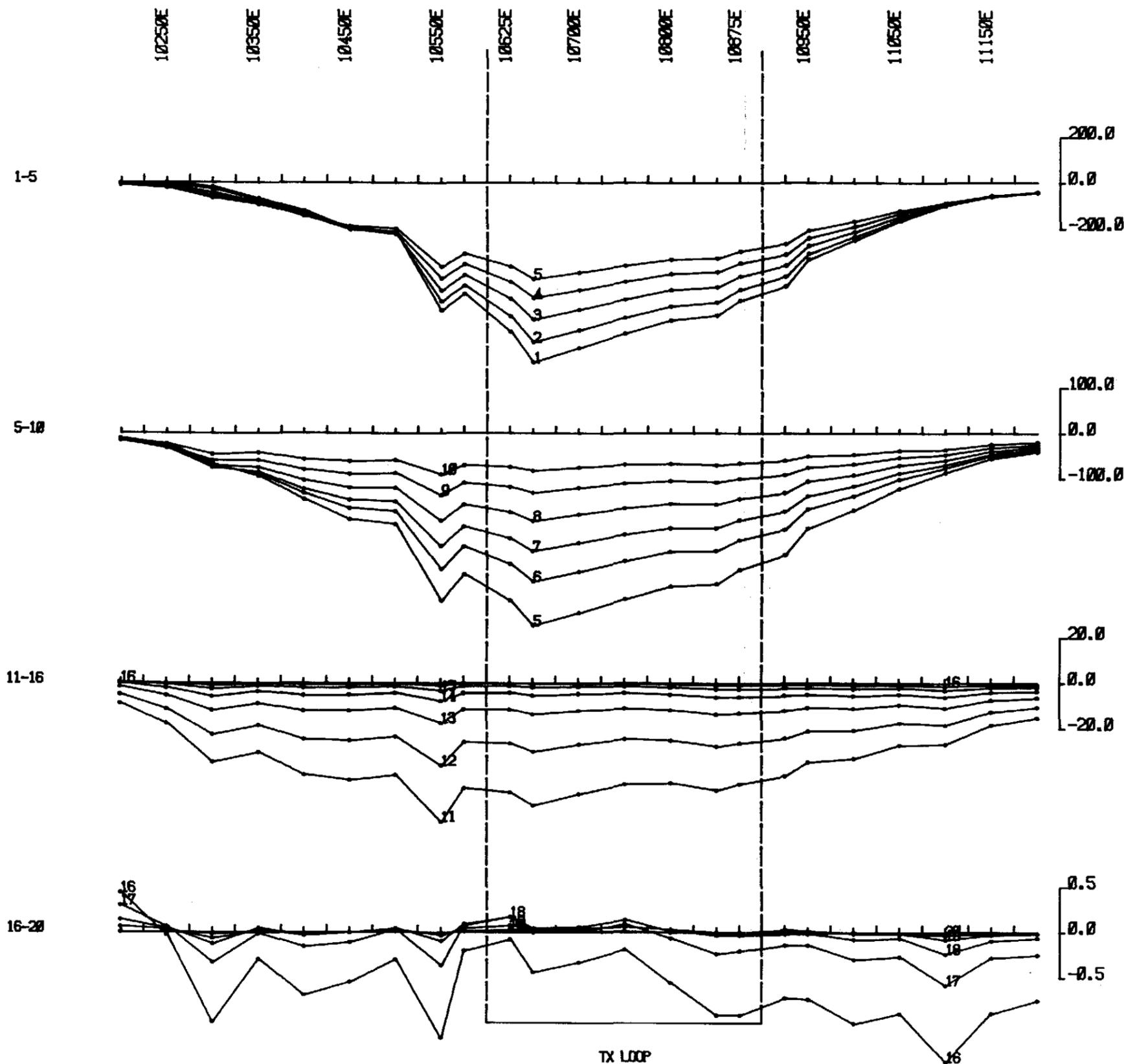


TX LOOP SIDES : 10200N 10680E  
                  : 10680N 10680E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 20-NOV, 1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	65-1488

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA Q  
AREA : Marotah Tasmania.  
LINE : 10300N X  
TX LOOP : 1

HORIZONTAL COMPONENT B (Y)



nanovolts per amp-metre squared

269041

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

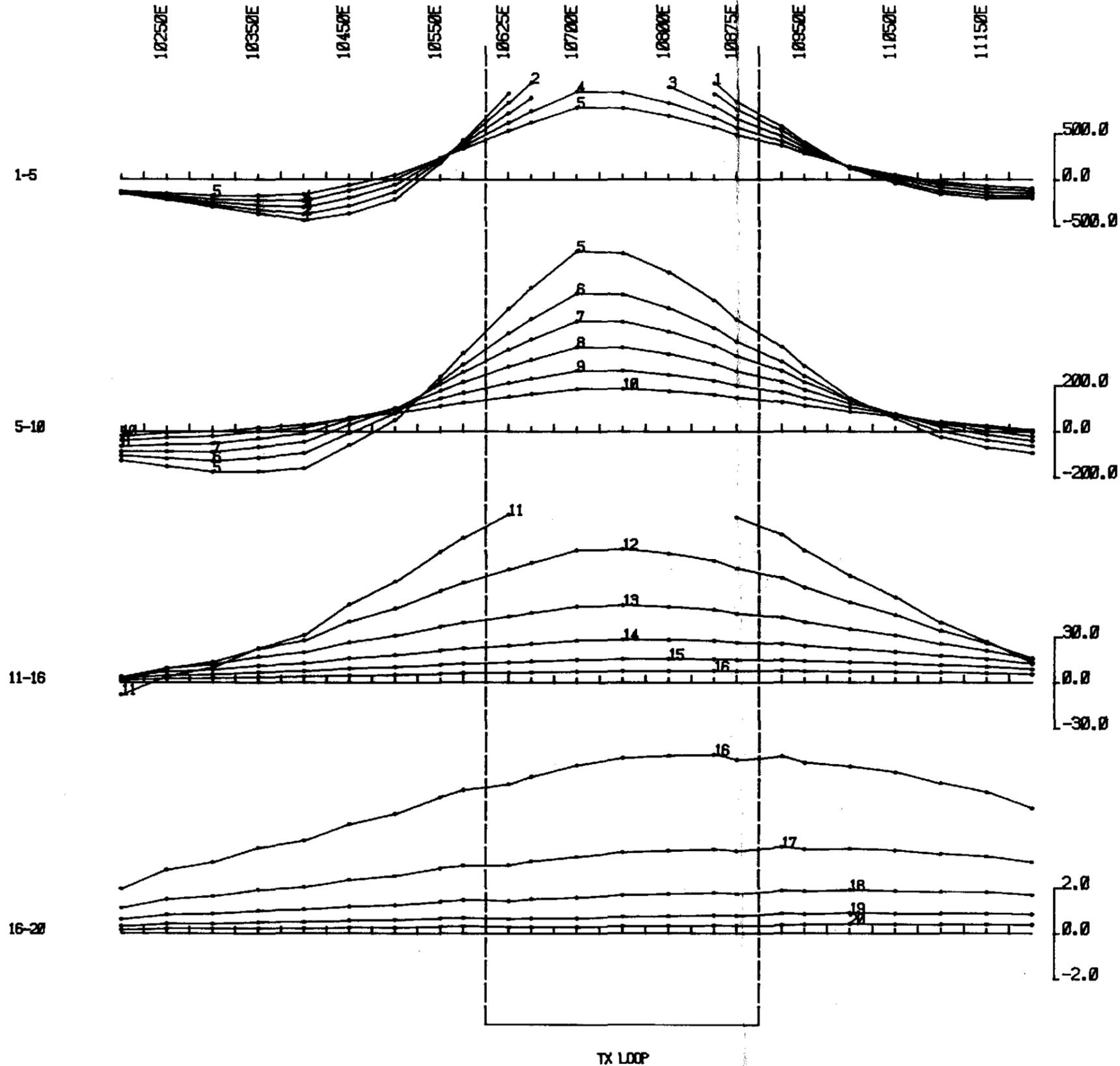
TX LOOP SIDES : 10200N 10600E  
                  : 10600N 10900E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 20-NOV-1988

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1489
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA Q	Y
AREA : Waratah Tasmania.	
LINE : 10300N	
TX LOOP : 1	

040

VERTICAL COMPONENT B (Z)



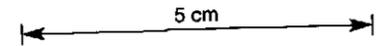
269042

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared



TX LOOP SIDES : 10200N 10600E  
                  : 10800N 10900E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 28-NOV,1968



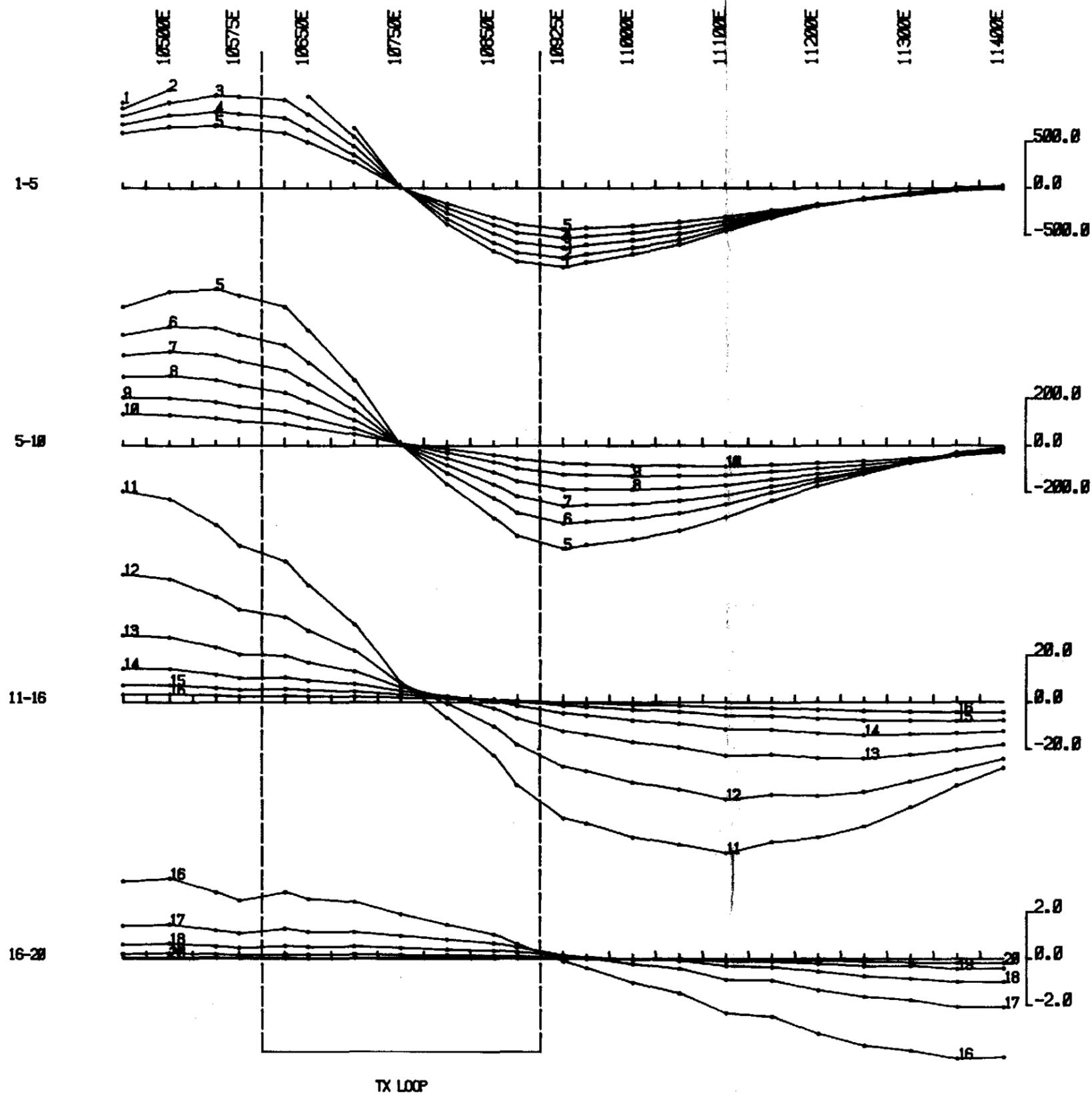
SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1498

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA Q  
AREA : Maratch Tasmania.  
LINE : 10300N  
TX LOOP : 1

Z

HORIZONTAL COMPONENT B (X)



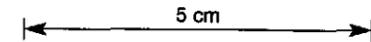
269043

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp. metre squared



TX LOOP SIDES : 10200N 10600E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 19-NOV,1983

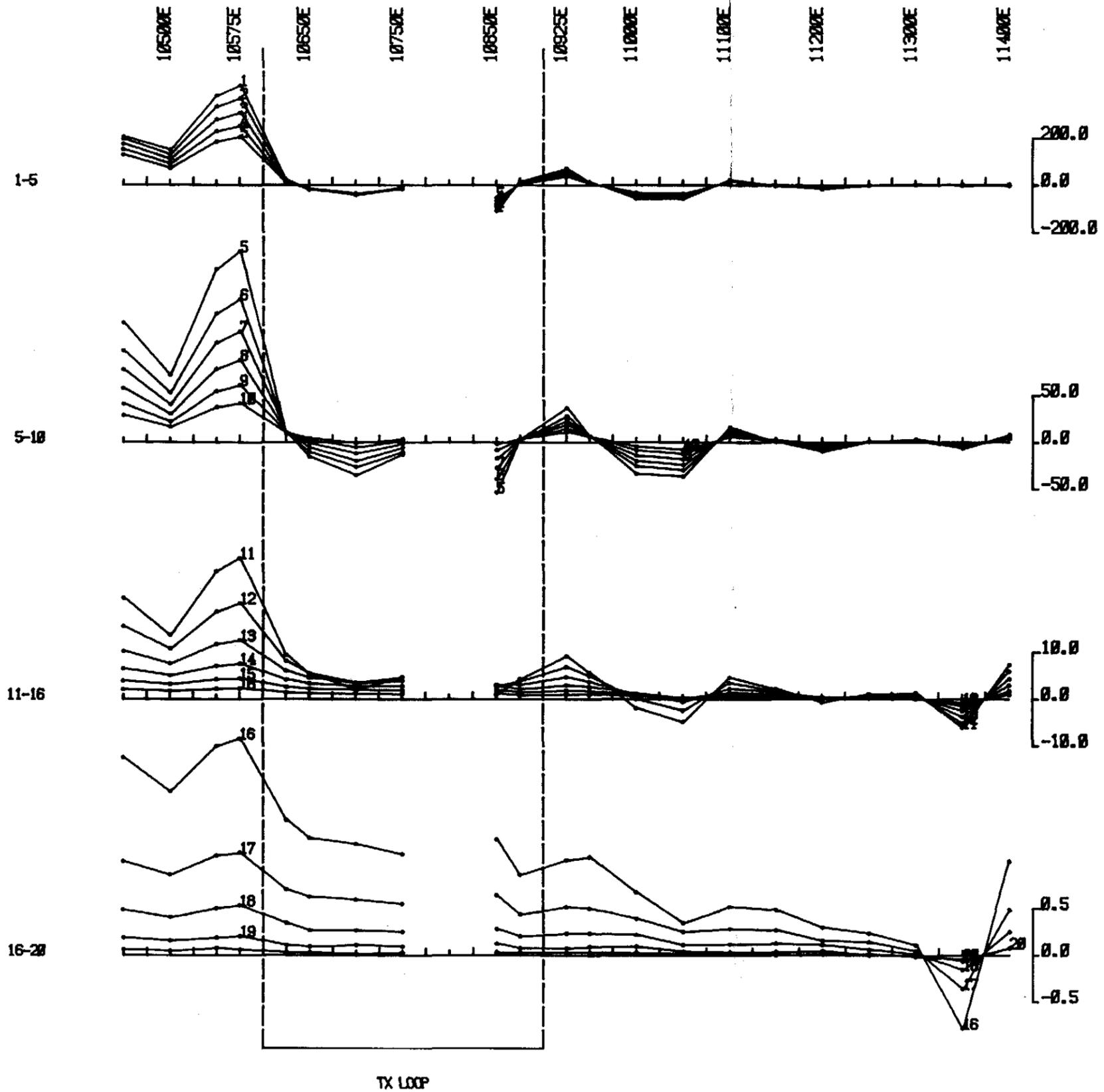
	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	05-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA Q  
AREA : Waratah Tasmania.  
LINE : 10500N X  
TX LOOP : 1

042

HORIZONTAL COMPONENT B (Y)

043



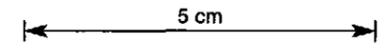
269044

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared

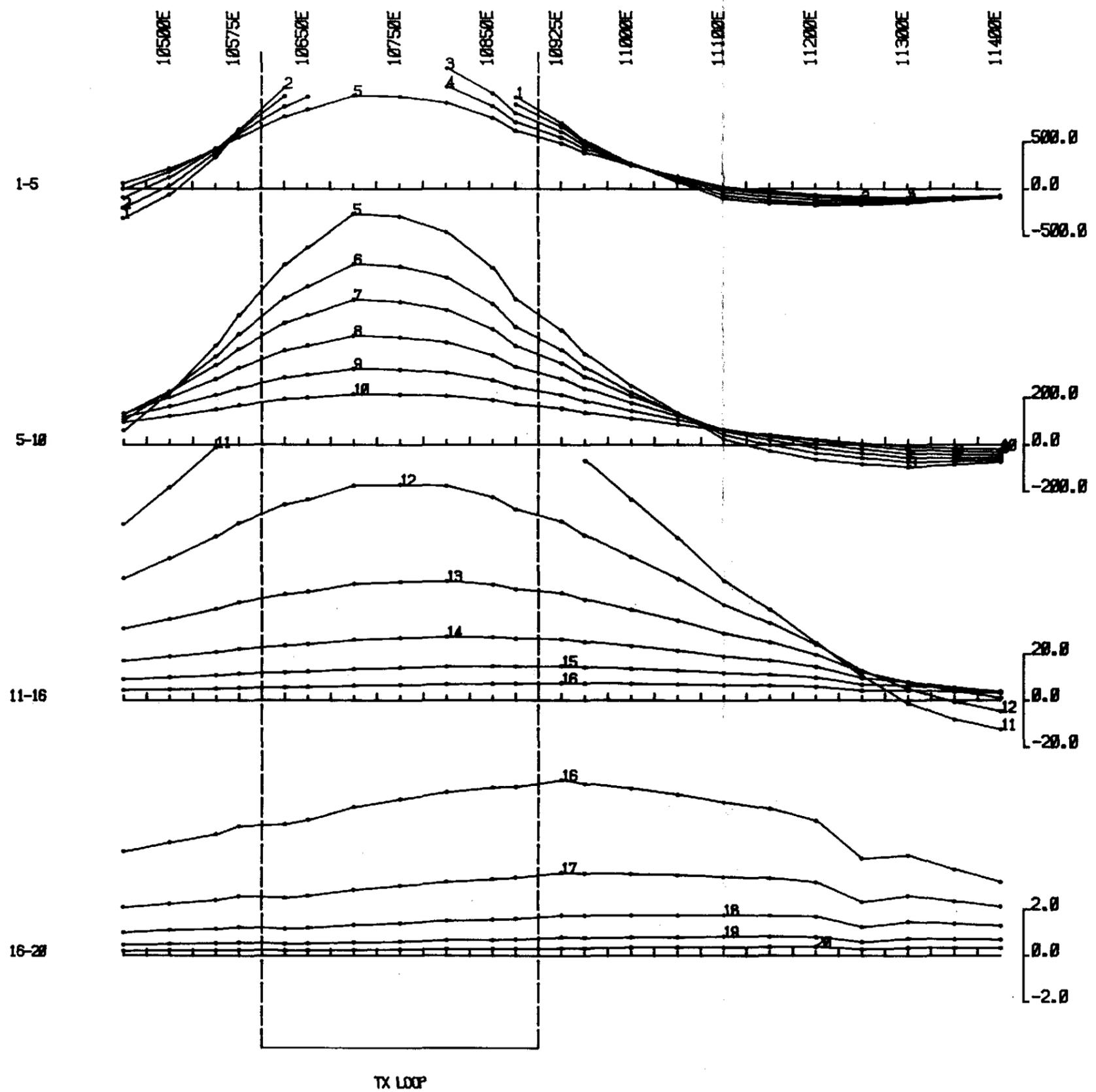


TX LOOP SIDES : 10200N 10600E  
                  : 10600N 10200E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L.  
DATE : 19-NOV, 1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA Q	Y
AREA : Maratch Tasmania.	
LINE : 10500N	
TX LOOP : 1	

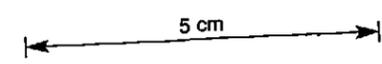
VERTICAL COMPONENT B (Z)



269045

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

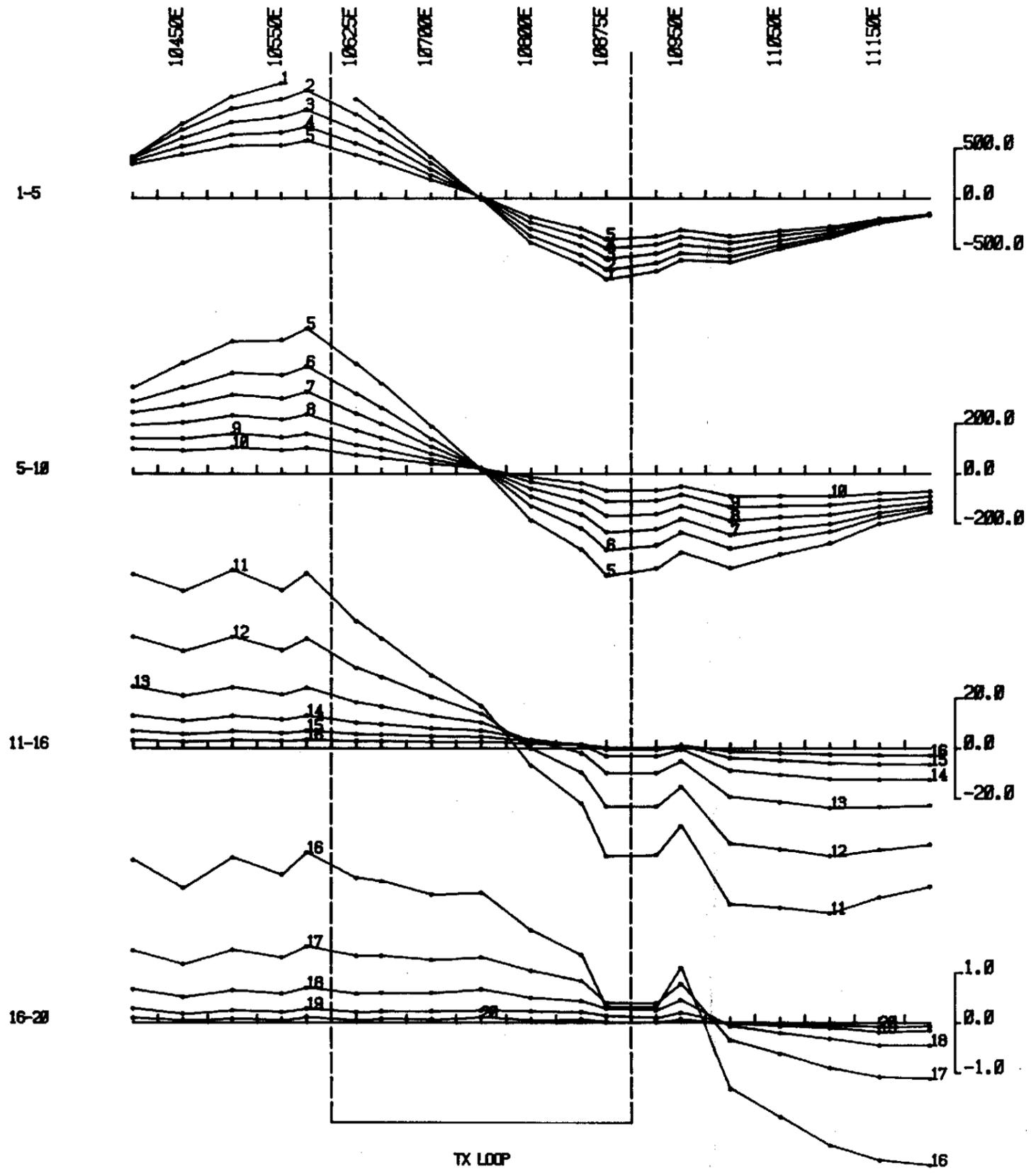
TX LOOP SIDES : 10200N 10600E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : JP,RL  
DATE : 19-NOV,1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1489
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA Q	
AREA : Marotah Tasmania.	
LINE : 10500N	Z
TX LOOP : 1	

045

HORIZONTAL COMPONENT B (X)



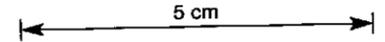
269046

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared



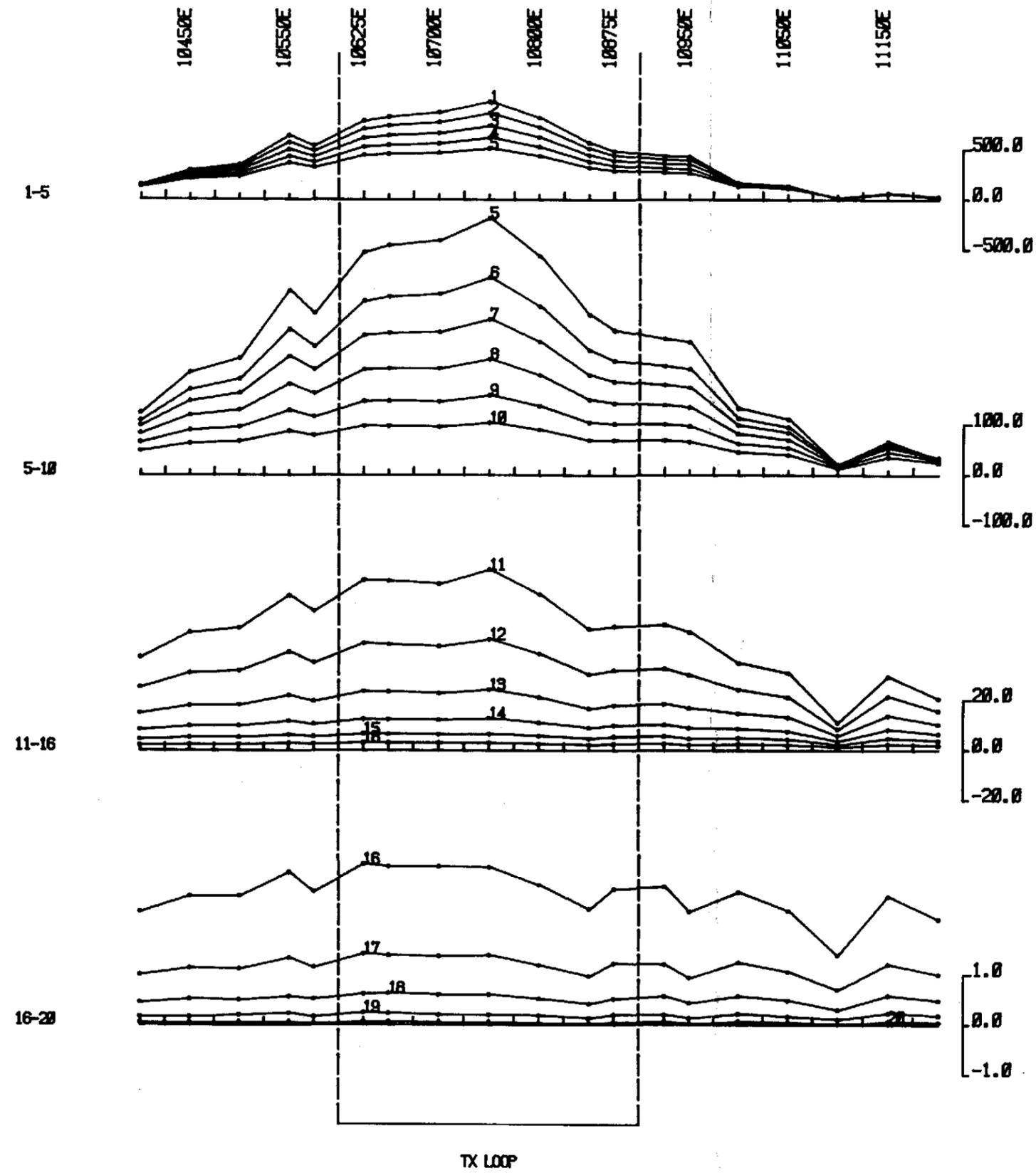
TX LOOP SIDES : 10200N 10600E  
                  : 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 15.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 18-NOV-1969

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA Q  
AREA : Maratah Tasmania.  
LINE : 10700N X  
TX LOOP : 1

046

HORIZONTAL COMPONENT B (Y)



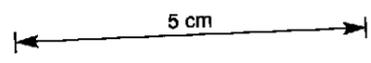
269047

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared



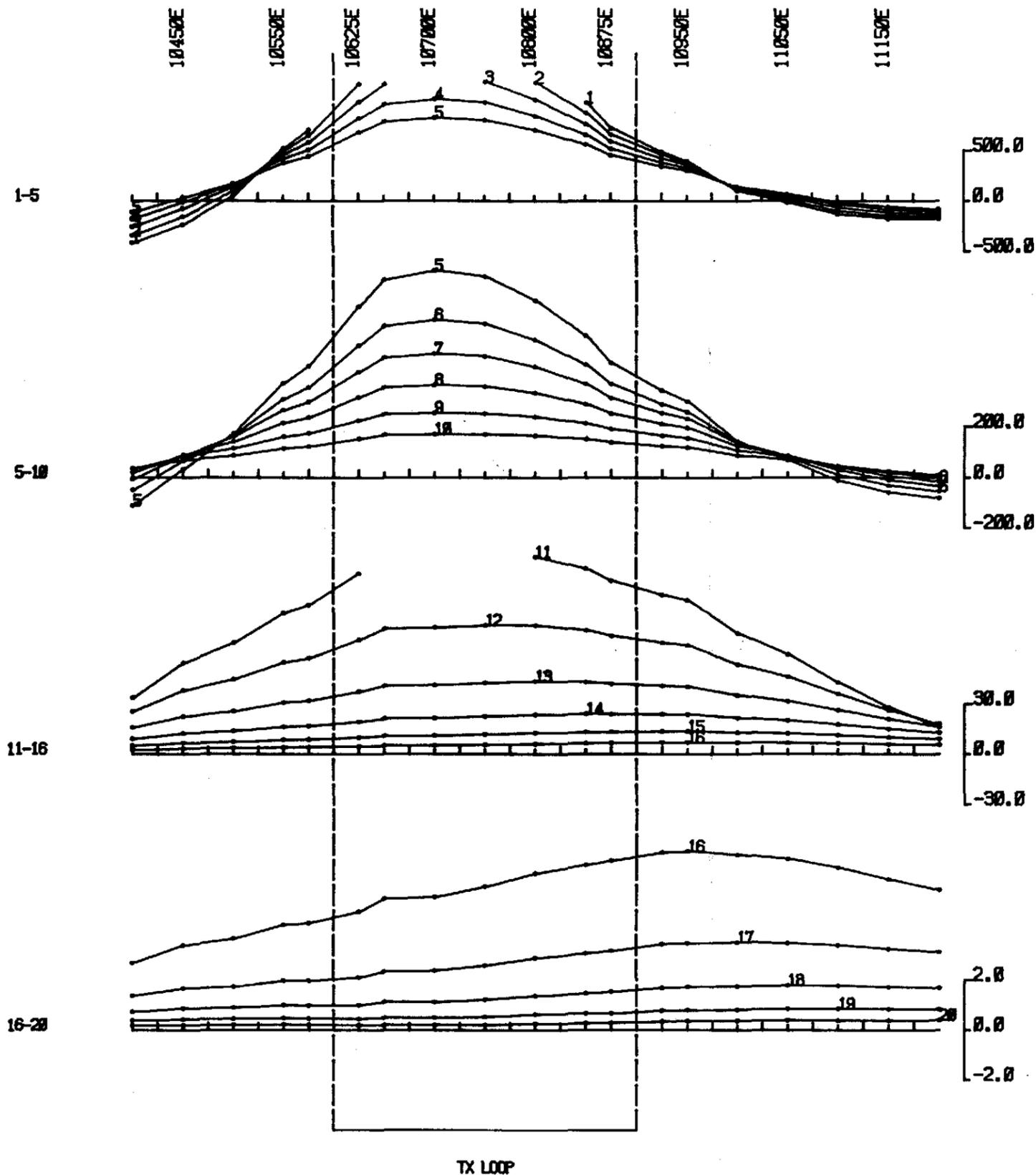
TX LOOP SIDES : 10200N 10600E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 15.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 18-NOV-1988

	SURVEYED AND COMPILED BY GEDTERREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA Q  
AREA : Maratah Tasmania.  
LINE : 10700N Y  
TX LOOP : 1

047

VERTICAL COMPONENT B (Z)



269048

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp.metre squared

5 cm

TX LOOP SIDES : 10200N 10600E  
: 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 374 microseconds  
CURRENT : 15.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : JP.RL  
DATE : 18-NOV-1988



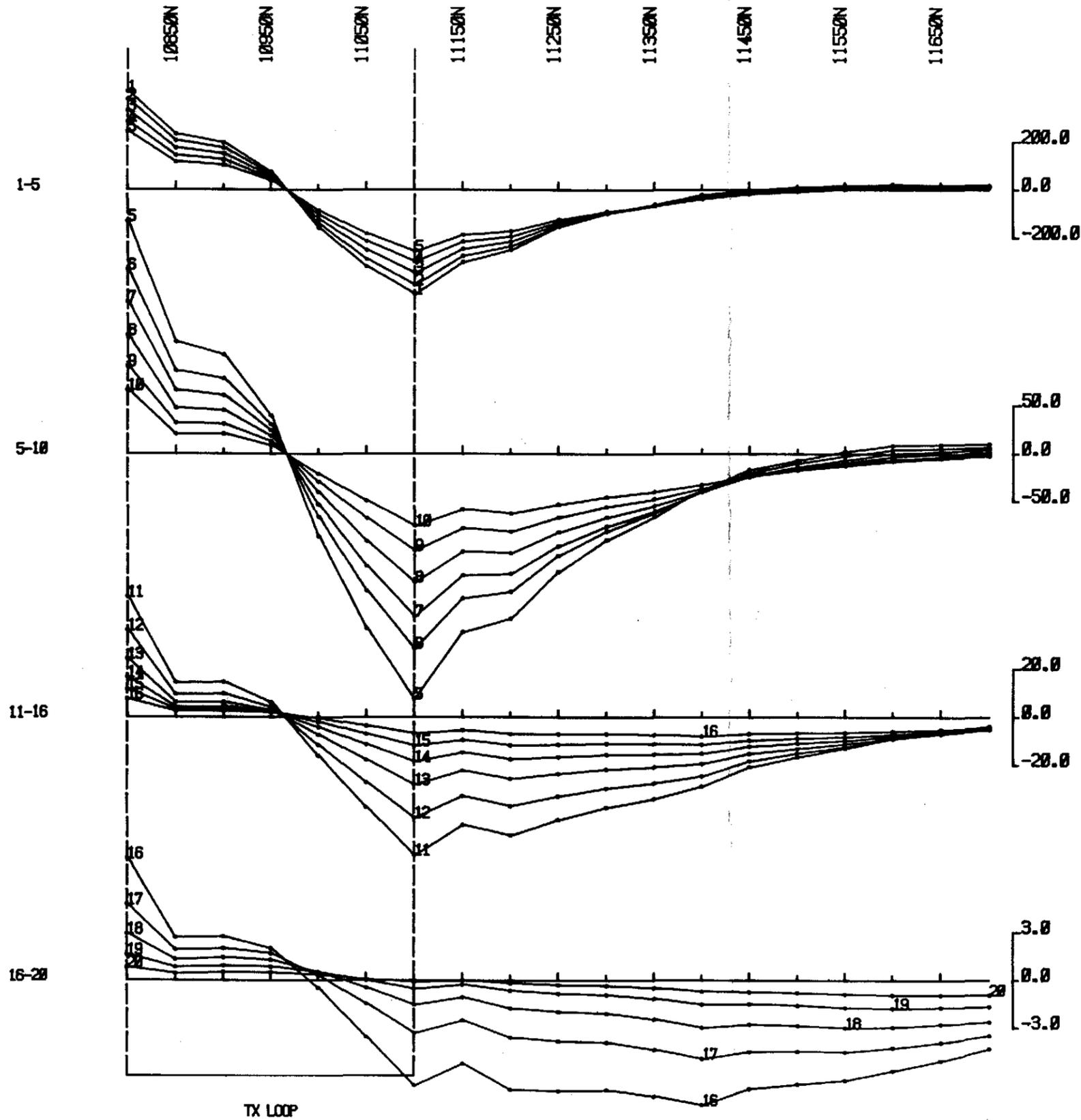
SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA G  
AREA : Maratah Tasmania.  
LINE : 10700N  
TX LOOP : 1

Z

HORIZONTAL COMPONENT B (X)



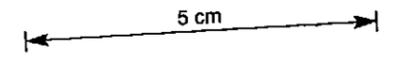
nanovolts per amp-metre squared

269049

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

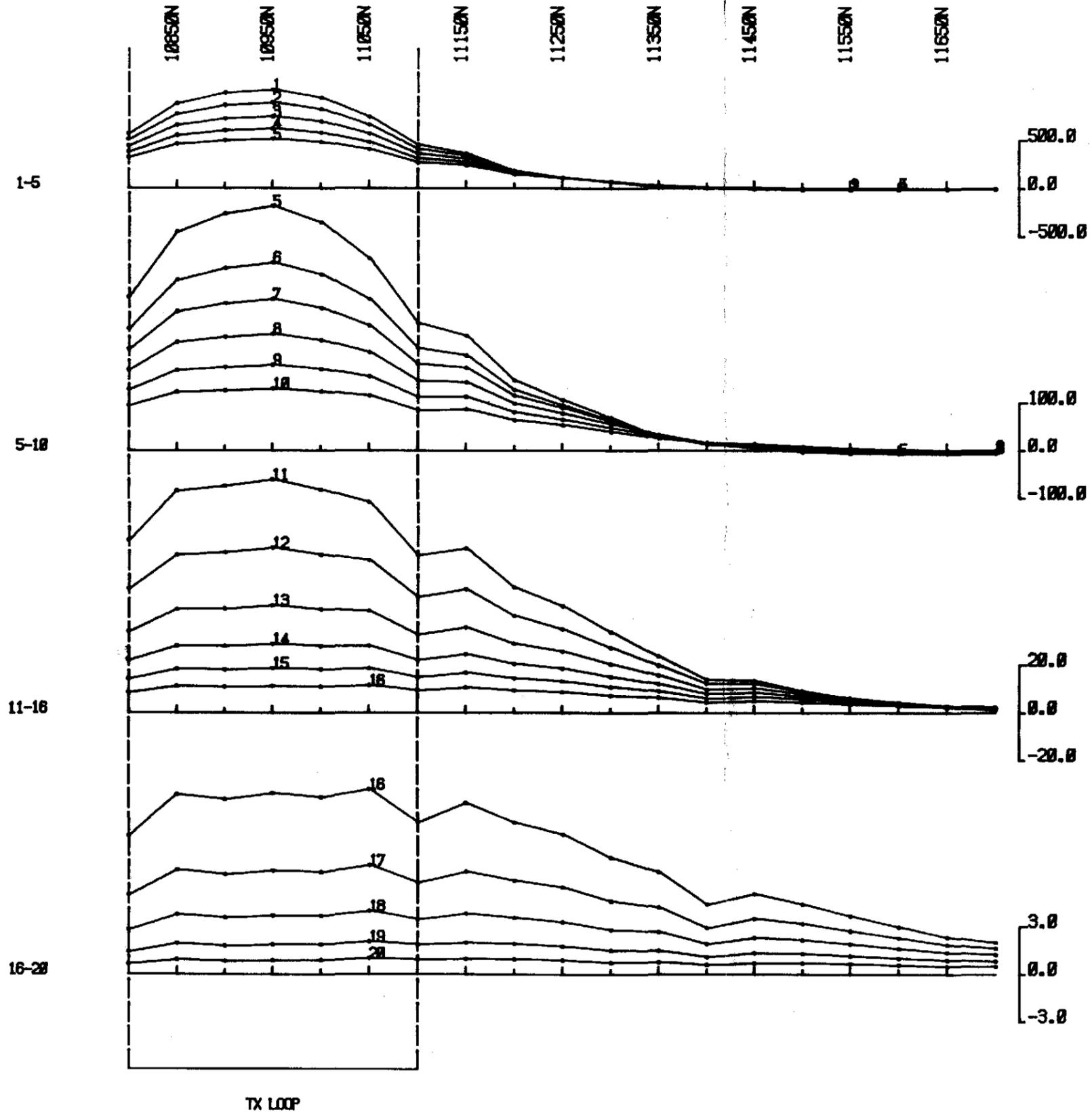


TX LOOP SIDES : 10800N 10900E  
                  : 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 23-NOV-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA T	
AREA : Marotah Tasmania.	
LINE : 10200E	X
TX LOOP : 2	

HORIZONTAL COMPONENT B (Y)



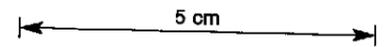
269050

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared



TX LOOP SIDES : 10800N 10900E  
: 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 29-NOV-1983



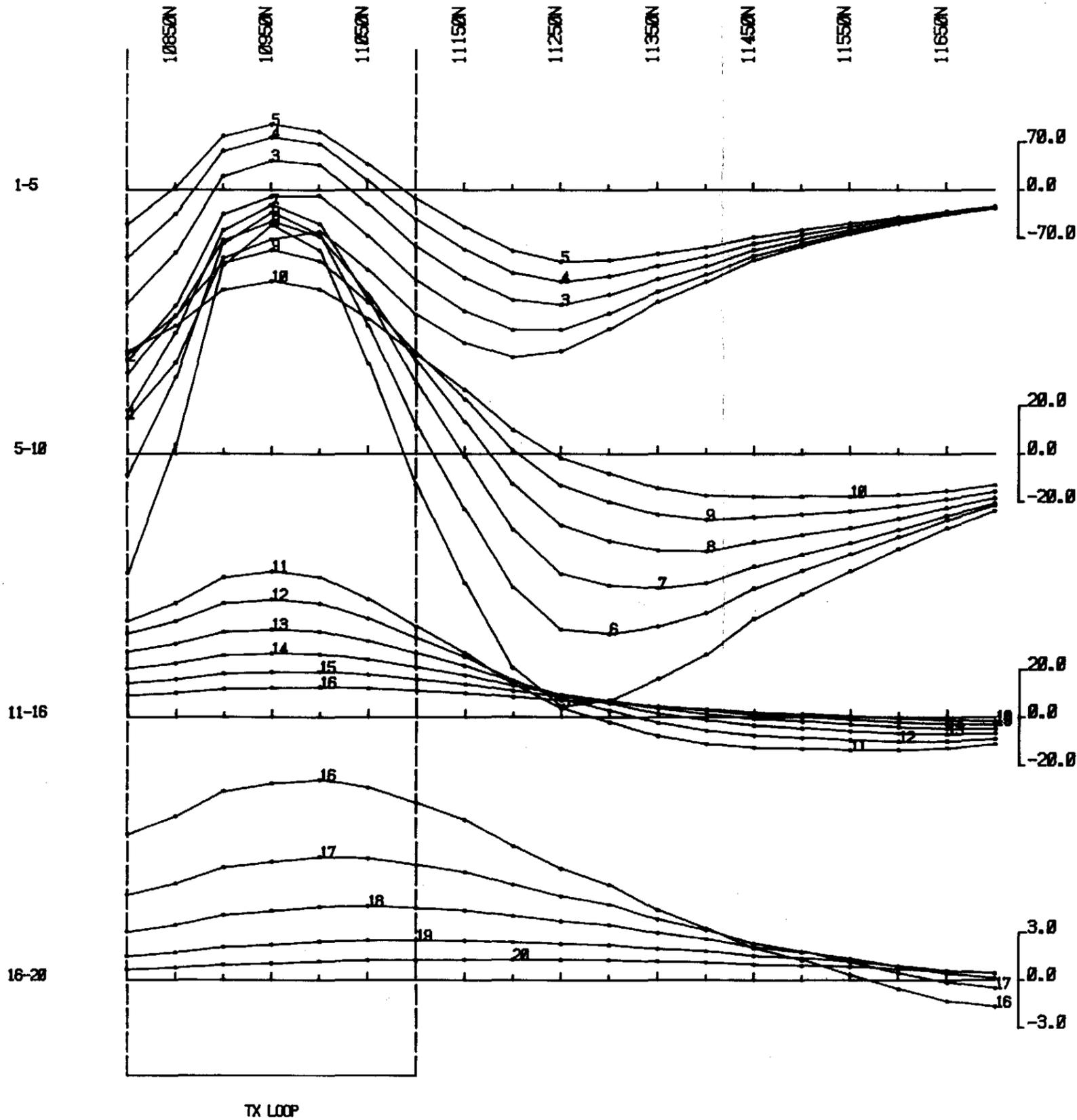
SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : ARER T  
ARER : Maratch Tasmania.  
LINE : 10200E  
TX LOOP : 2

Y

VERTICAL COMPONENT B (Z)



269051

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp.metre squared

5 cm

TX LOOP SIDES : 10800N 10300E  
: 11100N 10800E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.L.  
DATE : 23-NOV-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

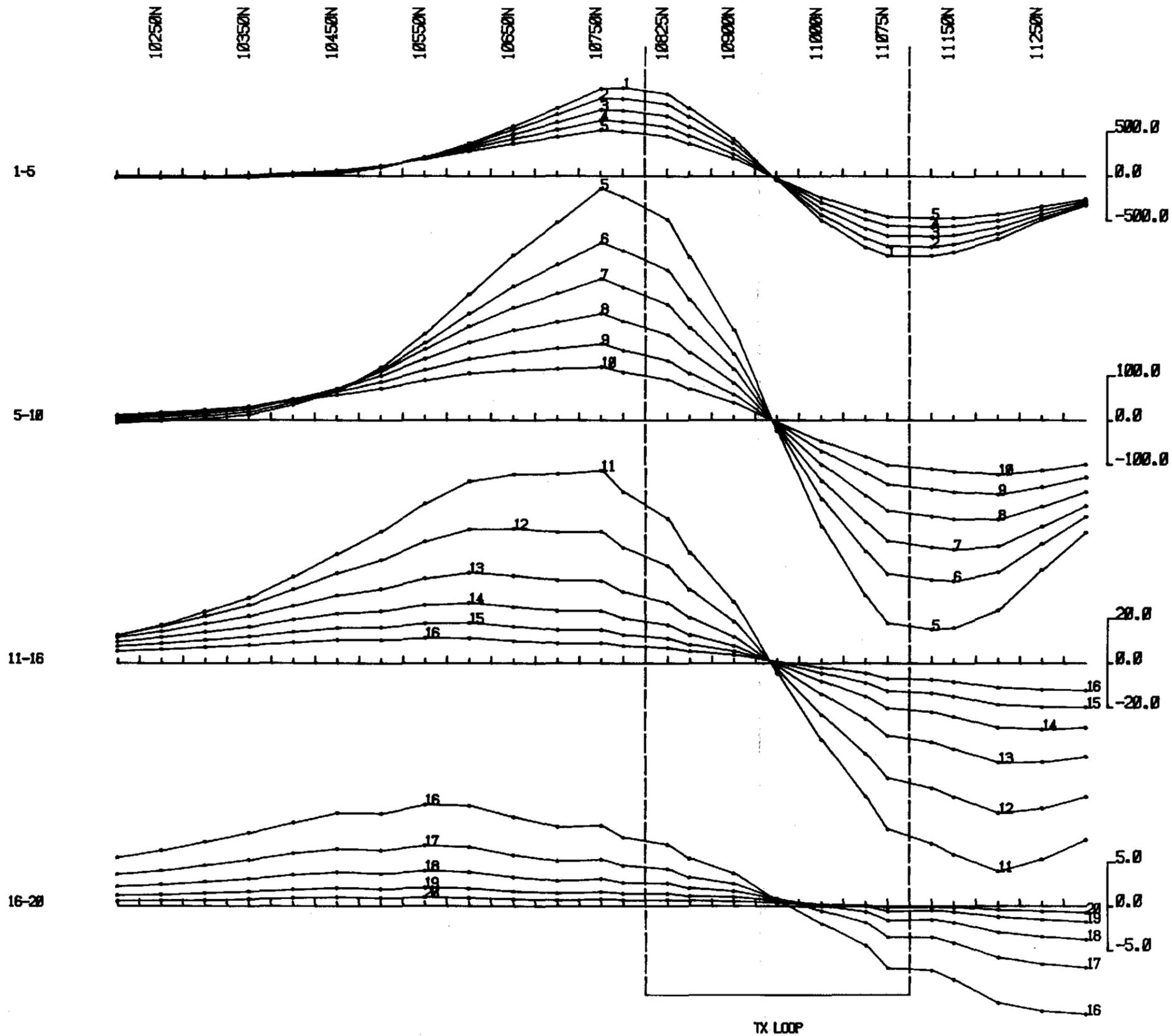
PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : ARER T  
ARER : Waratah Tasmania.  
LINE : 10200E  
TX LOOP : 2

Z

051

HORIZONTAL COMPONENT B (X)



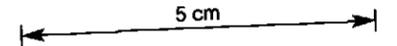
nanovolt per amp.metre squared

269052

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

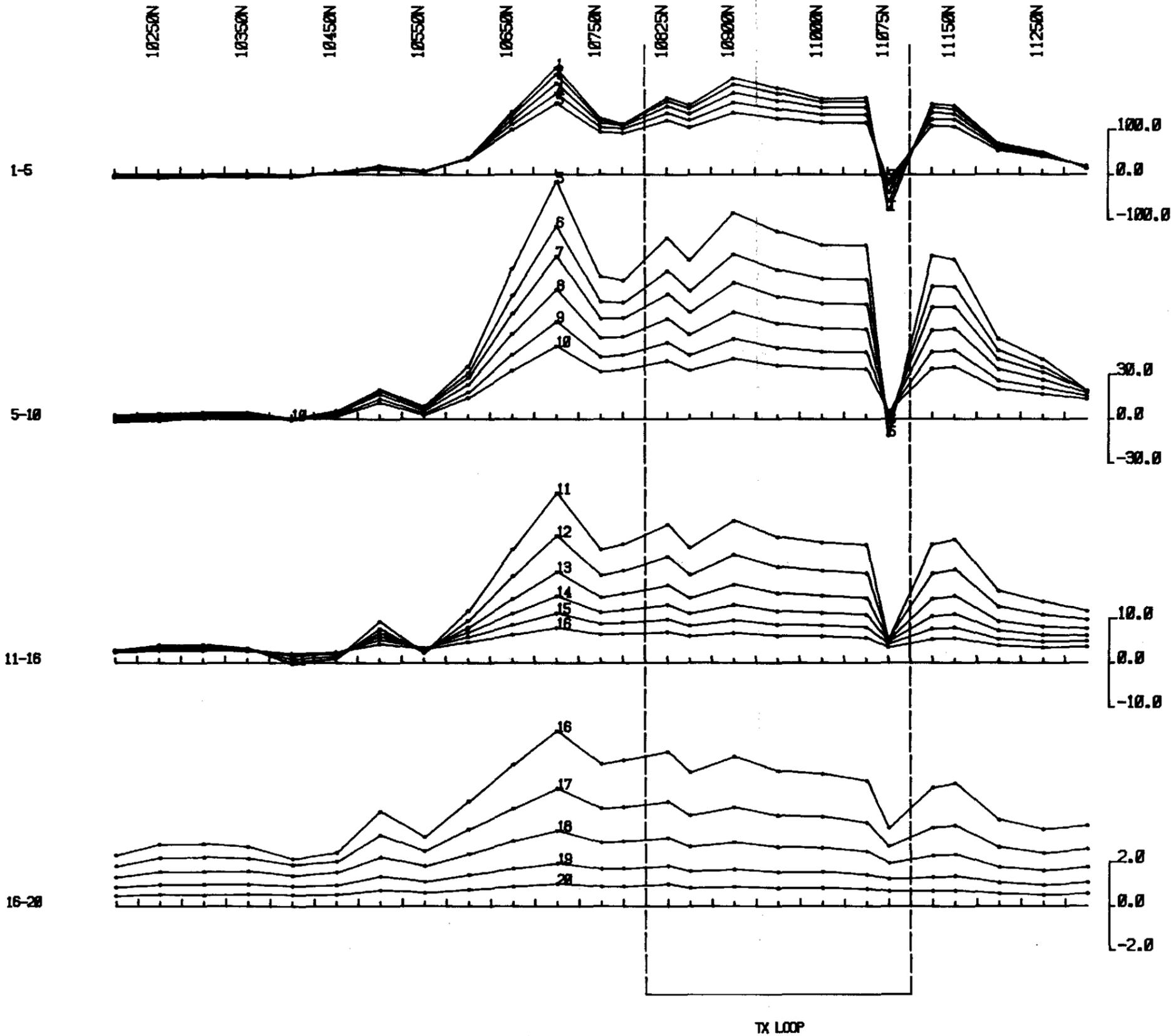


TX LOOP SIDES : 10800N 10300E  
                  : 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : JP,AL  
DATE : 22-NOV,1968

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA T  
AREA : Marotah Tannoria.  
LINE : 10500E X  
TX LOOP : 2

HORIZONTAL COMPONENT B (Y)



269053

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared

5 cm

TX LOOP SIDES : 10800N 10900E  
: 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 22-NOV-1988



SURVEYED AND COMPILED BY  
GEOTERRAX PTY. LTD.

