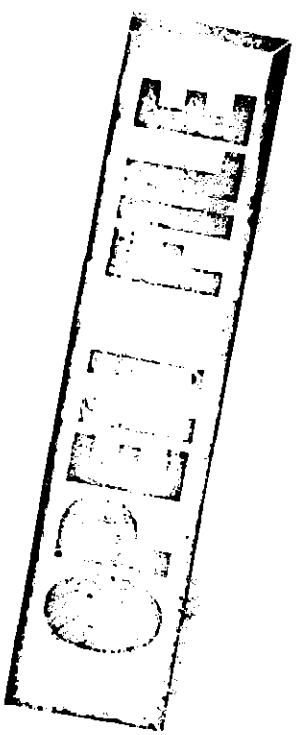
433001

FINAL REPORT EL 29/87
STRAHAN
WESTERN TASMANIA

CR 7118 September 1990



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CONTENTS

1. INTRODUCTION
2. PREVIOUS WORK
3. BHP-UTAH GEOTEM SURVEY
4. INTERPRETATION OF GEOTEM DATA
5. FOLLOW-UP GEOLOGICAL INVESTIGATIONS
6. CONCLUSIONS

REFERENCES

APPENDICES

Appendix 1 Geotem System Description
Appendix 2 Geotem Interpretation Report
Appendix 3 Geotem Data Profiles
Appendix 4 Data Tape Specifications
Appendix 5 Expenditure Statement

FIGURES

Figure 1 Exploration Tenements and Regional Geology 1:250,000
Figure 2 EL 29/87 Geotem Flight Path Map 1:25,000
Figure 3 EL 29/37 Geotem Interpretation Map 1:25,000

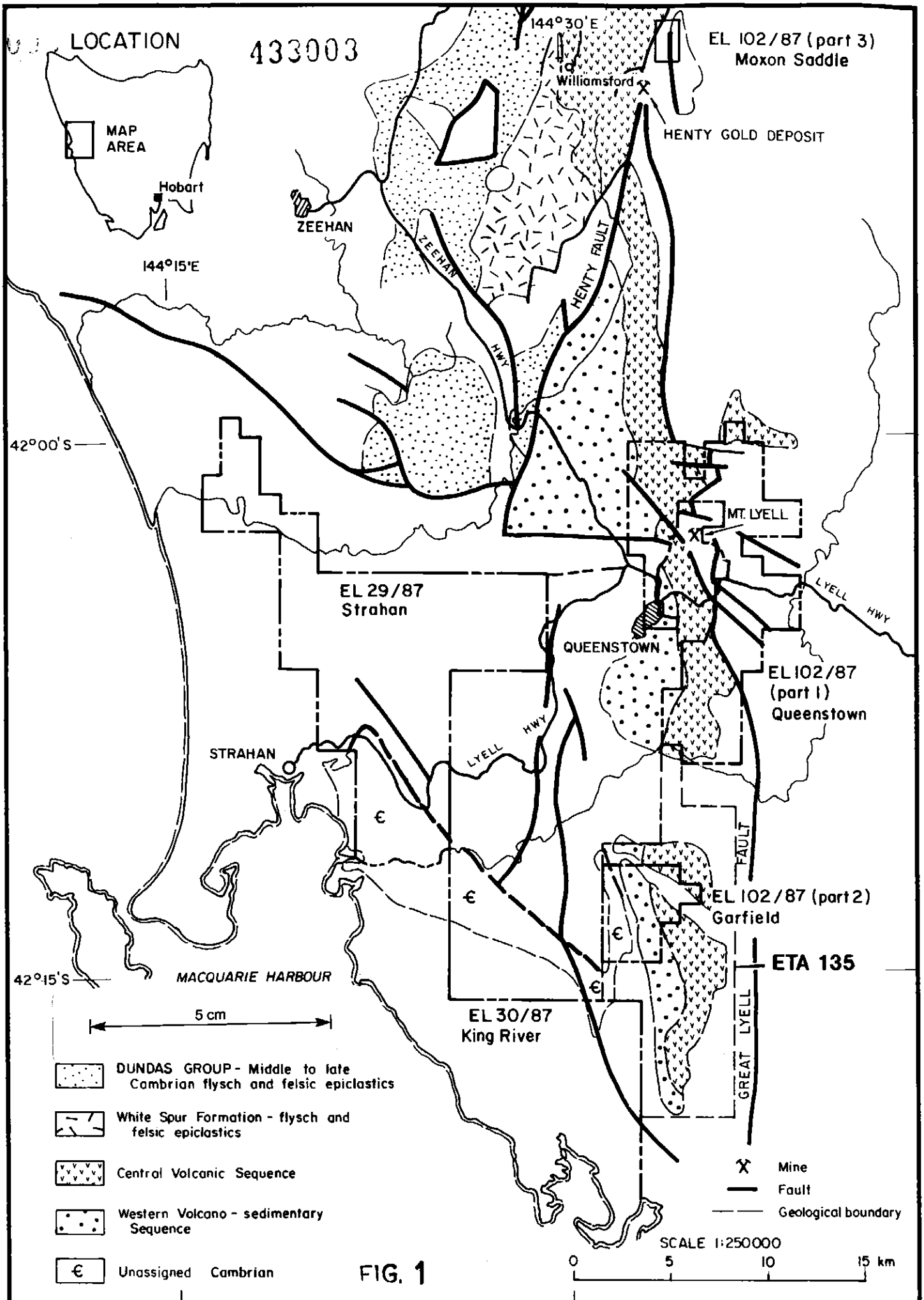


FIG. 1

Centre: Melbourne	THE BROKEN HILL PROPRIETARY CO. LTD. QUEENSTOWN REGION, TAS. EXPLORATION TENEMENTS & REGIONAL GEOLOGY	Project Nº: B57
Date: 20·11·89		Drawing Nº: A4 3001

1. INTRODUCTION

EL 29/87 "Strahan" comprising 150 km^2 (figure 1) was granted to New Holland Mining N.L. on the 18th September 1987. An option agreement between BHP-Utah Minerals International and New Holland Mining, covering EL 29/87 and the adjacent 30/87, was signed in June 1988. BHP-Utah withdrew from the option to joint venture on the 9th April 1990. While the option agreement was current BHP-Utah was manager of exploration on EL 29/87.

This report presents the results of an airborne Geotem survey flown over EL 29/87 and results of follow-up geological investigations. The Geotem survey was flown in a contiguous block which covered the adjacent EL 30/87 (see BHP-Utah Company Report 7119).

2. PREVIOUS WORK

The primary target explored for in EL 29/87 was volcanogenic massive sulfides occurring within Cambrian rocks. Secondary targets were Henty-type gold mineralisation and metamorphic quartz-vein gold deposits occurring within folded upper Palaeozoic rocks (Wilde, 1989).

A -80# stream sediment survey conducted within the Cambrian rocks revealed low-level Cu-Zn anomalism occurs in the south-west of the EL. This was interpreted as due to mudstones and siltstones enriched in base-metals on a regional scale (Cromer, 1988).

Geological traversing conducted by Wilde (1989) revealed that there are few indications that hydrothermal activity has taken place within the EL. Consequently the possibility of an exhalative sulfide orebody occurring within the EL were not considered to be high.

Rock chip geochemistry suggested that sedimentary units within the area are enriched in Cu and Zn relative to the volcanics. The geochemical values obtained are characteristic of regional enrichment of the argillaceous members of the Mt. Read Volcanics.

Four rock samples were submitted for the determination of major element concentrations by ICP and twelve rock samples were submitted for petrographic descriptions. The results of this work is reported in Wilde (1989).

3. BHP-UTAH GEOTEM SURVEY

In order to explore the entire EL for conductive sulfide mineralisation, an airborne Geotem survey was flown between the 8th and 16th of March 1989. Geotem is a fully digital time domain airborne electromagnetic system operated by the geophysical contracting company Geoterrex Pty Ltd. The Geotem system has the capability to detect conductive mineralisation to a depth of 200-300 m, depending on target size, shape of mineralisation and the conductivity contrast that exists between the target and host rocks. A full description of the Geotem system is given in Appendix 1.