PROJECT NO.  
85-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA T  
AREA : Waratah Tasmania.  
LINE : 10500E  
TX LOOP : 2

Y

053

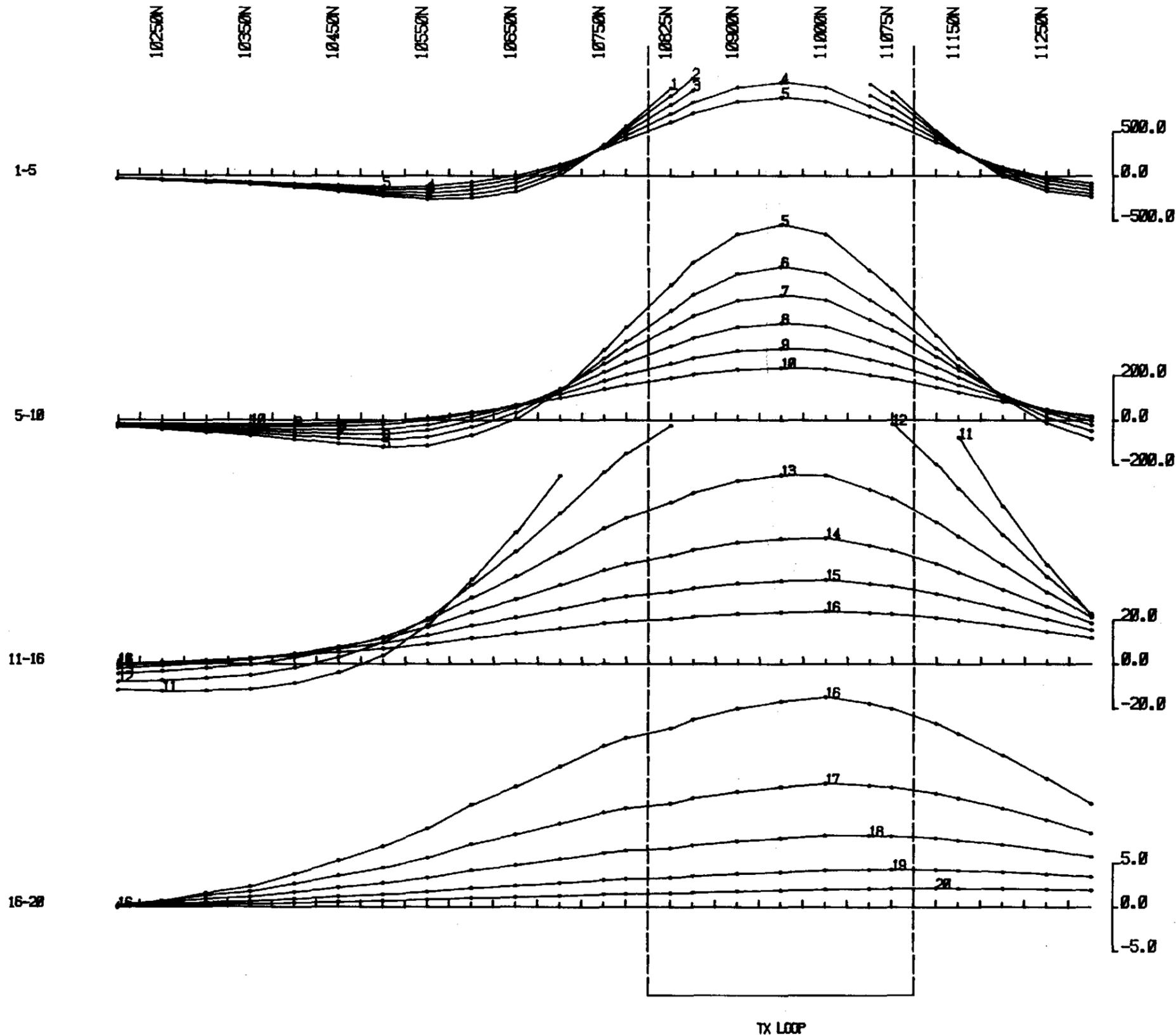
VERTICAL COMPONENT B (Z)

269054

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp. metre squared

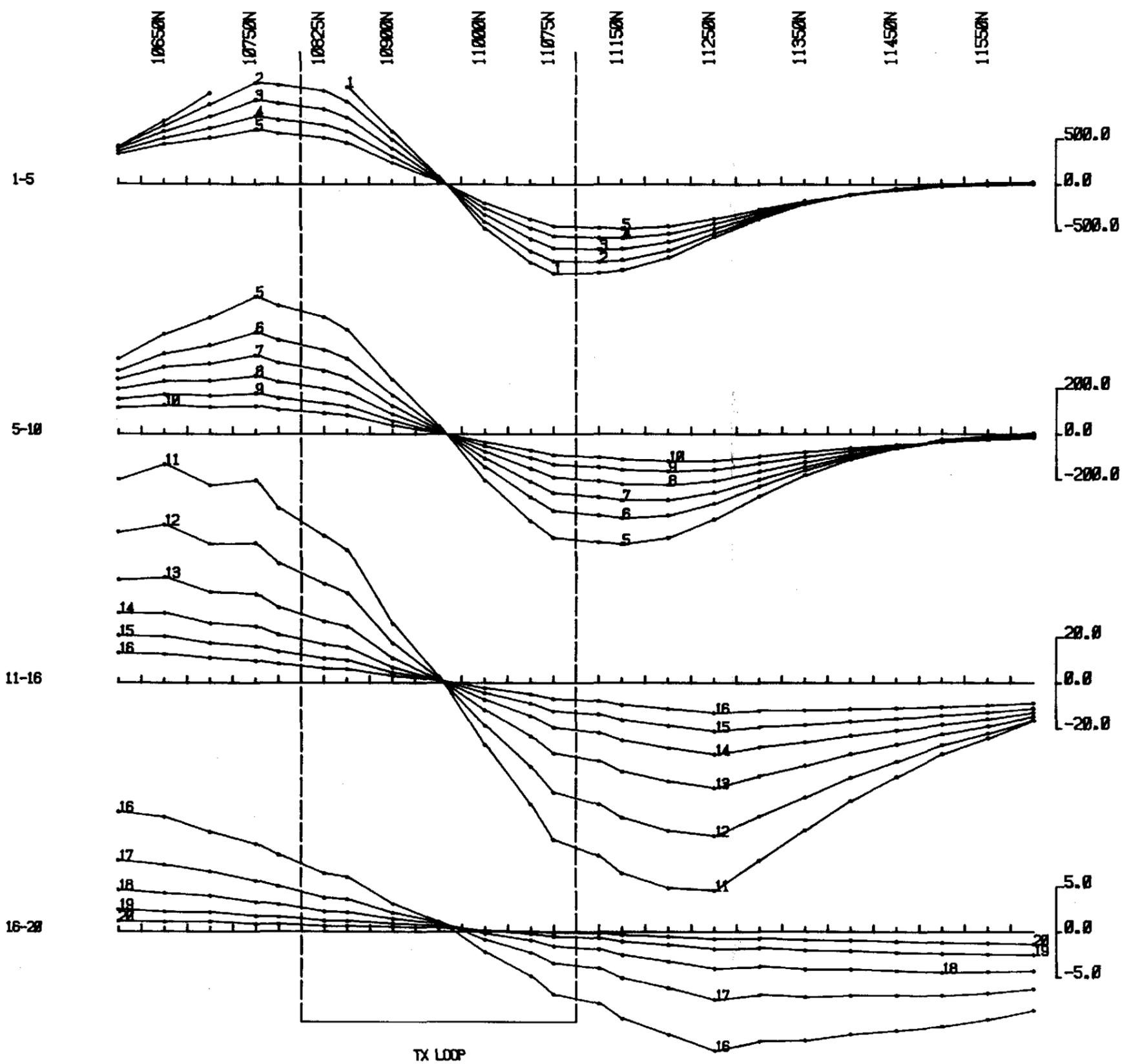
TX LOOP SIDES : 10900N 10900E  
: 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP.RL  
DATE : 22-NOV-1968

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1498
	CLIENT : The BHP Co. Ltd.	

PROJECT : ARER T  
ARER : Waratah Tasmania.  
LINE : 10500E Z  
TX LOOP : 2

054

HORIZONTAL COMPONENT B (X)

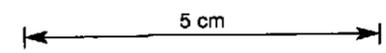


269055

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

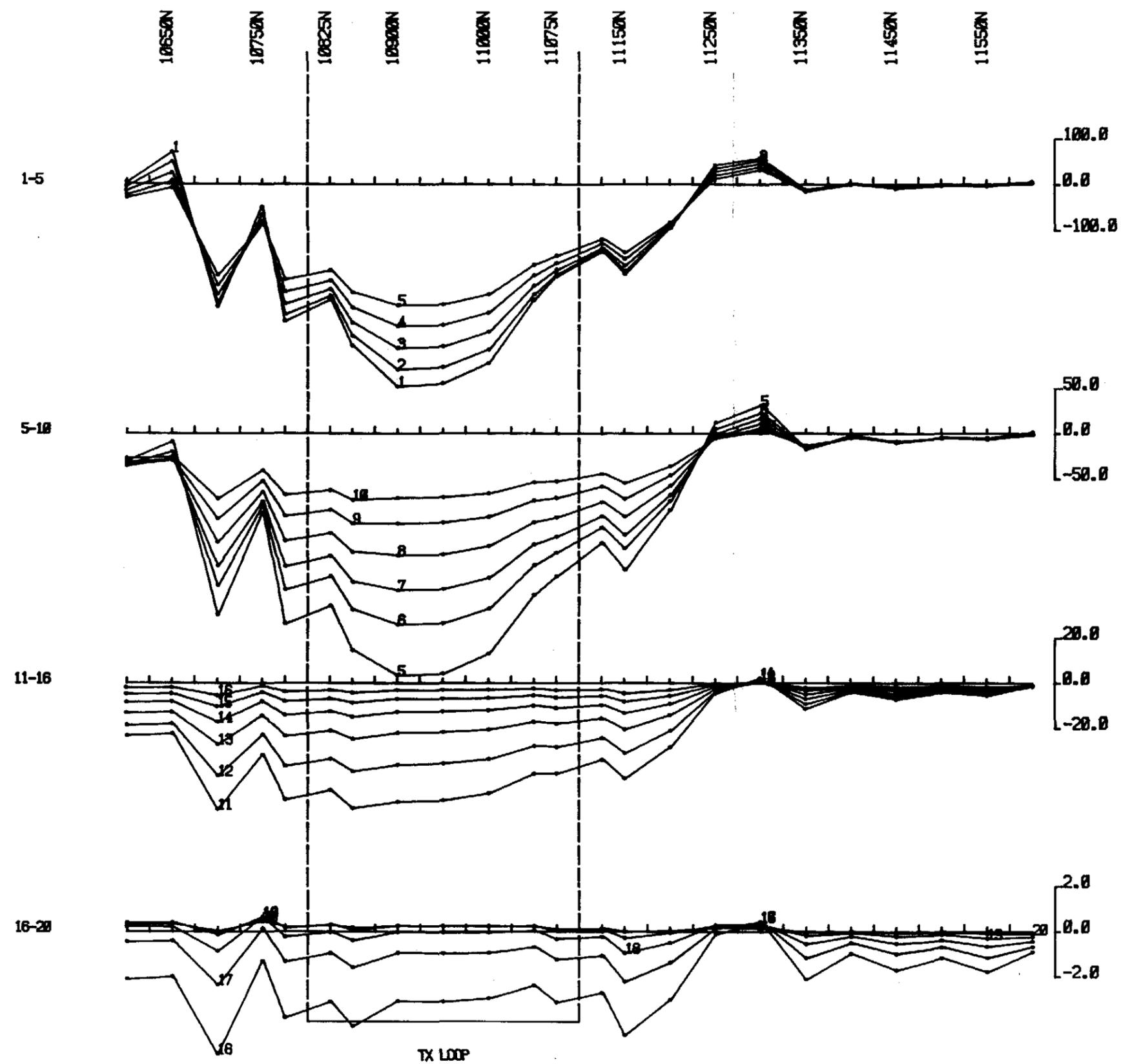
TX LOOP SIDES : 10600N 10800E  
: 11100N 10800E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 22-NOV-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA T  
AREA : Haratch Tasmania.  
LINE : 10700E X  
TX LOOP : 2

055

HORIZONTAL COMPONENT B (Y)



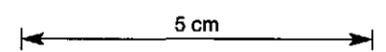
269056

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared

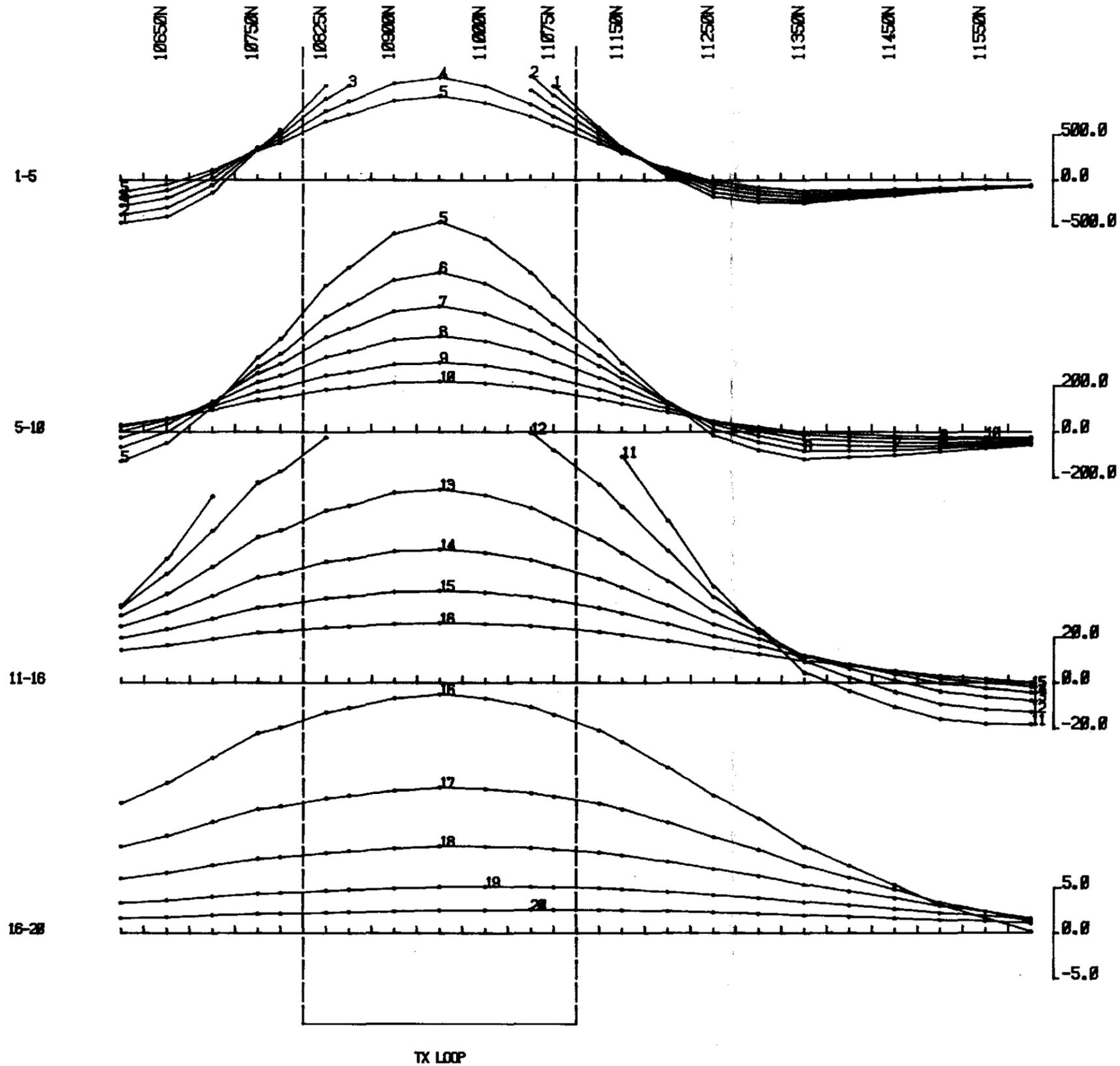


TX LOOP SIDES : 10800N 10900E  
                  : 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 955 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L.  
DATE : 22-NOV-1963

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : AREA T AREA : Maratch Tasmania. LINE : 10700E TX LOOP : 2	

056

VERTICAL COMPONENT B (Z)

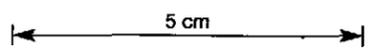


269057

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

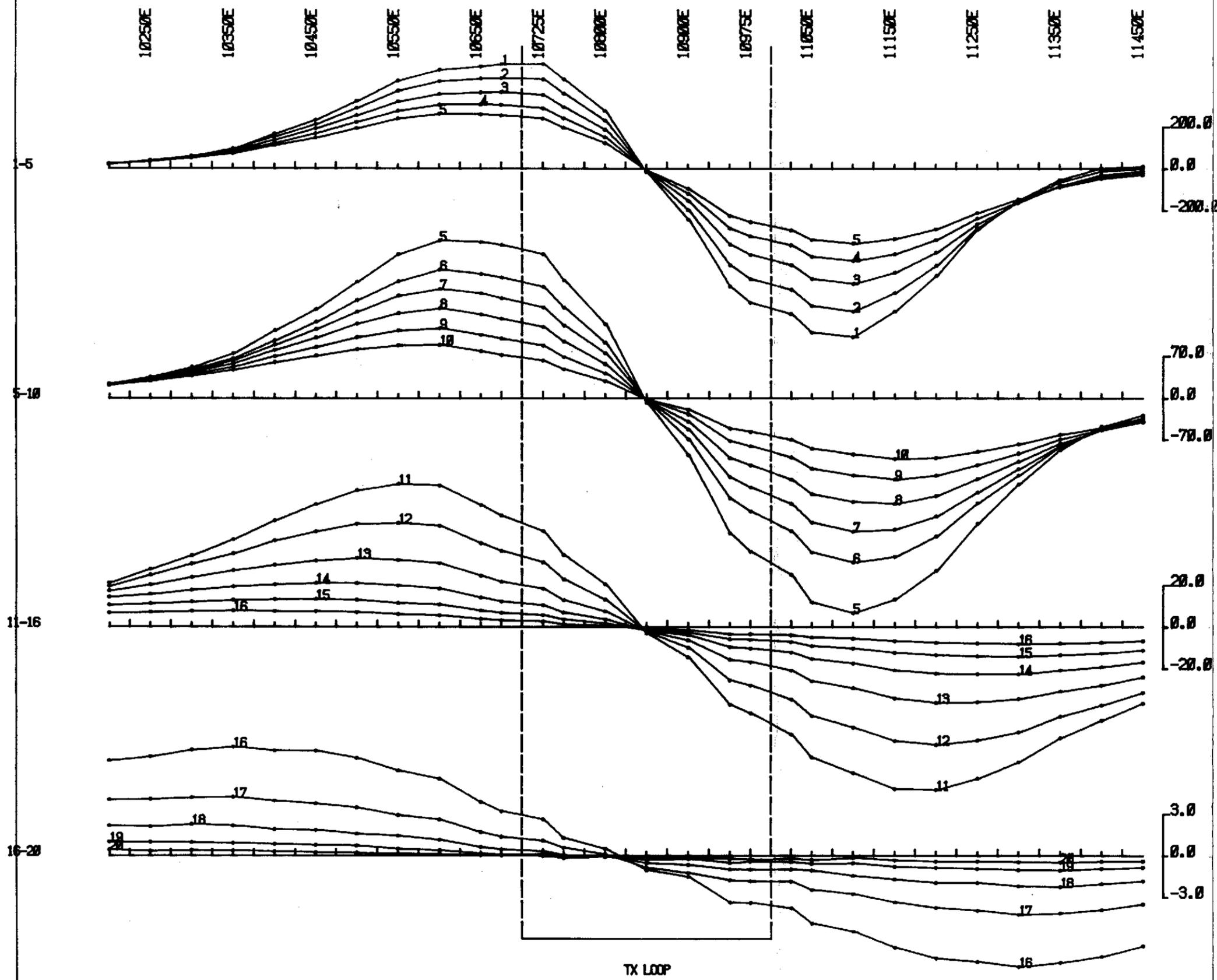
TX LOOP SIDES : 10800N 10900E  
                  : 11100N 10900E  
TX LOOP SIZE : 600m X 300m  
TX TURN OFF TIME : 955 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP.RL  
DATE : 22-NOV-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA T  
AREA : Maratch Tasmania.  
LINE : 10700E Z  
TX LOOP : 2

057

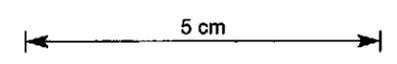
HORIZONTAL COMPONENT B (X)



269058

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

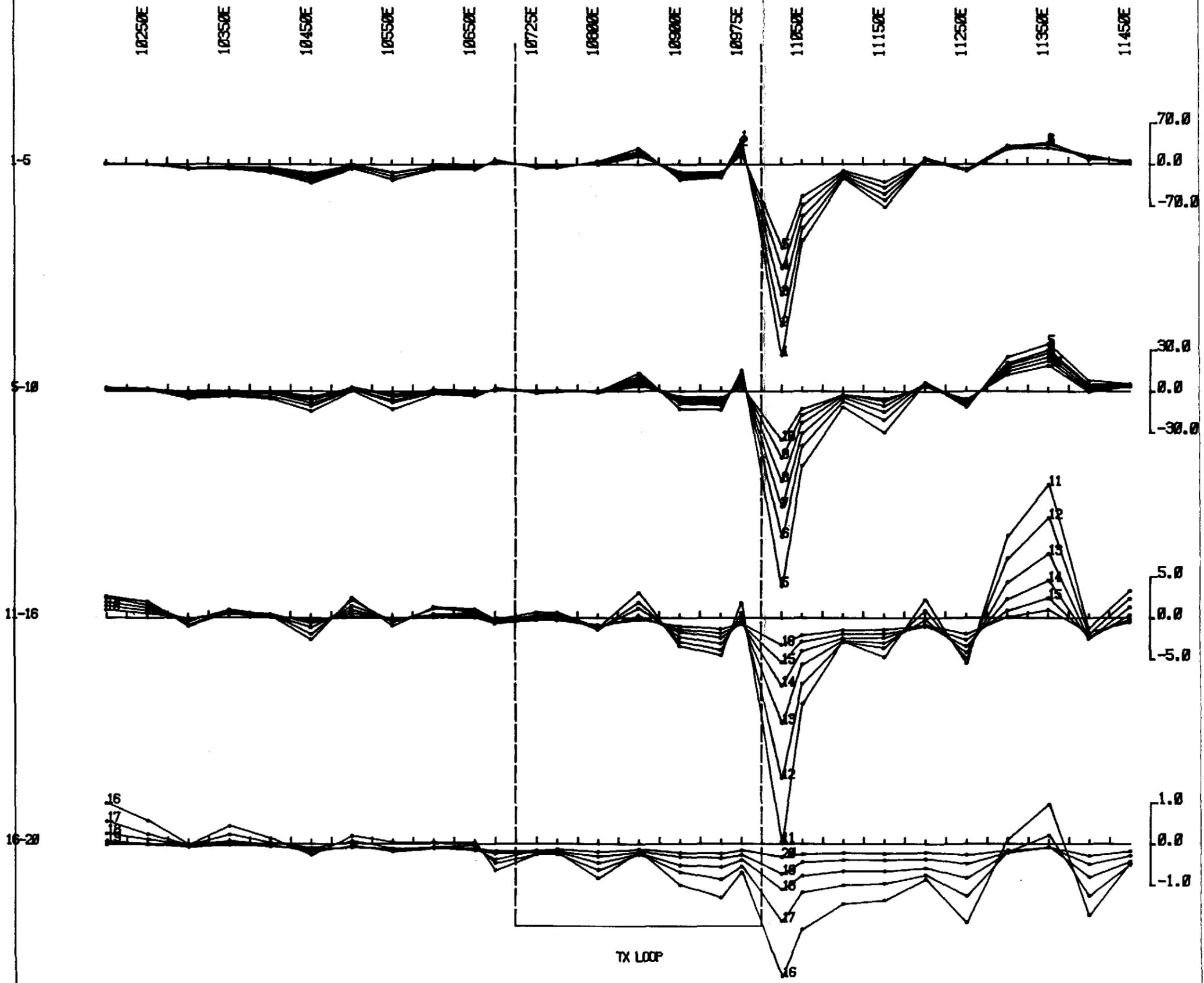
TX LOOP SIDES : 10200N 10700E  
                  : 10800N 11000E  
TX LOOP SIZE : 900m X 600m  
TX TURN OFF TIME : 340 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 24-NOV-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA I	X
AREA : Haratch Tasmania.	
LINE : 10500N	
TX LOOP : 3	

058

HORIZONTAL COMPONENT B (Y)

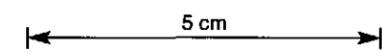


269059

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



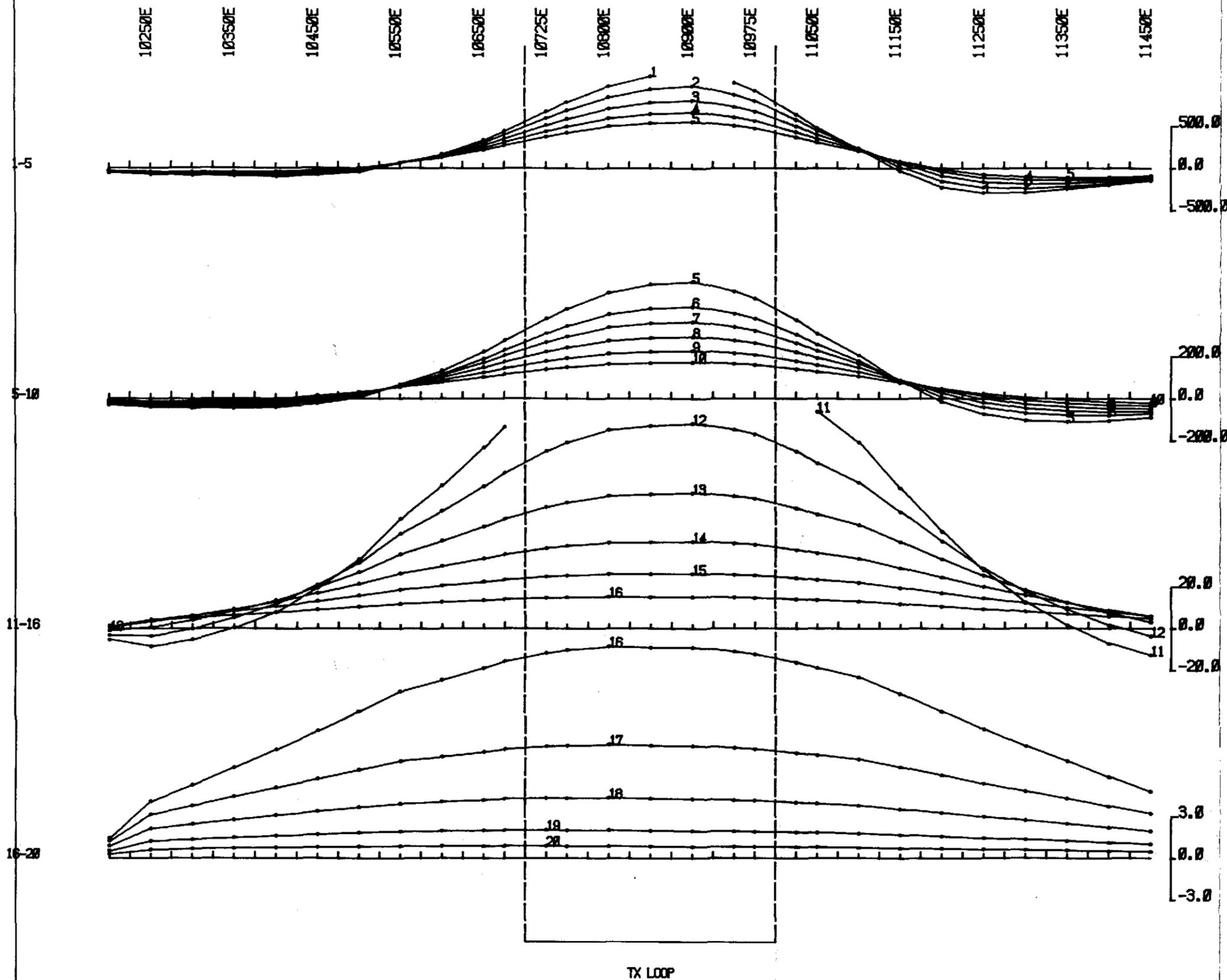
nanovolt per amp. metre squared

TX LOOP SIDES : 10200N 10700E  
                  : 10800N 11000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 940 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L.  
DATE : 24-NOV-1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA I  
AREA : Haratch Tasmania.  
LINE : 10500N Y  
TX LOOP : 3

VERTICAL COMPONENT B (Z)



269060

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

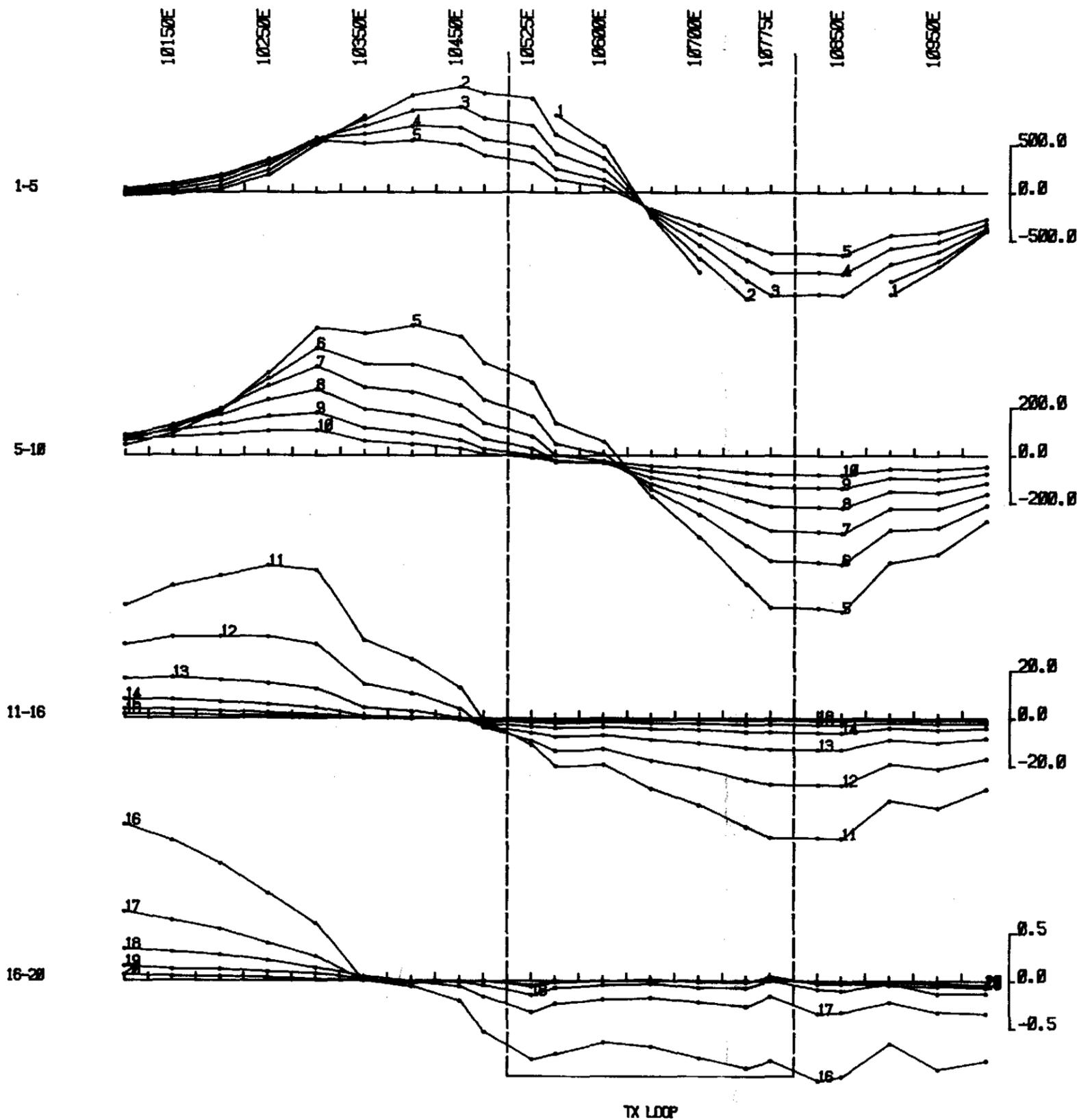
nanovolts per amp-metre squared

TX LOOP SIDES : 10200N 10700E  
                  : 10300N 11000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 348 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L  
DATE : 24-NOV-1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTERREX PTY. LTD.	85-1488

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA I  
AREA : Maratah Tasmania.  
LINE : 10500N Z  
TX LOOP : 3

HORIZONTAL COMPONENT B (X)



269061

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp.metre squared

5 cm

TX LOOP SIDES : 10200N 10500E  
: 10300N 10600E

TX LOOP SIZE : 300m X 600m

TX TURN OFF TIME : 365 microseconds

CURRENT : 16.8 amps

FREQUENCY : 25 Hz

INTEGRATION TIME : 256 cycles

SYNC MODE : CRYSTAL

HORIZONTAL SCALE : 1:5000

SURVEYED BY : J.P.R.

DATE : 01-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1489

CLIENT : The BHP Co. Ltd.

PROJECT : ARER N

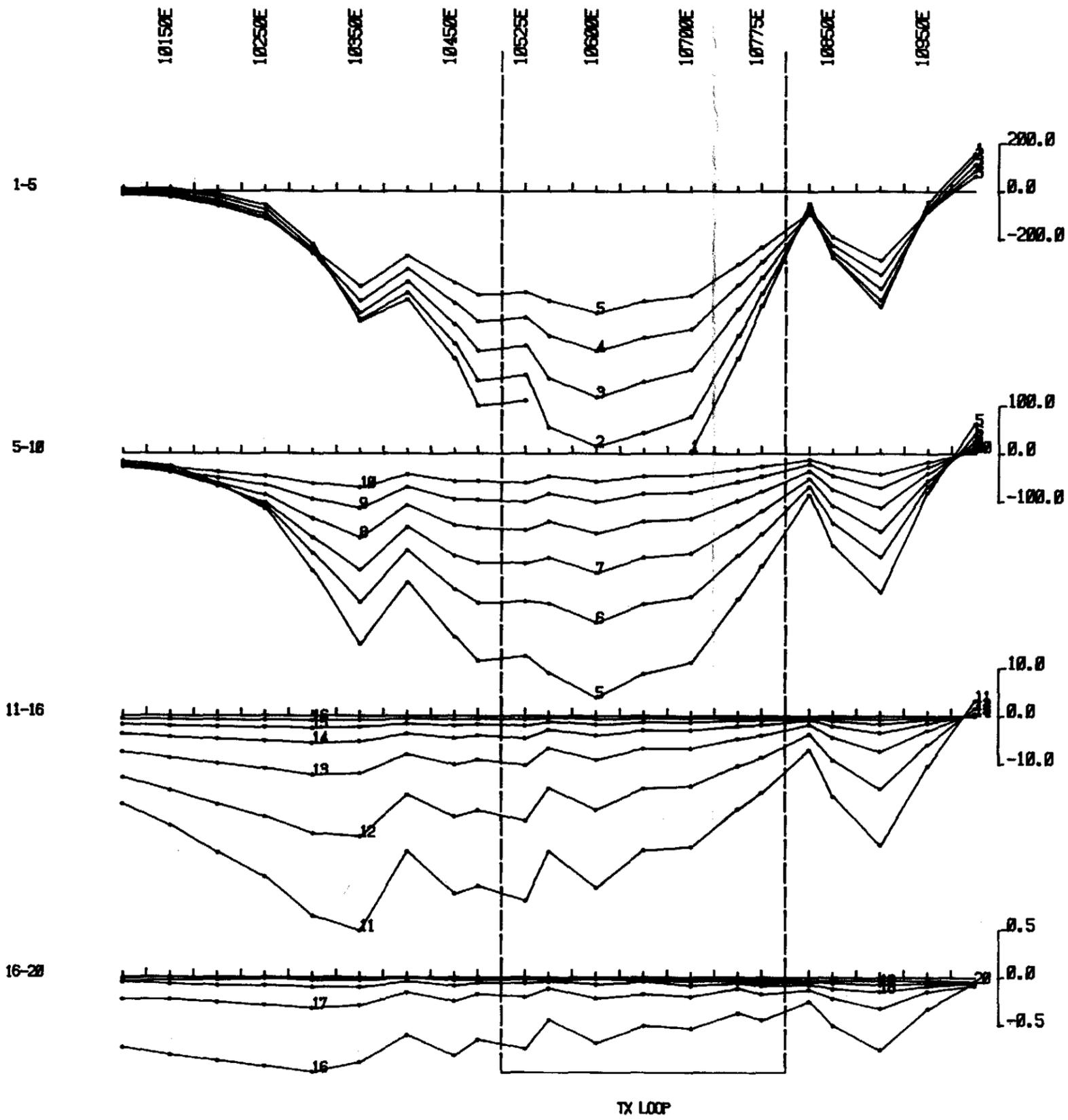
ARER : Maratch Tasmania.