The Strahan Geotem survey was conducted to the following specifications:

Contractor:	Geoterrex Pty Ltd
Survey Type:	Geotem II
Survey Configurations:	Airborne - transmitter height 120 m - receiver height 54 m - transmitter/receiver separation 115 m
Transmitter Frequency:	125 Hz
Transmitter Loop Dipole Moment:	4.15×10^5 Am^2
Receiver Coil Axis:	Horizontal
Survey Size:	498 km (total combined with EL 30/87)
Line Direction:	90°/270° (true)
Line Spacing:	250 m
Nominal Aircraft Speed:	60 m/s

The Geotem data profiles are presented in Appendix 3. A computer tape of the digital Geotem data is held by the Tasmanian Mines Dept. The format of this data is given in Appendix 4.

4. INTERPRETATION OF THE GEOTEM DATA

A preliminary interpretation of the Geotem data was completed by BHP-Utah geophysicist Tom Whiting using the unprocessed flight path records. The geological follow-up described in section 5 was conducted on the basis of this interpretation. Geoterrex Pty Ltd were contracted to complete a thorough interpretation of the data using the processed profiles presented in Appendix 3.

The Geotem data revealed the survey area to be generally resistive with a conductive zone following the coast. A series of anomalies, with an average length of 2 km, strike in a south-westerly direction across the EL from the north-west corner. These anomalies display early-time responses of moderate amplitude and are interpreted to be due to structural features, such as faults, and conductive lithological units. Nine discrete conductive trends were identified within the EL. Detailed descriptions of these conductors are given in Appendix 2. Each of the nine conductors identified within the EL, were assigned an exploration priority ranking. Due to their interpreted structural or lithological sources each conductor was assigned a low priority. No conductors were considered high priority exploration targets due to a lack of features characteristic of bedrock sulfide conductors. Consequently no follow-up ground EM could be recommended on the basis of the Geotem data.

A Geotem flight line map and interpretational plan are presented as figures 2 and 3 respectively.

5. FOLLOW-UP GEOLOGICAL INVESTIGATIONS

Appraisal of the unprocessed Geotem data identified 5 anomalies that had some bedrock conductor characteristics, although the conductors were most likely lithological units of short strike length. The four remaining conductors were interpreted as sourced by conductive material contained within fault zones as these conductors cross-cut geological strike.

Ground traversing, using previously cut grid lines, was undertaken to map the source areas of the best geotem anomalies. Traversing of these areas revealed the anomalies occur over bedded siltstones with interbedded medium to coarse grained quartz-feldspar-phyric epiclastics and volcaniclastics. Bedding varied from moderately steep to gently dipping, confirming folding complexity of the Cambrian sequence (Gregory pers. comm.). No mineralisation or hydrothermal alteration was observed at the anomaly sites. The five best Geotem anomalies could not be up-graded on geological grounds and it was confirmed that these anomalies were due to conductive lithological units as the early-response-time nature of the conductors suggested.

6. CONCLUSIONS

A Geotem airborne EM survey conducted over EL 29/87 did not detect any responses that could be attributed to conductive sulfide mineralisation. No volcanogenic massive sulfide mineralization is interpreted to occur at a depth of less than 200-300 m within the Strahan EL. Due to the negative result of the Geotem survey no further exploration can be recommended within the Strahan EL.

REFERENCES

Cromer, W.C., 1988, EL 29/87 Strahan, Tasmania. Annual Report Year 1, New Holland Mining N.L.

Wilde, A.R., 1989, Exploration Licence 29/87 Strahan, N.W. Tasmania Interim Report, December 1989, BHP-Utah Minerals International.

APPENDIX 1

Geotem System Description

3. GEOTEM ELECTROMAGNETIC SYSTEM

3.1 EQUIPMENT AND SPECIFICATIONS

Model:	GEOTEM II

Geometry

Transmitter height (agl):	120 metres
Receiver bird height (agl):	54 metres
Tx - Rx horizontal separation:	115 metres

(agl - above ground level)

Transmitter

Coil axis:	vertical
Signal:	half sine wave current pulse
Base frequency:	125 Hertz
Repetition rate:	250 pulses per second
Pulse width:	1020 microseconds
Loop area:	231 square metres
Number of turns:	3
Peak Current:	600 amps
Tx loop dipole moment:	4.15×10^5 Am^2

Receiver

Coil axis:	horizontal, parallel to flight direction
Digitising rate:	32,000 samples/second
Pulses per reading:	31
Stored readings/second:	7
Gate distribution:	Combined Linear
Gate times:	Expressed below in microseconds after transmitter shut-off

Channel positions for 125 Hz

TABLE 2

CHANNEL NUMBER	CENTRE (secs)
1	369
2	587
3	806
4	1025
5	1244
6	1463
7	1681
8	1900
9	2119
10	2338
11	2556
12	2775

3.2 SYSTEM DESCRIPTION

GEOTEM is a time domain towed bird electromagnetic system incorporating a high speed EM receiver. The primary electromagnetic pulses are created by a series of discontinuous sinusoidal current pulses fed into a three turn shielded transmitting loop surrounding the aircraft and fixed to the nose, tail and wing tips. The pulse repetition rate is typically 125 Hz (250 bipolar pulses per second) or 75 Hz (150 pulses/second). Each transmitted current pulse lasts 1020 microseconds, followed by 2980 microseconds off time for 125 Hz (5646 microseconds for 75 Hz). Peak current through the loop is 600 Amps, resulting in a primary magnetic dipole moment of 4.15 x $10^5 Am^2$.

The EM sensor is a wire coil wound around a ferrite core mounted horizontally in a "bird", towed by the aircraft on a 135 metre long cable. The cable is demagnetised to reduce noise levels. Mean terrain clearance for the aircraft is about 120 metres with the bird being situated 66 m below and 115 metres behind the aircraft. The geometry of the system is displayed in Figure 2A.

For each primary pulse a secondary magnetic field is produced by decaying eddy currents in the ground. These in turn induce a voltage in the receiver coil which is a measure of the electromagnetic field over 20 time gates whose centres and widths are software selectable and which may be placed anywhere within or outside the transmitter pulse.

The signals received from each sample pass through anti-aliasing filters and are then digitised with an A/D converter at sampling rates of up to 100 khz (see Figure 2B). The digital data stream from the A/D converter passes into an array processor where all the numerically intensive processing tasks are carried out. The array processor is under control of a multi-tasking minicomputer.

The on-board processing sequence is as follows:

> Transient Analysis. Wide-band frequency analysis enables the separation of noise from signal in real time;
>
> Digital Stacking. The stacking of 31 transients (125 Hz) to produce 1 recorded reading, of which 7 are recorded every second;
>
> Windowing of Transient Data. The transient is initially sampled over 256 channels which are then amalgamated to form 12 channels.

At a normal survey altitude of 120 metres terrain clearance, the typical effective penetration depth of the system is estimated to be 200-300 metres, dependent on conductivity contrast between the target and host rock, target size and attitude and overburden conductivity.

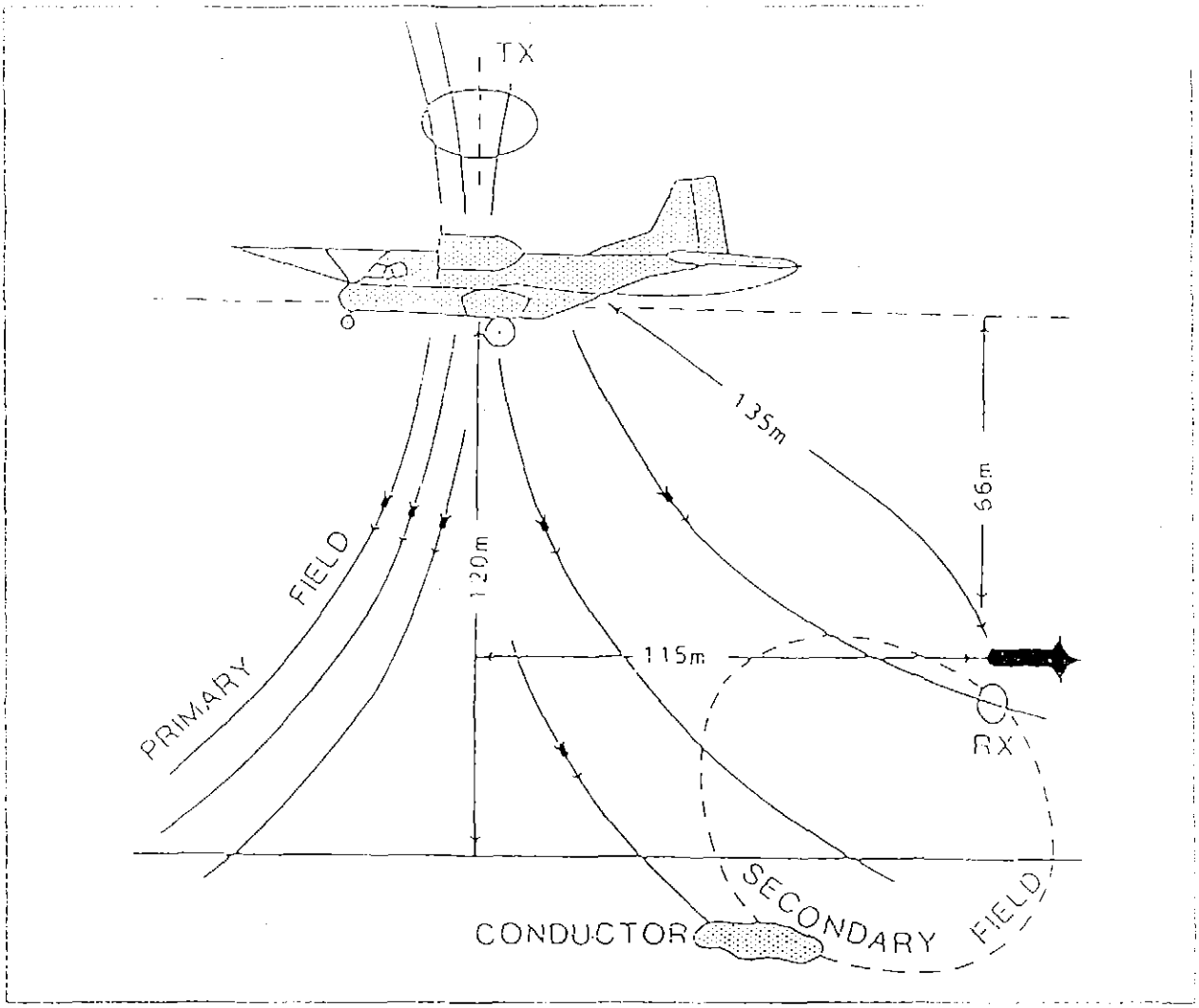


Figure 2A System Geometry

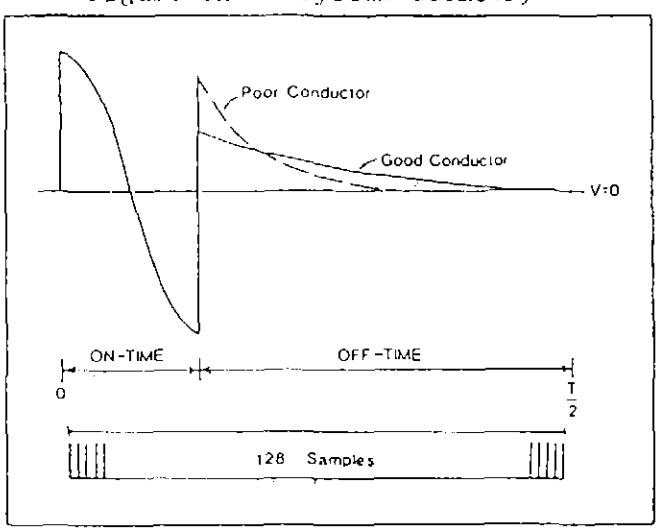
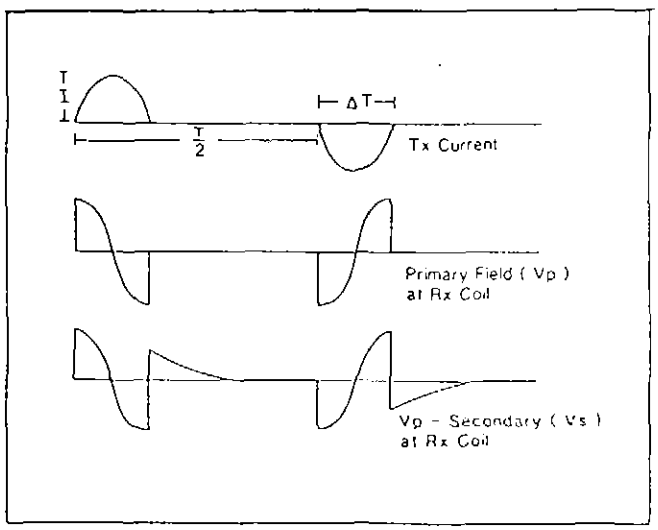


Figure 2B SAMPLING



GEOTEM WAVE FORM

3.3 SYSTEM CALIBRATION

All checks and adjustments are performed at high altitude at the start of each flight to allow for automatic compensation and calibration at survey altitude.

Compensation. During the flight, the transmitter creates eddy currents within the structure of the aircraft that have measurable effects at the receiver coil. Compensation for this signal is effected numerically within the receiver by a statistical analysis of the signal at the bird in the absence of ground response (by flying at an altitude in excess of 600 m above ground level). The observed signal is used to define a compensation signal which is subtracted from the observed to produce a null and thus effectively buck out any response due to changing geometry between receiver and transmitter.

Normalisation. All EM response channels are automatically calibrated and reduced to parts per million of the primary field in the receiver. This is achieved by dividing the measured voltage by the voltage induced by the primary field at the bird.

3.4 DATA PROCESSING

Levelling

GEOTEM is a very low drift and self calibrating system, with little necessity for data levelling.

Synchronisation Lag

A 4.3 second lag correction is applied to the digital GEOTEM values to synchronise them with the flight path.

Spheric Removal

Individual spheric events are removed by the application of statistical analysis procedures along each channel of data. The software prevents the removal of more than 3 consecutive readings (0.4 seconds of data) to minimize data distortion of true ground response.

Filtering

The GEOTEM data is filtered to optimise signal/noise ratio but with due regard to causing the minimal effect to the narrowest possible real anomalies (wavelength of about 4 seconds).

4. MAGNETOMETER SYSTEM

4.1 SPECIFICATIONS

Model: Scintrex caesium vapour optical absorption magnetometer

Mounting: Tail stinger

Sample interval: 140 milliseconds, once per second

Sensitivity: 0.10 nT

* To operate both the GEOTEM system and the magnetometer system simultaneously, the GEOTEM transmitter is switched off for a period of 140 milliseconds every second to allow for a noise free magnetometer reading.

5. AUXILIARY EQUIPMENT

5.1 DATA ACQUISITION SYSTEM

Model: Geoterrex Pty Ltd MADACS

Program: EM25

The MADACS is a computer based software system using an Interdata 6/16 processor. This processor is linked to a Digi-Data Model 1600 magnetic tape drive. This tape drive has a feature which allows checking of the recording process as many times as the particular application permits. The checking procedure includes elimination of errors due to bad tape spots. Multiple buffers permit recording, processing and acquisition of data to be carried out simultaneously with no dead time. The system uses an IBM compatible laptop for operator-system communication.

The key feature of this system is that all data collection, verification, buffering, and recording is software-controlled. Therefore, the acquisition system may be economically altered to fit almost any requirement. Critical parameters are automatically monitored during flight, with visual and aural alarms provided for the operator.

Survey parameters are displayed during flight in their correct physical units, making operator comparisons simple. The survey program operates on a request-response basis, with the system pre-empting the operator and rejecting all illegal responses.

The MADACS is used to control and command the operations of all the ancillary equipment. This includes the GEOTEM receiver, magnetometer, camera, altimeter, tape drive and analogue chart recorder.

The system is based on a precision clock. Time is digitally recorded as a six-figure number called a "fiducial". A fiducial number equals the real time in tenths of seconds after midnight, for example, 000000 corresponds to midnight and 360000 corresponds to 10.00am. The fiducial numbers do not increment by units, they are calculated from the clock time by the computer. This system does not require digital recording of line numbers, part numbers and line direction, thus avoiding a source of digital recording errors. These are recorded on the flight log by the operator.