LINE : 10300N X

TX LOOP : 6

062

HORIZONTAL COMPONENT B (Y)



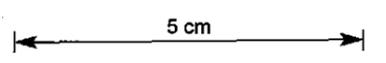
nanoVolts per amp-metre squared

269062

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



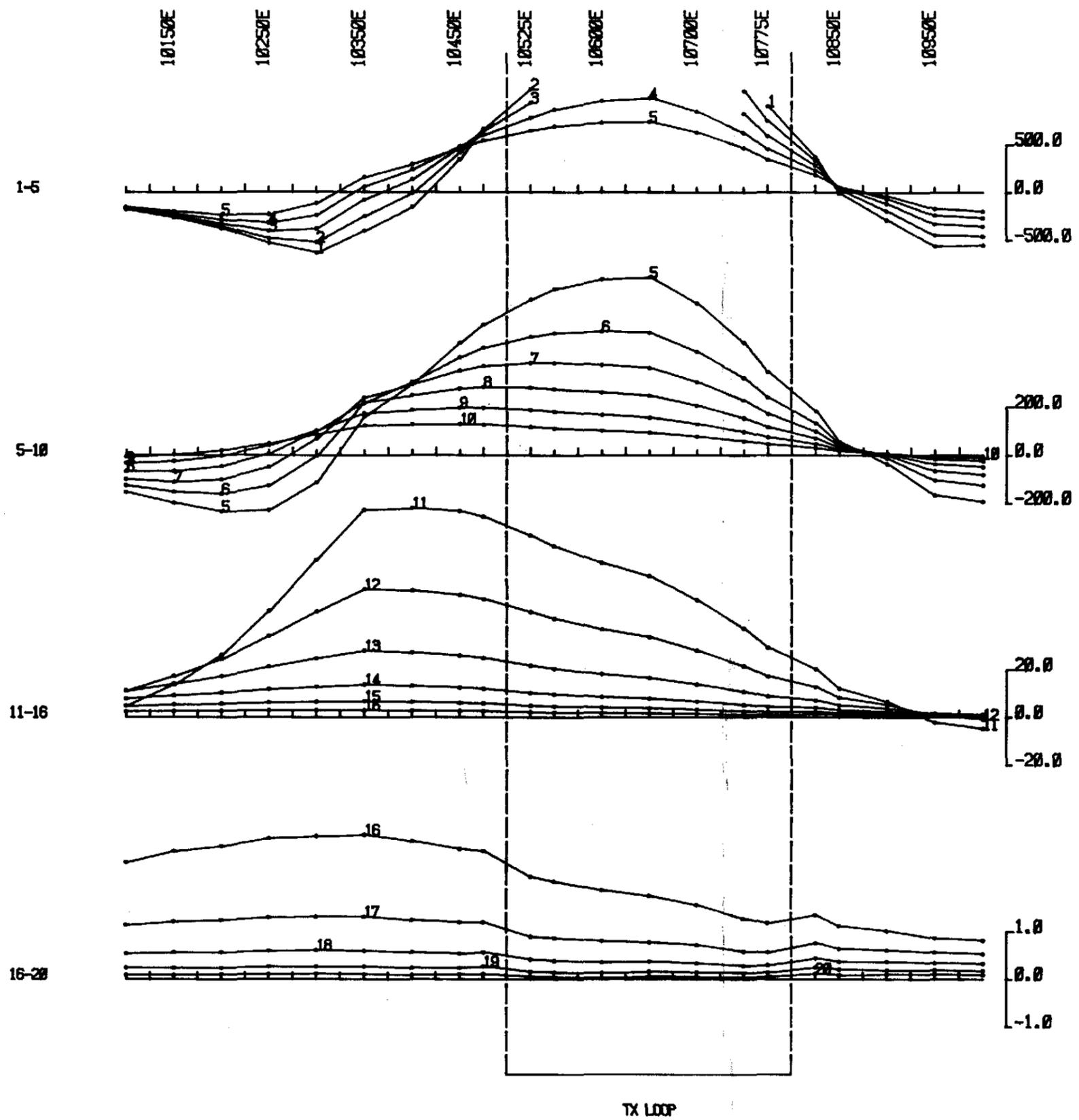
TX LOOP SIDES : 10200N 10500E  
                  : 10600N 10600E  
TX LOOP SIZE : 90m X 60m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 01-DEC-1969

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Waratah Tasmania.  
LINE : 10300N Y  
TX LOOP : 6

063

VERTICAL COMPONENT B (Z)

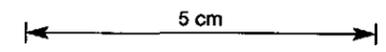


269063

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

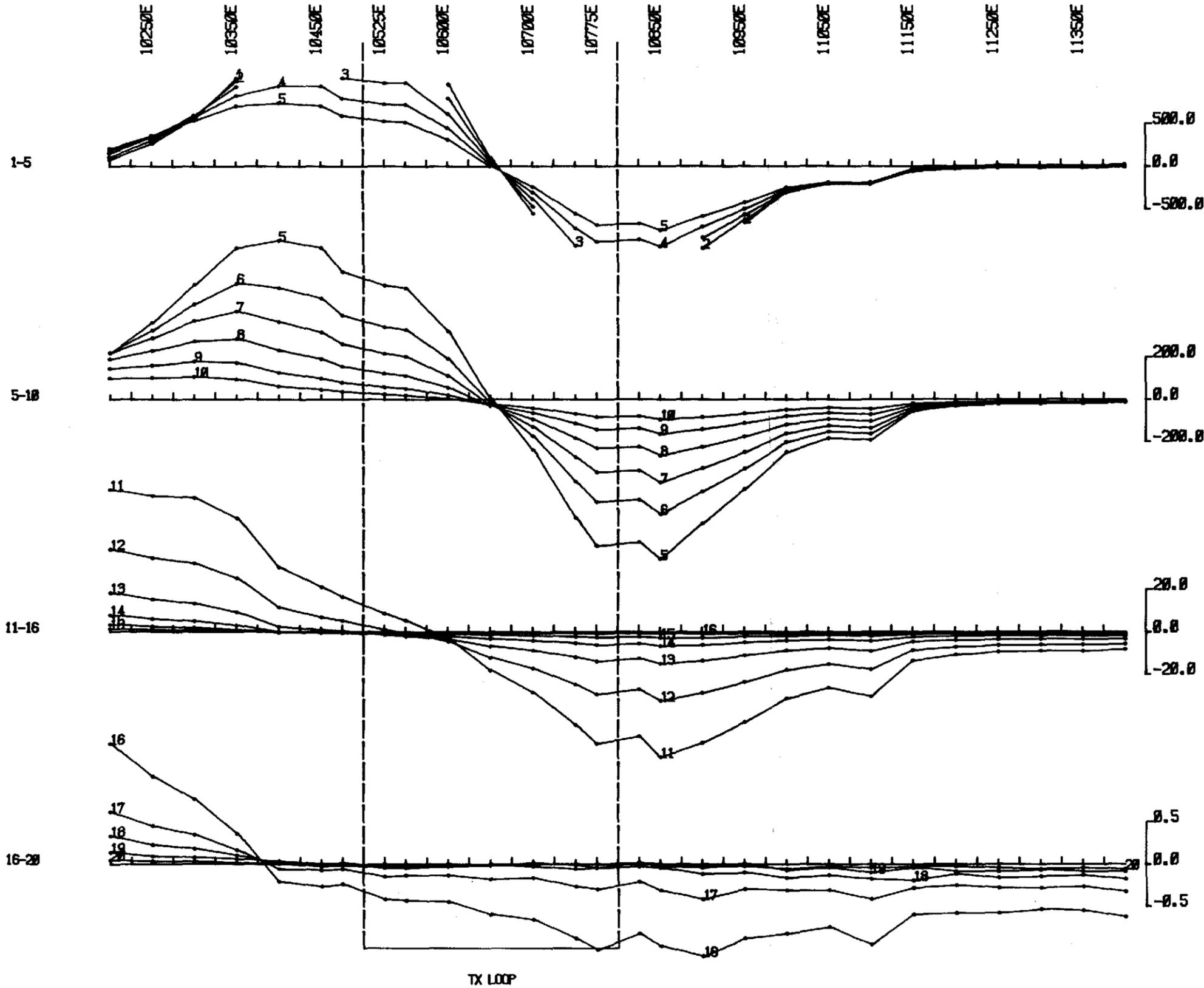
TX LOOP SIDES : 10200N 10500E  
                  : 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L.  
DATE : 01-DEC-1983

	SURVEYED AND COMPILED BY GEDTERREX PTY. LTD.	PROJECT NO. 85-1498
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA N	
AREA : Waratah Tasmania.	
LINE : 10300N	Z
TX LOOP : 6	

064

HORIZONTAL COMPONENT B (X)

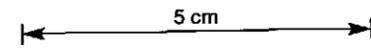


269064

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared



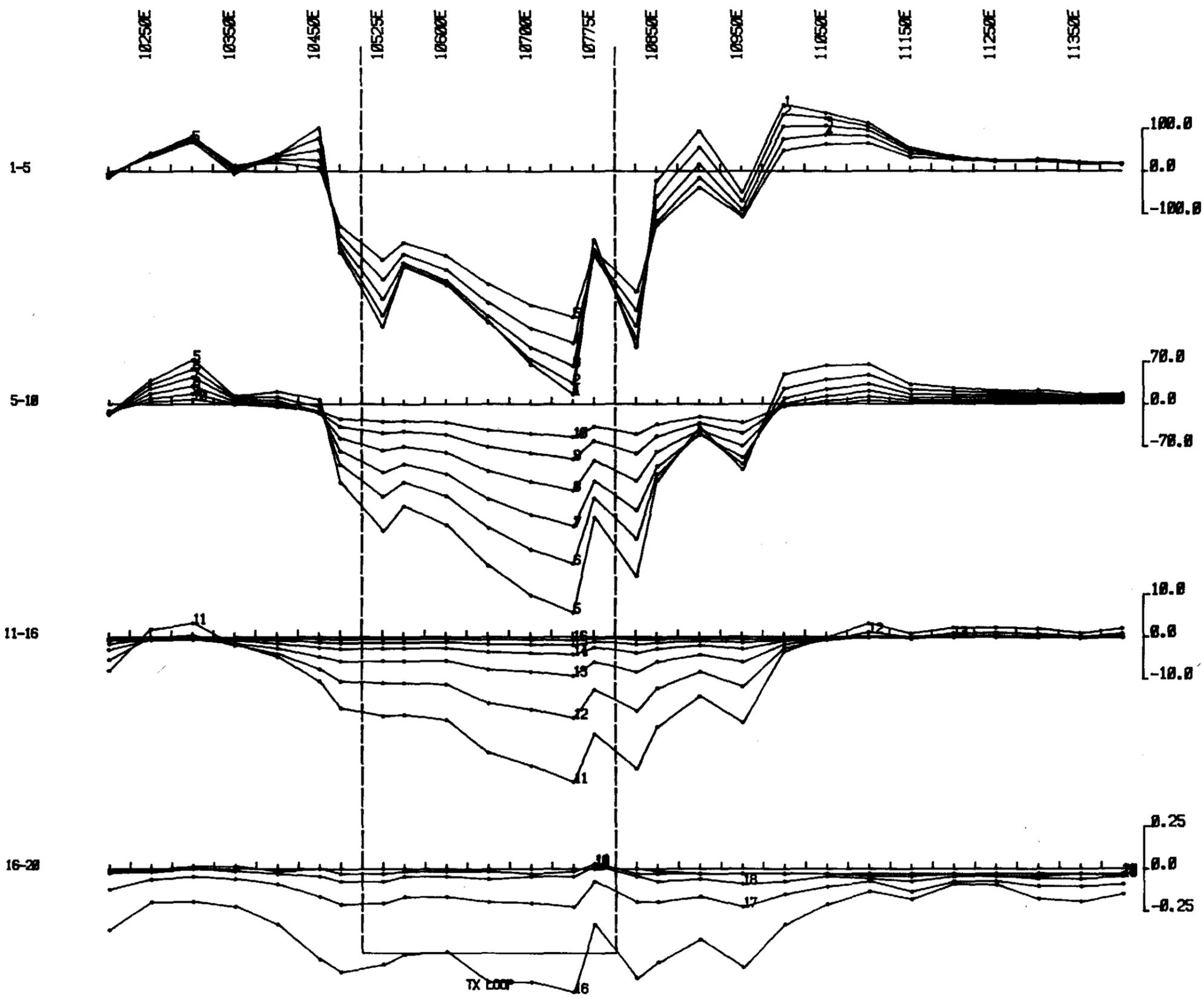
TX LOOP SIDES : 10200N 10500E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 01-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA N	
AREA : Waratah Tasmania.	
LINE : 10500N	X
TX LOOP : 6	

065

HORIZONTAL COMPONENT B (Y)



269065

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared

5 cm

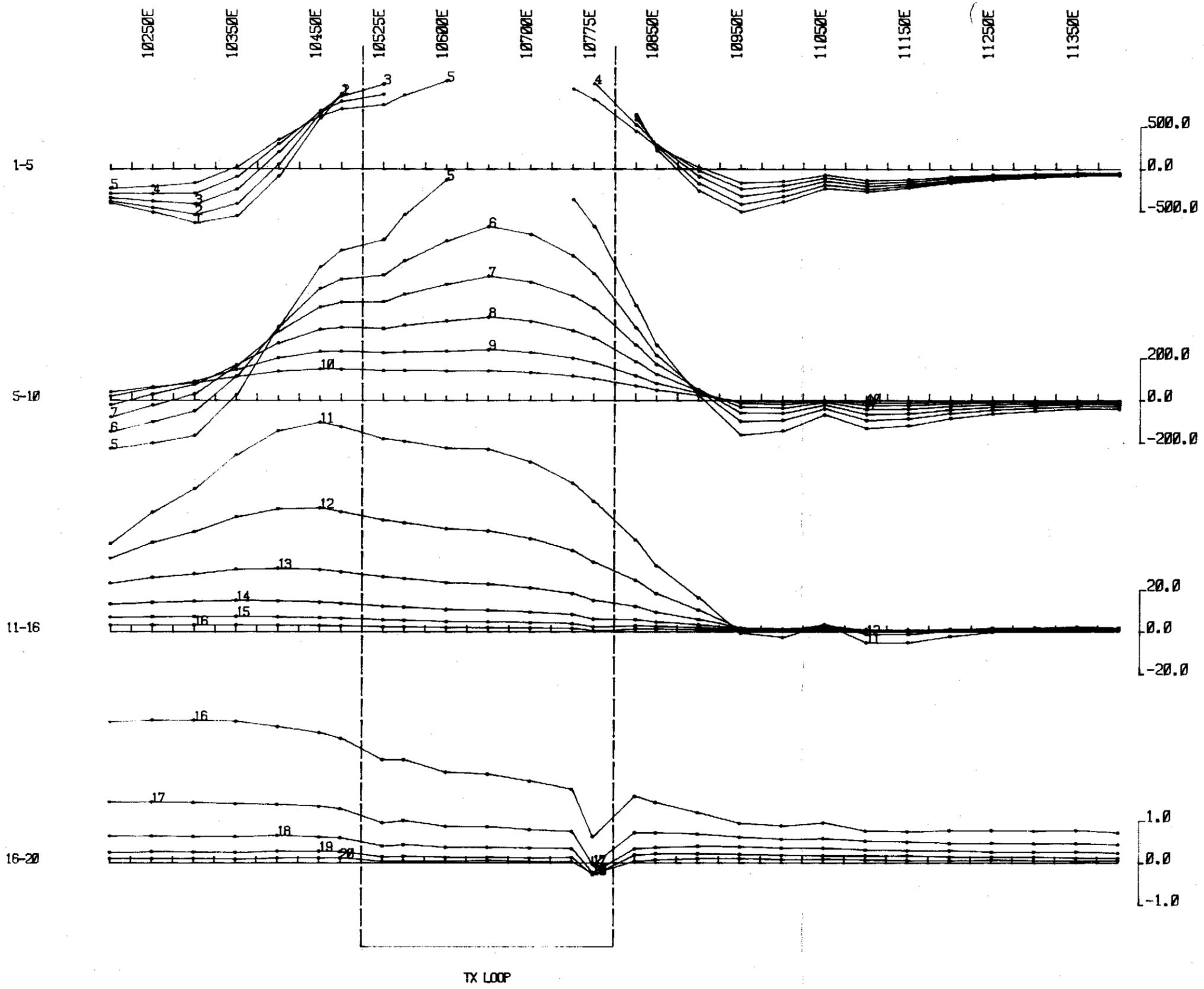
TX LOOP SIDES : 10200N 10500E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.0 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 250 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.A.L.  
DATE : 01-DEC-1989

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	05-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Waratah Tasmania.  
LINE : 10500N  
TX LOOP : 6

066

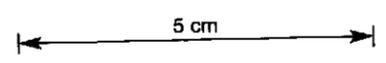
VERTICAL COMPONENT B (Z)



EM-37  
FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared



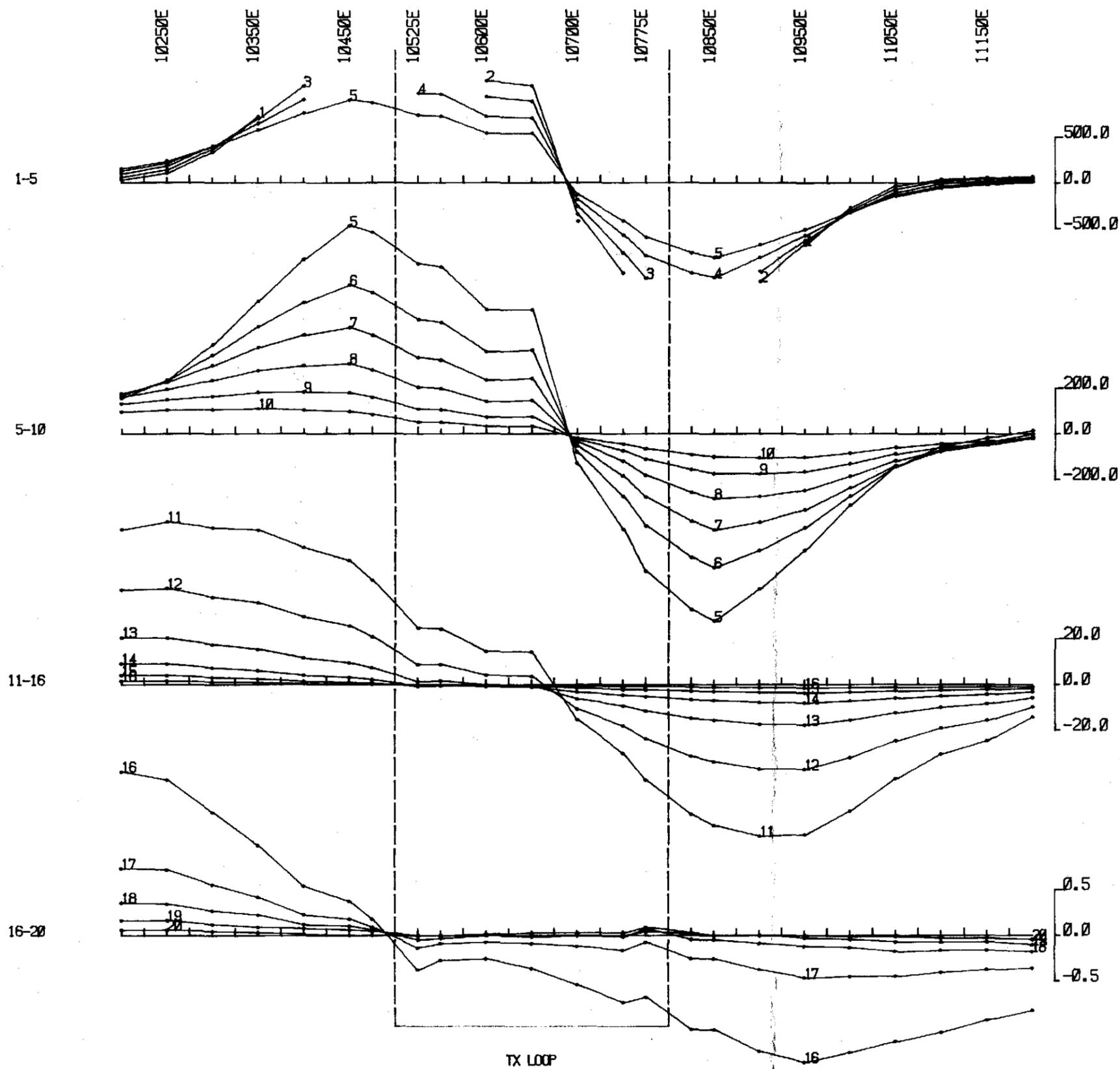
TX LOOP SIDES : 10200N 10500E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 01-DEC.1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
--	---	------------------------

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Waratah Tasmania.  
LINE : 10500N Z  
TX LOOP : 6

067

HORIZONTAL COMPONENT B (X)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

nanovolt per amp-metre squared

TX LOOP SIDES : 10200N 10500E  
: 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 02-DEC, 1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

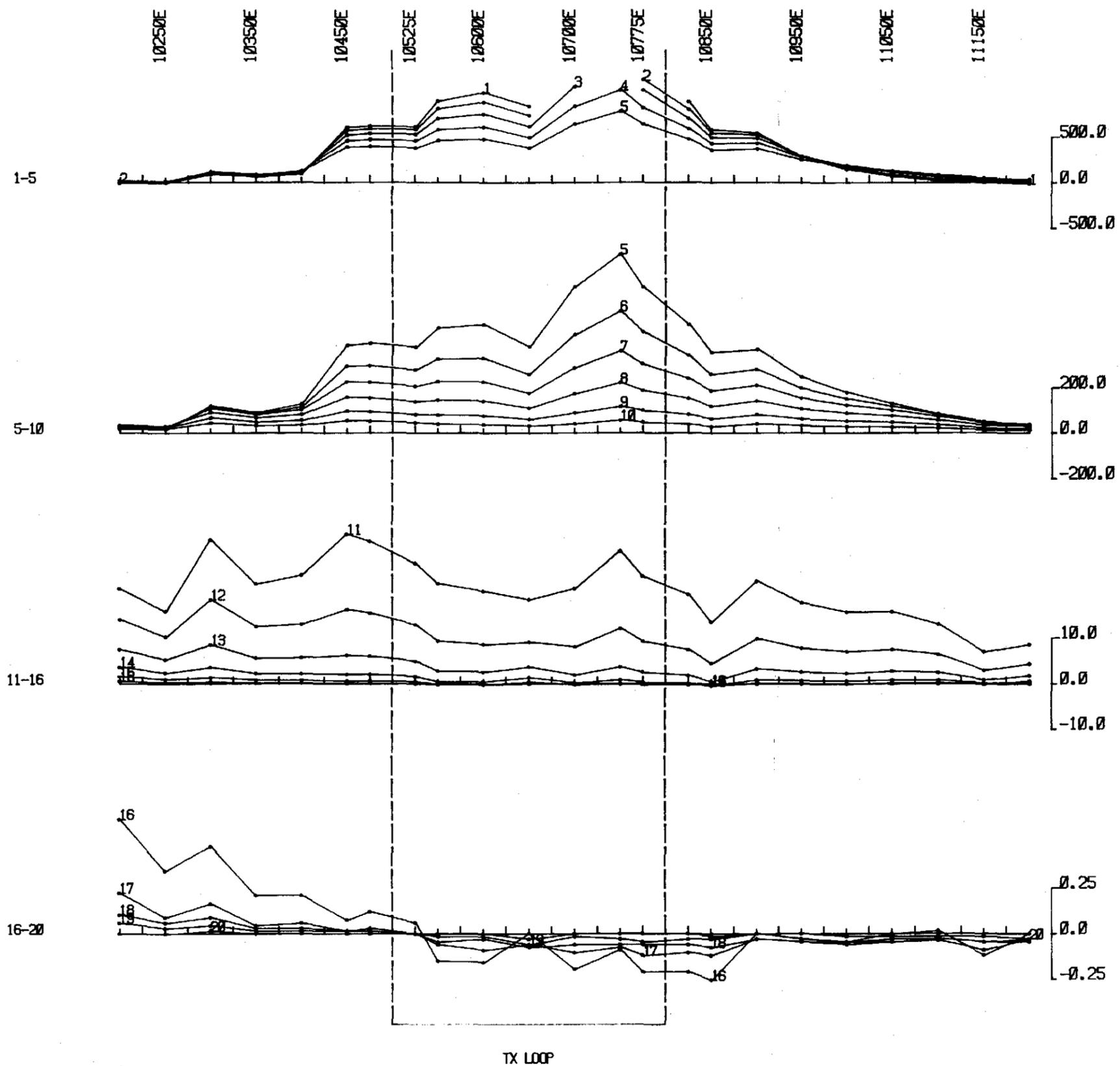
PROJECT NO.  
85-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Waratah Tasmania.  
LINE : 10700N  
TX LOOP : 6

X

068

HORIZONTAL COMPONENT B (Y)



nanovolts per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

TX LOOP SIDES : 10200N 10500E  
: 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 02-DEC-1983



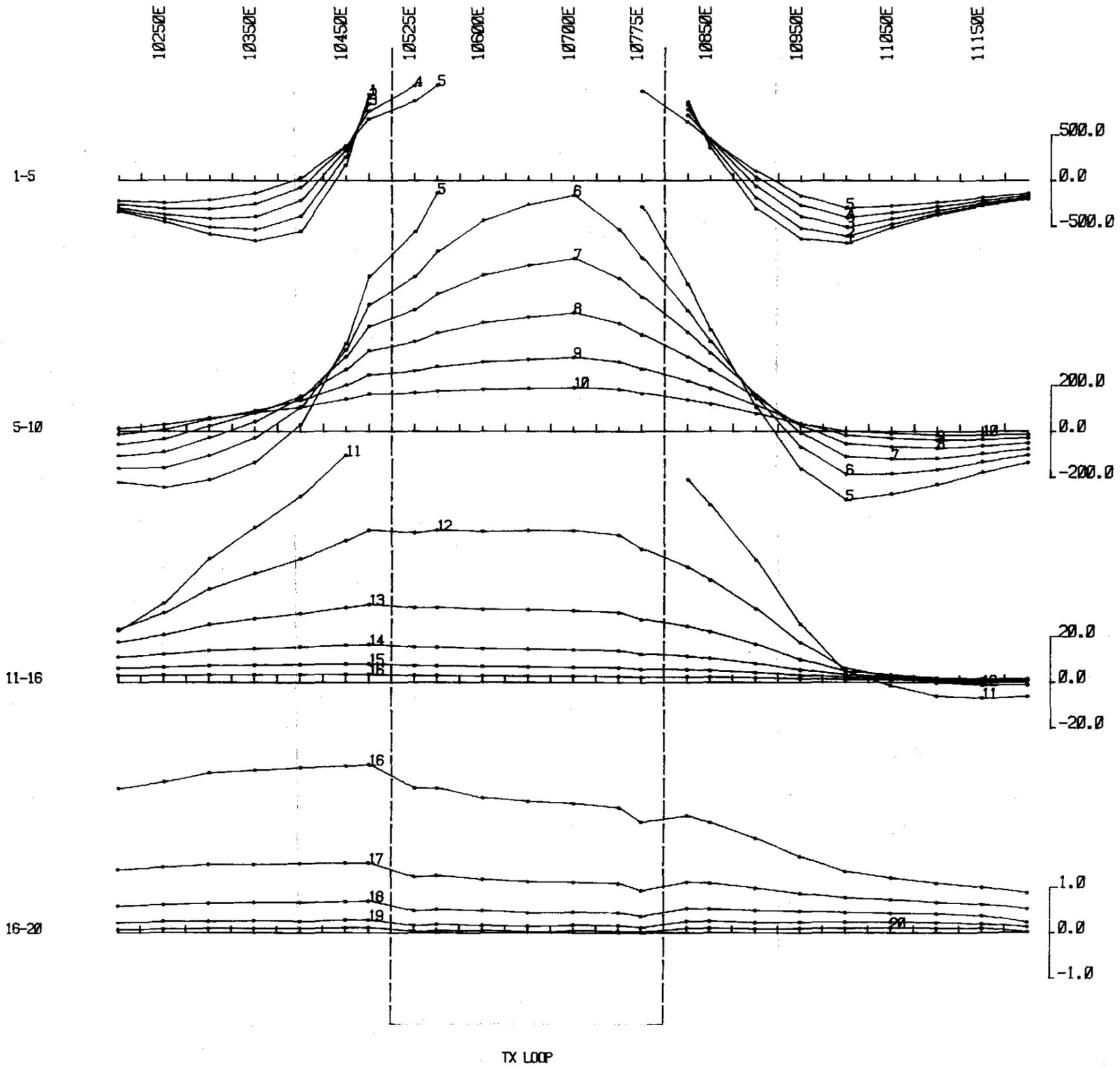
SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Maratah Tasmania.  
LINE : 10700N  
TX LOOP : 6

Y

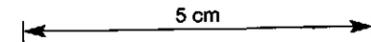
VERTICAL COMPONENT B (Z)



FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp.metre squared



TX LOOP SIDES : 10200N 10500E  
                  : 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 02-DEC,1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1499

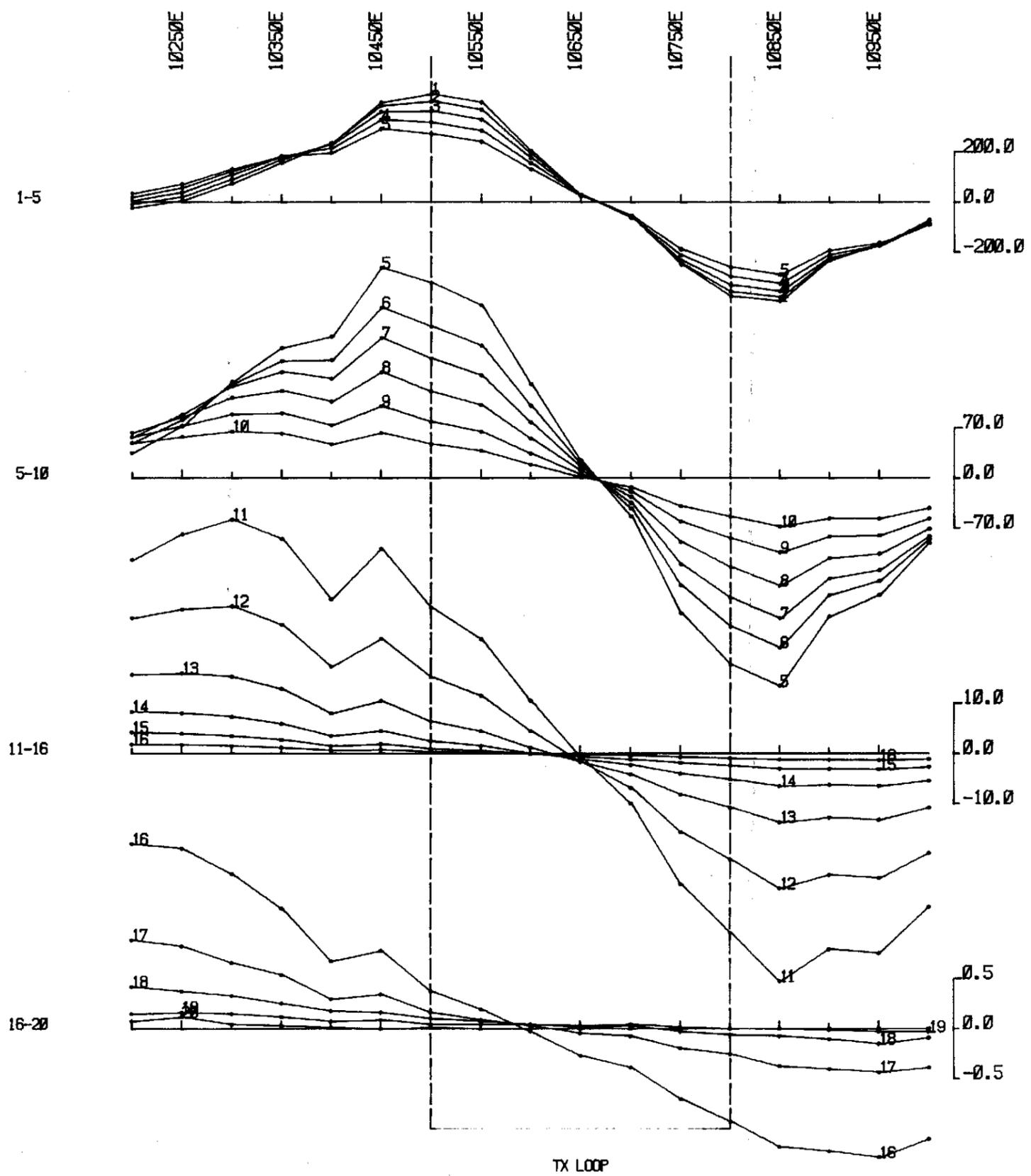
CLIENT : The BHP Co. Ltd.  
PROJECT : AREA N  
AREA : Marotah Taomaha.  
LINE : 10700N  
TX LOOP : 6

Z

069

070

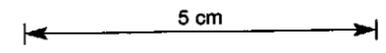
HORIZONTAL COMPONENT B (X)



nanovolt per amp-metre squared

EM-37  
FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

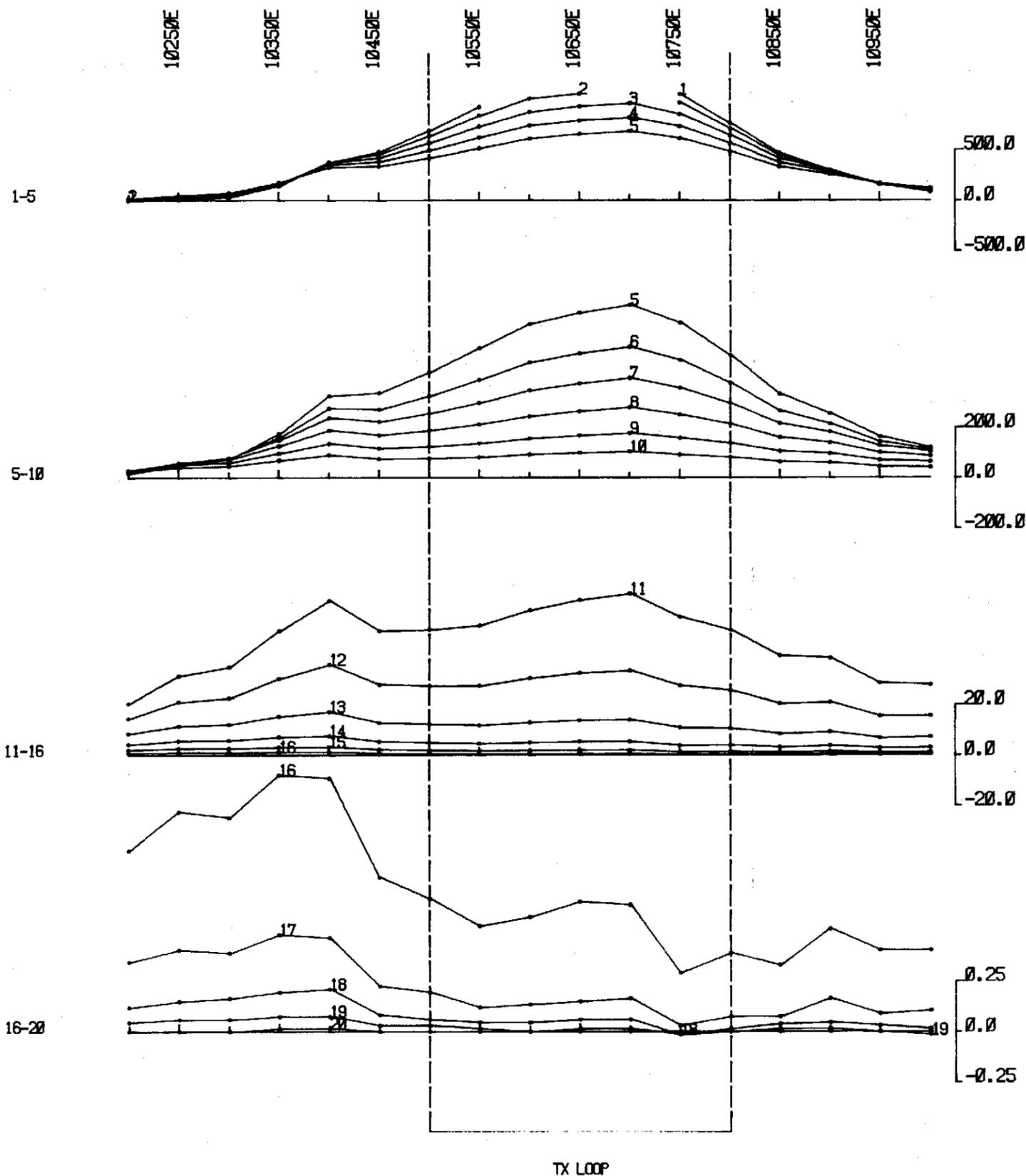


TX LOOP SIDES : 10200N 10500E  
                  : 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 02-DEC-1983

	SURVEYED AND COMPILED BY GEOTERREX PTY. LTD.	PROJECT NO. 65-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA N  
AREA : Waratah Tasmania.  
LINE : 10900N X  
TX LOOP : 6

HORIZONTAL COMPONENT B (Y)

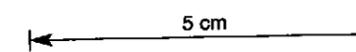


nanovolt per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 10200N 10500E  
 : 10800N 10600E  
 TX LOOP SIZE : 300m X 600m  
 TX TURN OFF TIME : 365 microseconds  
 CURRENT : 16.8 ampe  
 FREQUENCY : 25 Hz  
 INTEGRATION TIME : 256 cycles  
 SYNC MODE : CRYSTAL  
 HORIZONTAL SCALE : 1:5000  
 SURVEYED BY : J.P.R.L.  
 DATE : 02-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

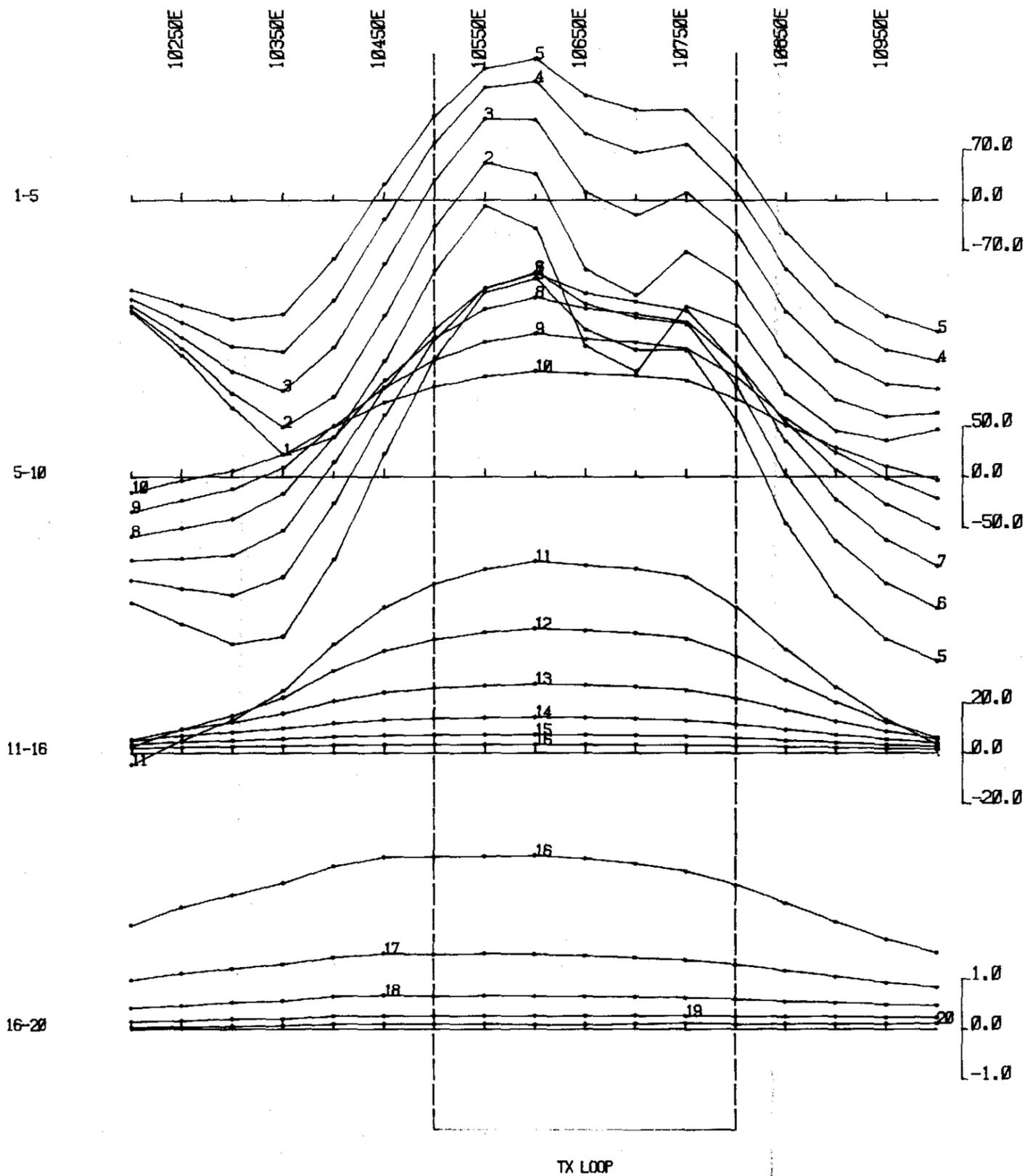
PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
 PROJECT : AREA N  
 AREA : Maratah Tasmania.  
 LINE : 10900N  
 TX LOOP : 6

Y

072

VERTICAL COMPONENT B (Z)

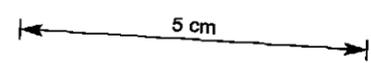


nanovolts per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

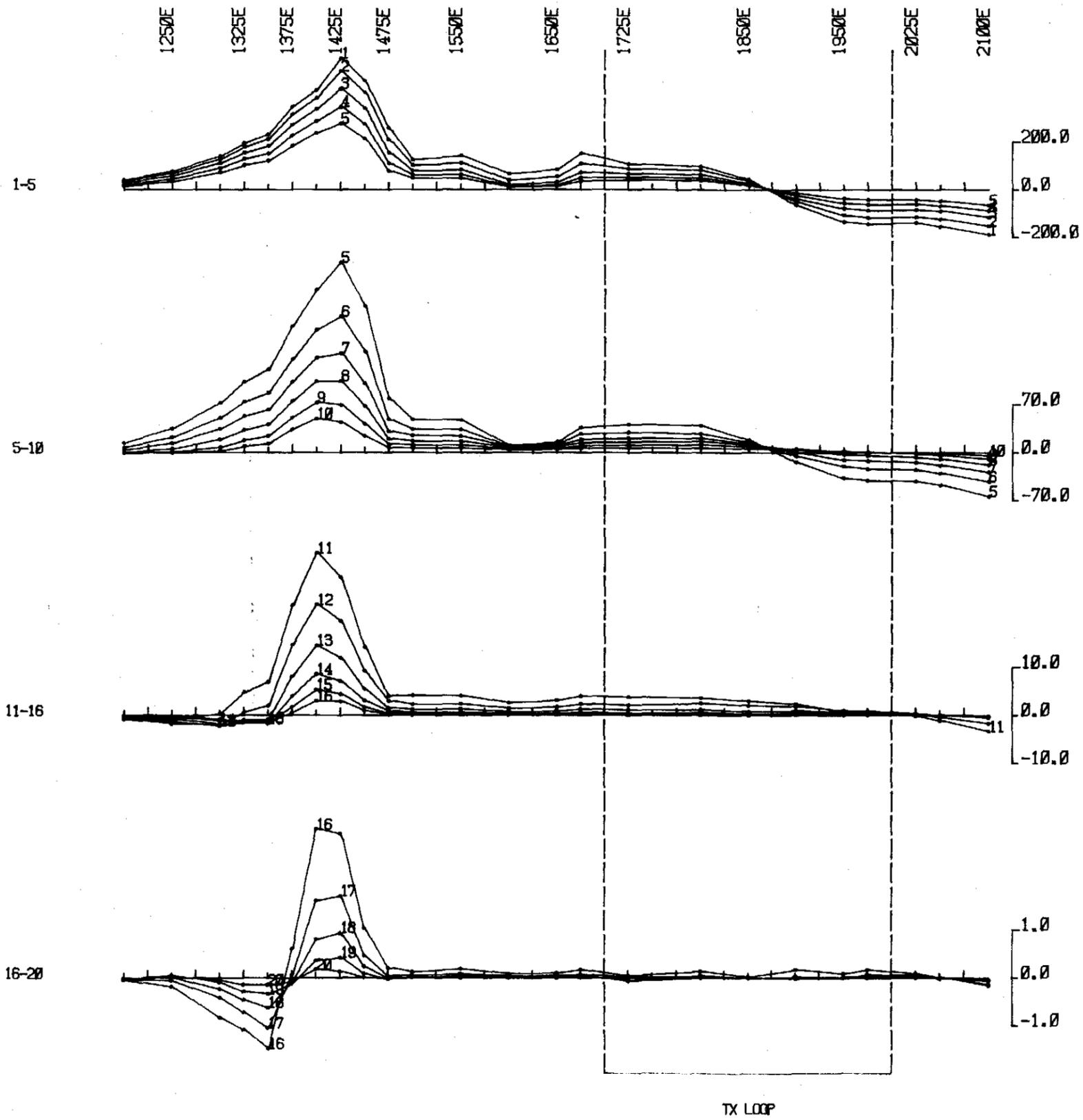


TX LOOP SIDES : 10200N 10500E  
: 10800N 10800E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 365 microseconds  
CURRENT : 16.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNCH MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 02-DEC, 1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : AREA N AREA : Waratah Tasmania. LINE : 10900N Z TX LOOP : 6	

073

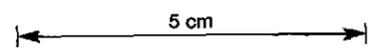
HORIZONTAL COMPONENT B (X)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E

TX LOOP SIZE : 300m X 600m

TX TURN OFF TIME : 375 microseconds

CURRENT : 15.5 amps

FREQUENCY : 25 Hz

INTEGRATION TIME : 256 cycles

SYNC MODE : CRYSTAL

HORIZONTAL SCALE : 1:5000

SURVEYED BY : J.P.,RL

DATE : 04-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
65-1499

CLIENT : The BHP Co. Ltd.