The MADACS data acquisition system has the following specifications and features :

Precision clock: The system is controlled by a precision clock which allows data to be collected at any multiple of 0.1 seconds.

Computer: The system is based on an Interdata 6/16 mini-computer. The computer has the following interfaces:

- **Digital Input/Output Bus**
  This bus is capable of recording from, writing to, testing and controlling 16 external digital devices.

- **Analogue Input Module**
  This module has 16 analogue inputs with 12 bit resolution.

- **Analogue Output Module**
  This module has 12 analogue outputs with 12 bit resolution.

- **Magnetic Tape Controller**
  This interface/controller is capable of handling four 9-track NRZ1 tape transports. Tapes are written in an IBM compatible binary format with full parity, cyclic redundancy and longitudinal check characteristics.

- **Magnetometer Interface**
  This interface converts the signal from the high sensitivity caesium vapour magnetometer into a format acceptable to the MADACS.

- **Camera Controller**
  The interface allows the MADACS to control and monitor all aspects of the tracking camera's operation.

- **Operator's Console**
  This is an IBM compatible laptop computer, via which the operator communicates with the system. While on line during survey, all parameters are continuously displayed on the monitor unless the system senses an abnormal condition in which case a diagnostic message and the time sensed are displayed. The message remains until acknowledged by the operator.

Recorded Digital Data

Each second:	Flight number
	Time
	Altitude
	Total magnetic field
Each 0.14 seconds:	20 EM gates
	Transmitter primary field
	50 Hertz monitor

5.2 TRACKING CAMERA

Model: Sony DXC101P Video Camera

The tracking camera is equipped with a 14 mm wide-angle lens. The video tape is synchronised with the geophysical record by a digital fiducial display that increments every tenth of a second. These fiducials are recorded on the video tape and displayed on the bottom left of the video screen. Times are recorded from the digital information provided by the MADACS system.

5.3 ALTIMETER

Model:	Sperry Stars AA200 radio altimeter system
Sample interval:	1.0 second
Accuracy:	+/- 1.5% of indicated altitude.
Synchronisation:	The average of the output of the altimeter over each second is calculated and assigned to the time recorded at the end of each sample.

The Sperry radio altimeter is a high quality instrument whose output is factory calibrated. It is fitted with a test function which checks the calibration of a terrain clearance of 100 feet and altitudes which are multiples of 100 feet.

5.4 DIGITAL PRINTER

Model:	RMS GR33 Thermal Dot Matrix Printer
Chart speed:	11 cm/minute; time increases from left to right
Chart width:	30.5 cm
Event marks:	20 second marks are recorded on the bottom of the chart with the associated fiducial numbers being printed at the base of the chart.

Channels recorded & Scales

Barometer	-	33 mB/cm
Chan 3 noise monitor	-	500 ppm/cm
Primary field monitor	-	0.25 volts/cm
Chan 12 noise monitor	-	500 ppm/cm
Magnetic field fourth difference	-	10 nT/cm
Total magnetic field		
Fine scale	-	5 nT/cm
Coarse scale	-	50 nT/cm
Terrain clearance	-	15 metres/cm
Geotem ch 1 - 12	-	200 ppm/cm
50 Hz monitor	-	0.1 volts/cm

A sample analogue record is shown in Figure 3.

Zero Positions: These zero positions are annotated on the analogue sample.

Synchronisation: A lag of 5.0 seconds occurs between the Geotem channels and the magnetometer, altimeter traces.

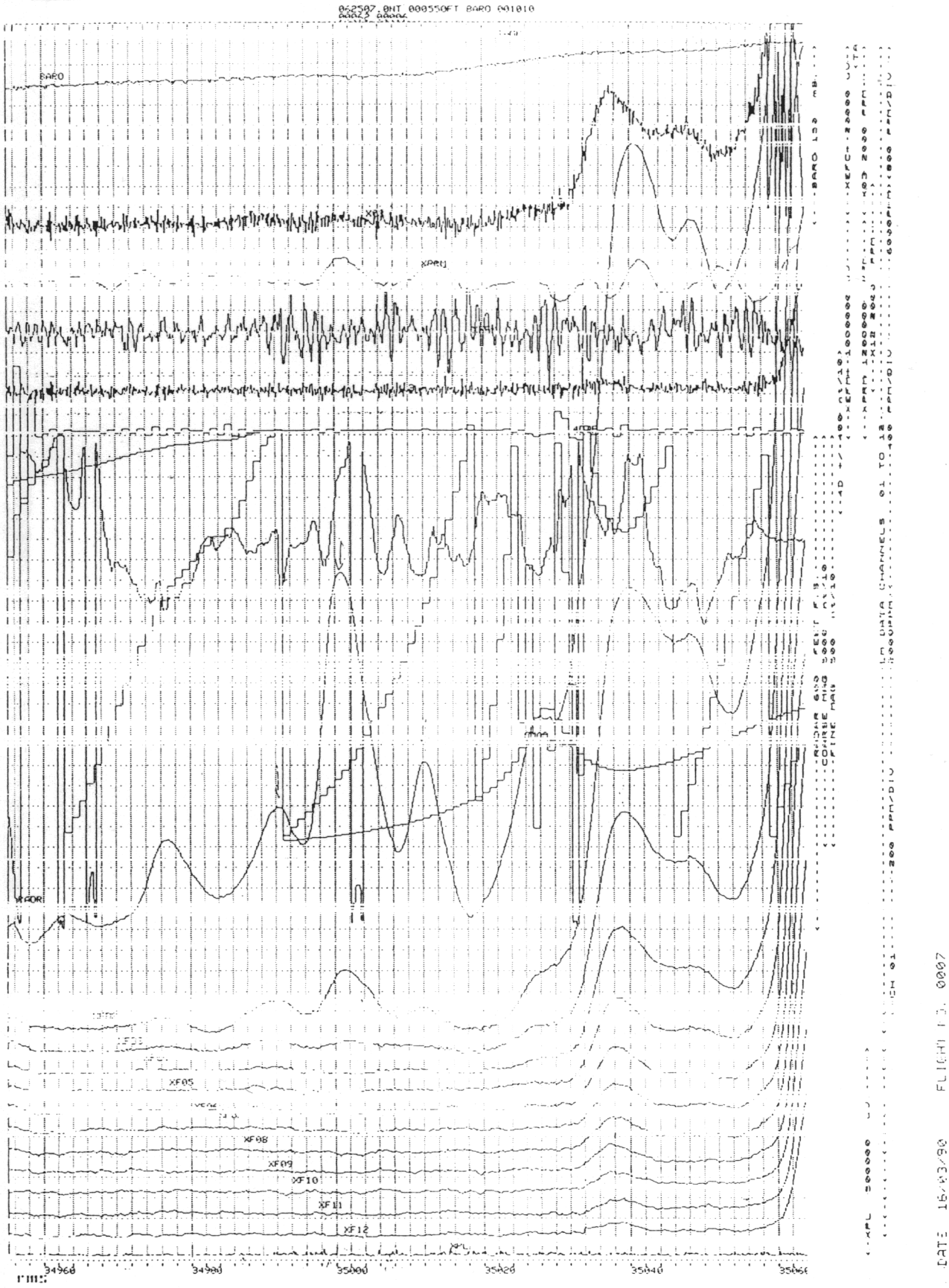


FIGURE 3 Sample Analogue Record

6. SURVEY PRODUCTS

6.1 DELIVERABLE ITEMS

1 x Final Flight Path Map at 1:25,000 scale (ink on plastic)
Interpretation map at 1:25,000 scale (ink on plastic)
Multi-parameter Profile plots at 1:25,000 scale
Located data tape
Located data tape summary
Recovered line listing
Mileage list
Flight logs
All recovery photography
Flight path video tape
Flight strips
Logistics/Interpretation report

6.2 MULTI-PARAMETER PLOTS

The final GEOTEM data is presented as multi-parameter profiles plotted at suitable scales on a fiducially annotated X-axis as listed below, from top to bottom. The horizontal scale is 1:25,000. The GEOTEM channels are plotted over four separate scales to optimise the high dynamic range of the EM signal.

Basic Data Plots

	Channel	Trace Colour	Scale
AXIS 1			
	Coarse Magnetics	Red	200 nT/cm
	Fine Magnetics	Green	50 nT/cm
	Aircraft Altitude	Black	20 m/cm
AXIS 2			
	GEOTEM Channel 1	Black	200 ppm/cm
	GEOTEM Channel 2-6	Blue	200 ppm/cm
	GEOTEM Channel 7-9	Green	200 ppm/cm
	GEOTEM Channel 10-12	Red	200 ppm/cm
	50 Hz Monitor	Black	0.1 volts/cm

6.3 DATA TAPES AND FORMAT

A located data tape for the survey area was produced in a format described overleaf.

APPENDIX 2

Geotem Interpretation Report

SECTION 2 - GEOTEM INTERPRETATION REPORT

1. INTRODUCTION

The survey area lies within the Dundas Trough on the northern side of Macquarie Harbour. King River runs through the central part of the area with the Tully and Manuka rivers in the north, forming part of a trellised drainage system. The area encompasses five main geological zones, namely:

The Cambrian system, on the western side of the King River, comprising unfossiliferous sequences of greywacke, slate and tuff;

The Ordovician-Devonian system. Teekopana lies on a fault that runs in a north-westerly direction separating the Cambrian system from fossiliferous early Devonian sandstone which is overlain by an upper mudstone unit;

The Carboniferous to Triassic system. North of Strahan there is a tillite basal unit overlain by fossiliferous pebbly siltstone and sandstone;

The Tertiary system. The Macquarie Harbour grabben passes through the area, filled with poorly consolidated sands, evident in the south of the area;

Quaternary. The coastal area, most major rivers contain alluvial sands and gravels.

The Mt Read volcanics lie to the east of the area, containing known deposits of copper, lead and other minerals.

2. GEOPHYSICAL OVERVIEW

The survey area is generally resistive, with a relatively highly conductive zone following the coast and a moderately conductive zone in the south-east corner. A central region extends diagonally across the area from the north-west corner and contains a series of bands of anomalies trending generally in a north-westerly direction, with an average length of 2 kilometres. The majority of these anomalies display only early channel responses with low amplitude and relatively broad character, suggesting the conductors may represent structural features. Within these features some anomalies exhibit slower decay, are narrower and have higher amplitude, suggesting a separate source.

Magnetic trends follow a similar pattern, generally trending north-west along this central zone and they are in several cases, coincident with the conductors. All the conductors considered in this report are of low to medium priority.

3. INTERPRETATION

3.1 SELECTION CRITERIA

The approach in this report is to identify all the prospective conductors based on the airborne EM response coupled with available geological and other geophysical data. These conductors are assigned a priority that is dependent on the probability of the target being a massive sulphide or bedrock conductor.

The selection and prioritising of prospective targets is based on the following criteria :

Strike length and degree of isolation of the conductor

The shape and size of the GEOTEM anomalies

Associated geophysical parameters

Local variations of characteristics within a conductive zone

The position with respect to dip and direction of geological structures

Geological environment

As it is not our intention to make categorical claims as to the geological nature of geophysical data, the priority targets selected in this report should be viewed as prospective for ground follow-up techniques so as to better define their position and nature.

All conductors of interest are classified according to the following priority system:

Priority 1. Conductors that satisfy most of the criteria for the target of interest. These conductors typically exhibit moderate to long strike length, sharp well defined EM response, high conductivity, and often, multiple anomalies. High priority for ground follow up.

Priority 2. Conductors that satisfy some of the criteria for the target of interest. This group may include isolated conductors or responses that grade into a surficial type character. Moderate priority for ground follow-up.

Priority 3. A target with indeterminate source, but which exhibits EM response with at least one of the criteria typically associated with the target of interest. Low priority for ground follow-up.

3.2 CONDUCTOR DESCRIPTION

Each conductor is described individually, detailing location, geophysical parameters and geological model. There should be some caution in using these descriptions as outlined below :

Location : Due to the cumulative effect of errors in flight path recovery, in locating the response centre and in the transfer of the response centre to the base map, total errors in measuring conductors off the maps position could be up to 100 metres.

Depth : The calculation of depth is wholly dependent on absolute values of amplitude. Large errors can be generated by the incorrect stripping of back-ground response from the anomaly. For this reason, depth is described as being shallow (0-40 metres), medium (40 to 80 metres), and deep (greater than 80 metres).

Channel Amplitude Response : This is a rough guide to the relative quality of the conductor and describes the residual amplitude of a conductor response at a late GEOTEM channel.

Strike length : This tends to be the minimum strike length of the conductor, particularly if the conductor extends off the survey area or grades into surficials.

Dip : Dip direction can usually be determined only by comparing the changing signature of a response from line to line when flown in opposite directions. The dip directions quoted in this report should be treated with particular caution as they are generally based on the above qualitative evidence not detailed modelling.

Plunge : is based on any evidence for a continually increasing depth along strike, and includes progressively broadening anomaly and depth calculation.

Width : There is a theoretical minimum anomaly width (about 300 metres) for a vertical thin plate response. The conductor has a definable width if the response width is greater than this minimum after taking dip and depth effects into account.

Magnetics Association : The conductor is checked against magnetic profiles to determine any possible relationship.

Photo Association : The conductor is checked against air-photography and/or the video image, to find possible correlation with geomorphological or cultural features.

3.2 CONDUCTOR DESCRIPTIONS

CONDUCTOR - MH1 **Priority - 3**

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
159/1E	48859	8	150	Deep	5	Reasonably broad anomaly in area of high background response
160/1W	48630	4	50	Deep	5	

INTERPRETATION :

Strike	155^0 / 335^0
Length	250 - 300 metres
Depth	Deep
Dip	Near vertical
Plunge	Possibly northwest
Width	80 - 100 metres
Magnetics assoc	Lies along magnetic trend
Photo Assoc	No obvious association

COMMENT : This broad zone may be associated with a ridge. The anomalous zone shows a slightly slower decay than the surrounding area, and the NNW trending conductive feature which hosts the response.

CONDUCTOR - MH2 Priority - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
156/2W	49998	6	300	Medium	5	Moderate width
157/1E	49439	4	200	Medium	3.5	Broad anomaly

INTERPRETATION :

Strike	165^0 / 345^0
Length	200 - 300 metres
Depth	Medium
Dip	Vertical
Plunge	Possibly none
Width	70 - 100 metres
Magnetics assoc	Coincident with magnetic high
Photo Assoc	No obvious association

COMMENT : A similar EM character is shown over the two lines. It is considered as a priority 3 zone because the anomalies display a slow decay rate and shows an apparent association with a magnetic high. Any further investigation should concentrate on the response on Line 156/2.

CONDUCTOR - MH3 **Priority** - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
155/1E	50170	11	150	Deep	15	Broad

INTERPRETATION :

Strike	Isolated
Length	200 metres
Depth	Deep
Dip	Horizontal or tabular body
Plunge	Single line response
Width	150 metres
Magnetics assoc	No obvious association
Photo Assoc	No obvious association

COMMENT : This anomaly shows late channel response in a generally resistive background. The anomaly is broad and displays a small amplitude suggesting either a vertical tabular body or shallow dipping source.

A low priority is given due to the apparent isolation of this zone.

CONDUCTOR - MH4 Priority - 3 / 2

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
148/1W	52101	11	300	Deep	10	Narrow anomaly
150/1W	51576	11	350	Medium	5	
151/1E	51228	5	350	Medium	6	Broad anomaly

INTERPRETATION :

Strike	32^0 / 212^0
Length	1 Kilometre
Depth	Medium
Dip	
Plunge	Possibly southwest
Width	80 - 100 metres (Lines 140-150) 200 metres (Line 151)
Magnetics assoc	No obvious association
Photo Assoc	No obvious association

COMMENT : This EM response shows a slower decay than surrounding surficial response. The narrower anomaly width on Line 148 suggests this location as the best indication of a bedrock source. Line 149 shows a poor response which is small in amplitude and decays fast.