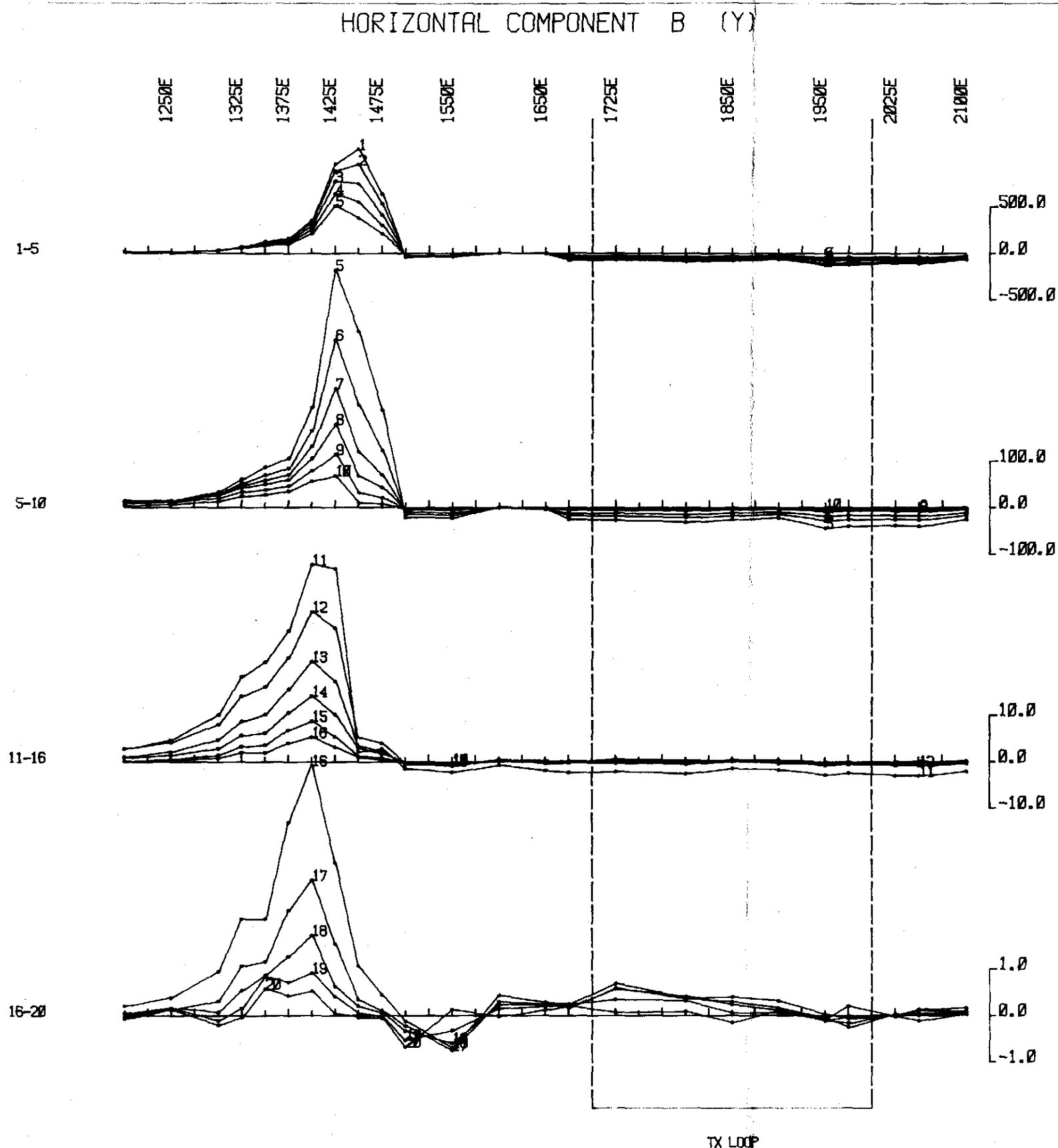
PROJECT : STYX

AREA : Maydana Tasmania

LINE : 1400N X

TX LOOP : 7

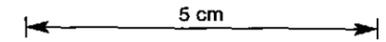
074



nanovolts per amp.metre squared

EM-37  
FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E

TX LOOP SIZE : 300m X 600m

TX TURN OFF TIME : 375 microseconds

CURRENT : 15.5 ampe

FREQUENCY : 25 Hz

INTEGRATION TIME : 256 cycles

SYNC MODE : CRYSTAL

HORIZONTAL SCALE : 1:5000

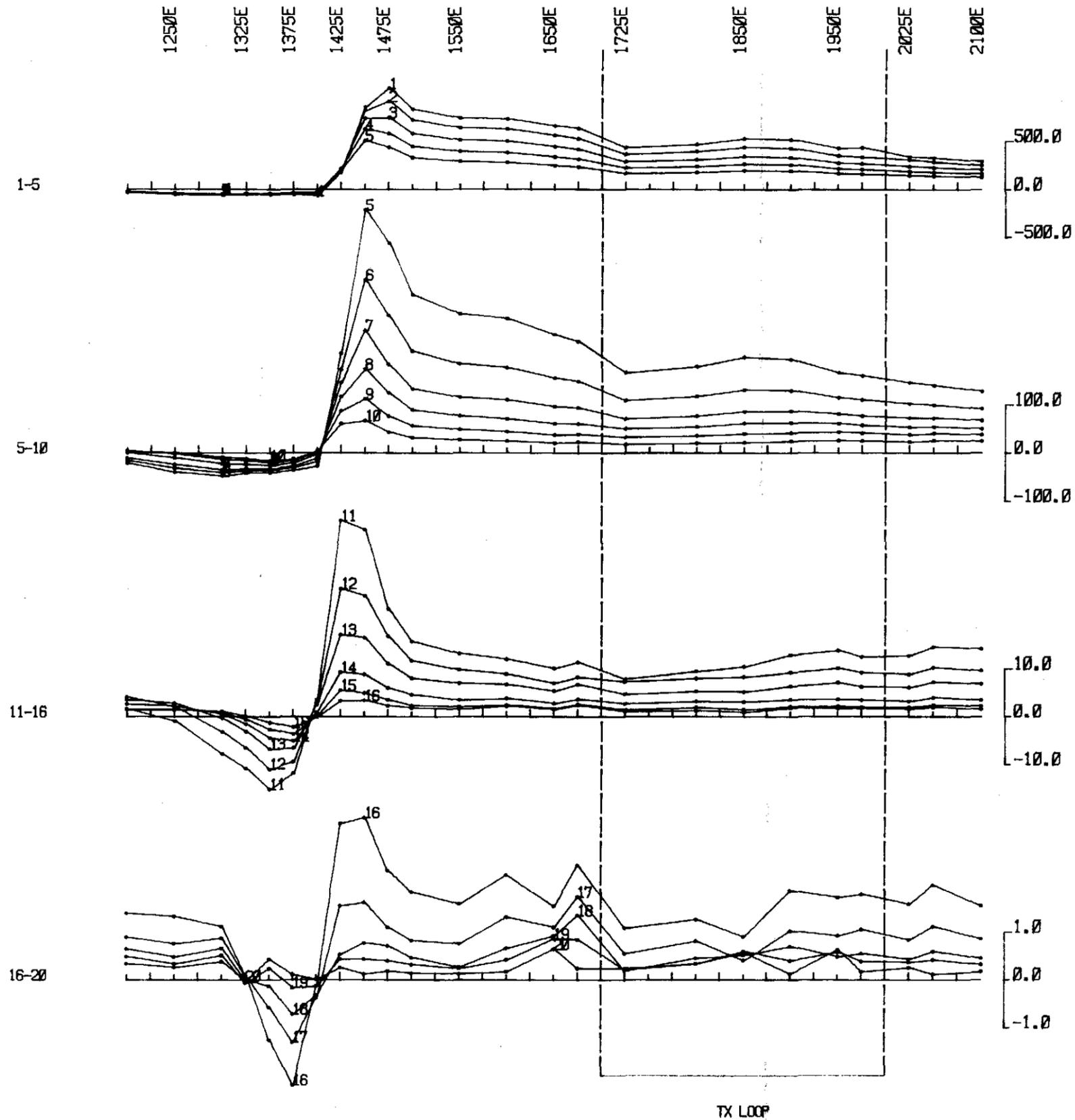
SURVEYED BY : J.P.,RL

DATE : 04-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : STYX AREA : Maydena Tasmania LINE : 1400N TX LOOP : 7	

075

VERTICAL COMPONENT B (Z)



nanovolts per amp.metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

5 cm

TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. RL  
DATE : 04-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1488

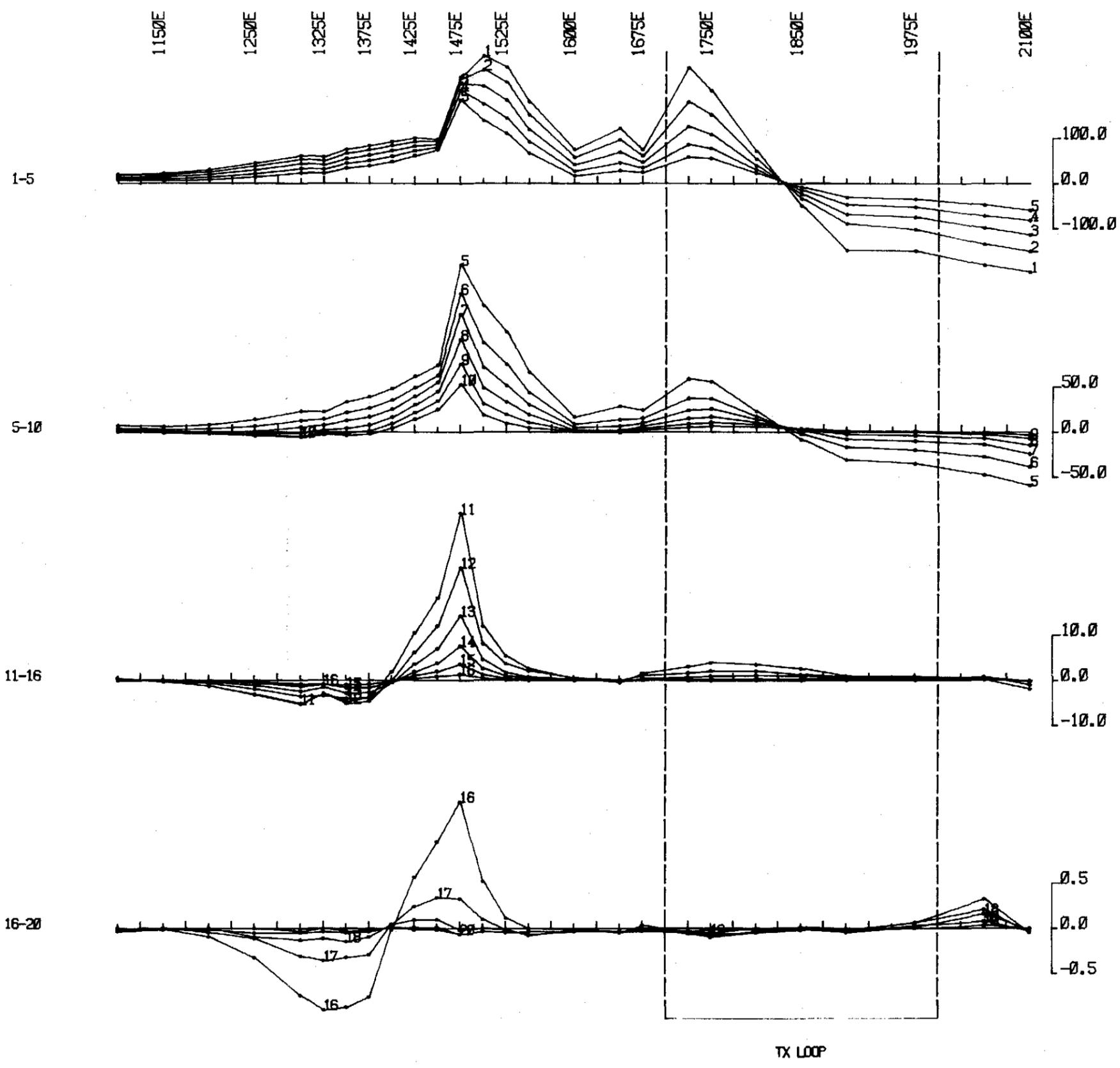
CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Magdalena Tasmania  
LINE : 1400N  
TX LOOP : 7

Z

076

269076

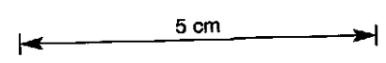
HORIZONTAL COMPONENT B (X)



nanovolts per amp. meter squared

EM-37  
FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



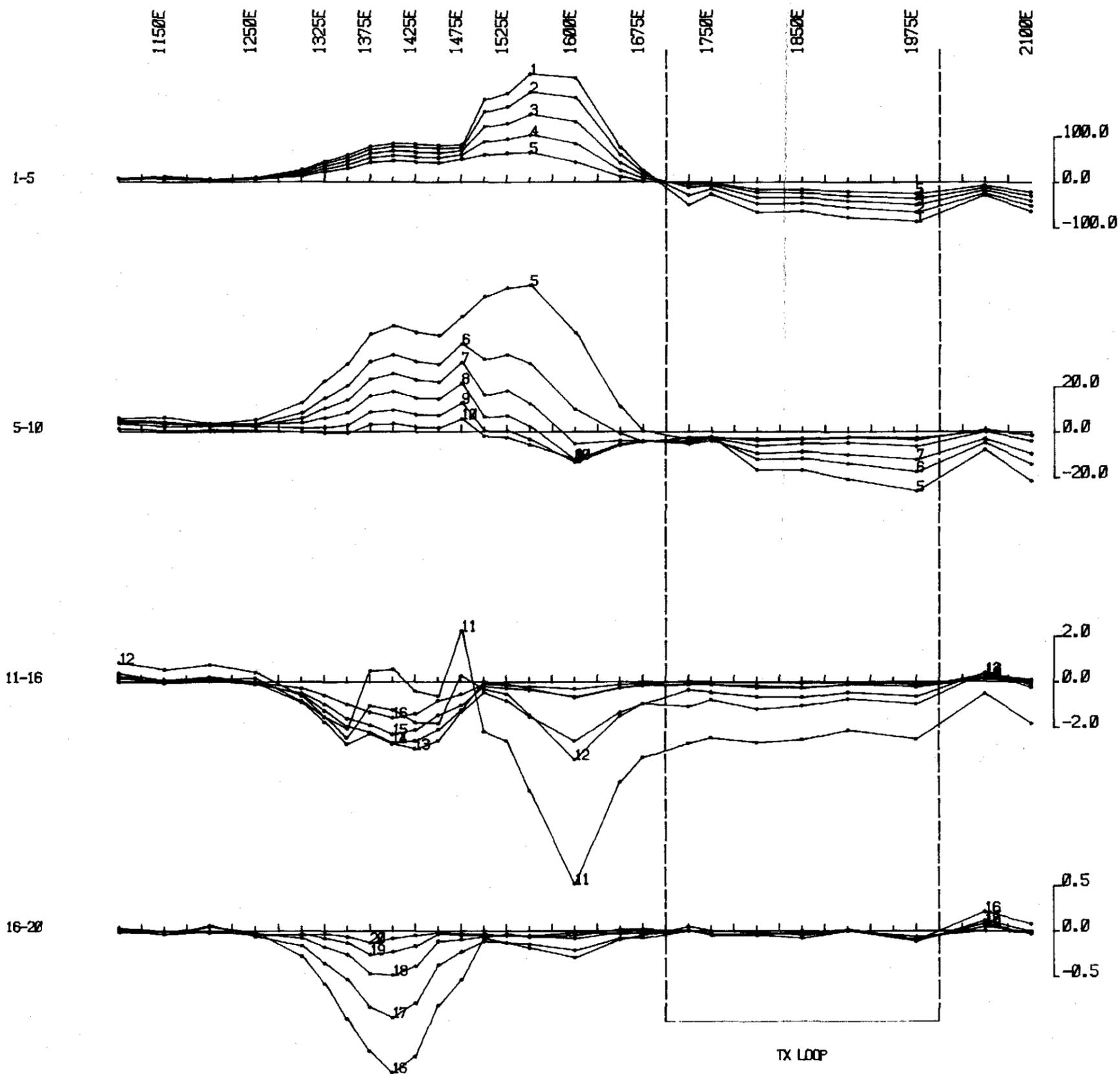
TX LOOP SIDES : 1300N 1700E  
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TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P..RL  
DATE : 05-DEC.1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : STYX	
AREA : Maydena Tasmania	
LINE : 1500N	X
TX LOOP : 7	

077

HORIZONTAL COMPONENT B (Y)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp. metre squared

5 cm

TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P..RL  
DATE : 05-DEC-1963



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

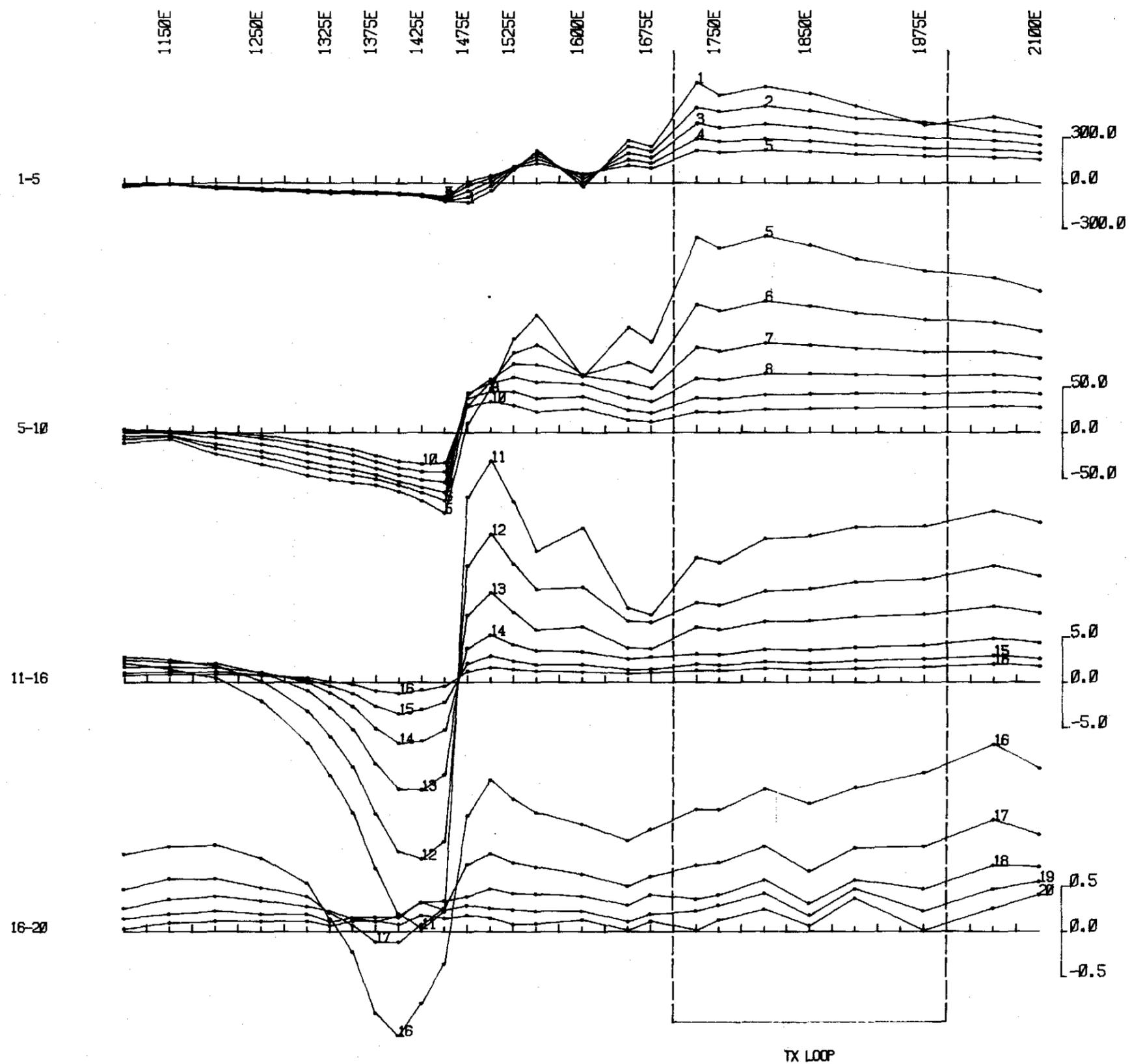
PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1500N  
TX LOOP : 7

Y

078

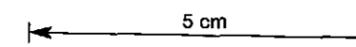
VERTICAL COMPONENT B (Z)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolt per amp-metre squared

TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amperes  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. RL  
DATE : 05-DEC, 1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

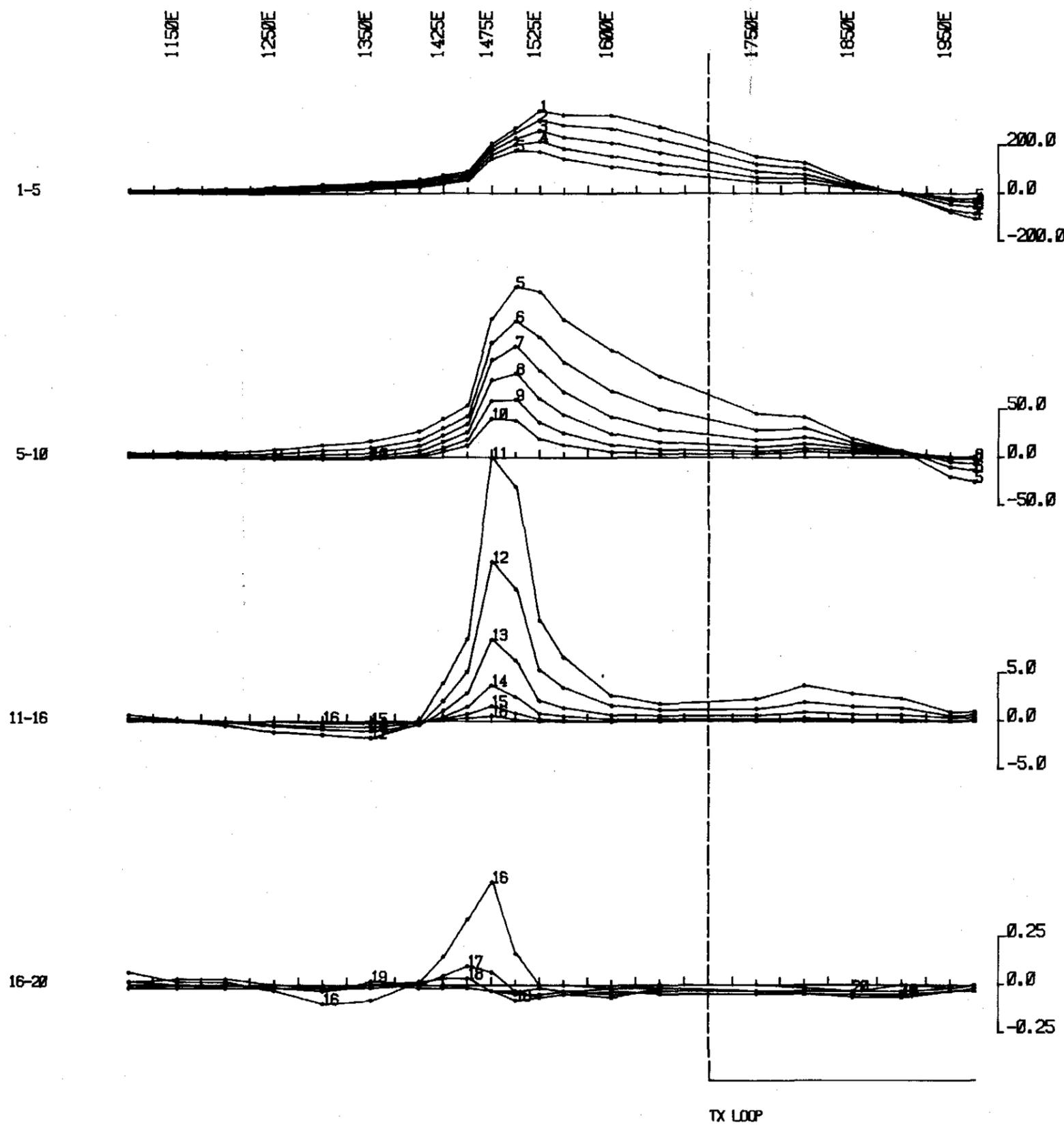
PROJECT NO.  
85-1498

CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maudslayi Trench  
LINE : 1500N Z  
TX LOOP : 7

079

269079

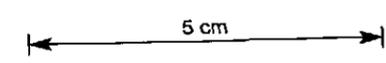
HORIZONTAL COMPONENT B (X)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolts per amp-metre squared

TX LOOP SIDES : 1900N 1700E  
: 1900N 2000E

TX LOOP SIZE : 300m X 600m

TX TURN OFF TIME : 375 microseconds

CURRENT : 15.5 amps

FREQUENCY : 25 Hz

INTEGRATION TIME : 256 cycles

SYNC MODE : CRYSTAL

HORIZONTAL SCALE : 1:5000

SURVEYED BY : J.P. RL

DATE : 05-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD. PROJECT NO.  
65-1488

CLIENT : The BHP Co. Ltd.

PROJECT : STYX

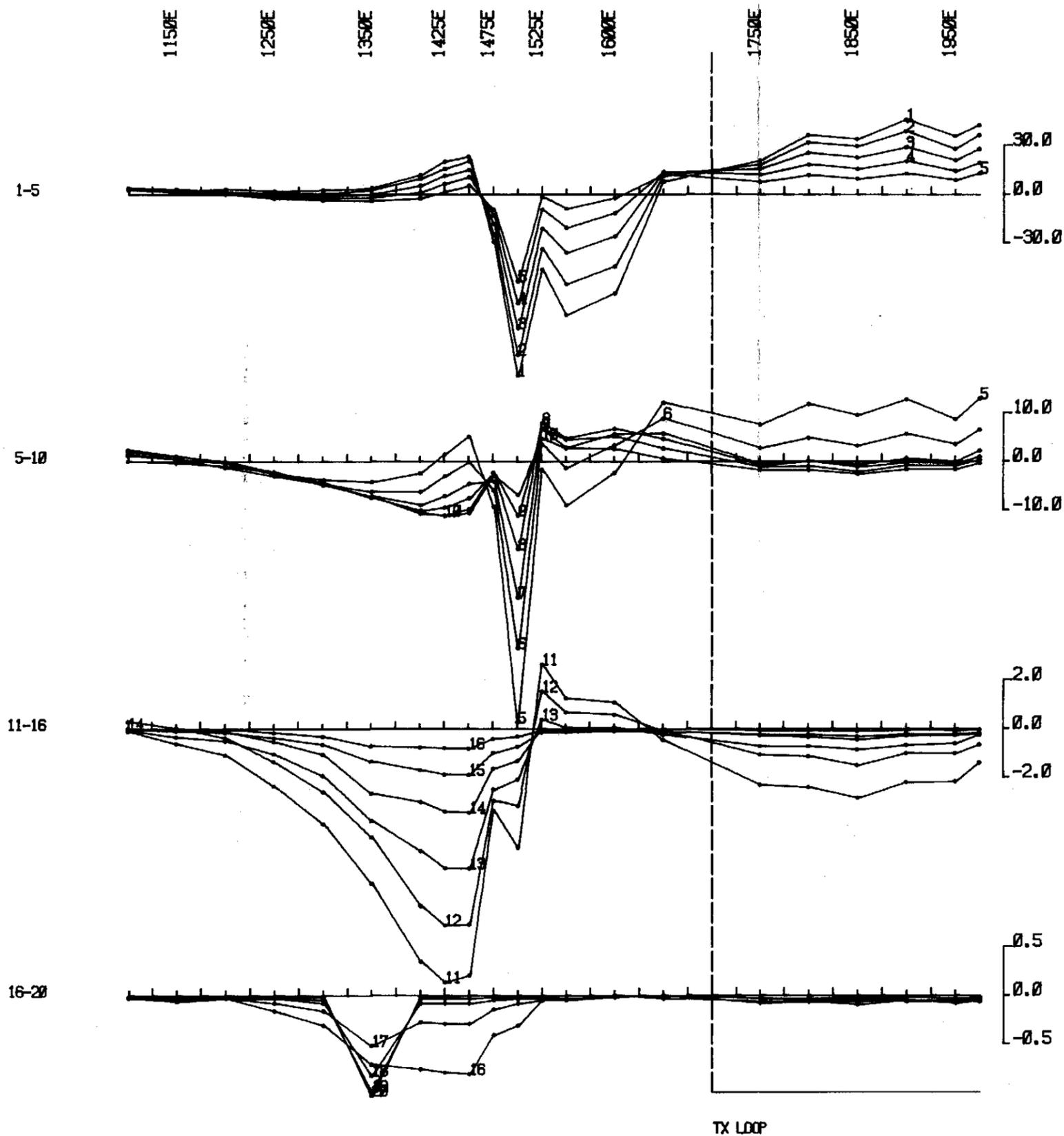
AREA : Moydena Tasmania

LINE : 1600N X

TX LOOP : 7

020

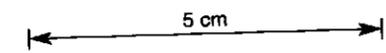
HORIZONTAL COMPONENT B (Y)



nanovolts per ampere-metre squared

EM-37  
FIXED  
TRANSMITTER  
SURVEY

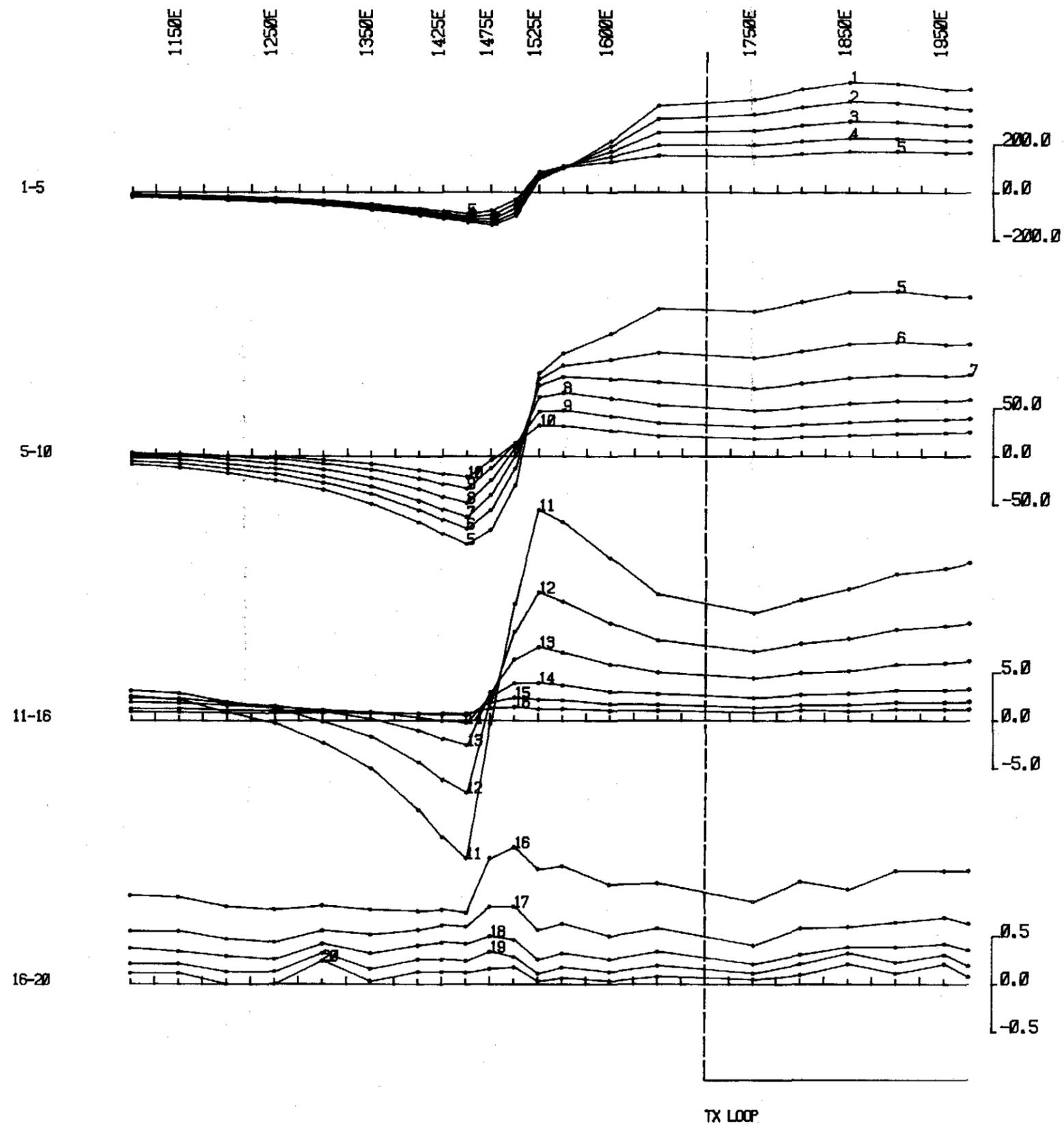
ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E	
: 1900N 2000E	
TX LOOP SIZE : 300m X 600m	
TX TURN OFF TIME : 375 microseconds	
CURRENT : 15.5 ampe	
FREQUENCY : 25 Hz	
INTEGRATION TIME : 256 cycles	
SYNC MODE : CRYSTAL	
HORIZONTAL SCALE : 1:50000	
SURVEYED BY : J.P. RL	
DATE : 05-DEC-1983	
	SURVEYED AND COMPILED BY GEOTERREX PTY. LTD.
	PROJECT NO. 85-1498
CLIENT : The BHP Co. Ltd.	
PROJECT : STYX	
AREA : Maydena Tasmania	
LINE : 1600N	Y
TX LOOP : 7	

081

VERTICAL COMPONENT B (Z)

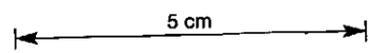


nanovolt/amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



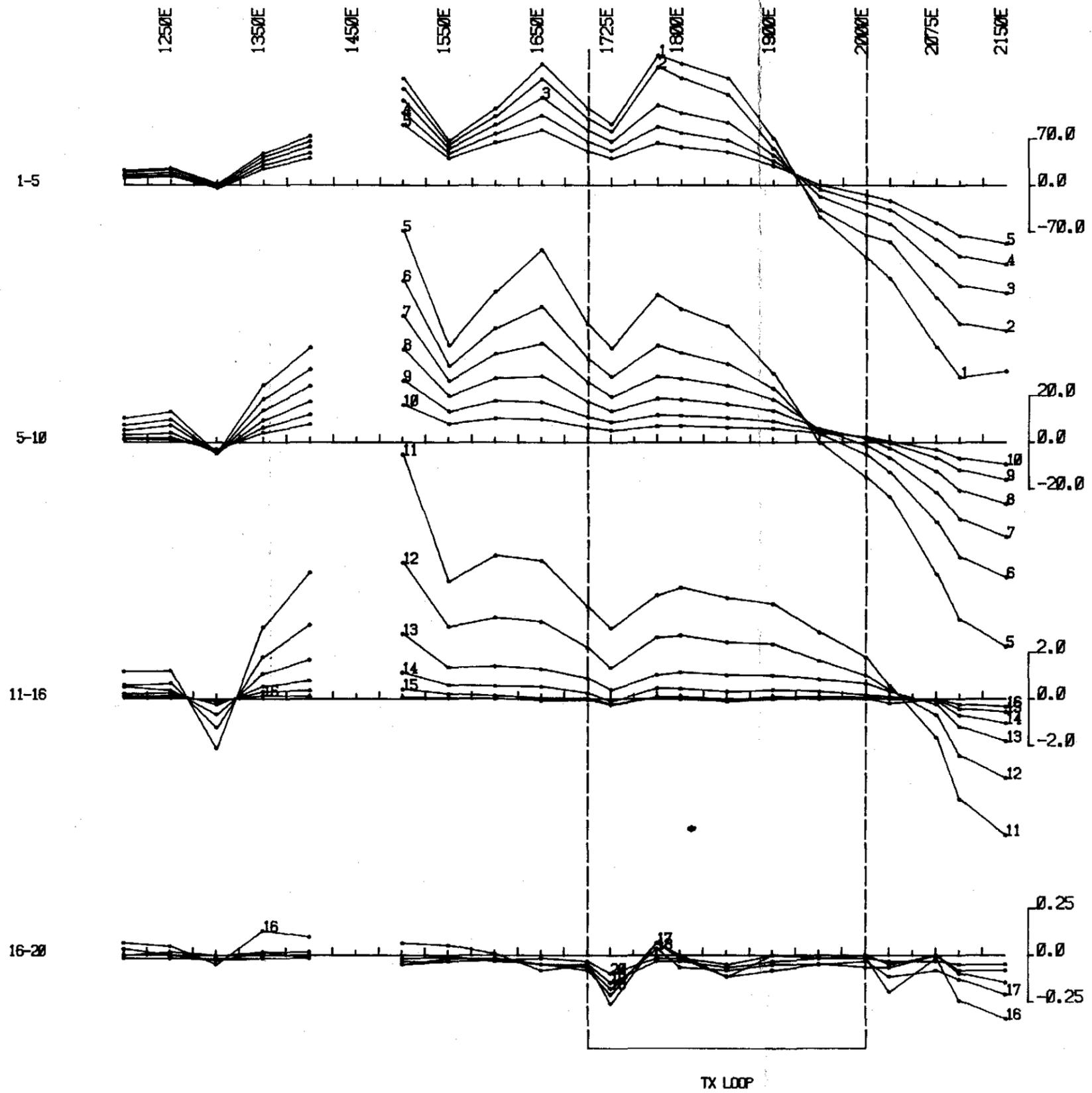
TX LOOP SIDES : 1300N 1700E  
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TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P., RL  
DATE : 05-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1488
	CLIENT : The BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1600N Z  
TX LOOP : 7

082

HORIZONTAL COMPONENT B (X)

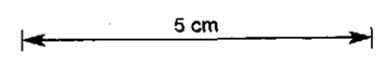


nanovolts per amp-metre squared

EM-37

FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. AL  
DATE : 06-DEC, 1983

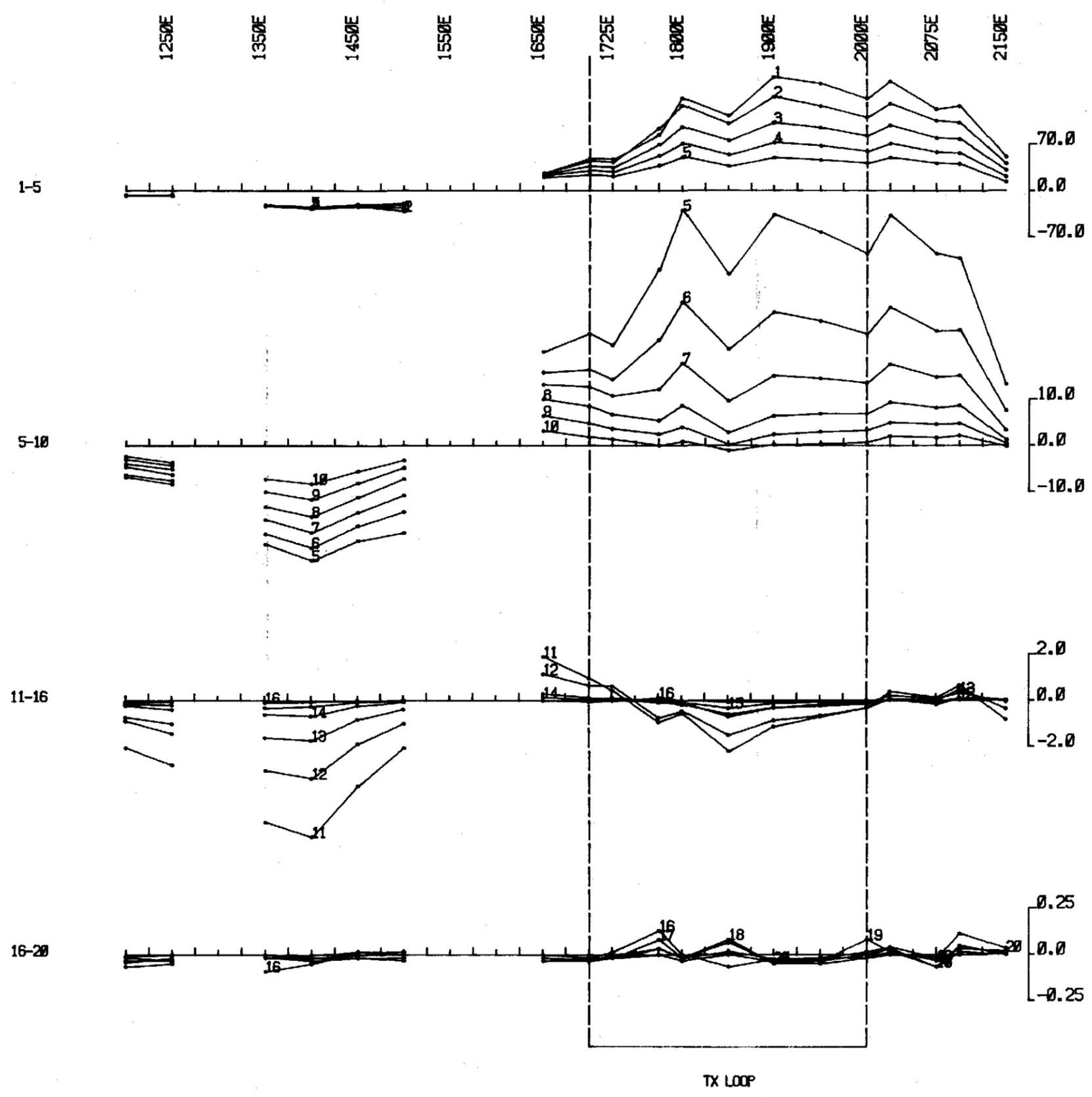
	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	85-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1700N X  
TX LOOP : 7

083

269083

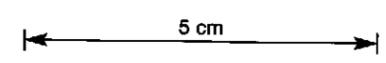
HORIZONTAL COMPONENT B (Y)



nanovolts per amp-metre squared

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

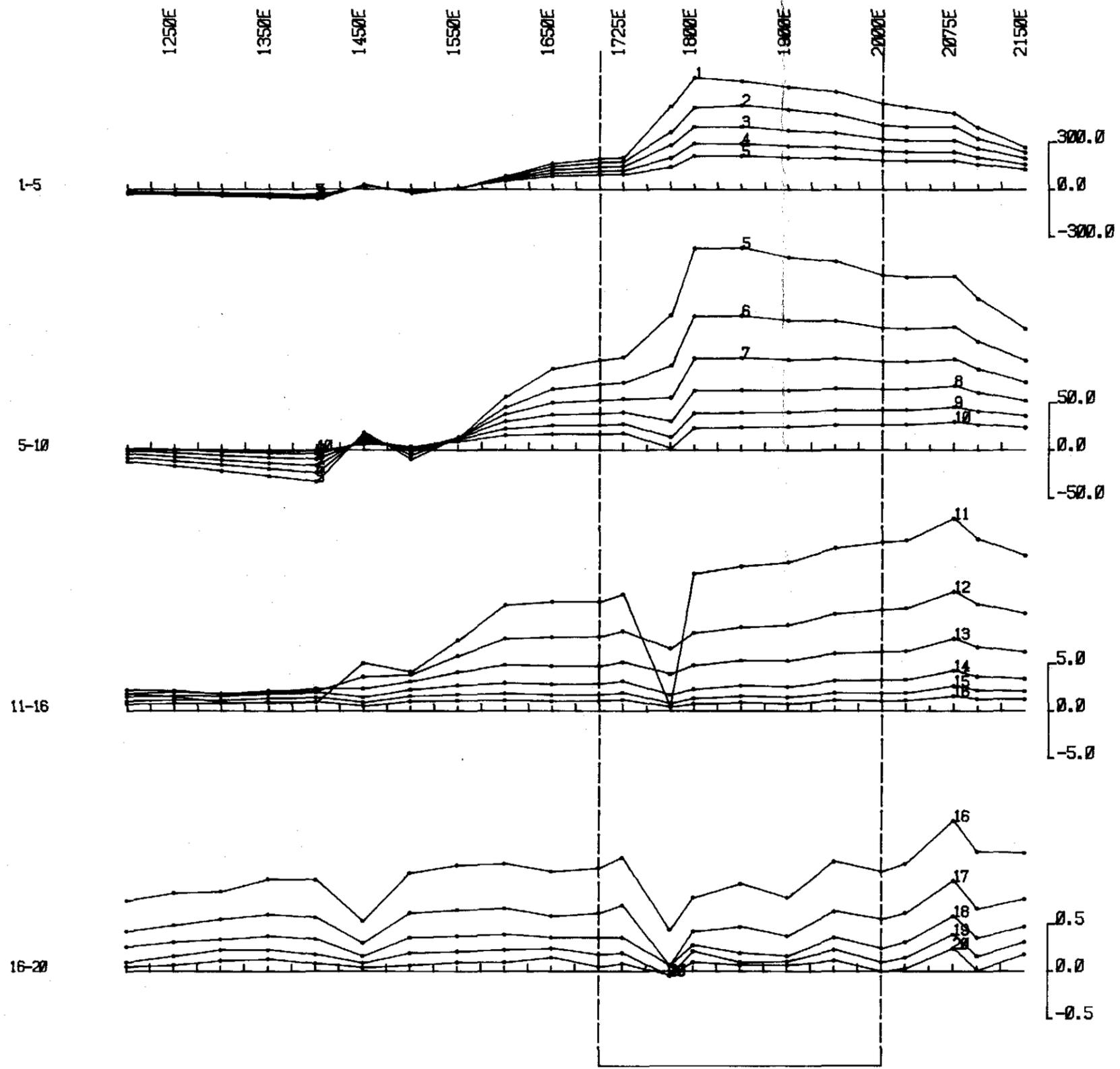


TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. RL  
DATE : 06-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1498
	CLIENT : The BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1700N Y  
TX LOOP : 7

VERTICAL COMPONENT B (Z)

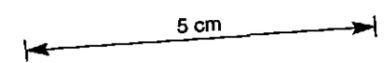


nanovolts per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

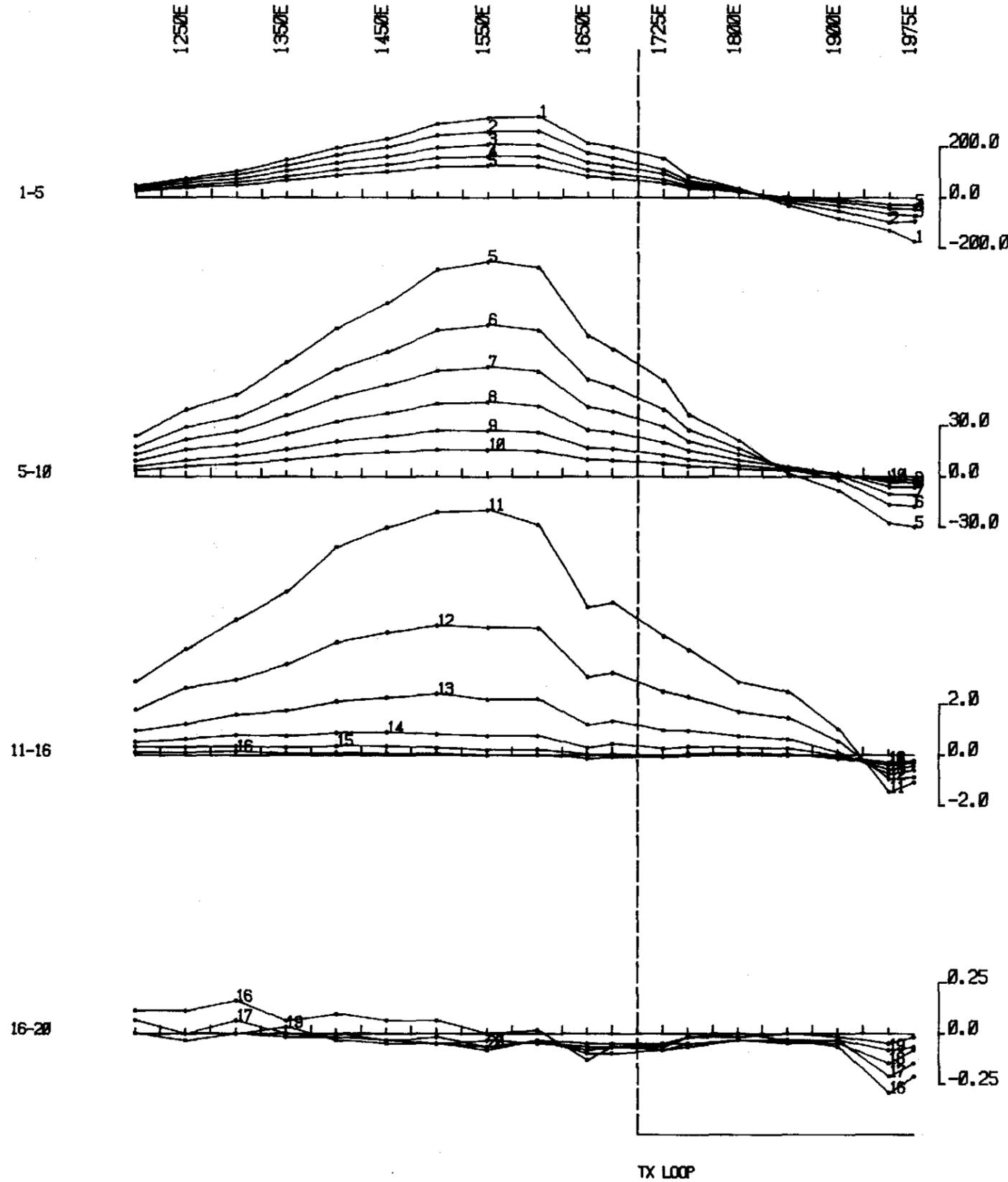


TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. RL  
DATE : 06-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1488
	CLIENT : The BHP Co. Ltd. PROJECT : STYX AREA : Maydena Tasmania LINE : 1700N TX LOOP : 7	Z

085

HORIZONTAL COMPONENT B (X)

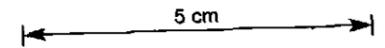


nanovolt per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E  
                  : 1800N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.,RL  
DATE : 07-DEC,1983



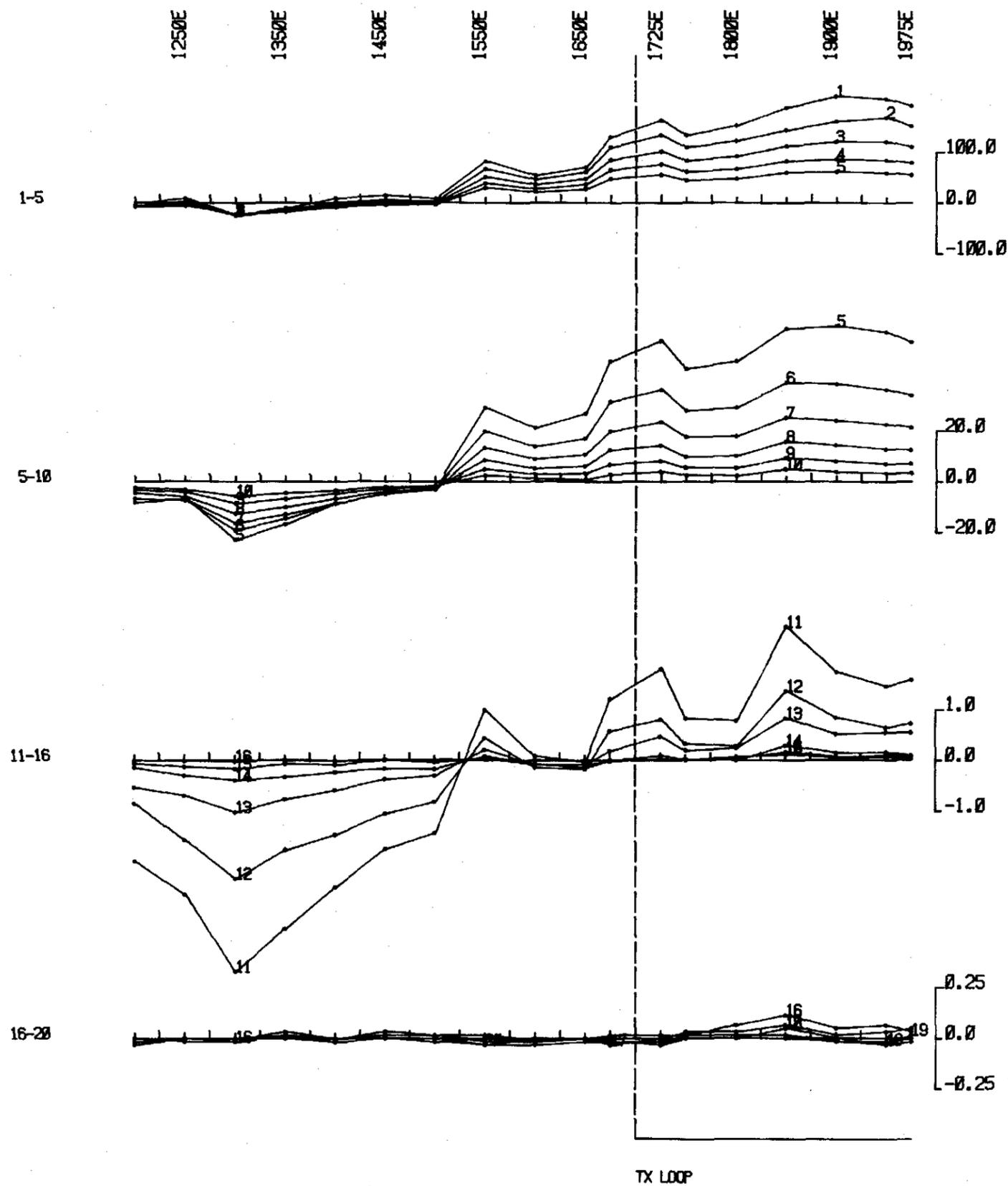
SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1800N X  
TX LOOP : 7