CONDUCTOR - MH5 Priority - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
150/1W	51584	12	750	Medium	50	High amplitude - narrow anomaly. Altimeter rises.

INTERPRETATION :

Strike	Single line response
Length	< 200 metres
Depth	Medium
Dip	Anomaly width suggests a plate dipping steeply
Plunge	Single line response
Width	50 metres
Magnetics assoc	No obvious association
Photo Assoc	No obvious association although about 100 metres from a cleared zone containing roads, power lines and other cultural features.

COMMENT : The anomaly exhibits a slow decay and dominant late channel response, with a high amplitude. However the anomaly character could be attributed to an increase in terrain clearance of the aircraft indicated by a peak in the altimeter reading.

CONDUCTOR - MH6 Priority - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
146/1W	52570	7	250	Medium	4.5	Broad
147/1E	52261	4	250	Medium	4.5	Broad

INTERPRETATION :

Strike	156^0 / 336^0
Length	200 - 300 metres
Depth	Medium
Dip	Possibly horizontal
Plunge	None apparent
Width	100 metres
Magnetics assoc	Associated with a magnetic low
Photo Assoc	No obvious association

COMMENT : The two anomalies display similar character and lie along a linear structural feature. This zone was selected because the anomalies exhibit a slower decay rate and narrower width which is not apparent elsewhere along the structural feature.

CONDUCTOR - MH7 **Priority - 3/2**

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
138/1W	55462	10	2000	Shallow	18	
140/1W	54906	12	2000	Medium	42	Narrow anomaly - high amplitude. Priority 2.
141/1W	54372	10	4000	Shallow	18	

INTERPRETATION :

Strike	162^0 / 342^0
Length	200 - 300 metres (main section) 1.5 km (full feature)
Depth	Medium
Dip	Appears vertical
Plunge	None apparent
Width	50 metres (at Line 140)
Magnetics assoc	Lines 138-140 correspond to magnetic highs which appear as a separate peak in an overall broad high whose trend is shown.
Photo Assoc	None apparent

COMMENT : This high amplitude anomalous trend extends from Line 144 to Line 138 and broadens to the south.

The anomaly on Line 140 exhibits strong late channel response, high amplitude and is narrow. It appears as a single narrow peak compared to the double peak on adjacent lines which may reflect the geometry of the conductor. However it must be noted that the altimeter also peaks and may enhance the anomaly, thus downgrading the priority.

CONDUCTOR - MH8 Priority - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
138/1W	55451	6	200	Med/Deep	6	
139/1E	55124	5	200	Medium	5	
140/1W	54894	4	150	Med/Deep	5	
141/1E	54582	4	150	Med/Deep	5	

INTERPRETATION :

Strike	N-S
Length	700 - 800 metres
Depth	Medium - Deep
Dip	Appears vertical
Plunge	
Width	70 - 100 metres
Magnetics assoc	No obvious association
Photo Assoc	No obvious association

COMMENT : The selected anomalies have a similar character and they show a slower decay rate than the surrounding surficial response.

CONDUCTOR - MH9 Priority - 3

LOCATION : Map 1 of 1 - Macquarie Harbour

Line	Fiducial	Channel	Amp Ch 2	Depth	CTP	Comment
138/1W	55470	12	2500	Shallow	9	Close to coastline and to culture
139/1W	55102	12	1100	Shallow	11	

INTERPRETATION :

Strike	N - S
Length	200 metres
Depth	Shallow
Dip	Horizontal
Plunge	None Apparent
Width	150 metres
Magnetics assoc	No obvious association - although within a broad magnetic high
Photo Assoc	Near coast within a cleared area with a road and railway and other cultural features

COMMENT : The EM response shows a slow decay, although the response may be attributed to the cultural features noted above.