086

HORIZONTAL COMPONENT B (Y)

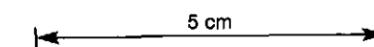


nanovolt per amp. metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P..RL  
DATE : 07-DEC-1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

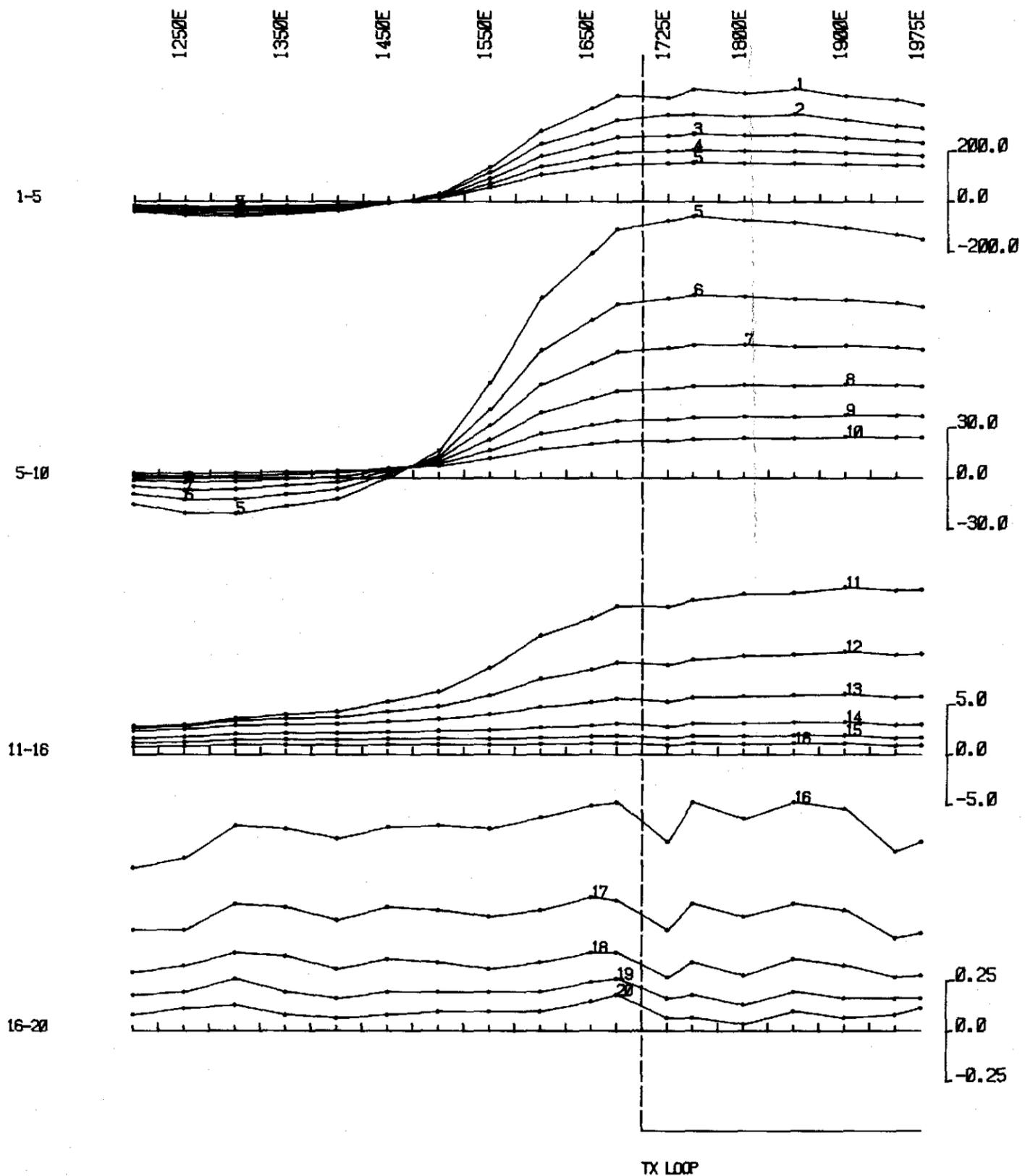
PROJECT NO.  
85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena Tasmania  
LINE : 1800N  
TX LOOP : 7

Y

087

VERTICAL COMPONENT B (Z)

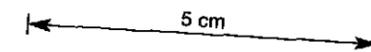


nanovolt per amp. metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

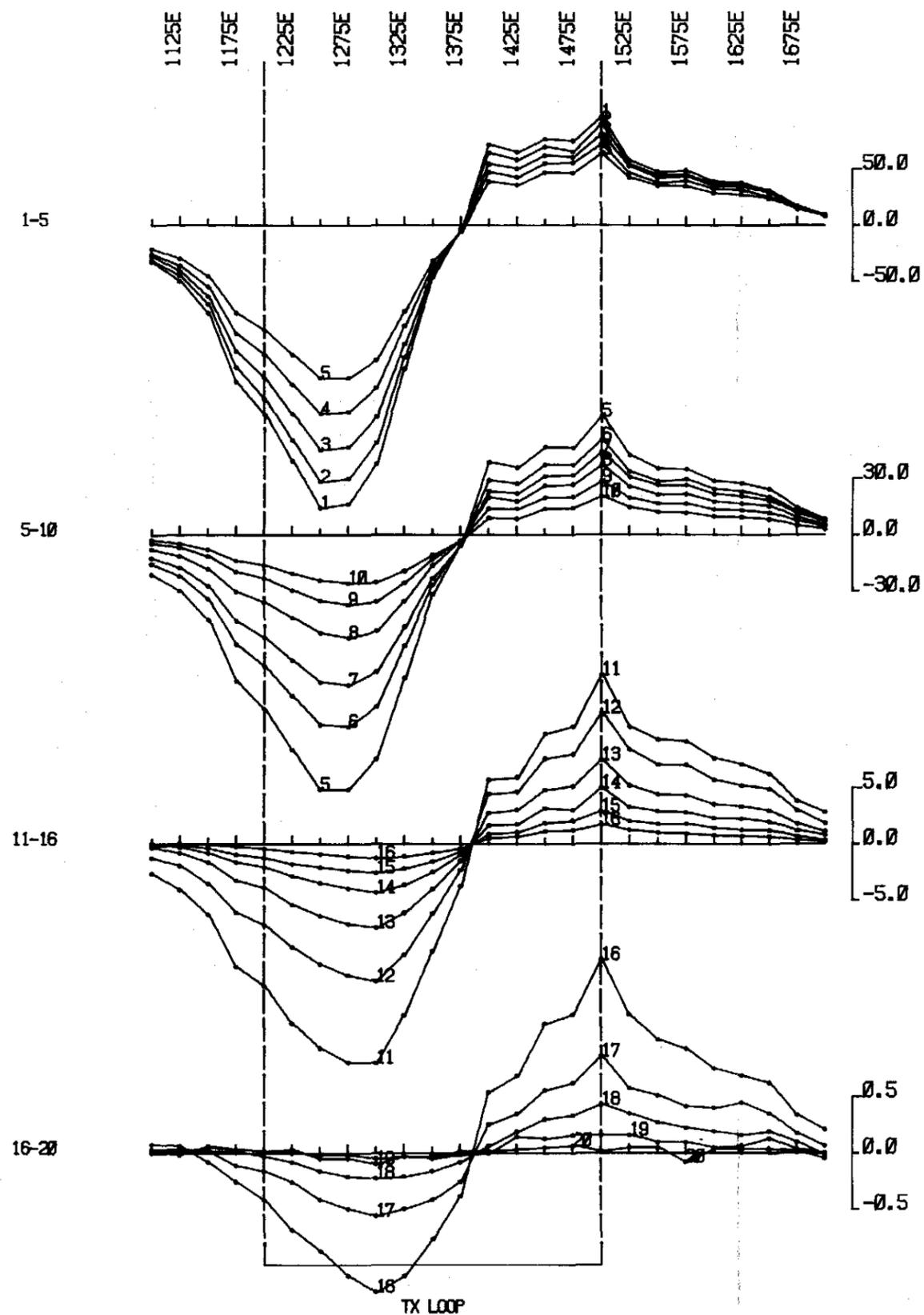


TX LOOP SIDES : 1300N 1700E  
                  : 1900N 2000E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 375 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P. RL  
DATE : 07-DEC-1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : STYX AREA : Maydena Tasmania LINE : 1800N TX LOOP : 7	Z

088

HORIZONTAL COMPONENT B (X)

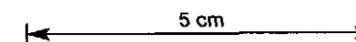


nanovolts per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



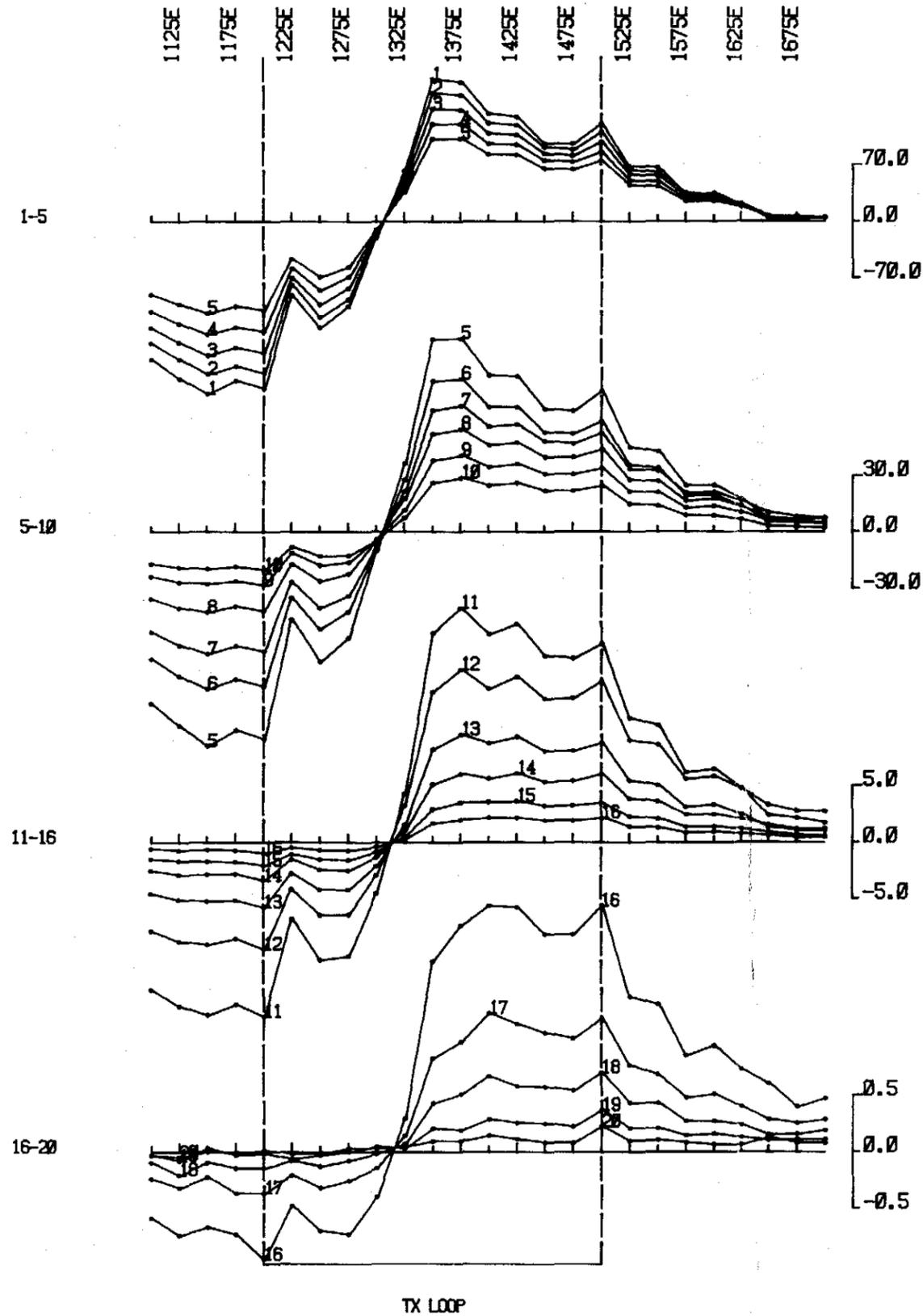
TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 07-JAN, 1984

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1489
	CLIENT : THE BHP Co. Ltd.	

PROJECT : STYX	
AREA : Maydena, Tasmania	
LINE : 1200N	X
TX LOOP : 8	

029

HORIZONTAL COMPONENT B (Y)

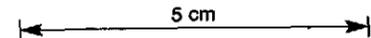


EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp.metre squared



TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.L.  
DATE : 07-JAN, 1984



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

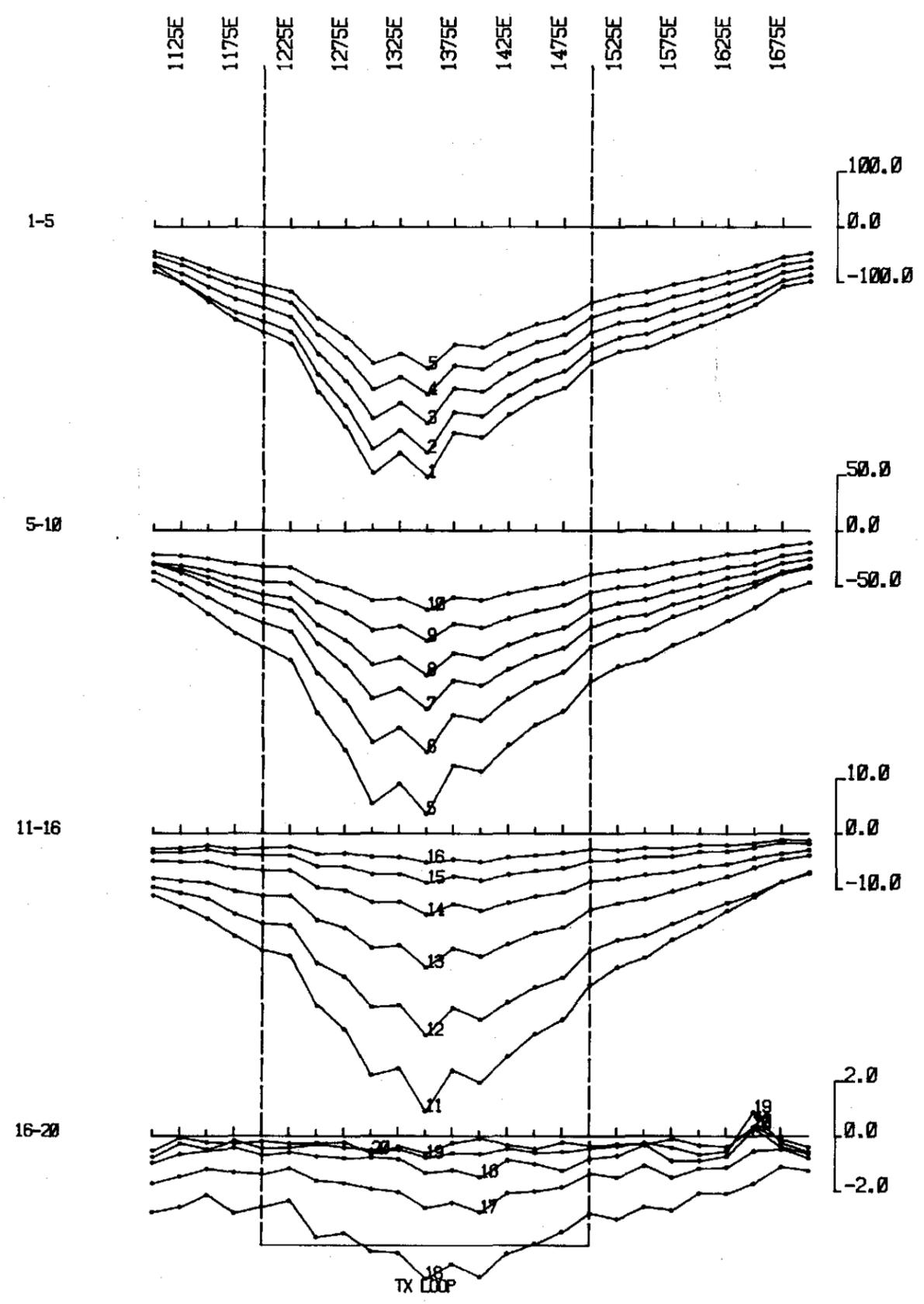
PROJECT NO.  
85-1499

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1200N  
TX LOOP : 8

Y

030

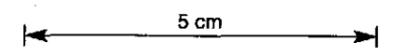
VERTICAL COMPONENT B (Z)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



nanovolts per amp-metre squared

TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.L.  
DATE : 07-JAN, 1984

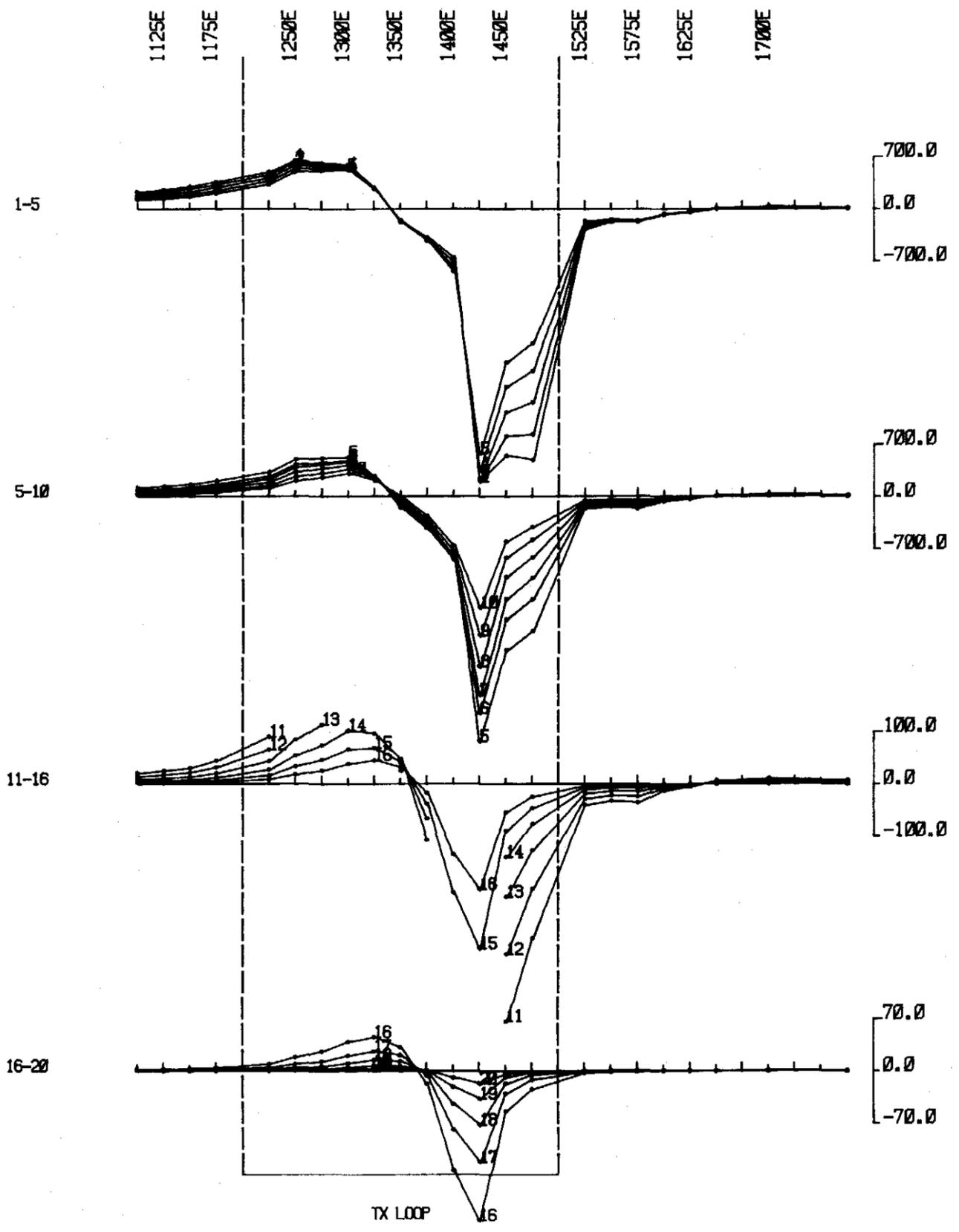
	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	85-1499

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1200N Z  
TX LOOP : 8

091

269091

HORIZONTAL COMPONENT B (X)

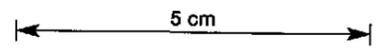


EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp.metre squared



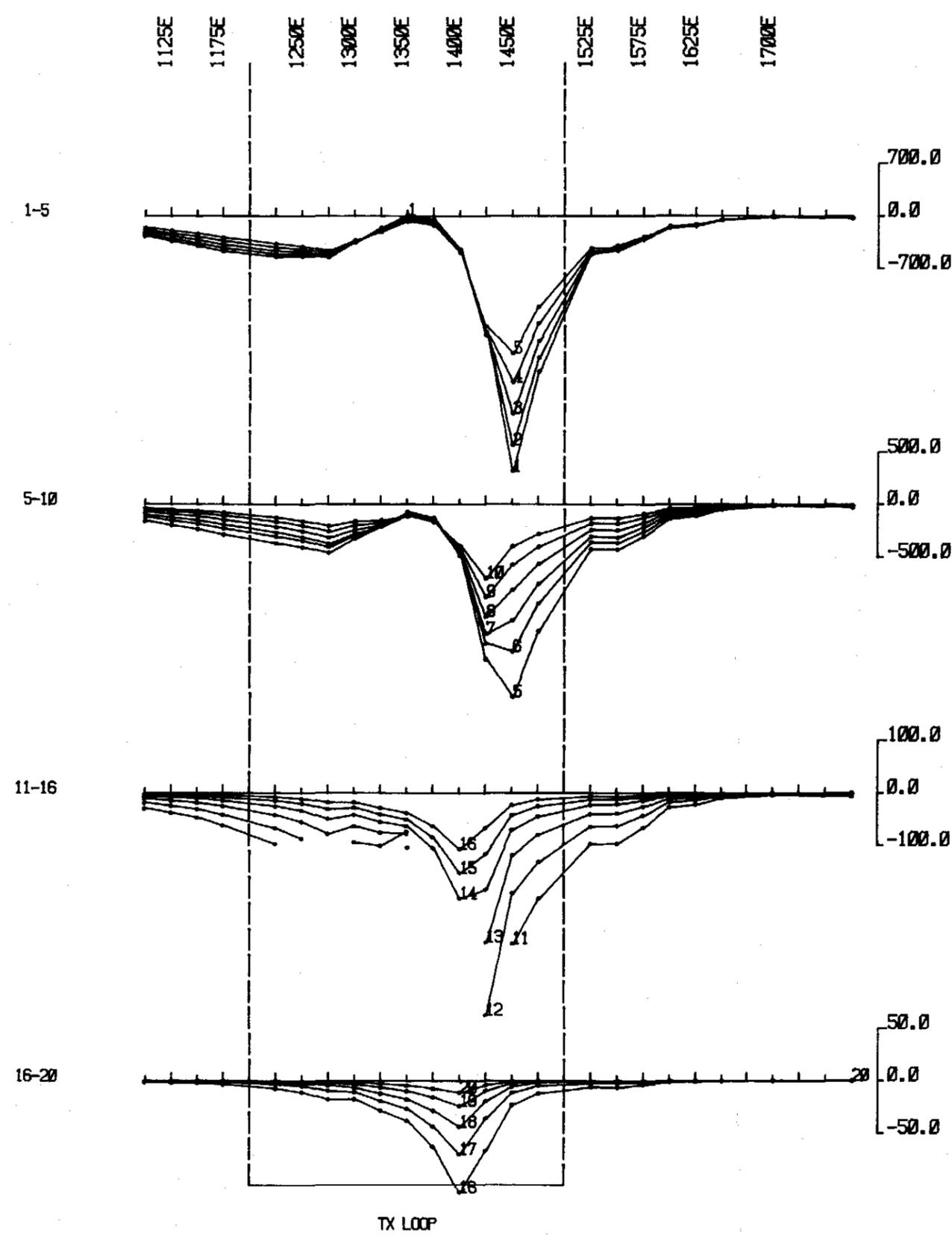
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TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 08-JAN, 1964

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1488
	CLIENT : THE BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1400N X  
TX LOOP : 8

092

HORIZONTAL COMPONENT B (Y)

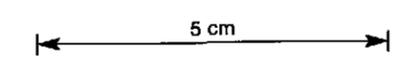


nanovolts per amp-metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



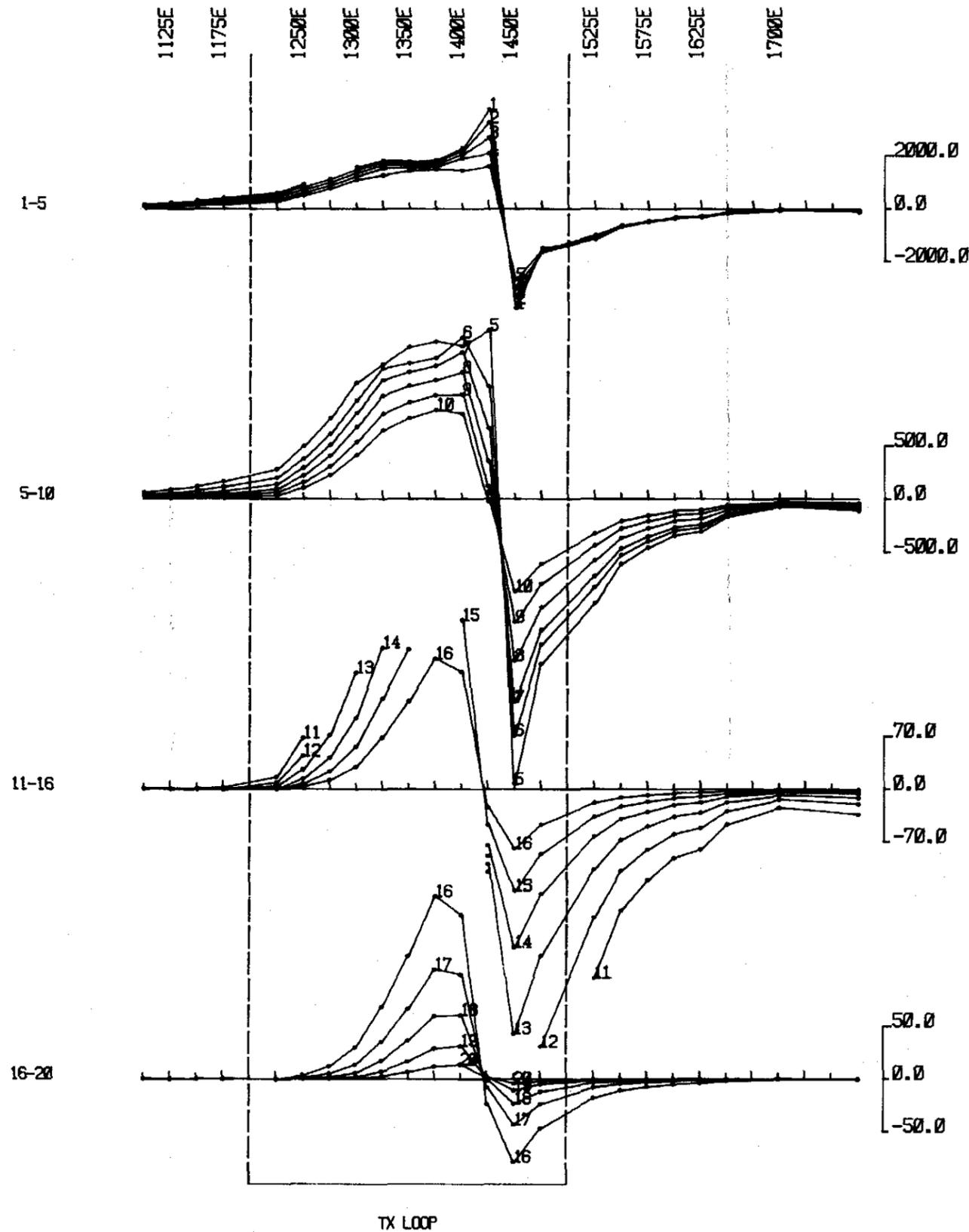
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TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 ampe  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 08-JAN-1984

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : THE BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1400N Y  
TX LOOP : 8

093

VERTICAL COMPONENT B (Z)

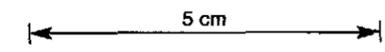


nanovolts per amp.metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



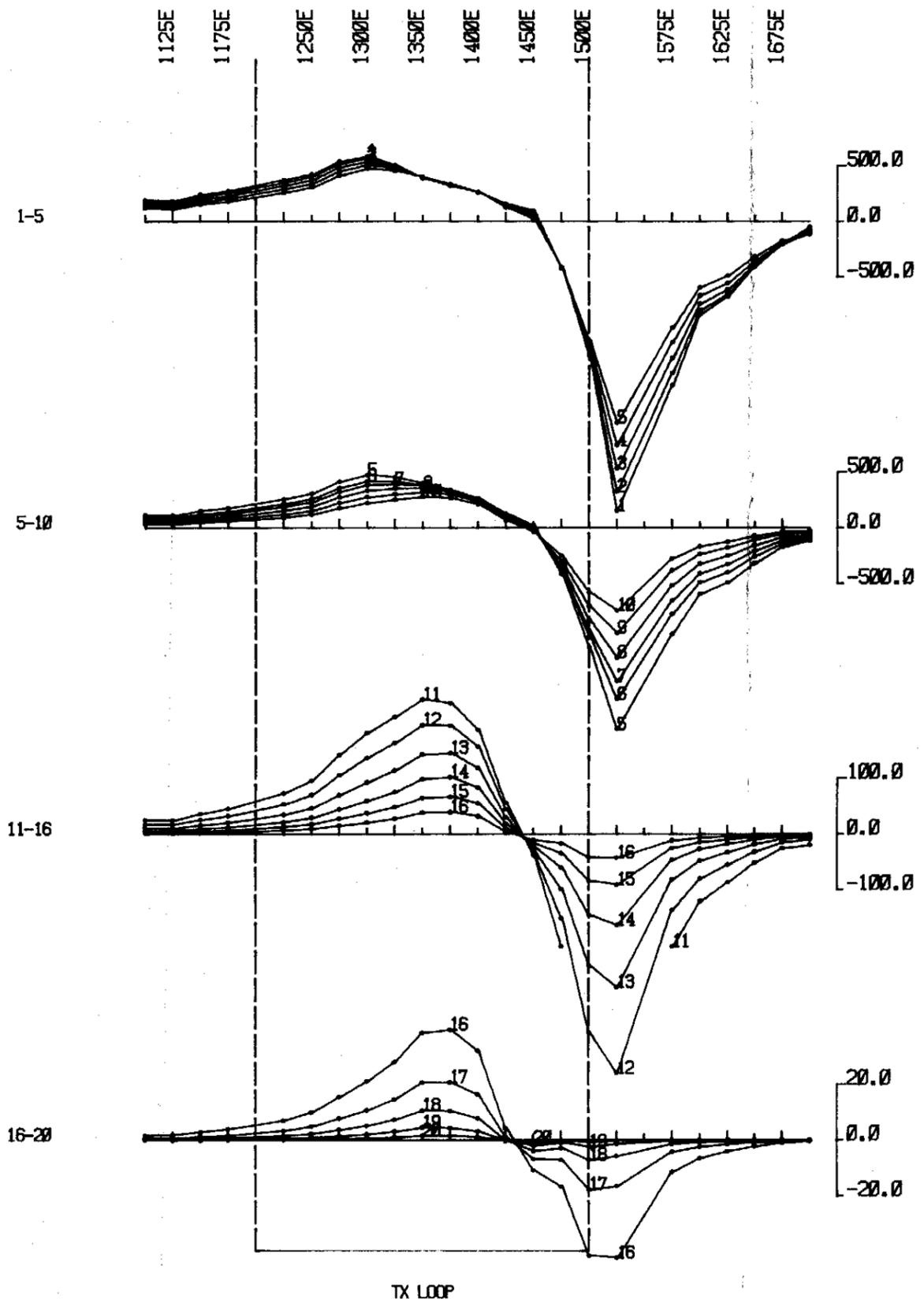
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TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 08-JAN, 1984

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : THE BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1400N Z  
TX LOOP : 8

094

HORIZONTAL COMPONENT B (X)

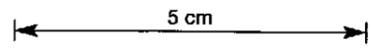


nanovolt per amp.metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E

TX LOOP SIZE : 300m X 500m

TX TURN OFF TIME : 360 microseconds

CURRENT : 15.8 amps

FREQUENCY : 25 Hz

INTEGRATION TIME : 256 cycles

SYNC MODE : CRYSTAL

HORIZONTAL SCALE : 1:5000

SURVEYED BY : R.J.

DATE : 08-JAN-1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	85-1489

CLIENT : THE BHP Co. Ltd.

PROJECT : STYX

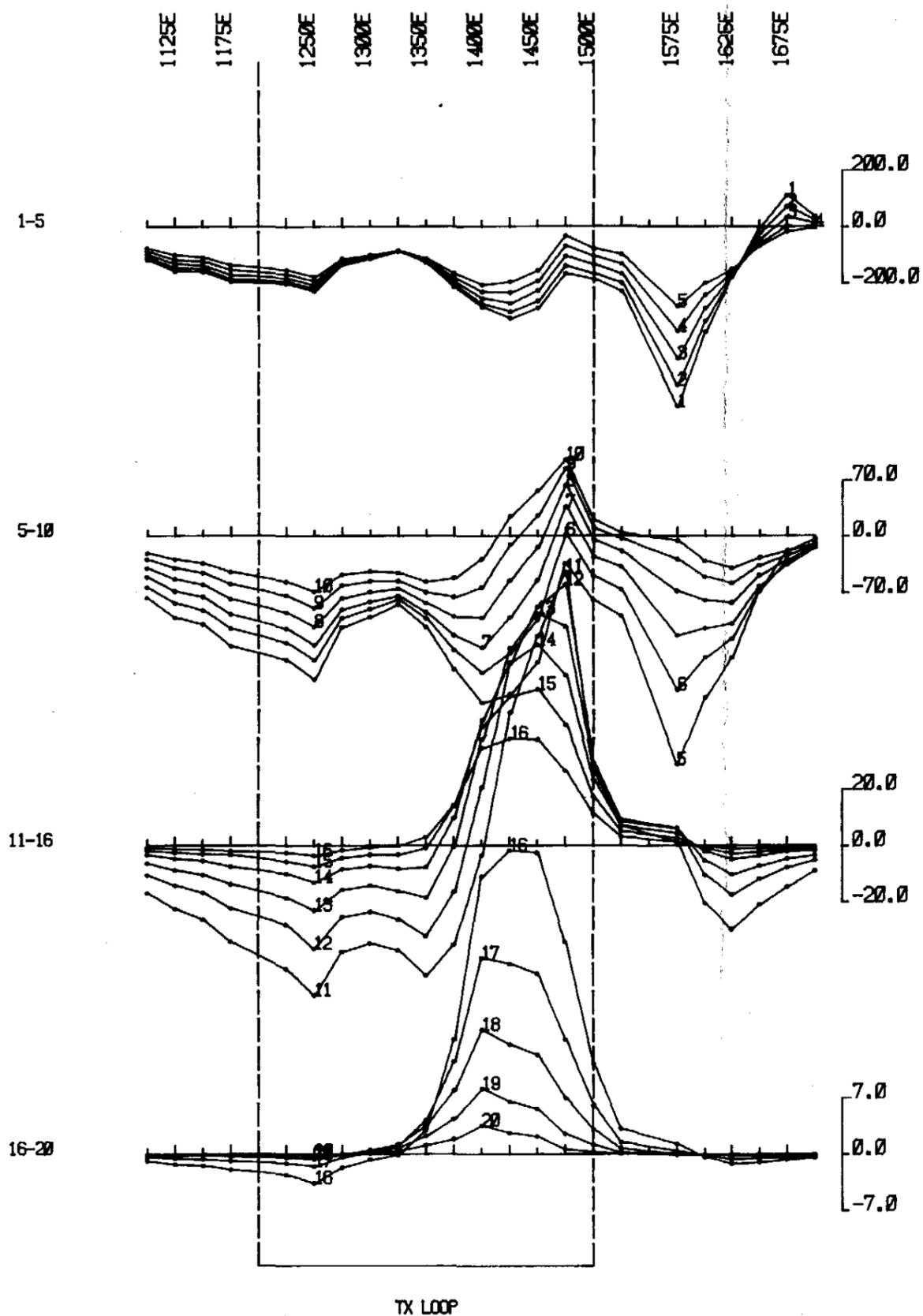
AREA : Maydena, Tasmania

LINE : 1500N X

TX LOOP : 8

095

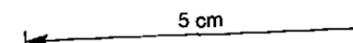
HORIZONTAL COMPONENT B (Y)



nanovolts per amp.metre squared

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

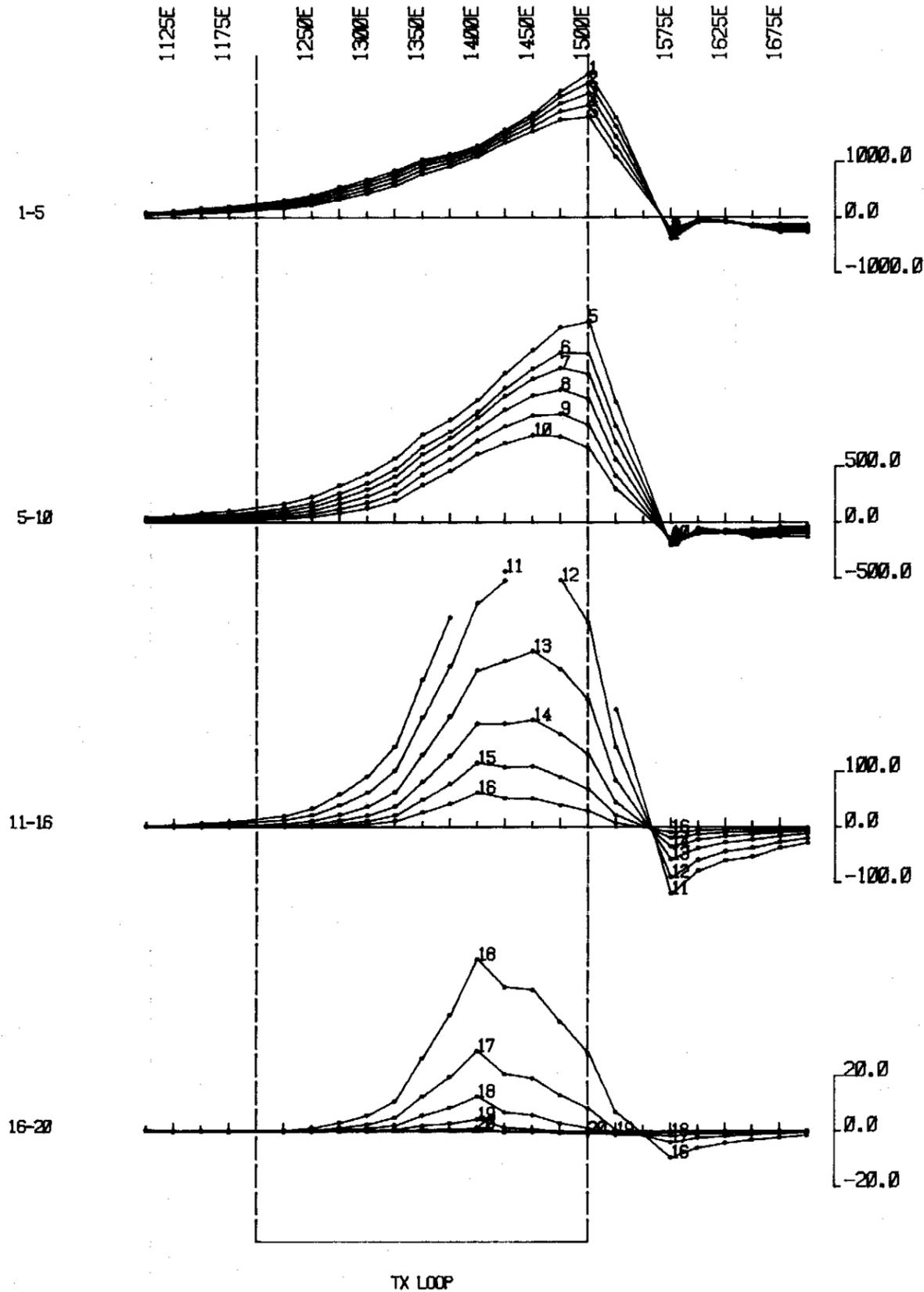


TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.8 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 08-JAN, 1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1488
	CLIENT : THE BHP Co. Ltd.	

PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1500N Y  
TX LOOP : 8

VERTICAL COMPONENT B (Z)

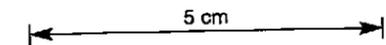


nanovolts per amp.metre squared

EM-37

FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
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CURRENT : 15.8 ampe  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 08-JAN, 1983



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

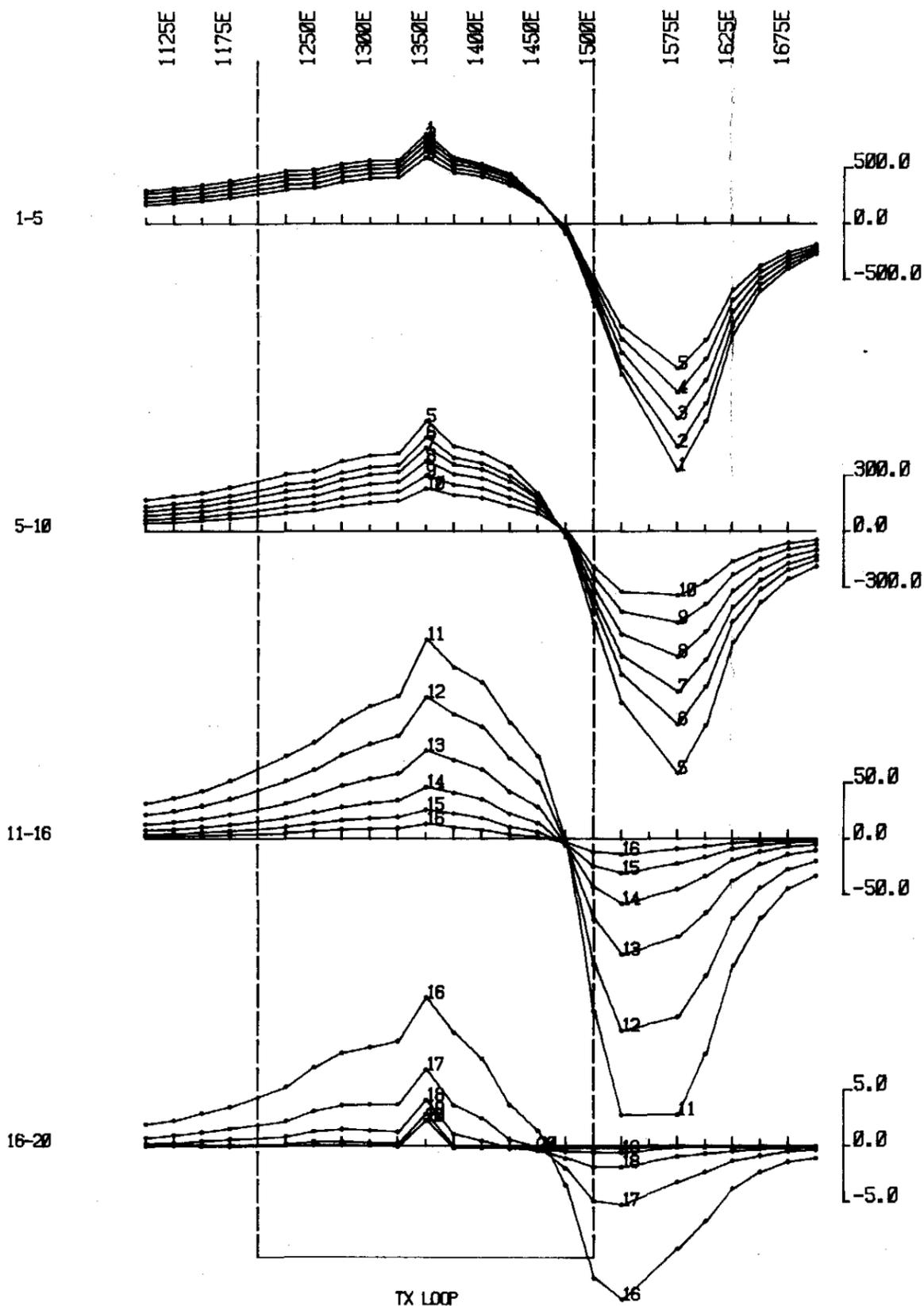
PROJECT NO.  
85-1499

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1500N  
TX LOOP : 8

Z

097

HORIZONTAL COMPONENT B (X)

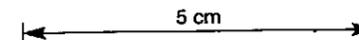


nanovolt per amp. metre squared

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



TX LOOP SIDES : 1300N 1200E  
                  : 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 09-JAN, 1984

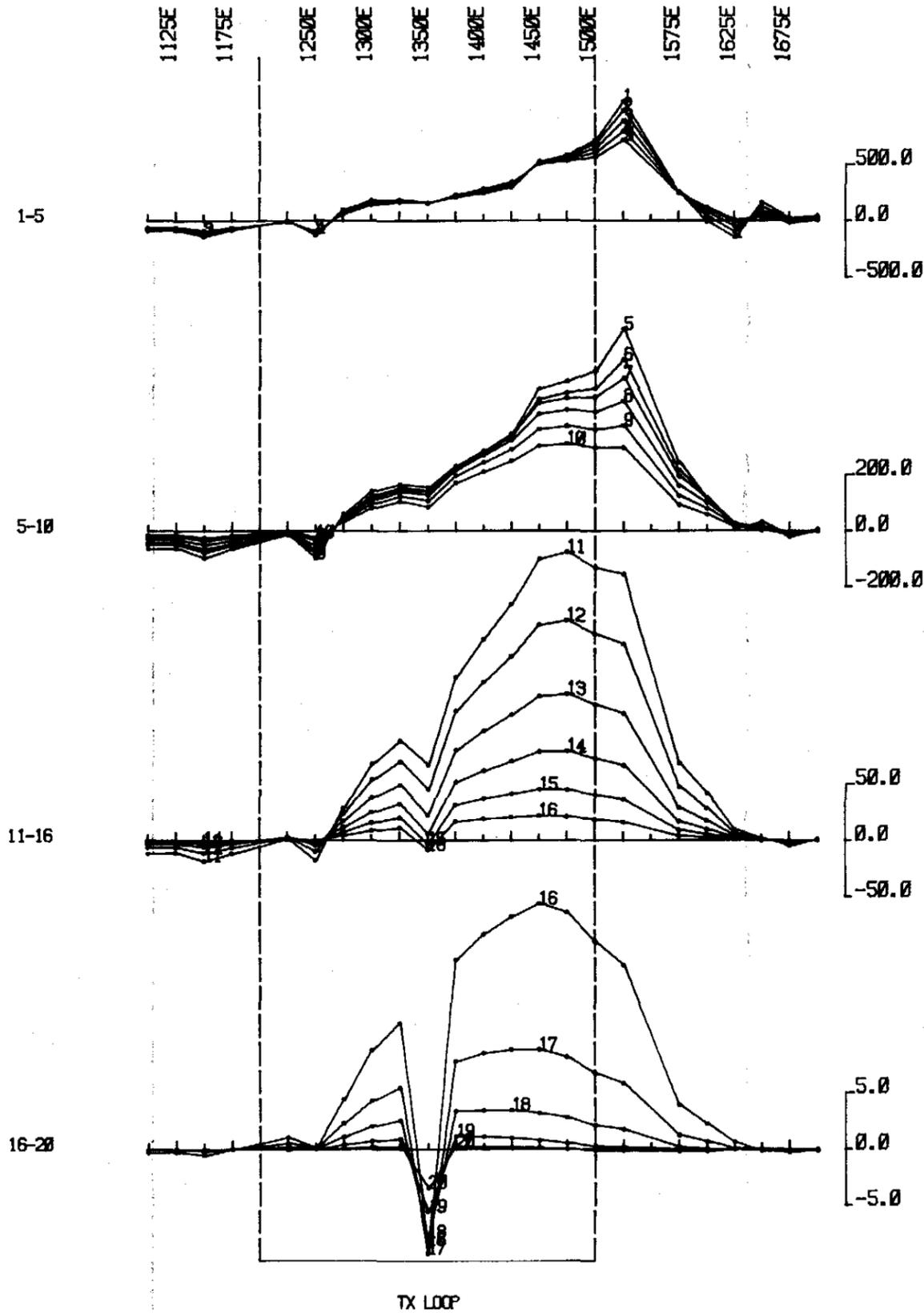


SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1499

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1600N X  
TX LOOP : 8

HORIZONTAL COMPONENT B (Y)

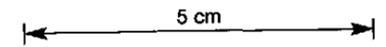


EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp.metre squared



TX LOOP SIDES : 1300N 1200E  
: 1800N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 09-JAN-1984



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

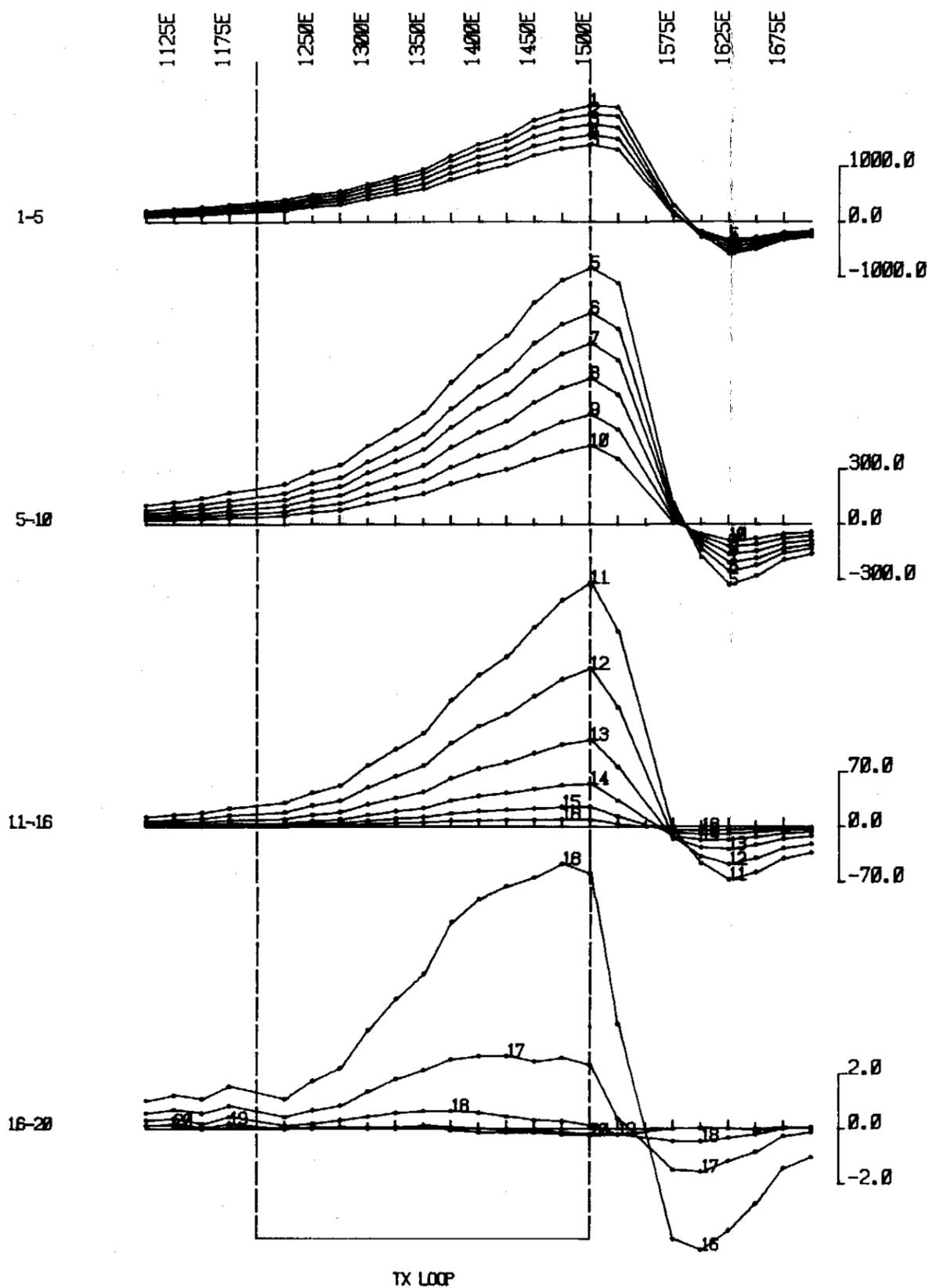
PROJECT NO.  
85-1499

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1600N  
TX LOOP : 8

Y

099

VERTICAL COMPONENT B (Z)

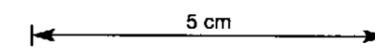


EM-37

FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared



TX LOOP SIDES : 1300N 1200E  
: 1600N 1500E  
TX LOOP SIZE : 300m X 500m  
TX TURN OFF TIME : 360 microseconds  
CURRENT : 15.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : R.J.  
DATE : 09-JAN, 1984



SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1489

CLIENT : THE BHP Co. Ltd.  
PROJECT : STYX  
AREA : Maydena, Tasmania  
LINE : 1600N Z  
TX LOOP : 8

APPENDIX 2

BOREHOLE W.A. 7

DRILL LOG AND GEOCHEMICAL ANALYSES

101

## BROKEN HILL PROPRIETARY CO. LTD.

## DRILL LOG HEADER SHEET.

CQ 8040 1945.

Project: WARATAH

Hole No: WA 7

Prospect: (ANOMALY 0)

Total depth: 220.0m

Local Grid co-ords.

Bearing:

AMG co-ords 380 400E 5 419 450N

Depression: 90°

Drilling Co: OVERLAND

R.L. Collar: # 610m

Drill type: WARMAN 500

Commenced: 26 March 1984

Driller: P. Harper  
R. Waddle

Completed: 29 March

Logged by: R.M. HORTON

Sampled by: R.M. HORTON

Hole Size	From	To	Total	Core storage:	SCAMANDER
Non-core	0	72.0	72.0	No. of trays.	
Core	NQ	72.0	188.6	Sample storage	
	BQ	188.6	220.0	Geochem. Lab.	ANALABS
				Analytical reports	14 4 08 2453
Casing				Min. and Pet Lab.	MRL-
Casing left.	PVC NQ		8m 46m	Min and Pet report	

## Hole Survey Data:

## Summary Log:

0 - 102.4 BASALT  
 102.4 - 116.2 MUDSTONE  
 116.2 - 169.5 BASALT (2.1m buff / carbonaceous band at base)  
 169.5 - 220.0 ANDESITE (Cambrian)

## Comments:

WAF

Interval

Flow thickness

72.5 - 730  
750 - 865  
86.5 - 87.5  
87.5 - 102.4

2.5  
11.5  
1.0  
14.9

29.9

116.2 - 119.6  
119.6 - 129.9  
129.9 - 134.1  
134.1 - 137.2  
137.2 - 139.8  
139.8 - 141.7  
141.7 - 144.8  
144.8 - 145.3  
145.3 - 148.0  
148.0 - 149.9  
149.9 - 154.5  
154.5 - 156.5  
156.5 - 159.4  
159.4 - 162.6  
162.6 - 167.4

3.4 (5)  
10.3 (1)  
4.2 (4)  
3.1 (8)  
2.6 (11)  
1.9 (9)  
3.1 (7)  
0.5 (15)  
2.7 (10)  
1.9 (13)  
4.6 (3)  
2.0 (12)  
2.9 (9)  
3.2 (6)  
4.8 (2)  
51.2

IS flows

AV thickness 3.41  
Max 10.3  
Min 0.5  
Median 3.1





## ANALABS

A division of MacDonald Hamilton &amp; Co. Pty. Ltd.

## ANALYTICAL DATA

SAMPLE PREFIX

REPORT NUMBER

REPORT DATE

CLIENT ORDER No.

PAGE

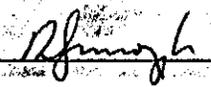
		14.4 08 2453					17.4.84		005607		1 OF 3	
TUBE No.	SAMPLE No.	Cu	Pb	Zn	Ag	As	Sn	W	Sb			
1	1591 169.5 - 175~	90	95	310	X	X	X	X	-			
2	1592 175 - 180~	50	10	215	X	X	X	X	-			
3	1593 180 - 125~	45	50	195	X	X	X	X	-			
4	1594 185 - 190~	45	X	165	X	X	X	X	-			
5	1595 190 - 195~	40	5	150	X	X	X	X	-			
6	1596 195 - 200~	60	10	185	X	X	X	X	-			
7	1597 200 - 205~	340	115	225	X	X	X	X	-			
8	1598 205 - 210~	235	60	320	X	X	X	X	-			
9	1599 210 - 215~	215	X	130	X	X	X	X	-			
10	1600 215 - 220~	245	X	100	X	X	X	X	-			

Results in ppm unless otherwise specified

T = element present; but concentration too low to measure

X = element concentration is below detection limit

- = element not determined

AUTHORISED  
OFFICER


APPENDIX 3

PETROLOGY

106  
Memo to: MR. M. HORTON, EXPLORATION, CAMBERWELL OFFICE.

Date  
Our Ref:  
Your Ref: WHR:DK

Subject: E9/22/5-Q: Petrography of core samples from drill holes  
WY3 and WA7, Waratah-Wynyard Area, Tasmania (MRL 15362-72)

File: M717  
Date:

### Introduction

Eleven (11) specimens from drilling in the Waratah and Wynyard areas, Tasmania, comprising ten core samples and one percussion chip sample, were submitted for petrographic description, rock classification and sulphide mineral identification.

The observations are summarised in the memorandum and details of individual samples are given in the attached Appendix.

#### WA7 MRL 15362-64

#### 3 core samples

The three samples consist of a black coaly substance (MRL 15362, WA7 169.5m), a basalt containing vein sulphides (MRL 15363, WA7 183.90 - 183.93m) and a brecciated-looking vein containing white and orange-brown material in a chloritic schist (MRL 15364, WA7 198.25 - 198.26m).

MRL 15362 comprises dominantly black, X-ray amorphous, carbon, minor quartz and smectite and traces of plagioclase, calcite, dolomite and chalcedony. Distinct carbonised plant stems are occasionally present. The rock was found at the Tertiary/PreCambrian unconformity underlying basalt. The sample was identified as a silty coal and may be baked vegetable matter, possibly forest litter, overwhelmed by a basalt flow.

MRL 15363 is an alkali basalt comprising randomly oriented plagioclase laths, granular diopside and partly altered (to ?siderite) magnetite grains. The interstitial material is largely chlorite. A vein of cataclastic pyrite, coarse chlorite with traces of marcasite, sparry dolomite and calcite cuts the section. ?Chalcopyrite and ?galena (intergrown with pyrite) occur in trace quantities adjacent to this vein.

The vein cutting the chlorite schist (?chloritised metatuff), MRL 15364, comprises mainly analcite with minor interstitial to replacive albite. Multiple veins of sparry calcite and veins of chlorite cut across the analcite and albite giving the impression of brecciation. Traces of pyrite, chalcopyrite, ?sphalerite and ?galena are mainly restricted to albitic areas and calcite veins.

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Several mineral phases require confirmation by SEM. These include the fine sulphides in MRL 15364 and the blue amphibole in MRL 15370.

An updated memo will be circulated as soon as these analyses have been completed.



W.H. Ringenbergs,  
Petrologist.

Circulate to:

Dr. A. Clarke  
Dr. A.D.T. Goode,  
then: Library, Camberwell.

Atts.

APPENDIX - PETROGRAPHIC DESCRIPTIONS

Abbreviations: (D) - Dominant; (SD) - Subdominant;  
(Ab) - Abundant; (M) - Minor; (T) - Trace.

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MRL No.: MRL 15362

Field No.: WA7 - 169.5m unconformity.

Rock type: Probably baked plant matter on unconformity. Silty coal.

Mineralogy: (D) Carbon (amorphous to X-rays) (M) Quartz, smectite  
(T) Plagioclase, carbonate (some calcite), chalcedony.

Description:

The specimen consists of mainly black, carbonaceous material including plant stems which show a well preserved vascular and cellular structures. Occasional grains of discrete and polygranular quartz, patches of dolomite and/or calcite and traces of plagioclase occur in this matrix. Occasional angular rock fragments of impure, banded, very fine grained quartz or chert, siltstone and clayey patches occur. The clay was identified as smectite by XRD. In hand specimen several clay-rich patches to 0.8cm in width can be seen. Traces of calcite are present (effervescence with dilute HCl) and possibly some dolomite is present. The thin section is mainly opaque due to the dominance of finely divided carbon and therefore very little in the way of structure could be seen.

Interpretation:

Given the mode of occurrence of this rock (as at Tertiary/PreCambrian unconformity overlain by thick basalts), its carbon rich nature and the presence of obvious plant material, I would interpret it as baked plant matter, perhaps forest litter.

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MRL No.: MRL 15363Field No.: WA7 - 183.90-183.93m.Rock type: Alkali basalt.

Mineralogy: (D) Plagioclase; (SD) Chlorite; (Ab) Clinopyroxene (diopsidic); (M) Magnetite, ?siderite; (T) Calcite, pyrite, marcasite, ilmenite, ?chalcopyrite, ?galena, hematite.

Description:

In hand specimen the basalt is dark grey in colour, fine grained and uniform in structure. A vein containing yellow sulphides cuts across the core. In thin section the rock comprises well formed, randomly oriented, slightly sericitised, plagioclase (oligoclase to andesine) laths (to 1mm in length), granular, diopsidic clinopyroxene and subhedral, partly altered magnetite grains in an interstitial chloritic matrix. Minor quantities of a highly birefringent, submicroscopic, brown material forms spherules in the chloritic matrix and appears to be an alteration product of the magnetite. This is suspected siderite (to be submitted for SEM).

A vein containing granular to cataclastic textured, coarse pyrite, coarse chlorite and traces of marcasite (as alteration of pyrite), sparry dolomite, calcite and ?siderite cuts the section, but ends abruptly (apparently faulted out). Small amounts of pyrite, ?chalcopyrite, and ?galena (intergrown with pyrite, to be submitted for SEM) occur in the host rock adjacent to this vein.

The rock appears to be a silica saturated, rather Na rich member of the alkali basalt suite.

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MRL No.: MRL 15364Field No.: WA7 - 198.25-198.26m.Rock type: Analcite-calcite-chlorite-albite vein in chloritic schist.Mineralogy: (D) Analcite; (SD) Chlorite; (M) Calcite, albite;  
(T) Pyrite, chalcopyrite, ?galena, ?sphalerite, magnetite,  
quartz.Description:

In hand specimen, a mottled, brecciated white and orange-brown vein cuts across a fine grained, foliated, dark grey, chloritic schist.

In thin section the schist contains minor angular quartz, plagioclase and clots of rounded brownish clay in a foliated, streaky, lensoidal (?flow banded), chloritic matrix. Traces of pyrite and magnetite were also detected. This rock is tentatively interpreted as a chloritised tuff.

A 1-2cm thick vein cuts the section. This is dominated by almost isotropic analcite (confirmed by XRD) with minor interstitial, replacive and veining albite and sparry calcite. Most of the sparry calcite occurs in veins cross-cutting both analcite and albite areas. Another set of veins contains dominantly chlorite and minor calcite. Temporal relationships between the calcite dominated and chlorite dominated veins are unclear. The complex random arrangement of chlorite and calcite veins gives a brecciated appearance to the pre-existing analcite vein when viewed in hand specimen. Traces of pyrite and fine grained (<30µm) chalcopyrite, ?sphalerite and ?galena (to be confirmed by SEM) occur mainly in the albite-rich areas and calcite veins.

MEMO TO: DR. A. CLARKE - HOBART EXPLORATION OFFICE

DATE: 3/10/84

FILE: M731

SUBJECT: E9/22/5-Q S. E. M. ANALYSIS AND IDENTIFICATION OF VARIOUS MINERAL PHASES FROM THE WARATAH - WYNYARD AREA, TASMANIA.

S. E. M. analysis of various mineral phases in a batch of samples from the Waratah - Wynyard area of Tasmania, has been completed. Petrographic descriptions of these samples have previously been reported in MRL memo M717.

Results of the S. E. M. analyses are tabulated below.

TABLE 1. RESULTS OF S. E. M. ANALYSIS

MRL No. FIELD No.	MINERAL SUSPECTED	S. E. M. IDENTIFICATION	DESCRIPTION
MRL15363 WA7, 183.90 - 183.93m. 183.93m.	Galena Chalcopyrite Siderite	Galena Chalcopyrite Mixture of phases. Contains major Mg, Al, Si, Fe, trace Mn.	Intergrown with pyrite. Contains traces of Ag, Se. Brownish lenses in chlorite vein. Not siderite. Apparent mixture of probable chlorite + calcite +- Fe oxides.
	Siderite	Sphene	Fine grained. Replaces magnetite.
MRL15364 WA7, 198.25 to 198.26m.	Galena Sphalerite	Galena, contains trace Ag. Sphalerite, contains trace Cd.	Inclusions in calcite and albite. Small patch with chalcopyrite in albite - calcite vein.
MRL15370 WY3, 141.0 to 141.03m.	Glaucophane	Glaucophane	Blue amphibole. See analytical results attached.
MRL15371 WY3, 177.85 to 177.87m.	Chalcopyrite	Chalcopyrite	Inclusions in magnetite.

X-ray diffraction analysis of MRL15367 (WY3, 109.71 to 109.78m.) has confirmed the dominance of dolomite in this sample. No magnesite was detected.

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Magnesite rock in the Savage River area is described as containing parallel layers of silica (?quartz) and disseminated pyrite and is believed to be altered limestone or dolomite (Threader 1976). In the Arthur River area, near the "Old Victory" mine dolomite and magnesite outcrop together. Sample MRL15367 contains both disseminated pyrite and patchy quartz and in this respect, appears similar to the magnesite described by Threader (1976).

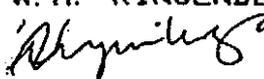
The widespread distribution of magnesite in northwest Tasmania, the apparent similarity of magnesite rock to the dolomite MRL15367, and the close association of dolomite and magnesite in the Arthur River area, suggests magnesite may also be present in the vicinity of drill hole WY3. I therefore recommend that any carbonate-rich rocks encountered in this area in future drilling or surface exploration programs be submitted for X-ray diffraction analysis.

REFERENCES: Ringenbergs W.H., Petrography of Core Samples from Drill Holes WY3 and WY7, Waratah - Wynyard Area, Tasmania. (MRL15362 - 15372). MRL MEMO M717, JULY 1984.

Threader V.M., Magnesite - Tasmania. In Economic Geology of Australia and Papua New Guinea. Vol.4, Industrial Minerals and Rocks. A. I. M. M. Monograph Series No.8, 1976. Edited by C.L. KNIGHT.

Copies to: Dr. A. Coode  
Then Camberwell Library.

W. H. RINGENBERGS

  
PETROLOGIST

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APPENDIX 4

TMD UNPUBLISHED REPORT 1984/39    A.V. BROWN  
S.M. FORSYTH

(PLANS OMITTED, SEE FIG. 6)

1984/39. Chemistry of Tertiary basalt and palynology of interbedded sediments from B.H.P. drill holes, E.L. 33/79.

A.V. Brown  
S.M. Forsyth

Abstract

The following study was undertaken, in co-operation with B.H.P. Exploration who provided the drill core, to get an understanding of the time-framework of the basalt flows, from palynology studies, and the chemical evolution of the basalts up the sequence, so that future exploration programmes, looking for mineralised horizons below the Tertiary basalt cover in the Burnie-Waratah area, can gauge the thickness of basalt cover before determining future drilling targets. An interpretative geological cross-section is included.

INTRODUCTION

As part of B.H.P.'s exploration programme over E.L. 33/79, numerous diamond-drill holes were drilled through the Tertiary basalt plateau to the east of Waratah.

After the 1981-82 summer season the authors were given access to the core of eight of these drill holes. The purpose of obtaining core samples was two-fold:

- (1) to get an idea of the chemical variation within the Tertiary basalt;
- (2) to obtain an age for the lava flows based on palynological data.

This preliminary report includes the chemical analyses of basalt samples collected (Table 1, 2) and a summary of the palynology. A schematic geological cross-section (fig. 2) is also included. This section is based on a combination of drill log data and surface mapping from the St Valentines Quadrangle.

PALYNOLOGY

Preliminary palynological investigation suggests two microfloras of different ages are present. The older microflora was recorded only from DDH WA1 at 224.0 m, but the younger microflora was found in sediments from DDH WA2, WA3, WA4, WY1, and WY2. The sediments in which the younger microflora occurs lie within a limited topographic interval and may form a continuous sedimentary deposit.

OLDER MICROFLORA - WA1, 224.0 m

Significant species occurring in this microflora include:

*Nothofagidites falcatus* (Cookson) Stover and Evans, 1973  
*Proteacidites tuberculatus* Cookson, 1950  
cf. *Ischyosporites gremius* Stover, 1973  
*Stereisporites (Tripunctisporis) sp.*

In the Gippsland Basin *N. falcatus* appears first at the base of the

Lower *Nothofagidites asperus* Zone (middle Eocene) (Stover and Partridge, 1973), whereas in the Bass Basin the first occurrence of *N. falcatus* is at a slightly younger horizon (Partridge, 1973). *P. tuberculatus* first appears in the Upper *N. asperus* Zone of the Gippsland Basin and in the Middle *N. asperus* Zone of the Bass Basin close to the middle/late Eocene boundary. *I. gremius* does not range above the Upper *N. asperus* Zone. *S. (Tripunctisporis)* sp. similarly is not found above the Upper *N. asperus* Zone of the Gippsland Basin, but in the Bass Basin it ceases to be common at the top of the Middle *N. asperus* Zone, but ranges up into the *P. tuberculatus* Zone. The microflora therefore probably belongs to the Middle or Upper *N. asperus* Zones and an age of late Eocene into earliest Oligocene is indicated. This is supported by the absence of *Cyatheacidites annulatus* Cookson, 1947 from the microflora.

Of the samples collected for palynological study only three others were considered to be stratigraphically low enough to contain the older microflora. Unfortunately each of the three samples proved to be barren.

#### YOUNGER MICROFLORA

This microflora is characterised by the presence of *C. annulatus*. To test the significance of the absence of this species from the older microflora a large number of samples thought to contain the younger microflora was routinely prepared but not thoroughly scanned. Of 34 samples prepared, 29 contained *C. annulatus*. Of the remaining five samples, two were barren, one almost barren, one contained wood fragments but very few palynomorphs, and only one contained a diverse microflora from which *C. annulatus* was absent.

Some other palynomorphs present included:

*Foveosporites palaequetrus* Partridge, 1973  
*Foveosporites* sp. nov.  
*Verrucosisporites kopukuensis* (Couper) Stover, 1973  
*Verrucosisporites cristatus* Partridge, 1973  
*Beaupreaidites verrucosus* Cookson, 1950  
*Nothofagidites falcatus*  
*Nothofagidites flemingii* (Couper) Potonié, 1960  
*Triporopollenites chnosus* Partridge, 1973  
*Periporopollenites vesicus* Partridge, 1973

*C. annulatus* indicates the microflora is no older than the *P. tuberculatus* Zone and based on the Gippsland and Bass Basin sequences *F. palaequetrus*, *N. flemingii*, *B. verrucosus* and *P. vesicus* indicate the microflora is no younger than the *P. tuberculatus* Zone. Further, *N. flemingii* and *P. vesicus* suggest an upper age limit of the middle division of the *P. tuberculatus* Zone, and *B. verrucosus* an upper age limit of the lower division of the *P. tuberculatus* Zone (Stover and Partridge, 1973). The extent to which the zonal scheme developed by Stover and Partridge for the Gippsland Basin is applicable to Tasmania is not known, particularly for upland areas, however correlation with the Gippsland Basin suggests an Oligocene or early Oligocene age (based on *B. verrucosus*).

There are indications that in sub-alpine areas *N. flemingii* may have continued into the upper division of the *P. tuberculatus* Zone (early Miocene) or perhaps younger horizons (S.M. Forsyth, unpublished data) and it should be noted that *Nothofagus gunnii* Hooker, also a producer of *Nothofagus fusca* type pollen, still grows in Tasmania.

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Although only preliminary studies have been undertaken on the samples no species were recorded that first appear in the middle or upper division of the *P. tuberculatus* Zone of the Gippsland Basin. This is in contrast to the presence of such species in the near-shore marine early Miocene rocks at Fossil Bluff, Wynyard.

Other features of the younger microflora include the presence of fern sporangia in one sample and the presence of palynomorphs reworked from the Lower Parmeener Super-Group, including the first record of *Dulhuntyispora dulhuntyi* Potonié amend. (WY2, 119.5 m) from Tasmania. *Dulhuntyispora* indicates the Lower Parmeener Super-Group upper marine rocks as a contributor to the sediment supply, whereas *Tasmanites* sp. and other palynomorphs are consistent with, although do not conclusively show, Lower Parmeener lower marine rocks forming part of the provenance.

#### CONCLUSIONS REGARDING AGE OF MICROFLORAS

The older microflora from 224.0 m, hole WA1, is pre *P. tuberculatus* Zone and probably late Eocene or earliest Oligocene in age. The younger microflora belongs to the *P. tuberculatus* Zone (early Oligocene - early Miocene) and is probably Oligocene, most likely early Oligocene in age.

#### REFERENCES

- PARTRIDGE, A.D. 1973. Revision of the spore-pollen zonations in the Bass Basin. *Unpubl.palaeont.Rep.Esso Aust.Ltd.* 1973/4.
- STOVER, L.E.; PARTRIDGE, A.D. 1973. Tertiary and Late Cretaceous spores and pollen from the Gippsland Basin, southeastern Australia. *Proc.R.Soc.Vict.* 85:237-286.

[10 July 1984]

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Table 1. LIST OF SAMPLES COLLECTED

Analysis no.	Drill Hole	Depth (m)	Field no.	Rock type
830755	WA4	140.0	C1724	Tertiary tholeiitic basalt
756	WA4	195.7	C1725	Tertiary tholeiitic basalt
757	WA4	105.0	C1716	Tertiary tholeiitic basalt
758	WA3	163.5	C1727	Tertiary transitional basalt (alkali/tholeiitic)
759	WA3	196.0	C1728	Tertiary alkali olivine basalt
760	WA3	278.7	C1729	Cambrian picritic lava
761	WA3	284.2	C1730	Cambrian picritic lava
762	WA6	150.0	C1731	Tertiary tholeiitic basalt
763	WA6	197.5	C1733	Tertiary transitional basalt
764	WY2	175.0	C1734	Tertiary tholeiitic basalt
765	WY2	218.0	C1735	Tertiary tholeiitic basalt
766	WY2	272.0	C1736	Tertiary alkali olivine basalt
767	WA2	113.0	C1737	Tertiary tholeiitic basalt
768	WA2	154.0	C1738	Tertiary tholeiitic basalt
769	WA2	186.0	C1739	Tertiary tholeiitic basalt
770	WY1	137.5	C1740	Tertiary tholeiitic basalt
771	WA1	221.0	C1741	Tertiary alkali olivine basalt
772	WA1	179.0	C1742	Tertiary tholeiitic basalt
773	WA1	144.0	C1743	Tertiary transitional basalt
774	WA1	96.0	C1744	Tertiary tholeiitic basalt

Table 2. CHEMICAL ANALYSES OF BASALT SAMPLES. Analyses by Department of Mines Laboratories, Launceston

Reg. No.	SiO <sub>2</sub>	Al <sub>2</sub> O <sub>3</sub>	Fe <sub>2</sub> O <sub>3</sub>	FeO	TiO <sub>2</sub>	MnO	CaO	MgO	K <sub>2</sub> O	Na <sub>2</sub> O	P <sub>2</sub> O <sub>5</sub>	SO <sub>2</sub>	CO <sub>2</sub>	H <sub>2</sub> O <sup>-</sup>	H <sub>2</sub> O <sup>+</sup>	NiO	Cr <sub>2</sub> O <sub>3</sub>
830755	48.01	13.17	3.76	6.49	1.49	0.13	8.09	8.77	0.34	2.10	0.25	0.10	0.17	3.18	3.22	0.02	0.03
756	49.85	13.64	1.77	8.43	1.45	0.14	8.59	7.74	0.57	2.76	0.28	0.11	0.87	1.45	1.88	0.02	0.04
757	47.06	13.27	3.28	7.85	1.38	0.16	7.56	9.81	0.39	1.85	0.24	0.07	0.18	2.59	3.53	0.02	0.04
758	49.21	13.54	2.98	7.43	1.75	0.13	8.57	7.39	1.11	2.65	0.32	0.07	1.03	1.39	2.16	0.01	0.04
759	45.72	13.36	1.09	10.21	1.73	0.16	9.07	7.47	0.83	2.96	0.38	0.14	5.32	0.23	1.11	0.02	0.03
760	36.84	7.30	1.93	5.60	0.27	0.13	7.43	22.58	0.00	0.42	0.05	0.10	3.50	5.18	8.52	0.17	0.41
761	39.97	8.75	2.01	6.49	0.40	0.16	5.43	23.51	0.06	0.23	0.05	0.13	0.34	4.28	8.27	0.15	0.41
762	47.10	13.22	3.31	7.77	1.52	0.14	7.01	9.50	0.72	1.83	0.25	0.18	0.15	2.24	4.49	0.02	0.03
763	48.62	13.53	3.14	7.79	1.55	0.14	7.85	8.47	0.86	2.53	0.40	<0.05	0.23	1.32	3.17	0.02	0.03
764	48.33	13.31	1.68	8.72	1.50	0.17	9.94	6.88	0.30	2.15	0.23	1.05	2.70	1.50	2.14	0.02	0.03
765	43.96	13.20	0.79	10.38	1.62	0.16	7.97	9.26	0.97	2.13	0.32	4.03	2.38	1.30	2.11	0.02	0.03
766	47.08	13.11	1.65	8.87	1.91	0.16	8.41	10.84	1.29	2.44	0.44	0.17	0.21	0.78	2.36	0.03	0.04
767	48.84	13.68	2.54	7.94	1.45	0.15	8.81	7.65	0.17	2.26	0.20	<0.05	0.11	3.24	2.17	0.02	0.03
768	49.39	13.26	1.00	9.79	1.62	0.15	8.92	7.50	0.82	2.51	0.25	<0.05	1.59	0.91	1.26	0.02	0.03
769	47.01	12.88	0.68	9.59	1.38	0.15	8.91	6.48	0.47	2.11	0.19	<0.05	7.16	0.50	1.57	0.02	0.03
770	46.53	13.05	3.43	7.51	1.56	0.15	8.62	8.55	0.36	1.91	0.26	<0.05	0.20	3.81	3.54	0.03	0.03
771	46.63	12.62	3.05	7.84	1.79	0.15	9.04	8.86	1.06	2.49	0.38	<0.05	1.05	1.17	3.03	0.03	0.04
772	49.05	13.64	3.42	6.75	1.55	0.16	9.32	6.47	0.33	2.56	0.29	<0.05	0.73	2.95	2.14	0.02	0.03
773	46.71	13.38	4.15	6.65	1.51	0.20	8.17	7.65	0.77	2.03	0.30	<0.05	0.70	3.29	3.63	0.02	0.04
774	50.56	14.04	1.23	9.37	1.73	0.15	8.86	7.80	0.96	2.86	0.31	0.09	0.07	0.68	0.94	0.01	0.04

Reg. No.	Sr	Rb	Y	Zr	Nb	Ni	Ba	Cr	V	Sc	Pb	As	Zn	Cu	Co
830755	330	10	20	95	13	140	145	230	125	17	23	<10	110	54	38
756	340	21	19	96	13	145	160	250	130	17	15	<10	110	38	40
757	250	12	16	93	8	190	110	240	130	16	10	<10	110	25	47
758	370	25	17	125	15	115	200	250	145	16	<4	<10	105	29	39
759	420	13	19	105	13	175	180	210	140	18	5	<10	125	51	46
760	51	6	8	10	<3	1300	25	2800	105	20	<4	<10	55	31	66
761	31	5	13	16	<3	1150	27	2800	145	28	<4	<10	63	58	69
762	240	20	17	92	11	165	115	210	125	13	<4	<10	115	40	43
763	350	19	20	110	17	180	180	240	140	18	<4	<10	115	47	45
764	270	12	18	87	6	155	83	210	130	18	<4	<10	115	41	43
765	570	16	18	110	14	190	105	230	140	15	<4	<10	110	40	46
766	470	26	20	145	29	210	220	270	160	18	<4	<10	100	39	49
767	250	7	19	84	4	160	60	240	130	18	<4	<10	110	47	38
768	280	20	21	105	9	155	110	230	145	19	<4	<10	115	43	46
769	230	15	17	80	4	155	105	230	130	18	<4	<10	105	38	39
770	260	11	20	96	9	200	120	230	150	17	<4	<10	110	44	47
771	470	25	19	120	25	230	280	270	155	15	<4	<10	99	43	42
772	350	10	19	92	12	125	105	230	135	18	<4	<10	105	36	43
773	280	21	20	100	13	160	125	250	135	16	<4	<10	105	29	41
774	360	22	19	120	14	115	180	260	150	19	<4	<10	105	36	43

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Table 3. LIST OF SAMPLES FOR PALYNOLOGICAL EXAMINATION

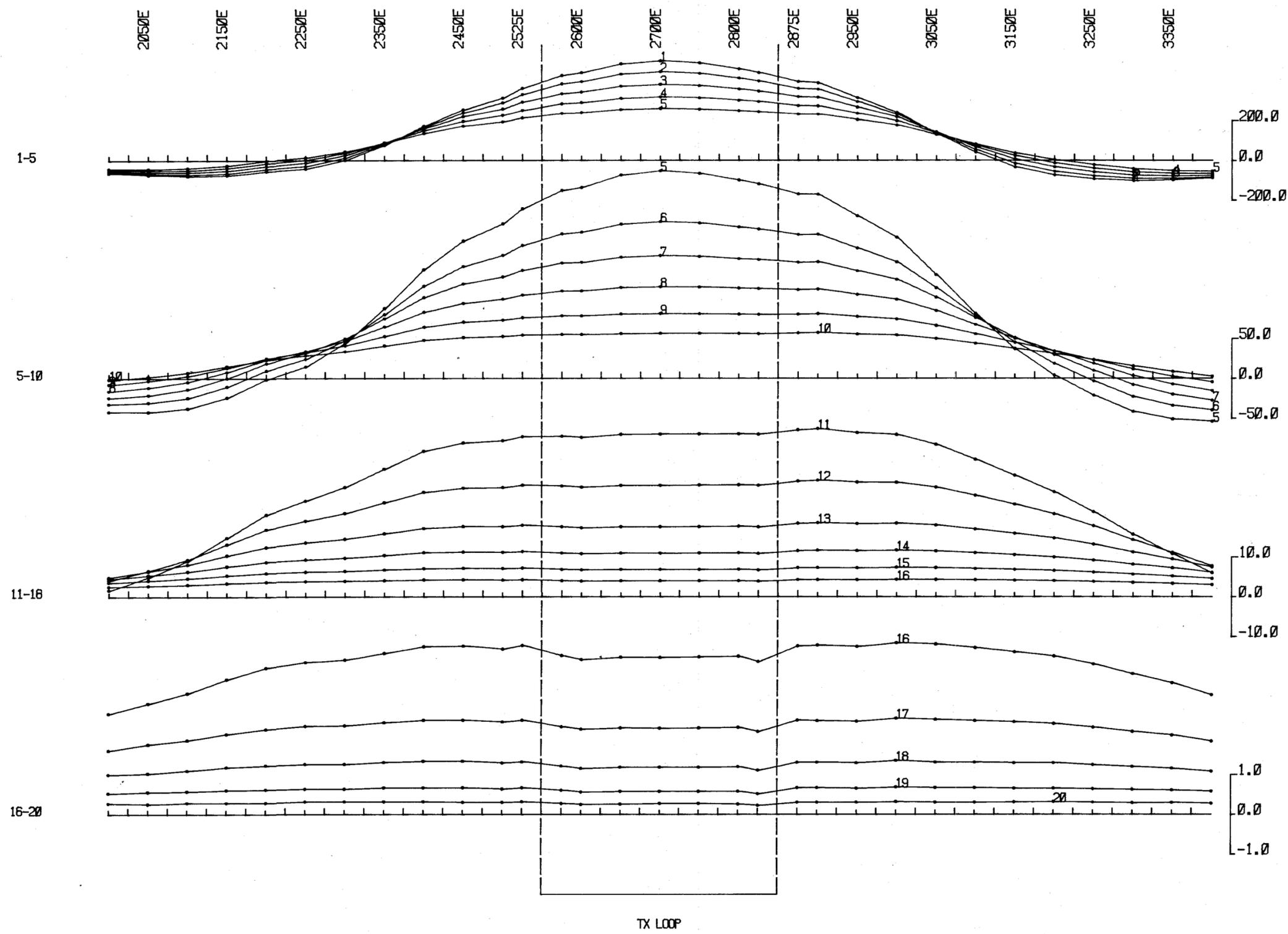
Sample no.	Drill hole	Depth (m)	Microflora*
P439	WA1	224.0	O
P440	WA1	224.9	B
P441	WA2	134.4	Y
P442	WA2	135.3	Y
P443	WA2	135.5	Y
P444	WA2	137.45	Y
P445	WA2	139.4	Y
P446	WA2	142.5	Y
P447	WA2	146.6	Y
P448	WA2	163.8	Y
P449	WA3	150.4	Y
P450	WA3	151.4	Y
P451	WA3	151.8	Y
P452	WA4	144.55	Y
P453	WA4	149.2	Y
P454	WA4	149.4	Y
P455	WA4	150.0	Y
P456	WA4	166.4	Y
P457	WA4	167.4	Y
P458	WA4	168.4	Y
P459	WA4	169.4	Y
P460	WA4	170.4	Y
P461	WA4	171.4	B
P462	WY1	87.5	Y
P463	WY1	95.7	Y
P464	WY1	101.4	Y
P465	WY1	102.1	Y
P466	WY1	111.6	Y
P467	WY1	113.5	Rare Palynomorphs
P468	WY2	119.5	
P469	WY2	124.2	Y
P470	WY2	127.7	Y
P471	WY2	129.7	Y
P472	WY2	131.0	Y
P473	WY2	136.3	B
P474	WY2	137.1	Wood fragments, rare palynomorphs
P475	WY2	238.3	B
P476	WY2	143.1	B
P477	WY2	242.4	B
P33†	V66	Surface sample	Y
P34†	V91	Surface sample	Y
P47†		Surface sample	Y
P48†		Surface sample	Y

\* O = older microflora, Y = younger microflora, B = barren

† Samples P33 and P34 collected by P. Lennox, Tasmania Department of Mines, 1979.

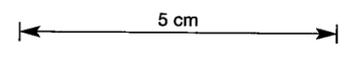
Samples P47 and P48 collected by P. Williams, Tasmania Department of Mines, 1979.