APPENDIX 3

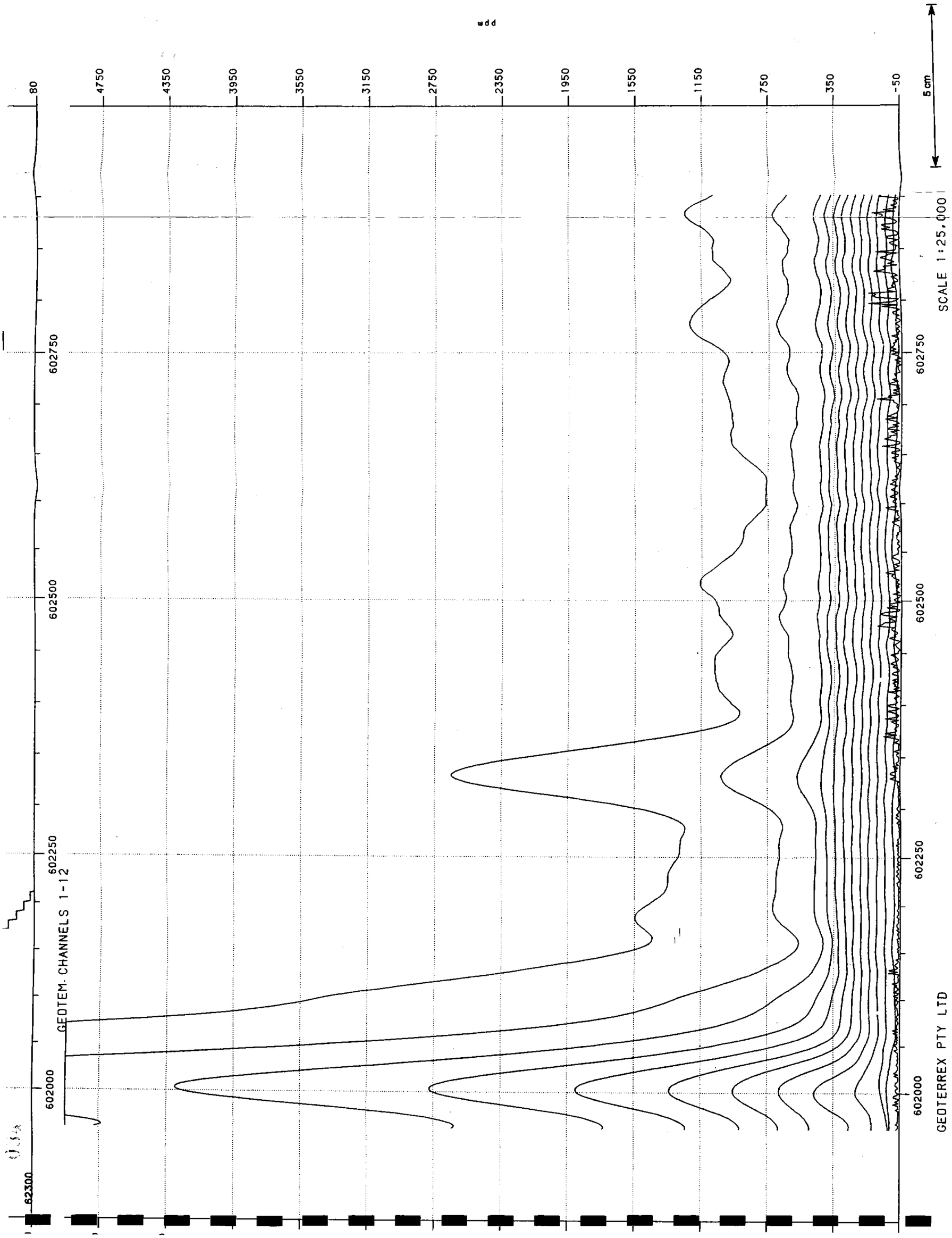
Geotem Data Profiles

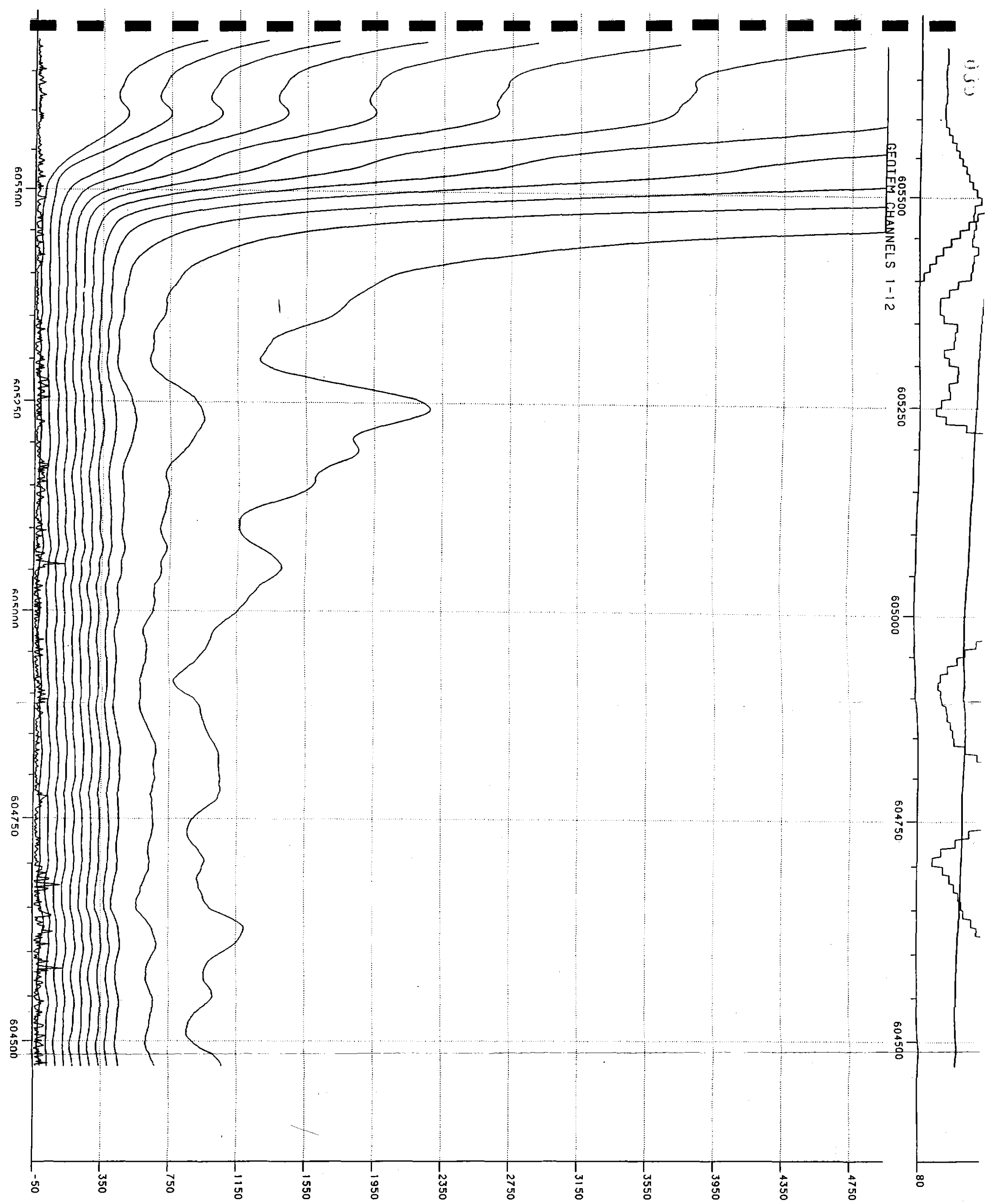
438035

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 125Hz GEOTE

LINE 127/1





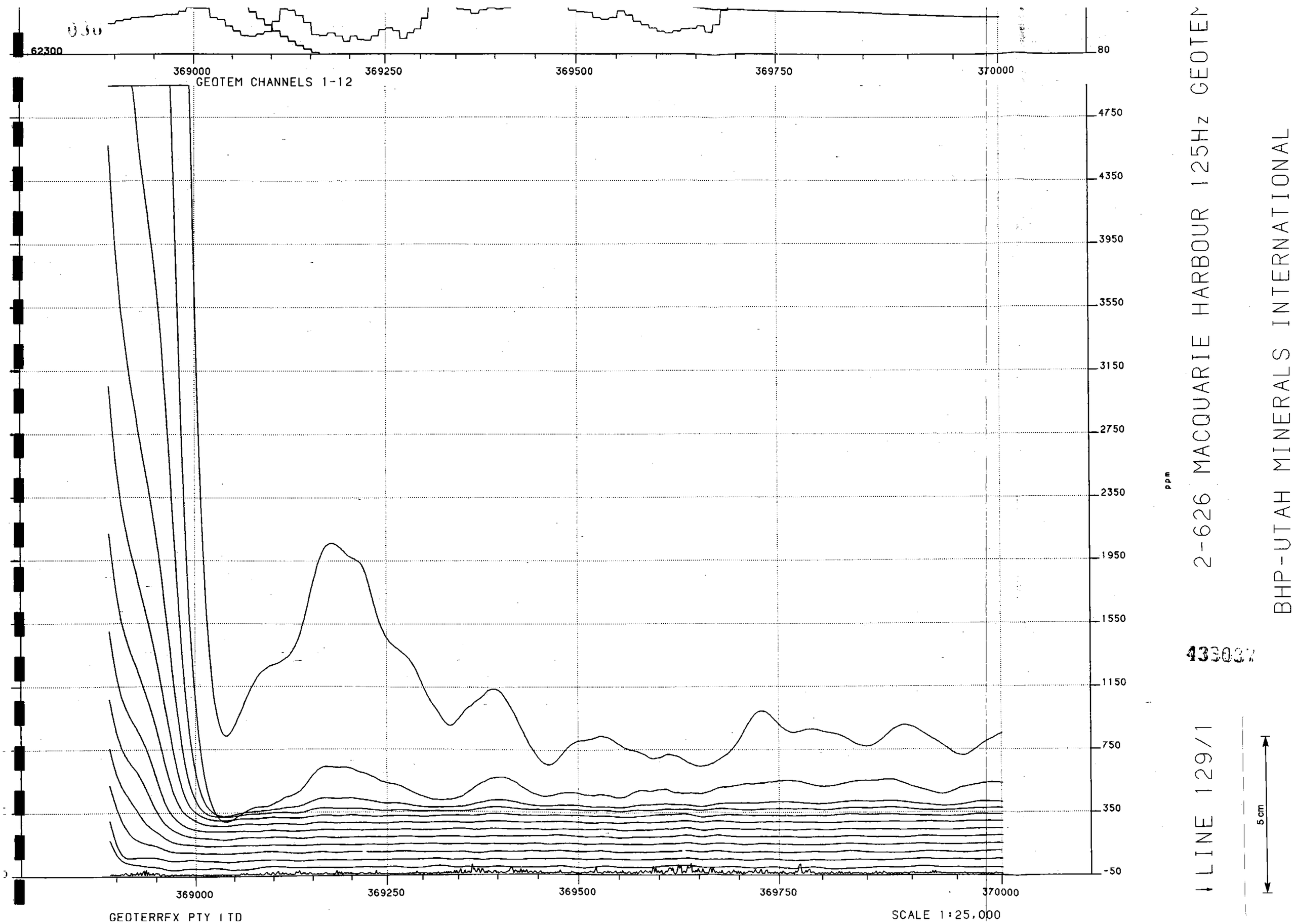
LINE 128/1

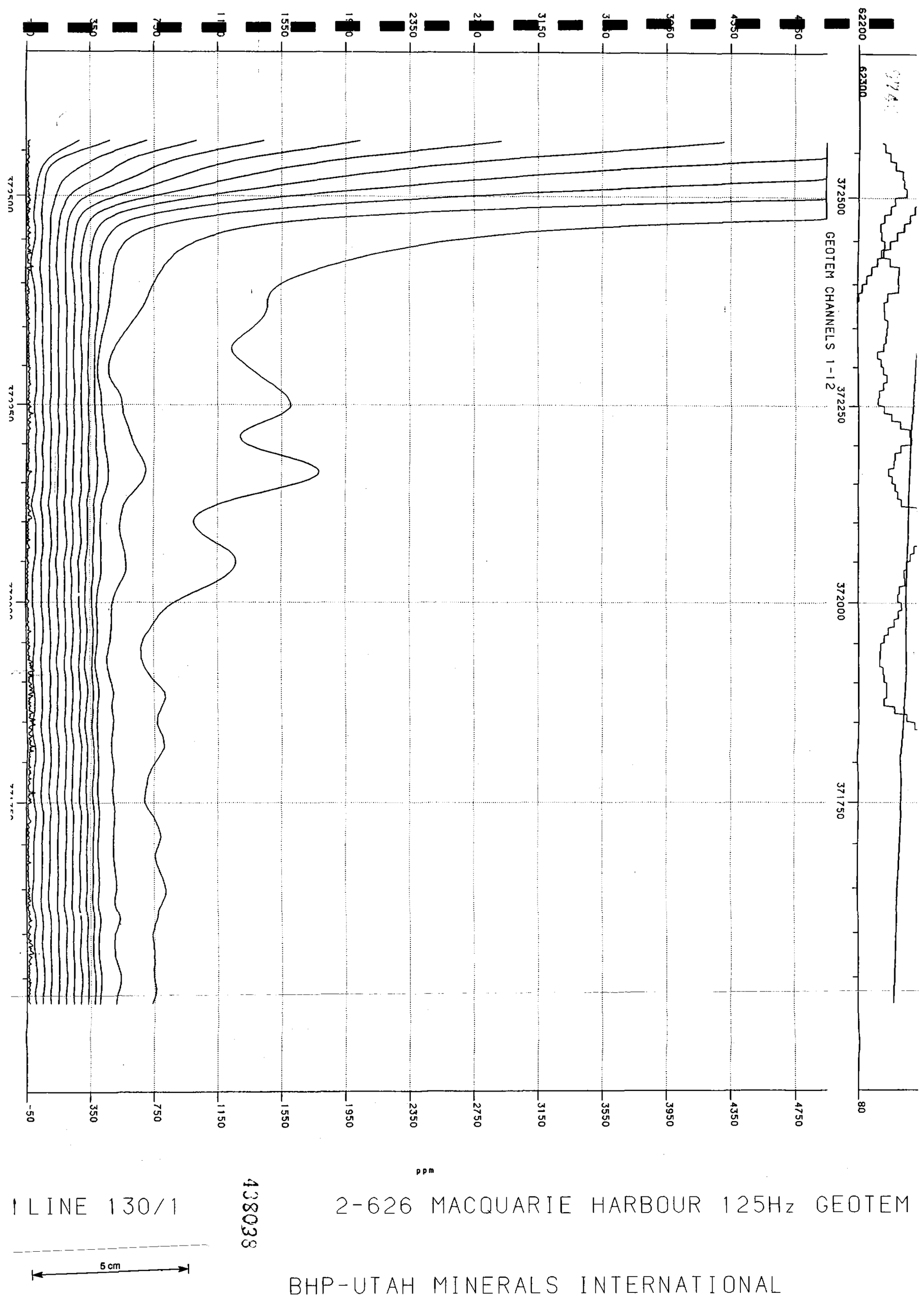
2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

BHP-UTAH MINERALS INTERNATIONAL

438036


62300
80
369000
369250
369500
369750
370000
GEOTEM CHANNELS 1-12
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
369000
369250
369500
369750
370000
GEOTERRFX PTY LTD
SCALE 1:25,000
BHP-UTAH MINERALS INTERNATIONAL
2-626 MACQUARIE HARBOUR 125Hz GEOTEM
LINE 129/1
5cm



LINE 130/1

438038

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

BHP-UTAH MINERALS INTERNATIONAL

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 131/3

62300

386250 386500 386750 387000 387250

GEOTEM CHANNELS 1-12

ppm