VERTICAL COMPONENT B (Z)



EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



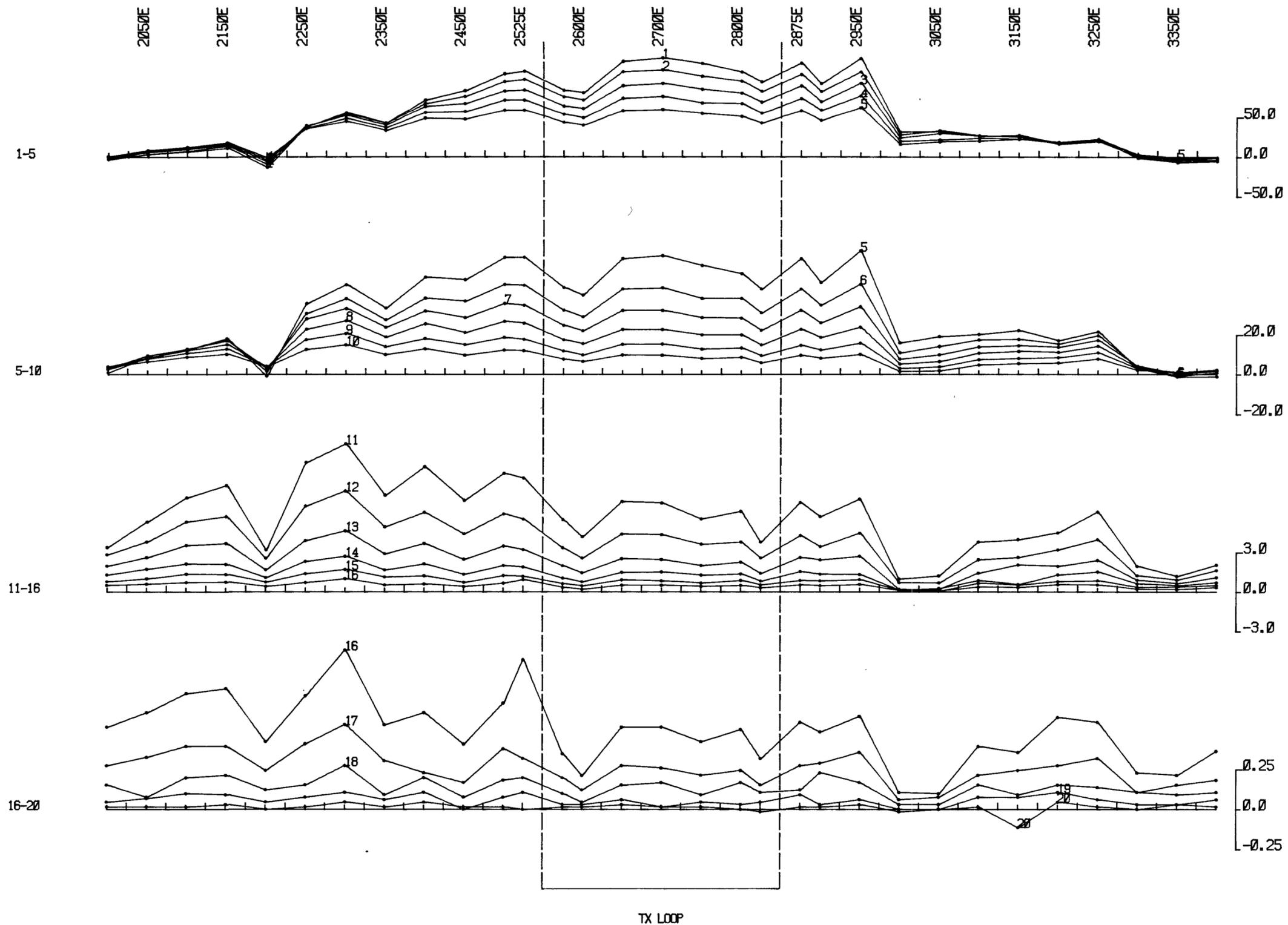
nanovolts per amp.metre squared

TX LOOP SIDES : 1000N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 28-NOV,1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1400N Z  
TX LOOP : 5 84-2295

HORIZONTAL COMPONENT B (Y)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

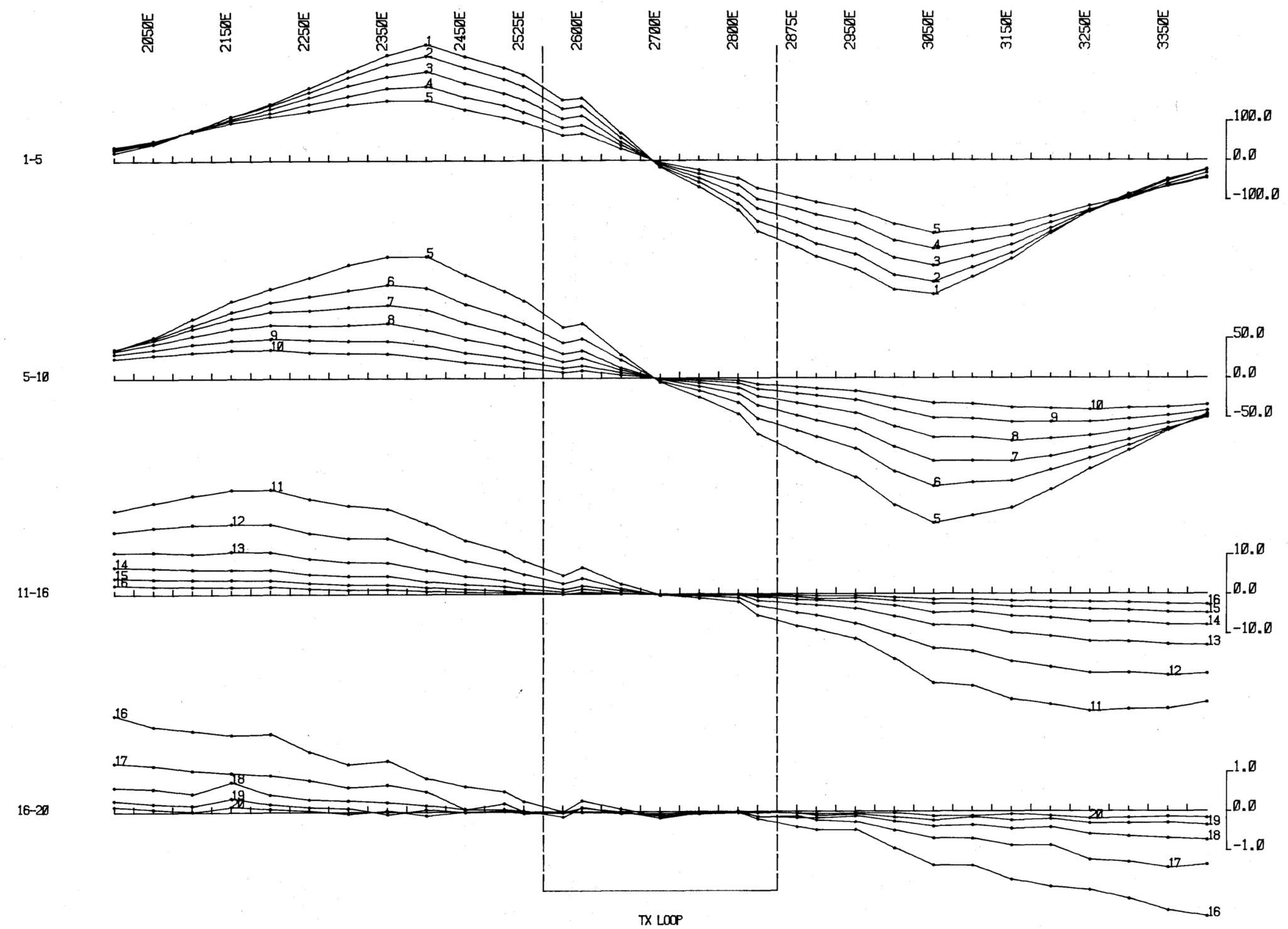
nanovolts per amp.metre squared

5 cm

TX LOOP SIDES : 1000N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 28-NOV,1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : AREA H AREA : Waratah Tasmania. LINE : 1400N Y TX LOOP : 5	

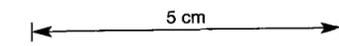
HORIZONTAL COMPONENT B (X)



EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared

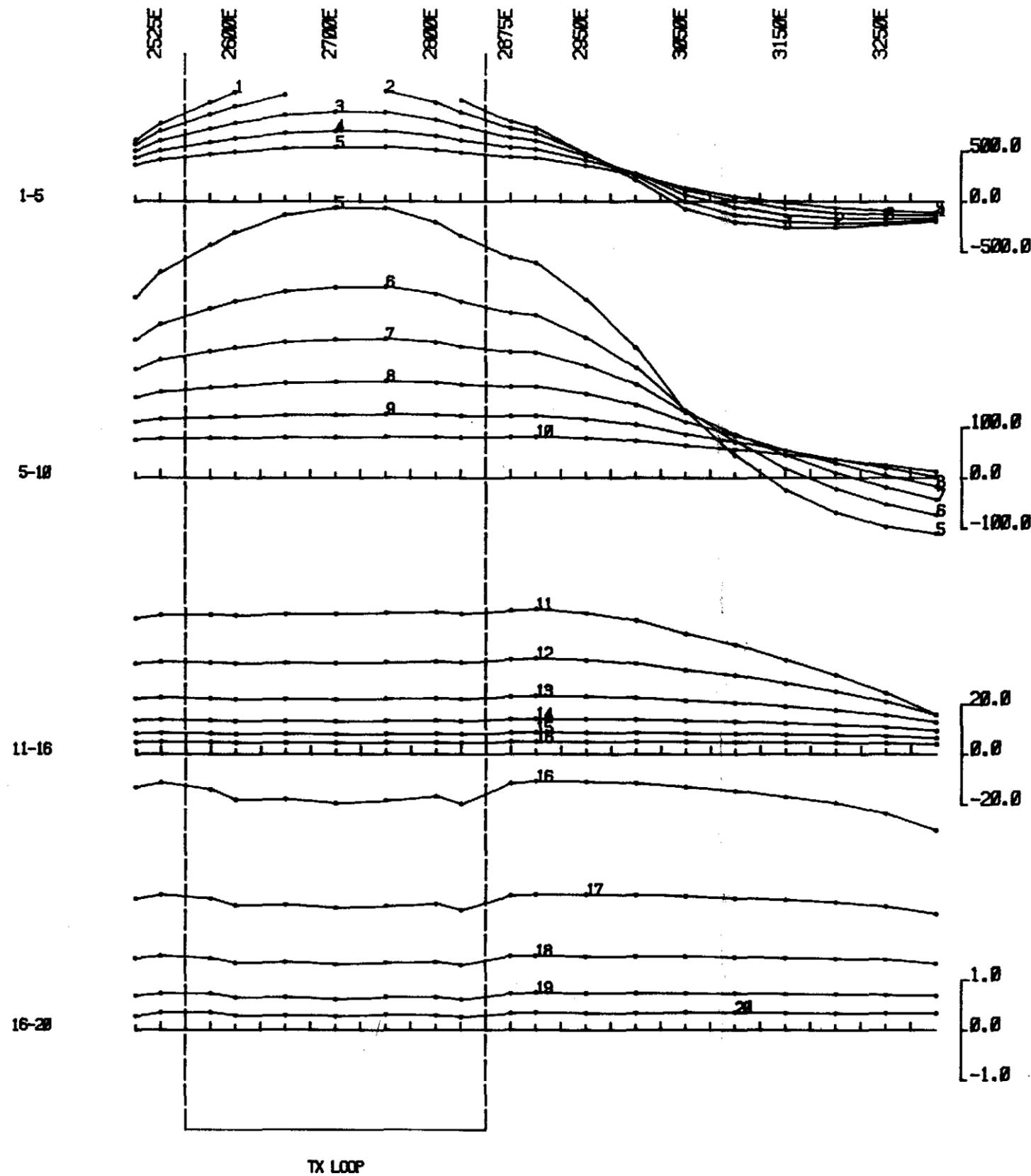


TX LOOP SIDES : 1000N 2550E  
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TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 28-NOV-1983

	SURVEYED AND COMPILED BY GEDTERREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1400N X  
TX LOOP : 5

VERTICAL COMPONENT B (Z)

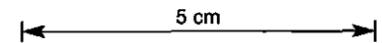


269123

EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp.metre squared

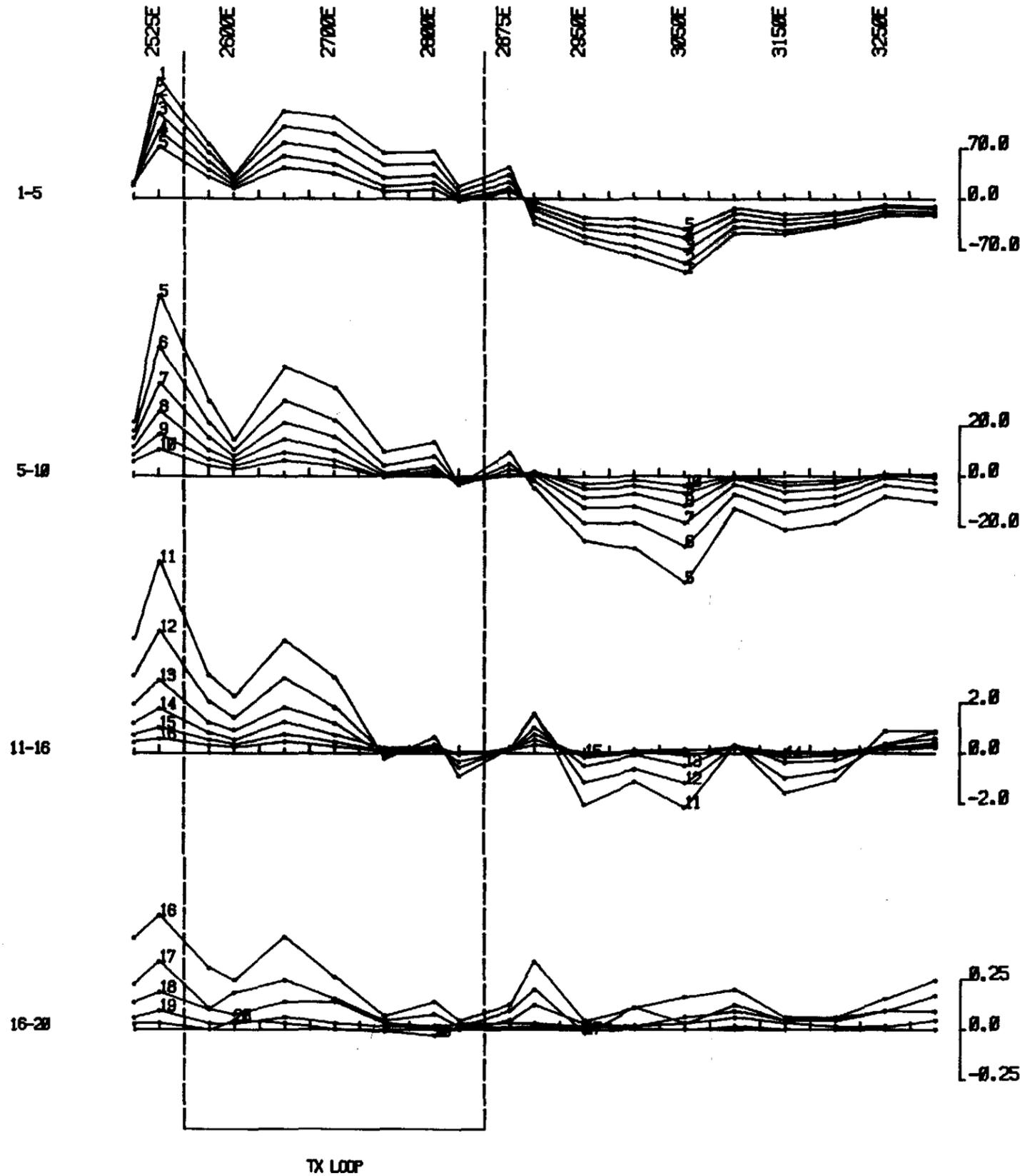


TX LOOP SIDES : 1800N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 368 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 27-NOV-1968

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1488
	CLIENT : The BHP Co. Ltd.	

PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1300N Z  
TX LOOP : 5

HORIZONTAL COMPONENT B (Y)

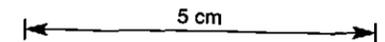


EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared

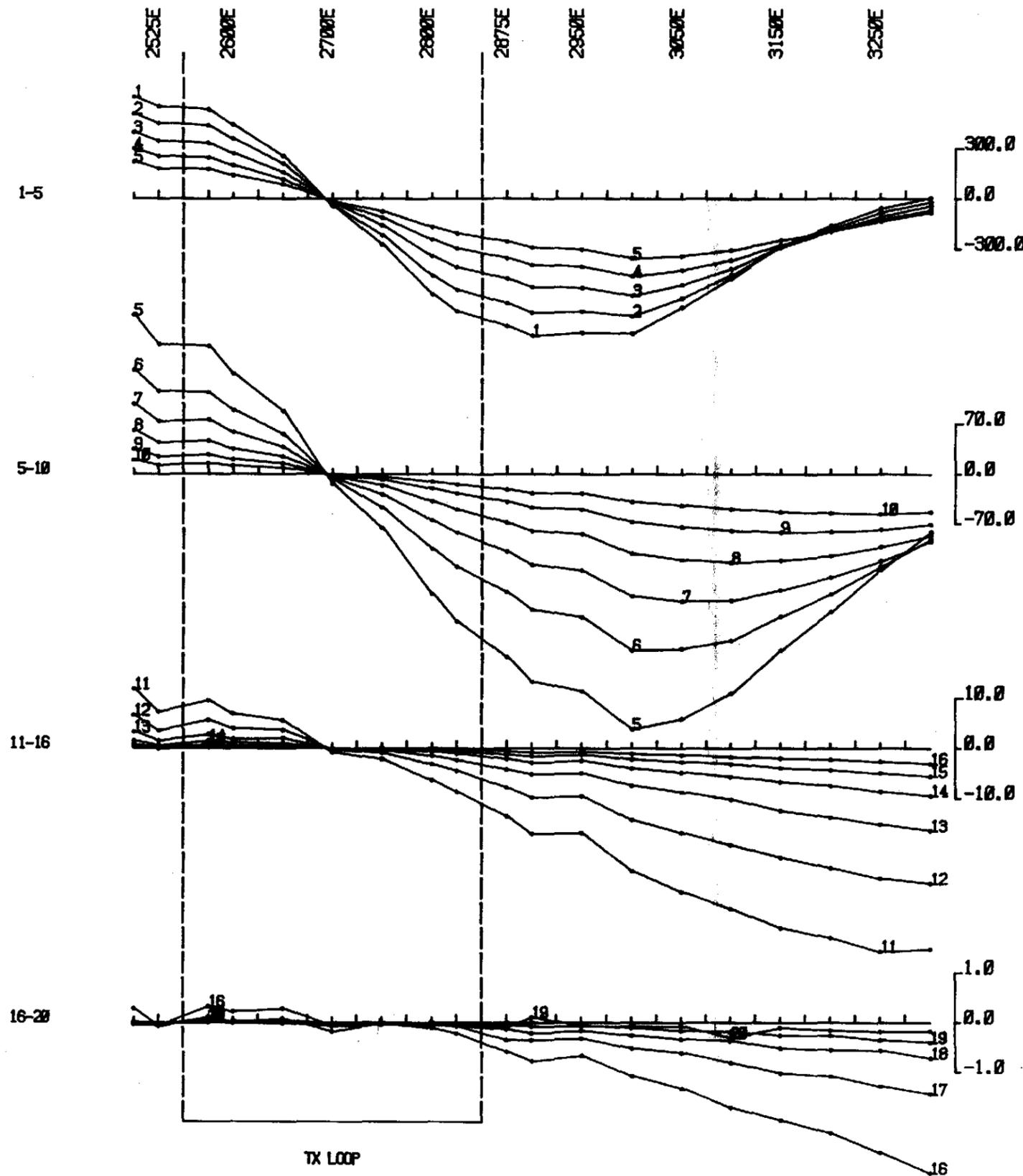


TX LOOP SIDES : 1800N 2550E  
                  : 1800N 2850E  
TX LOOP SIZE : 360m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 258 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:50000  
SURVEYED BY : J.P.R.L.  
DATE : 27-NOV-1988

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 65-1489
	CLIENT : The BHP Co. Ltd.	

PROJECT : ARER H  
ARER : Maratah Tasmania.  
LINE : 1300N Y  
TX LOOP : 5

HORIZONTAL COMPONENT B (X)

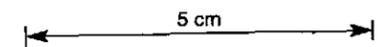


EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared



TX LOOP SIDES : 1800N 2550E  
                  : 1600N 2650E  
TX LOOP SIZE : 900m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 27-NOV-1968

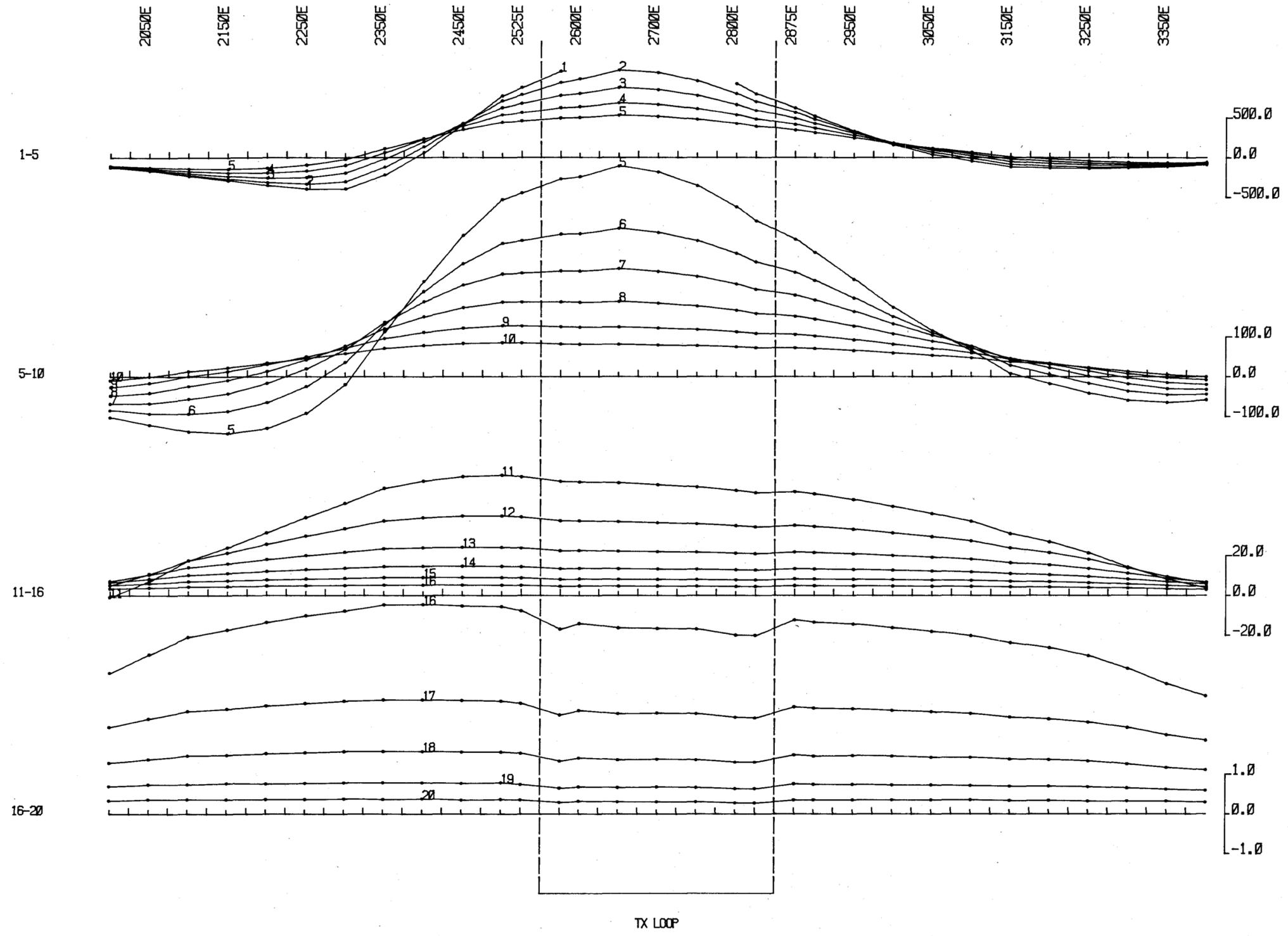


SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
65-1498

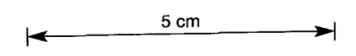
CLIENT : The BHP Co. Ltd.  
PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1300N X  
TX LOOP : 5 84-2295

VERTICAL COMPONENT B (Z)



EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



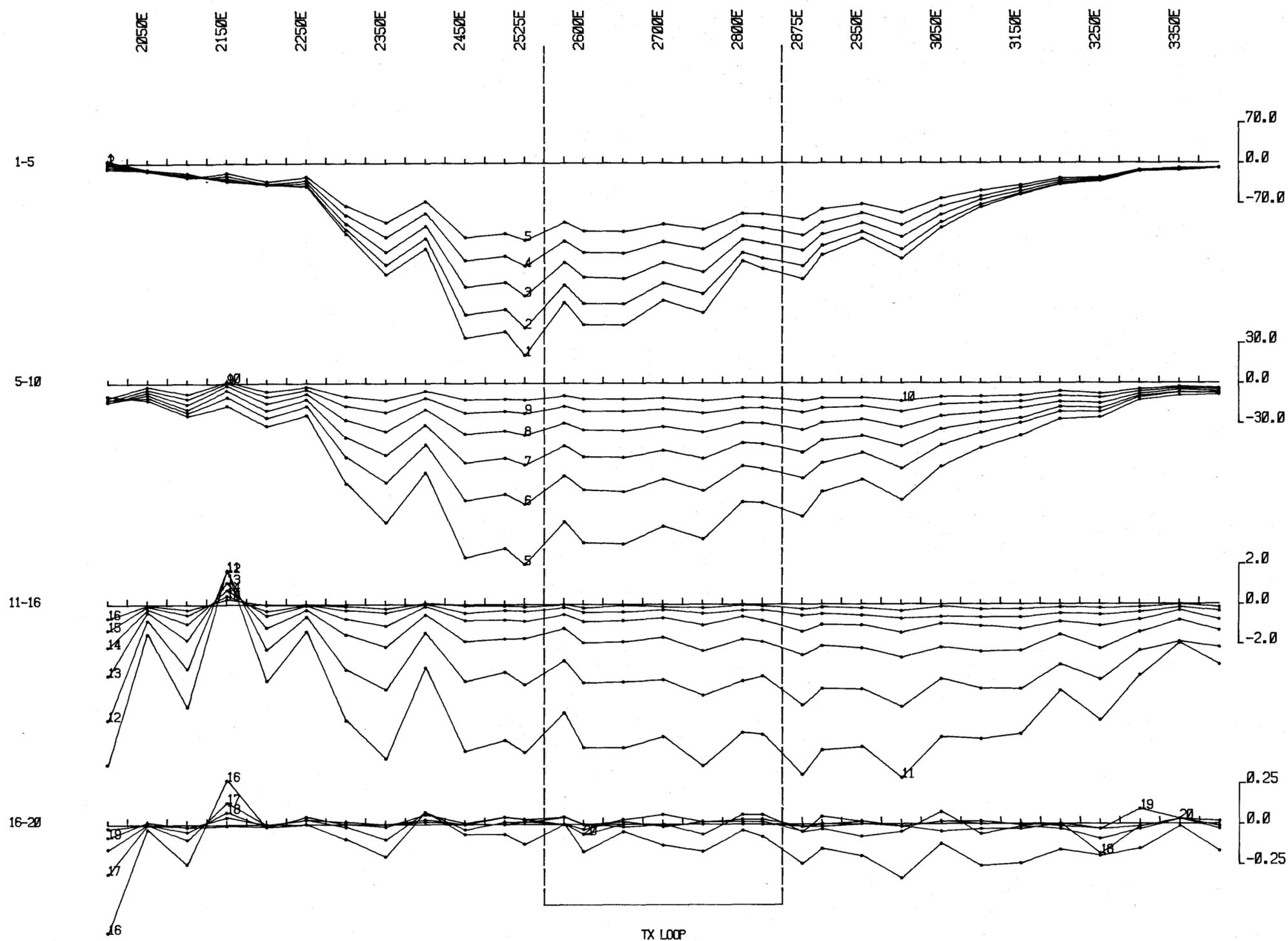
nanovolts per amp.metre squared

TX LOOP SIDES : 1000N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 28-NOV.1983

	SURVEYED AND COMPILED BY GEOTERREX PTY. LTD.	PROJECT NO. 65-1498
	CLIENT : The BHP Co. Ltd.	

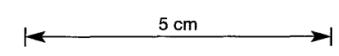
PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1200N Z  
TX LOOP : 5

HORIZONTAL COMPONENT B (Y)



EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)



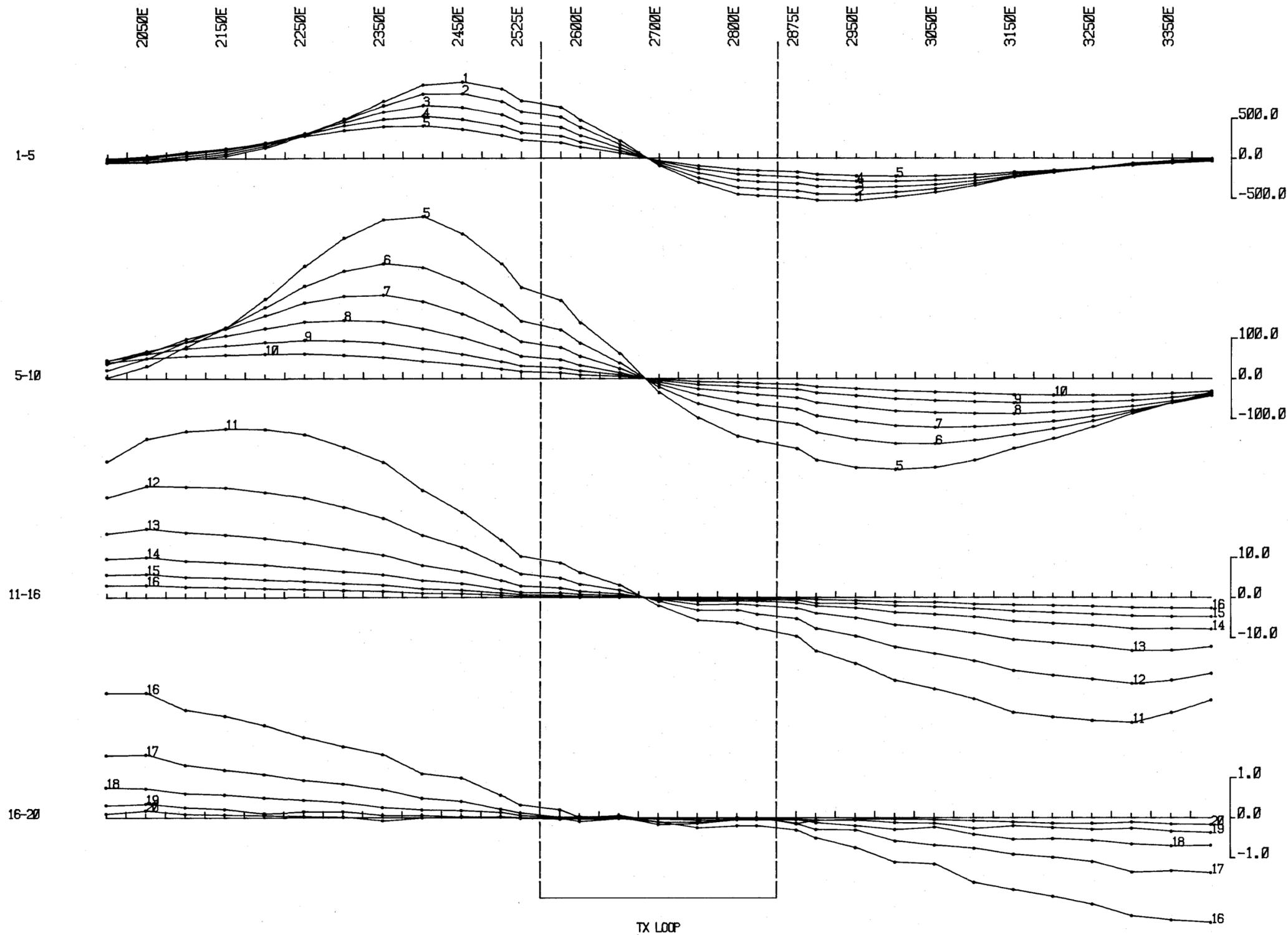
nanovolts per amp-metre squared

TX LOOP SIDES : 1000N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 28-NOV-1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTERREX PTY. LTD.	85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA H  
AREA : Waratah Tasmania.  
LINE : 1200N Y  
TX LOOP : 5 84-2295

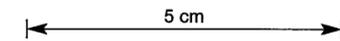
HORIZONTAL COMPONENT B (X)



EM-37  
FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

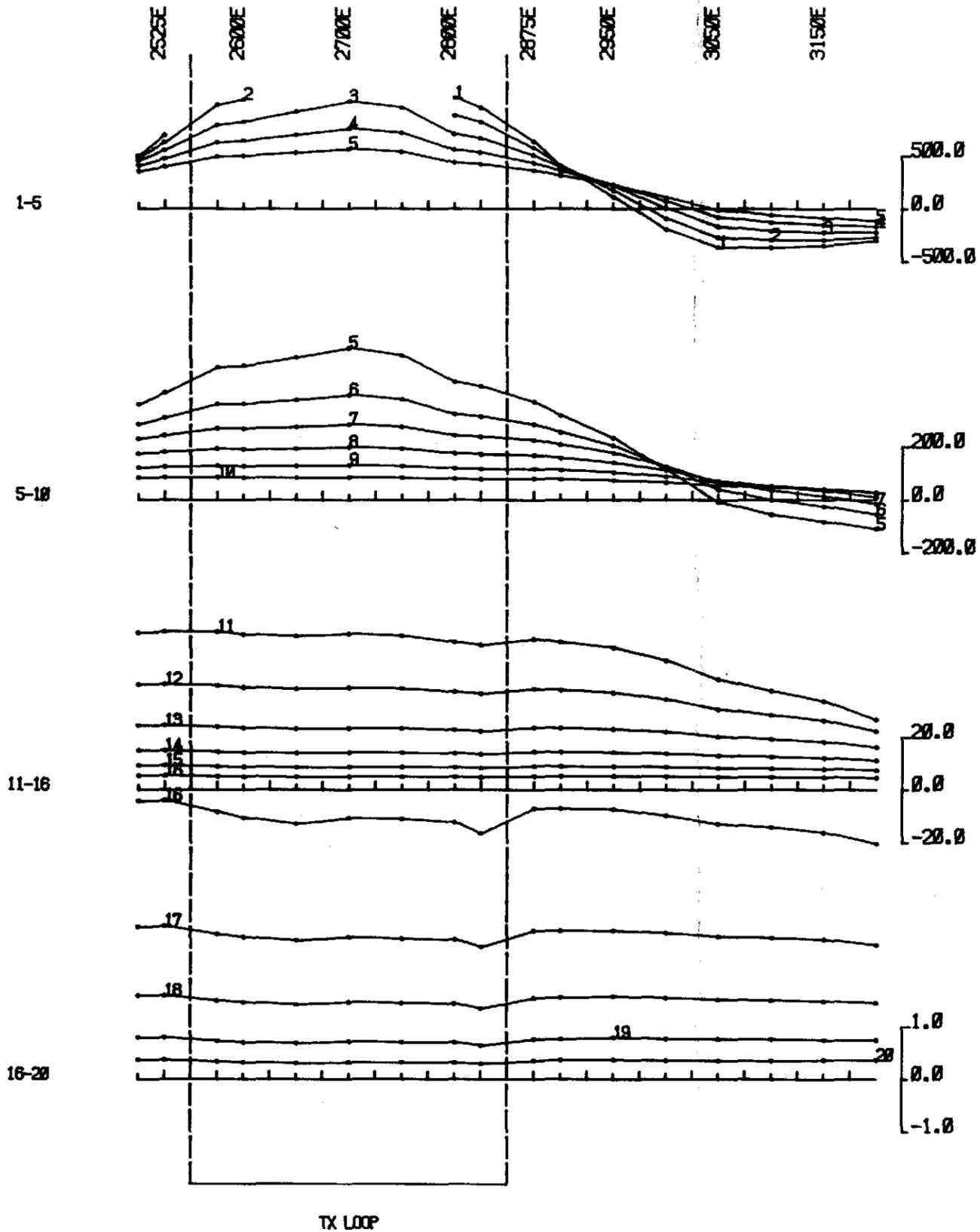
nanovolts per amp-metre squared



TX LOOP SIDES : 1000N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microsecs  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L.  
DATE : 28-NOV.1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1499
	CLIENT : The BHP Co. Ltd. PROJECT : AREA H AREA : Waratah Tasmania. LINE : 1200N X TX LOOP : 5	

VERTICAL COMPONENT B (Z)



269129

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolt per amp-metre squared

5 cm

TX LOOP SIDES : 1800N 2550E  
                  : 1800N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 966 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 27-NOV,1963

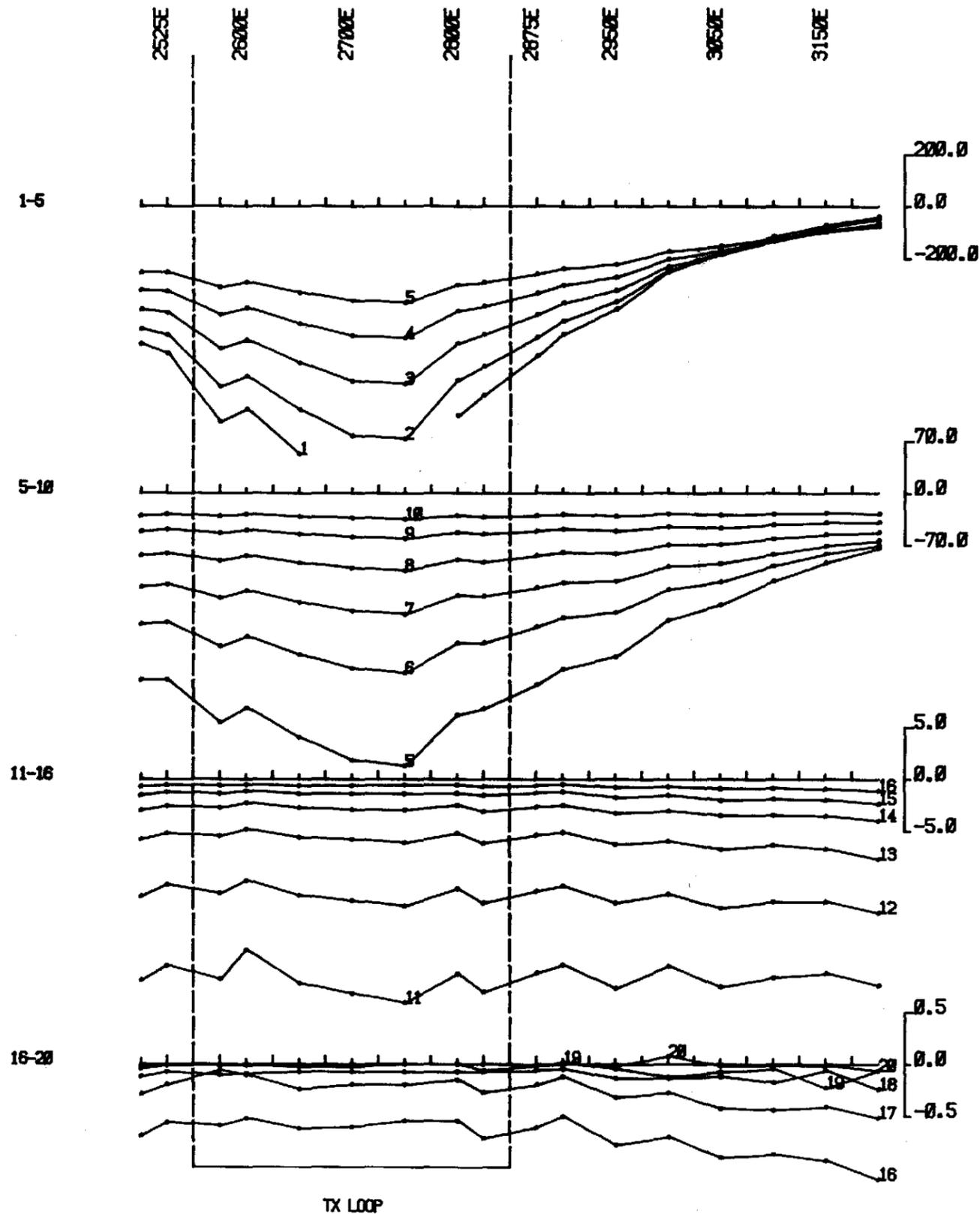


SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA H  
AREA : Marotah Tasmania.  
LINE : 1100N Z  
TX LOOP : 5

HORIZONTAL COMPONENT B (Y)



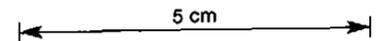
269130

EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp-metre squared



TX LOOP SIDES : 1800N 2530E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 368 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.  
DATE : 27-NOV-1983

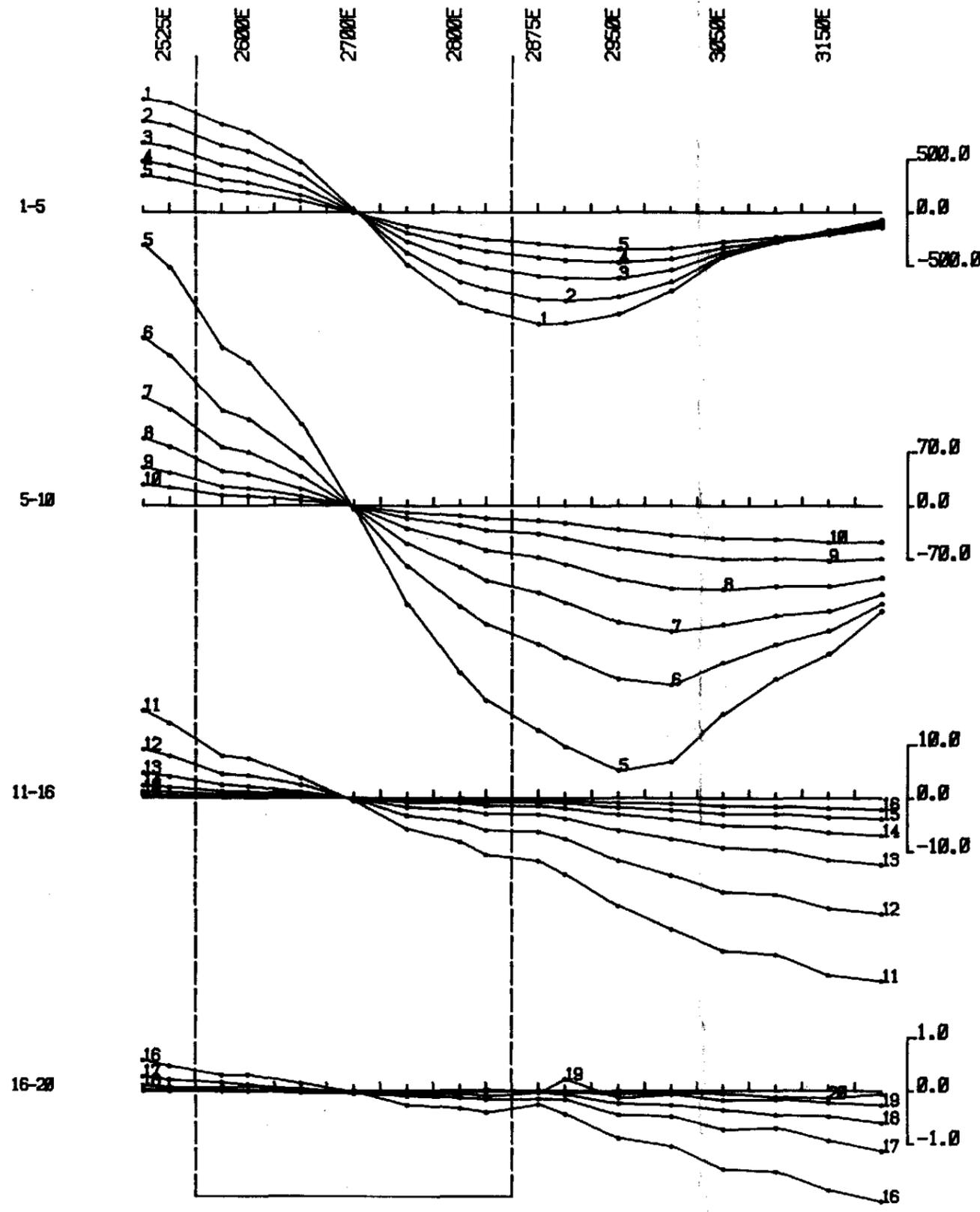


SURVEYED AND COMPILED BY  
GEOTREX PTY. LTD.

PROJECT NO.  
85-1488

CLIENT : The BHP Co. Ltd.  
PROJECT : ARER H  
ARER : Maratch Tasmania.  
LINE : 1100N Y  
TX LOOP : 5

HORIZONTAL COMPONENT B (X)

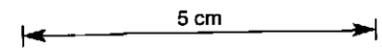


nanovolt per amp.metre squared

269131

EM-37  
FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

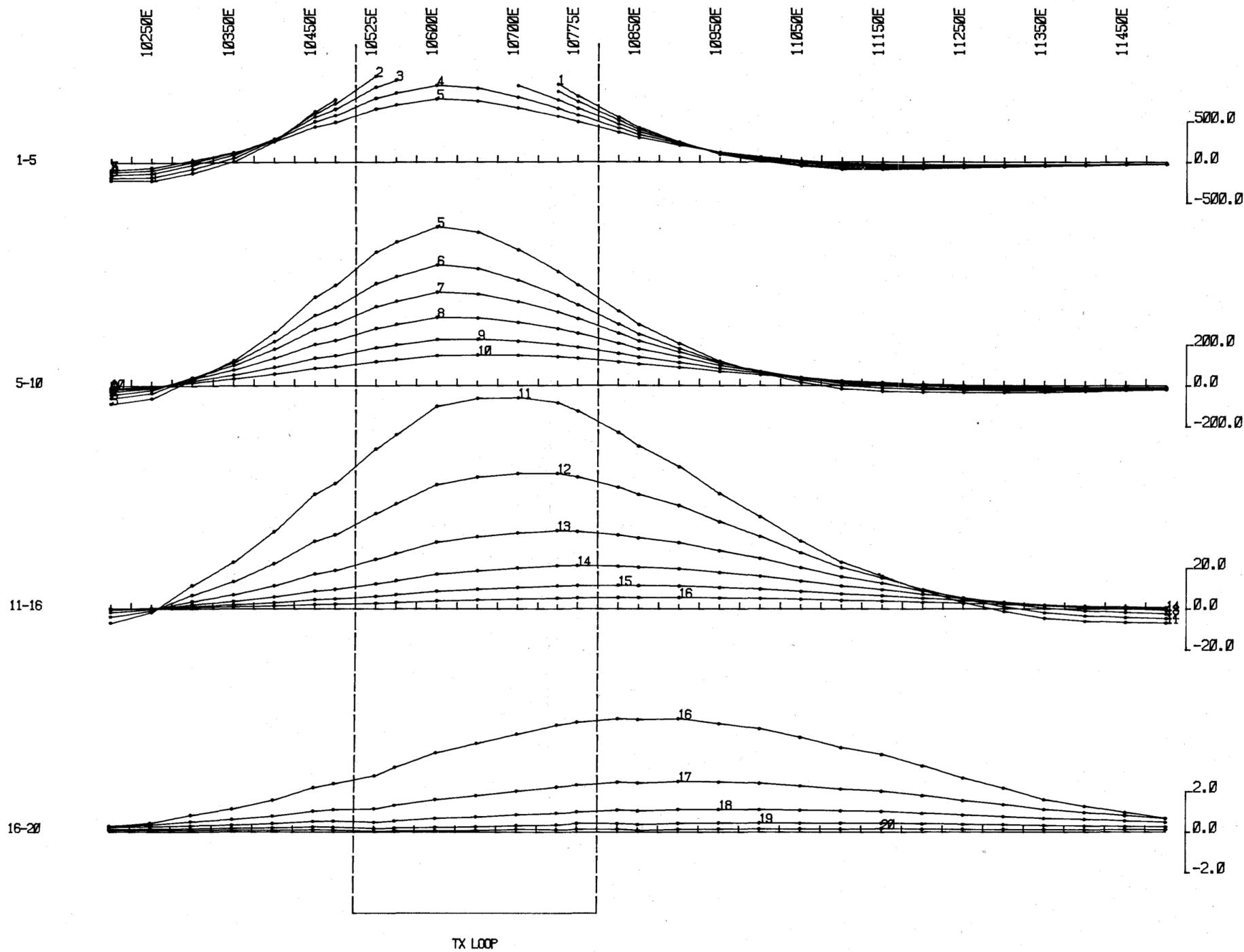


TX LOOP SIDES : 1800N 2550E  
                  : 1600N 2850E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 366 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 27-NOV, 1963

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	65-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA H  
AREA : Haratch Tasmania.  
LINE : 1100N X  
TX LOOP : 5

VERTICAL COMPONENT B (Z)



EM-37

FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

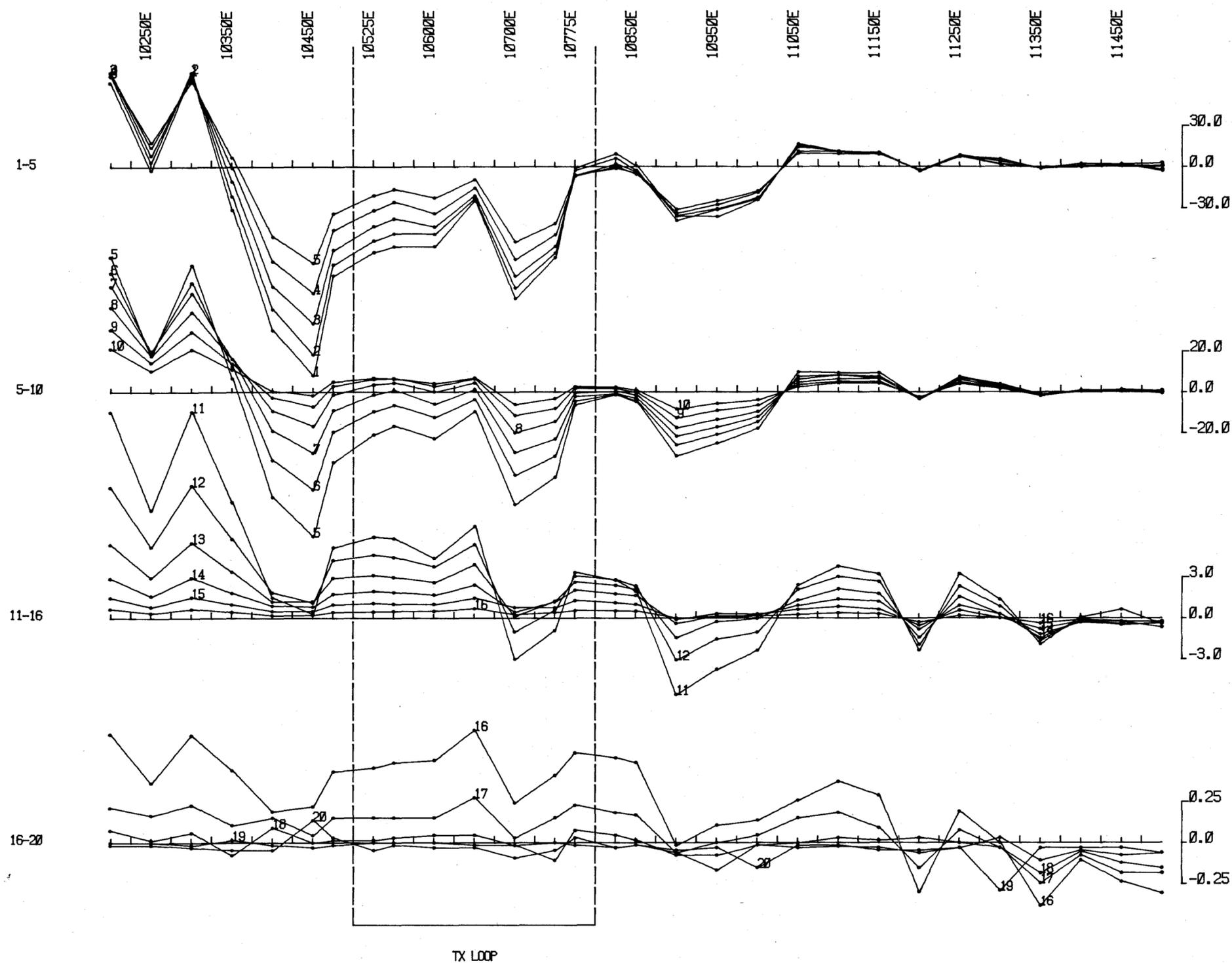
nanovolts per amp-metre squared

5 cm

TX LOOP SIDES : 10200N 10500E  
: 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : JP,RL  
DATE : 26-NOV,1983

	SURVEYED AND COMPILED BY GEOTREX PTY. LTD.	PROJECT NO. 85-1489
	CLIENT : The BHP Co. Ltd. PROJECT : AREA S AREA : Waratah Tasmania. LINE : 10500N Z TX LOOP : 4	

HORIZONTAL COMPONENT B (Y)

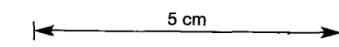


EM-37

FIXED  
TRANSMITTER  
SURVEY

ELECTROMOTIVE FORCE INDUCED BY  
SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

nanovolts per amp.metre squared

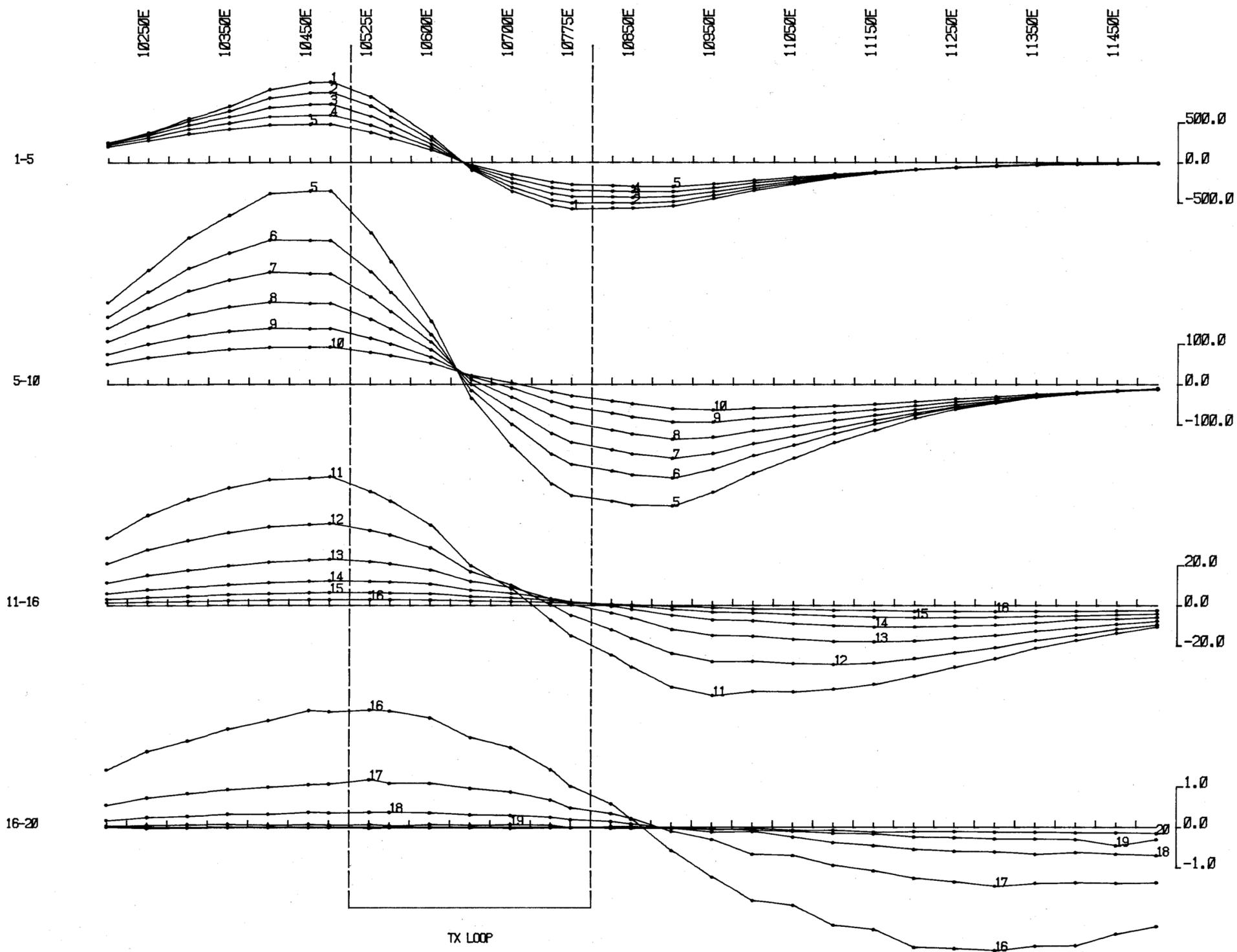


TX LOOP SIDES : 10200N 10500E  
                  : 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.R.L  
DATE : 26-NOV,1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTREX PTY. LTD.	85-1499

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA S  
AREA : Waratah Tasmania.  
LINE : 10500N Y  
TX LOOP : 4

HORIZONTAL COMPONENT B (X)



EM-37

FIXED TRANSMITTER SURVEY

ELECTROMOTIVE FORCE INDUCED BY SECONDARY FIELD  
TIME DERIVATIVE OF FLUX DENSITY (B)

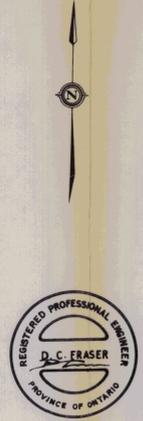
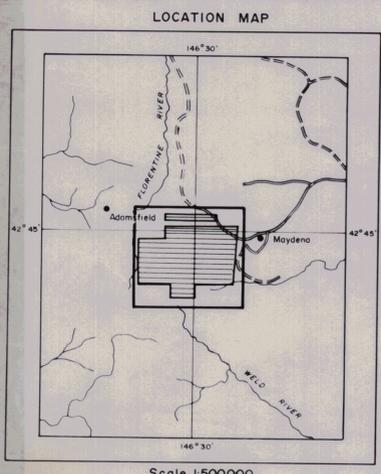
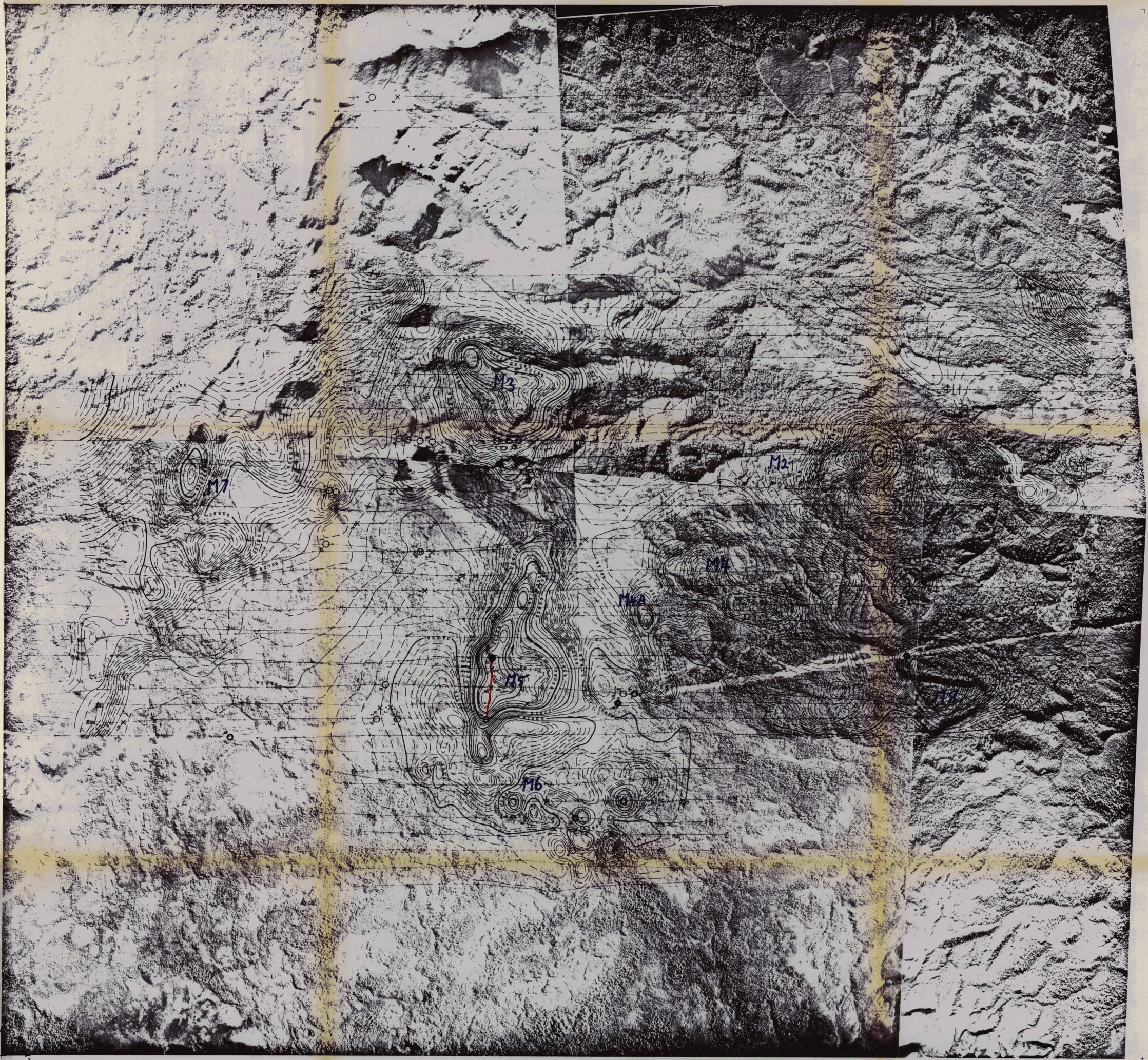
5 cm

nanovolts per amp.metre squared

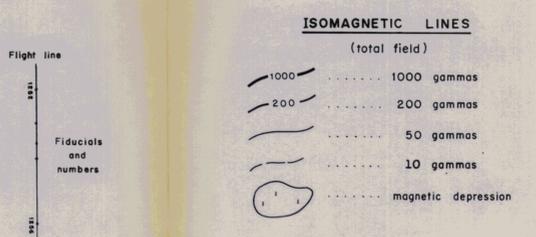
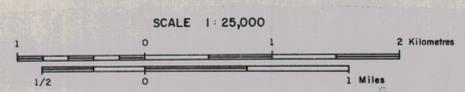
TX LOOP SIDES : 10200N 10500E  
: 10600N 10600E  
TX LOOP SIZE : 300m X 600m  
TX TURN OFF TIME : 355 microseconds  
CURRENT : 16.5 amps  
FREQUENCY : 25 Hz  
INTEGRATION TIME : 256 cycles  
SYNC MODE : CRYSTAL  
HORIZONTAL SCALE : 1:5000  
SURVEYED BY : J.P.,RL  
DATE : 26-NOV,1983

	SURVEYED AND COMPILED BY	PROJECT NO.
	GEOTERREX PTY. LTD.	85-1489

CLIENT : The BHP Co. Ltd.  
PROJECT : AREA S  
AREA : Waratah Tasmania.  
LINE : 10500N X  
TX LOOP : 4



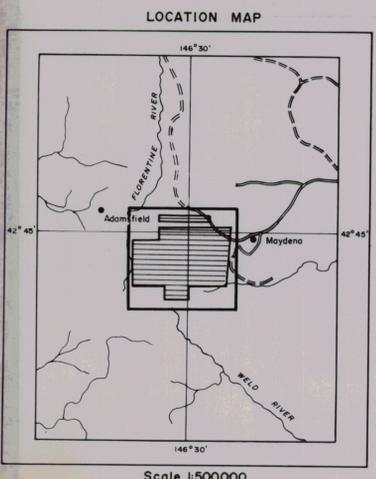
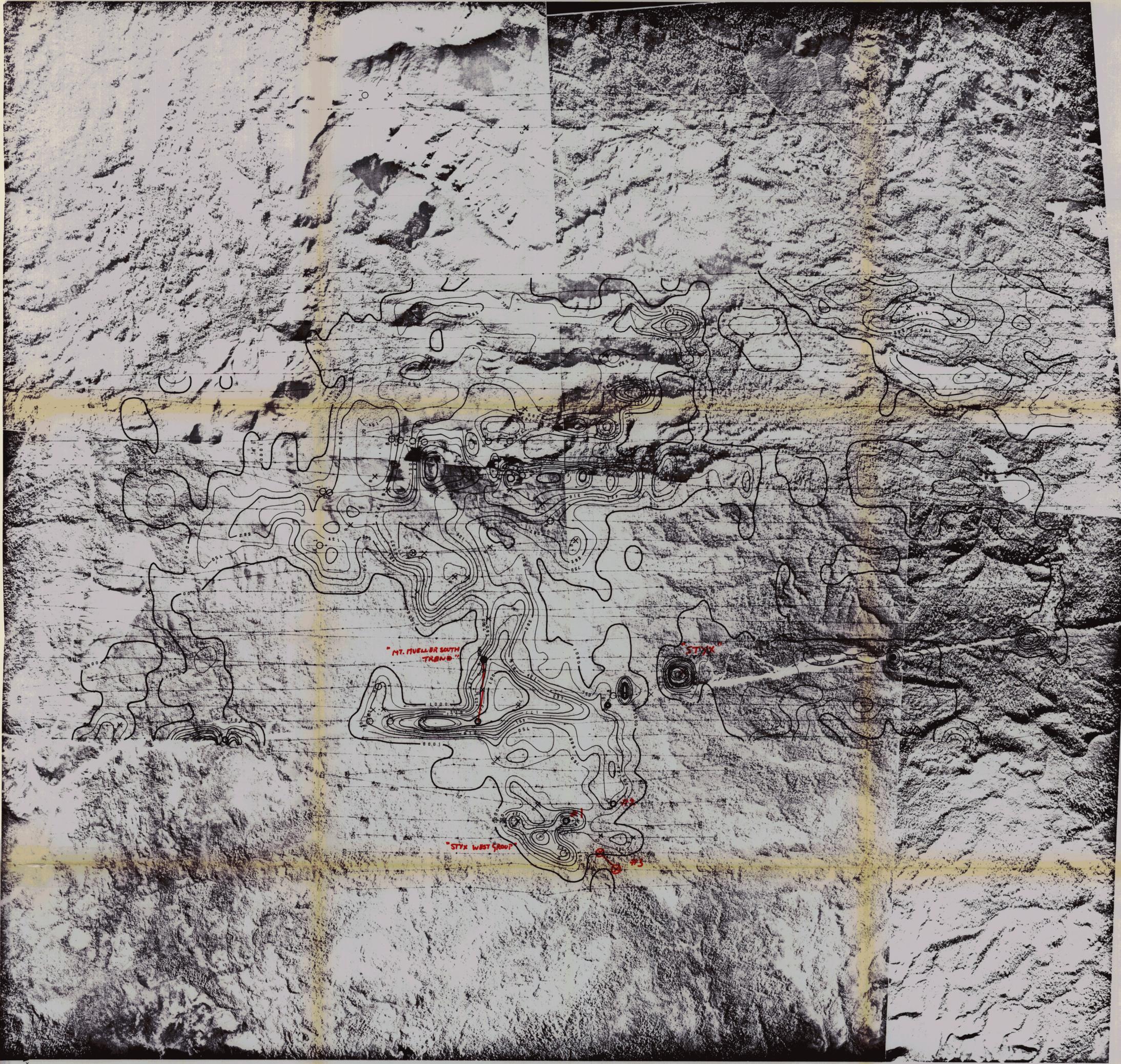
DIGHEM<sup>II</sup> SURVEY  
 ADAMSFIELD, TASMANIA  
 MAGNETICS  
 FOR  
 BROKEN HILL PROPRIETARY CO. LTD.



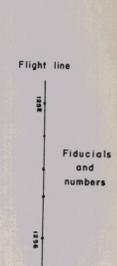
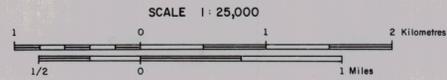
Magnetic Inclination within the survey area: 72°

269135

3269



DIGHEM<sup>II</sup> SURVEY  
 ADAMSFIELD, TASMANIA  
 RESISTIVITY  
 FOR 269136  
 BROKEN HILL PROPRIETARY CO. LTD.

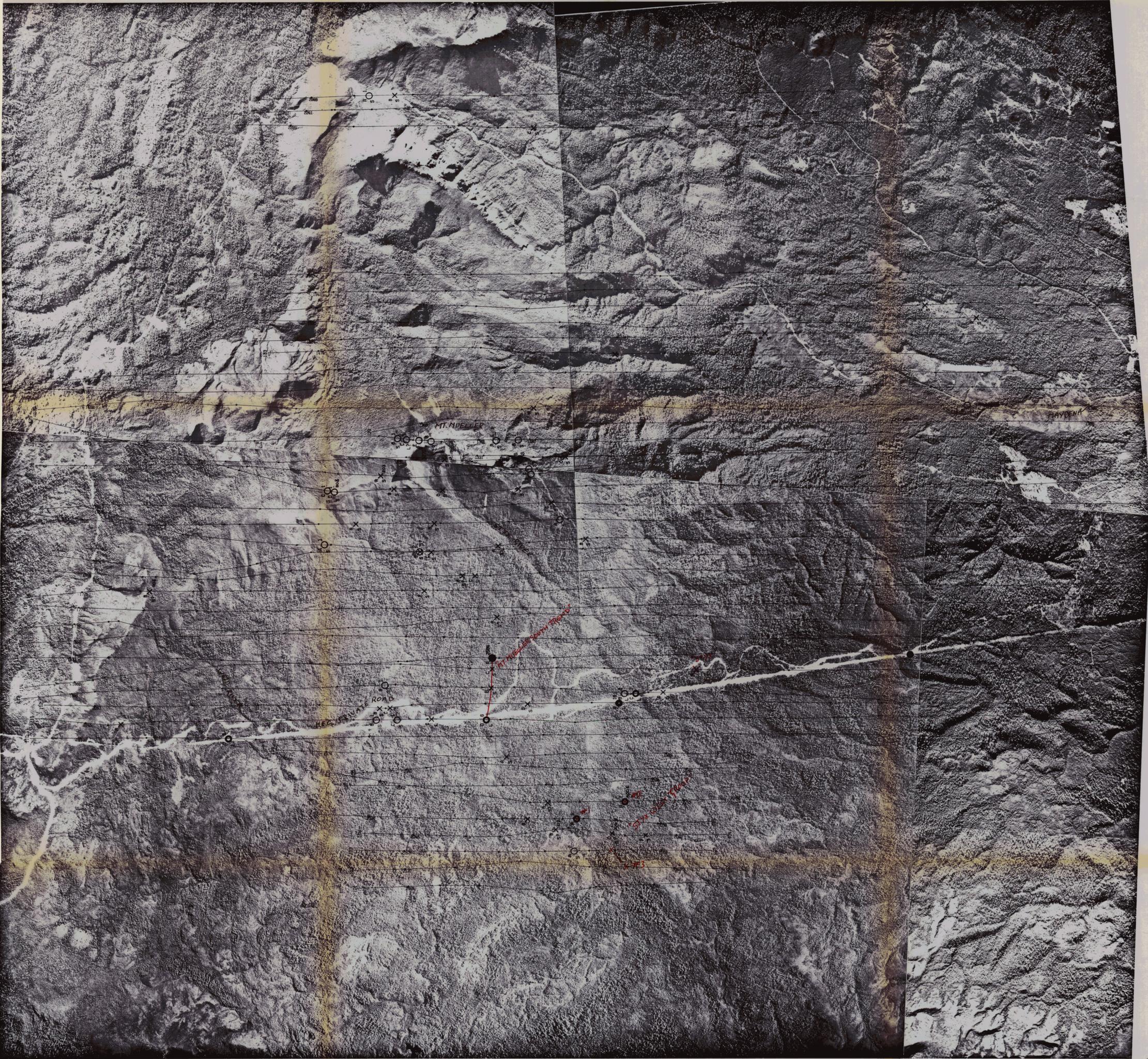


LEGEND

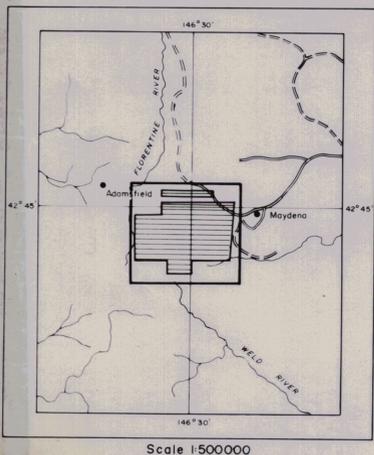
Contours in ohm - m at eight intervals per decade

100
75
50
25
10

Note  
 The numbers face in the direction of increasing value.



LOCATION MAP



Scale 1:500,000



# DIGHEM<sup>II</sup> SURVEY

ADAMSFIELD, TASMANIA

ELECTROMAGNETICS

269137

FOR

BROKEN HILL PROPRIETARY CO. LTD.

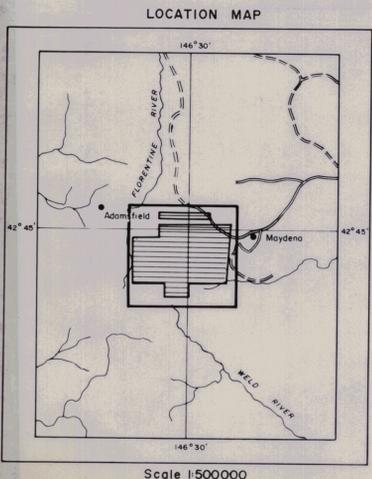
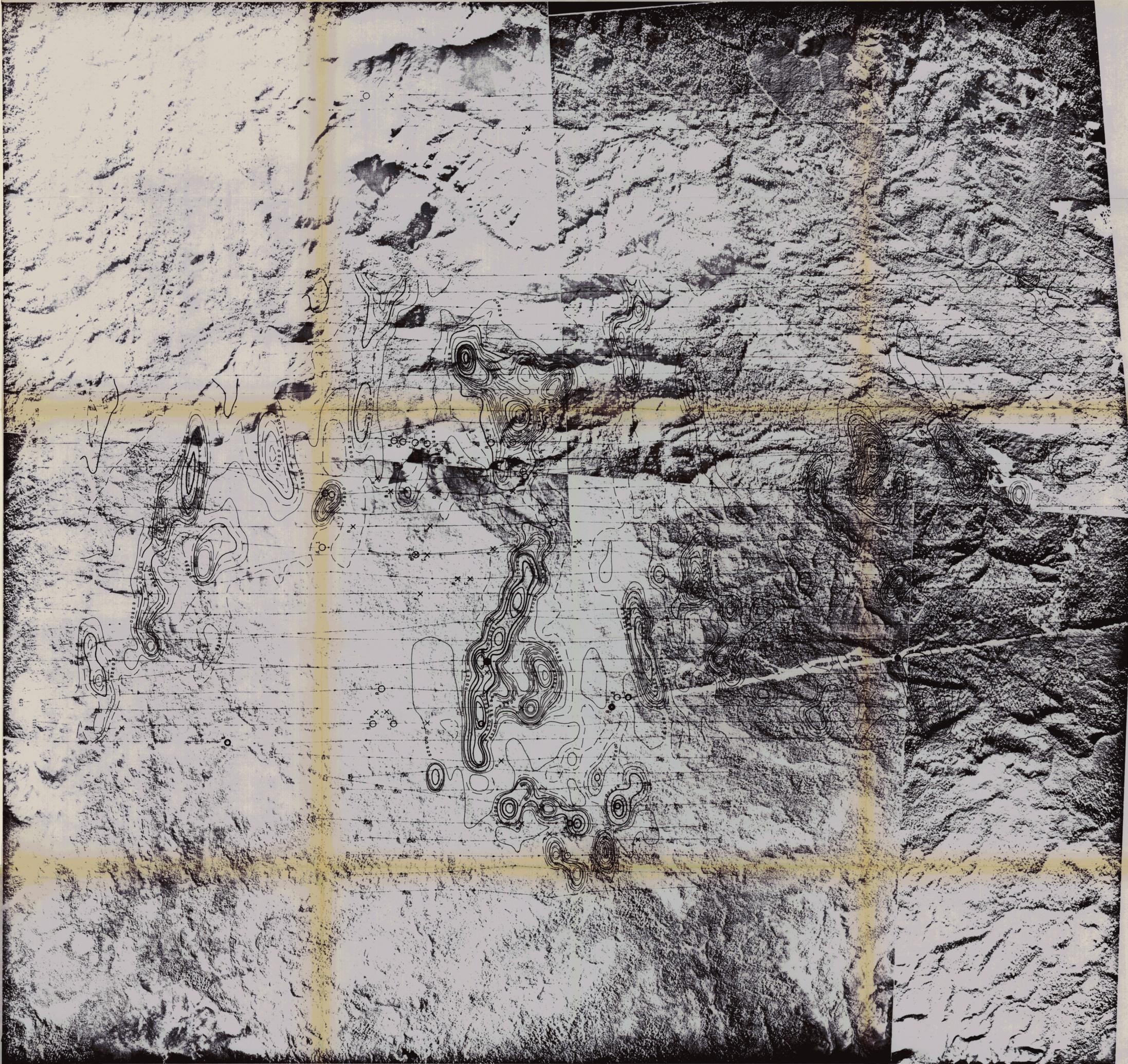
SCALE 1:25,000



Flight line

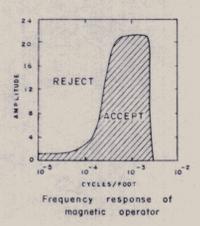
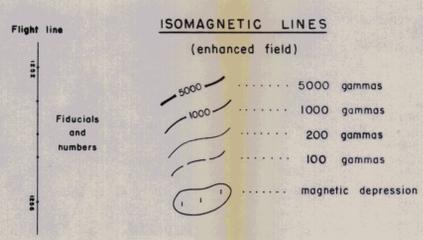
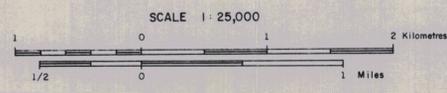
Fiducials and numbers

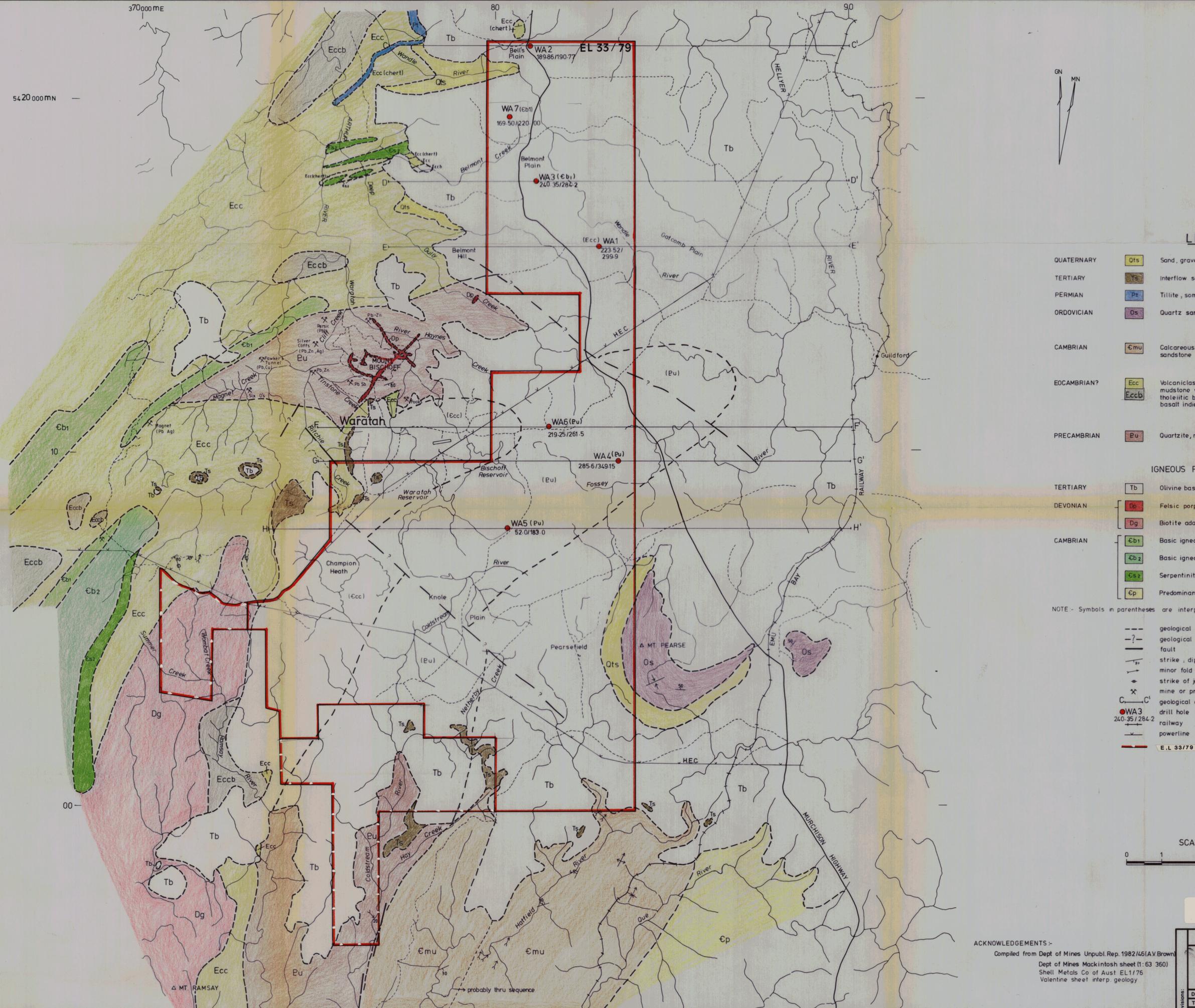
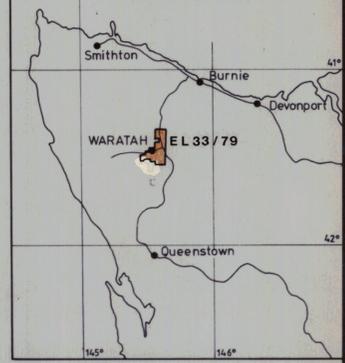
ANOMALY GRADE	EM GRADE SYMBOL	MHO RANGE	DIGHEM anomalies are divided into six grades of conductivity - thickness product. This product is the reciprocal of resistance in ohms. The mho is a measure of conductance, and is a geologic parameter. Most swamps yield Grade 1 anomalies but highly conducting clays can give Grade 2 anomalies. The multi-coil anomaly shapes often allow surface conductors to be recognized, and these are indicated by the letter S on this map. The remaining Grade 1 and 2 anomalies could be weak bedrock conductors. The higher grades indicate increasingly higher conductances. Examples: The ore bodies of the Mogen River camp yield Grade 4 anomalies, while Matop and Whistle give Grade 5. Granite and schists can show all grades but, in this survey area, field work may show that the different grades indicate different types of conductors.
6	●	≥ 100	The actual mho value is plotted beside the EM grade symbol. The letter is the anomaly identifier. The horizontal row of dots indicate anomaly amplitude on the flight record, and the vertical column gives the estimated depth. This depth may be unreliable because the stronger part of the conductor may be deeper or to one side of the flight line, or because of a shallow dip or conductive overburden effects.
5	●	50-99	
4	●	20-49	
3	●	10-19	
2	○	5-9	
1	○	≤ 4	
	X	Possible conductor	
Identifier	10	mho value	
Depth in feet	100	Structure of conductor that is greater than	
50 feet	10	10 ppm	
100 feet	1	1 ppm	
250 feet	0.1	0.1 ppm	
500 feet	0.01	0.01 ppm	
		Refer to list of anomalies in survey report for the actual mho values for all cells, and for conductor depths.	
S	Conductor sink		DIGHEM maps are designed to provide a correct impression of conductor quality by means of the conductance grade symbols. The symbols can stand alone with geology when planning a follow-up program. The actual mho values are plotted for those who wish quantitative data. The anomaly depth and depth are indicated by inconspicuous dots which should not distract from the conductor patterns, while being helpful to those who wish this information. The map provides an interpretation of all conductors in terms of length, strike direction, conductance and depth. The accuracy is comparable to an interpretation from a ground E.M. survey having the same line spacing.
P	Probable surface response		
L	Probable surface response		
L	Probable line (power, telephone, pipe, or fence)		
LT	Possible line		
○	Overshooting anomaly		
∧	Approx. thickness > 10m		
∨	Dip		
100%	Direct magnetic correction of 100 gamma		



DIGHEM<sup>II</sup> SURVEY  
 ADAMSFIELD, TASMANIA  
 ENHANCED MAGNETICS  
 FOR  
 BROKEN HILL PROPRIETARY CO. LTD.

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LEGEND

- QUATERNARY: Qts Sand, gravel, basalt talus
- TERTIARY: Tb interflow sediments, silcrete, laterite
- PERMIAN: Pt Tillite, some varves and related sediments
- ORDOVICIAN: Os Quartz sandstone } correlate of Owen Conglomerate
- CAMBRIAN: Emu Calcareous conglomerate, greywacke, sandstone } correlate of basal Dundas group
- EOCAMBRIAN?: Ecc Volcaniclastic lithicwacke siltstone and mudstone with minor carbonate and tholeiitic basalt. Areas of predominantly basalt indicated (Eccb) } Crimson Creek formation
- PRECAMBRIAN: Eu Quartzite, mudstone, minor dolomite } correlate of Bonah formation

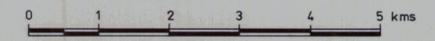
IGNEOUS ROCKS

- TERTIARY: Tb Olivine basalt
- DEVONIAN: Dp Felsic porphyries
- Dg Biotite adamellite } Meredith Granite
- CAMBRIAN: Cb1 Basic igneous suite - spilite
- Cb2 Basic igneous suite - gabbro
- Cs Serpentine
- Cp Predominantly quartz feldspar porphyries } Mount Read Volcanics

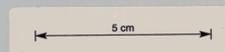
NOTE - Symbols in parentheses are interpreted below basalt.

- geological boundary
- ? geological boundary - concealed and interpretative
- fault
- strike, dip of strata
- minor fold orientation
- strike of joints
- mine or prospect
- X geological cross section
- WA3 240.35/284.2 drill hole Basalt thickness/total depth
- railway
- powerline
- E.L. 33/79 boundary - Area relinquished Oct. 1984

SCALE 1:50 000



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ACKNOWLEDGEMENTS -

Compiled from Dept of Mines Unpubl. Rep. 1982/46(A.V. Brown)  
 Dept of Mines Mackintosh sheet (1:63 360)  
 Shell Metals Co of Aust EL1/76  
 Valentine sheet interp. geology

THE BROKEN HILL PROPRIETARY CO. LTD.  
EXPLORATION DEPARTMENT

EL 33/79 - WARATAH, TASMANIA  
SOLID and INTERPRETATIVE GEOLOGY

Drawn: S.P.K./J.H.H.	Date: SEPT. 84	Centre: HOBART
Traced: A.HANSEN	Project NO: T65	Drawing NO: A1-
Checked:		

145°22'30"E  
41°15'S

145°45'E

41°15'S



41°25'S

41°25'S

41°35'S

41°37'5"S  
145°22'30"E

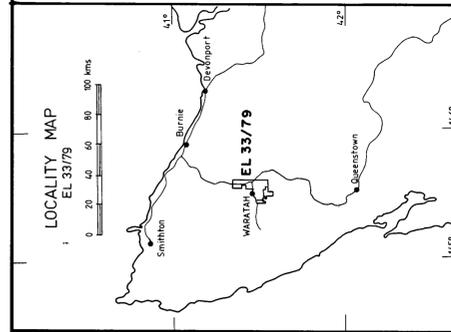
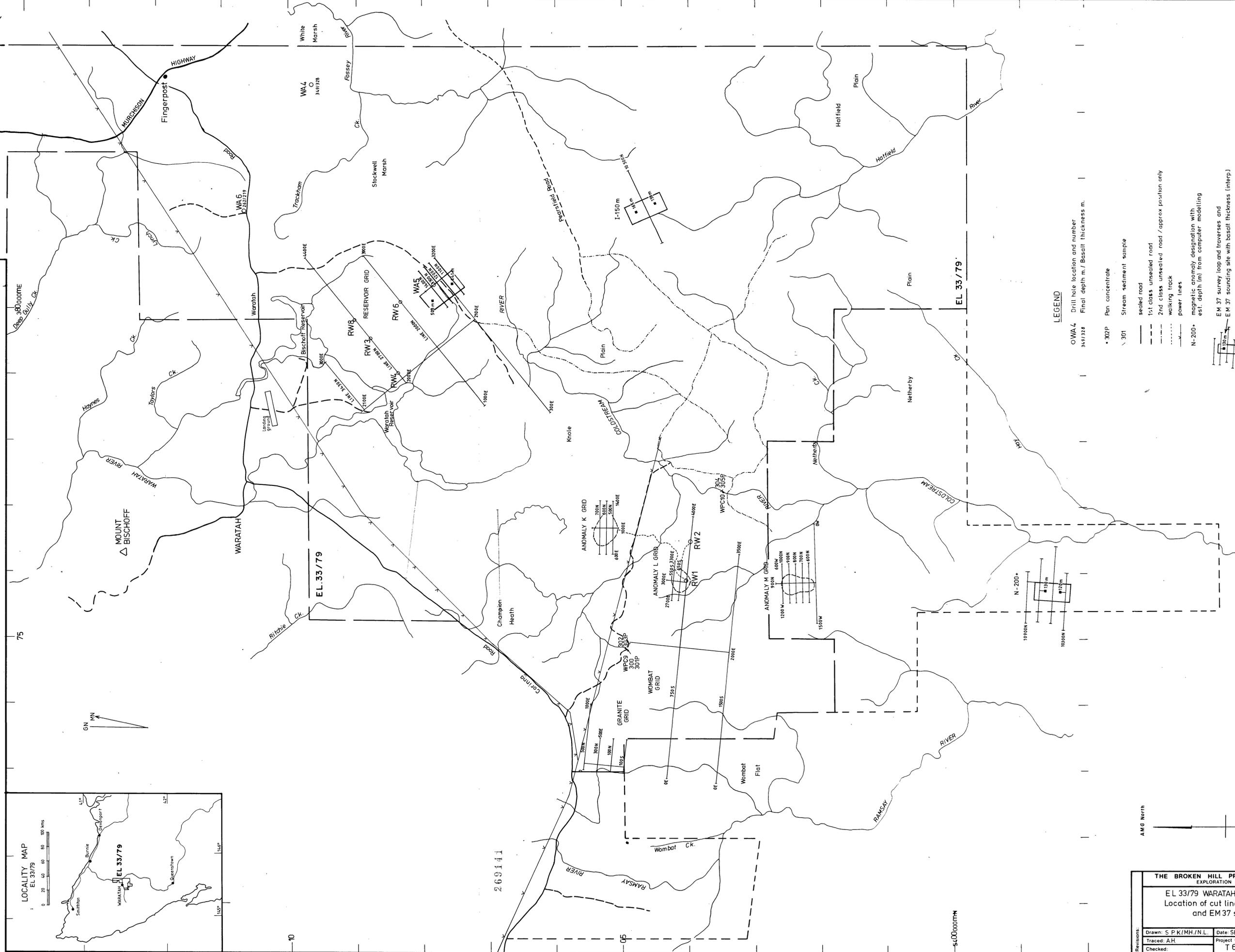
41°37'5"S  
145°45'E

• WA5 Drill hole location and number  
 NOTE:- Outer boundary shows limits of EL 33/79  
 as at 14 July, 1984.

SCALE 1:50 000

WARATAH WYNYARD, REPRODUCED DATA 1:50,000 S.S.	
<p><b>DETAILS OF SURVEY</b></p> <p>PLANNED BY: GEOMATICS            DATE: JANUARY 1982            1:500,000 SHEET - MANTA 545-3            60 30'W, 60 30'E            AND ZONE - 55</p> <p>LINE SPECIFIED: 3000            SURVEY METHOD: 980            TRANSFORMER: GEOMETRIC GRID</p>	<p><b>DETAILS OF PROCESSING</b></p> <p>PROCESSED BY: MAP EXPLORATION - CANNIBELL            FROM: 700 800            DATA: 700 800            CONTOUR INTERVAL: 5            LINE SPACING: 1000            HOLE NUMBER: 1000 1000 1000 1000</p>

ELs 33/79, 23/79, WARATAH, WYNYARD, TAS.  
 TOTAL MAGNETIC INTENSITY CONTOURS



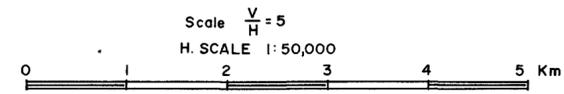
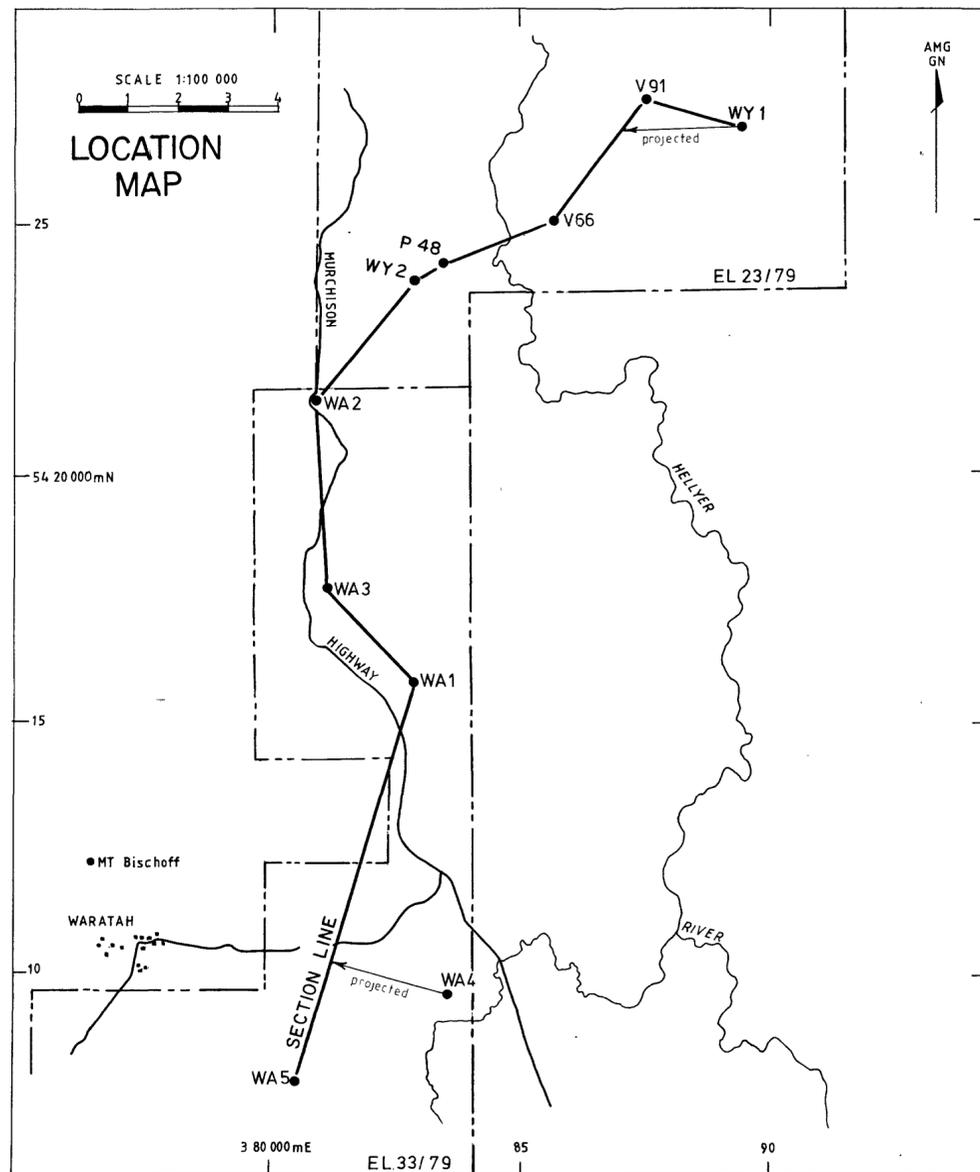
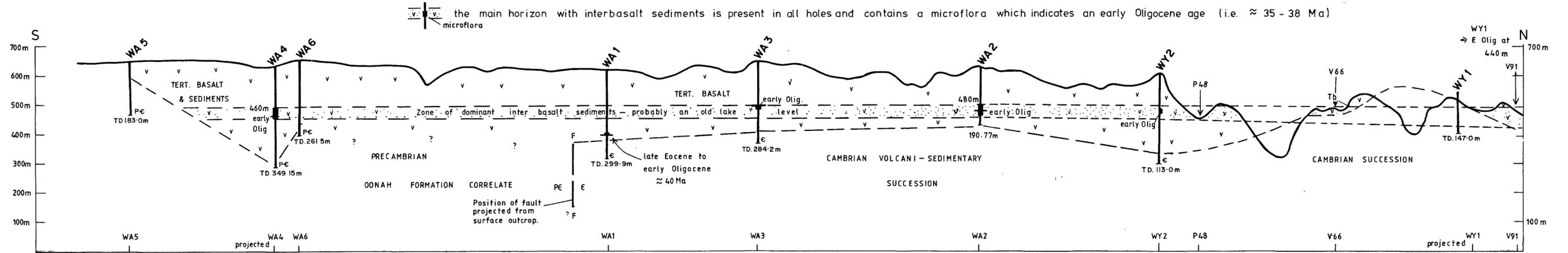
- LEGEND**
- OWA 4 Drill hole location and number
  - 349/328 Final depth m / Basalt thickness m.
  - 302P Pan concentrate
  - ∩ 301 Stream sediment sample
  - sealed road
  - 1st class unsealed road
  - - - 2nd class unsealed road / approx position only
  - ... walking track
  - power lines
  - N-200\* magnetic anomaly designation with est. depth (m) from computer modelling
  - EM 37 survey loop and traverses and EM 37 sounding site with basalt thickness (interp.)

SCALE 1:25 000

NOTE - Outer boundary shows limits of EL 33/79 as at 14 July, 1984.

<b>THE BROKEN HILL PROPRIETARY CO. LTD.</b> EXPLORATION DEPARTMENT		
EL 33/79 WARATAH, TASMANIA Location of cut lines, drill sites and EM 37 surveys		
Drawn: S P K / M H / N L. Traced: A H. Checked:	Date: SEPT 84 Project No: T 65	Centre: HOBART Drawing No: <b>A1-</b>

SCHMATIC GEOLOGICAL CROSS-SECTION FOR BHP DIAMOND DRILL HOLES AND DEPT. OF MINES SPORE SAMPLE SITES



Acknowledgements to A.V. Brown and S.M. Forsyth  
Tas. Mines Dept. Unpubl Report 1984/39

THE BROKEN HILL PROPRIETARY CO. LTD. EXPLORATION DEPARTMENT		
EL 33/79, 23/79, WARATAH WYNARD, TAS. WARATAH-HELLYER GORGE AREA		
GEOLOGICAL CROSS SECTION		
Drawn:	Date: Sept 84	Centre: Hobart
Traced: A. Hansen	Project N°:	Drawing N°:
Checked:	T65, T64	A2-

FIG. 6  
3295