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

5cm

GEOTERREX PTY LTD

SCALE 1:25,000

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 12.5Hz GEOTEM

LINE 132/1

5cm

ppm

80 | 4750 | 4350 | 3950 | 3550 | 3150 | 2750 | 2350 | 1950 | 1550 | 1150 | 750 | 350 | -50

388750

389000

389250

389500

GEOTEM CHANNELS 1-12

SCALE 1:25,000

62300

200 | 4750 | 4350 | 3950 | 3550 | 3150 | 2750 | 2350 | 1950 | 1550 | 1150 | 750 | 350 | -50

GEOTERREX PTY LTD

438041

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 133/1

5 cm

ppm

62200 62300 80

391250 391500 391750

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

391250 391500 391750

GEOTERREX PTY LTD

SCALE 1:25,000

438042

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 12.5Hz GEOTEM

LINE 134/1

5 cm

ppm

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

80

393750

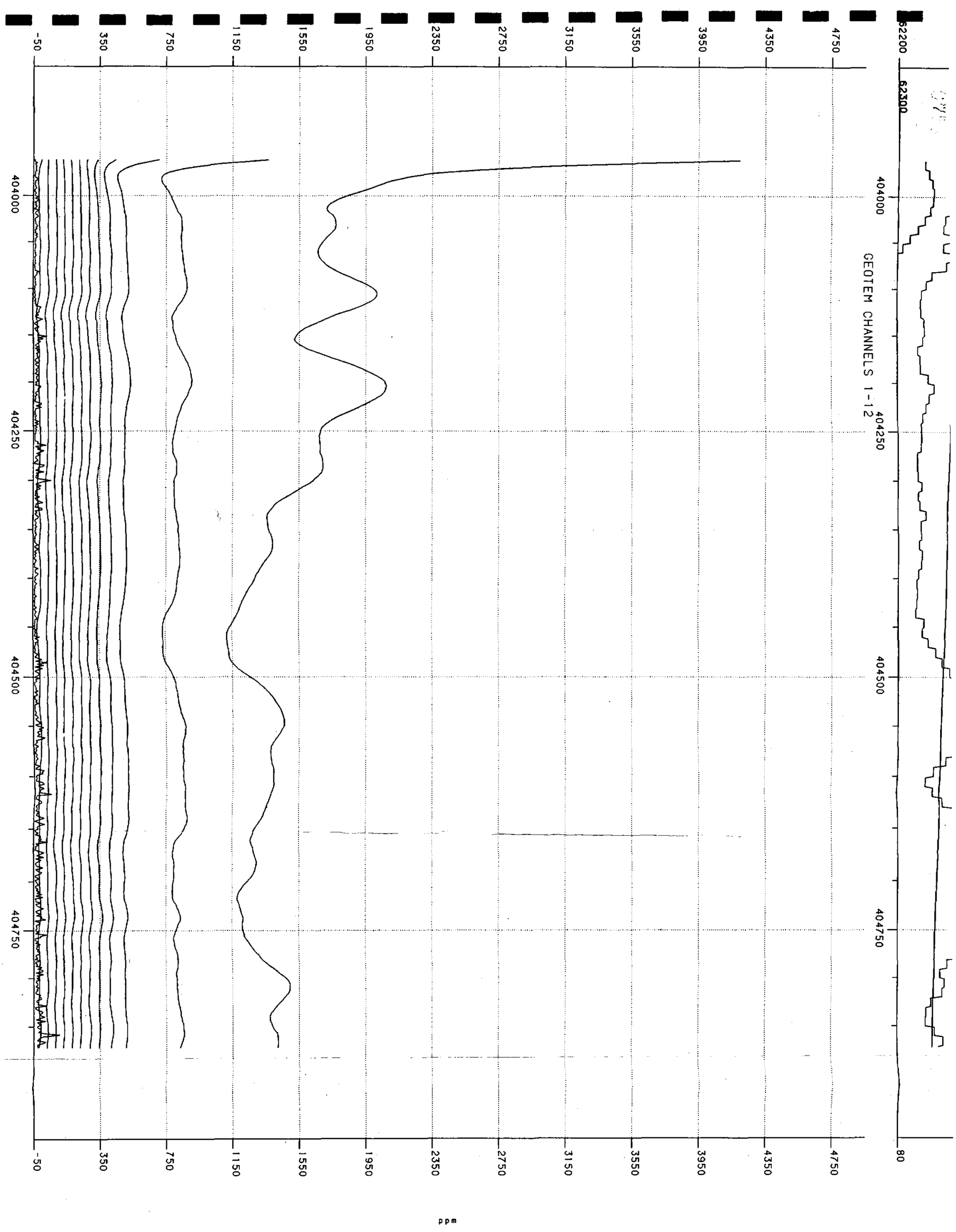
394000

394250

394500

GEOTEM CHANNELS 1-12

62200 62300



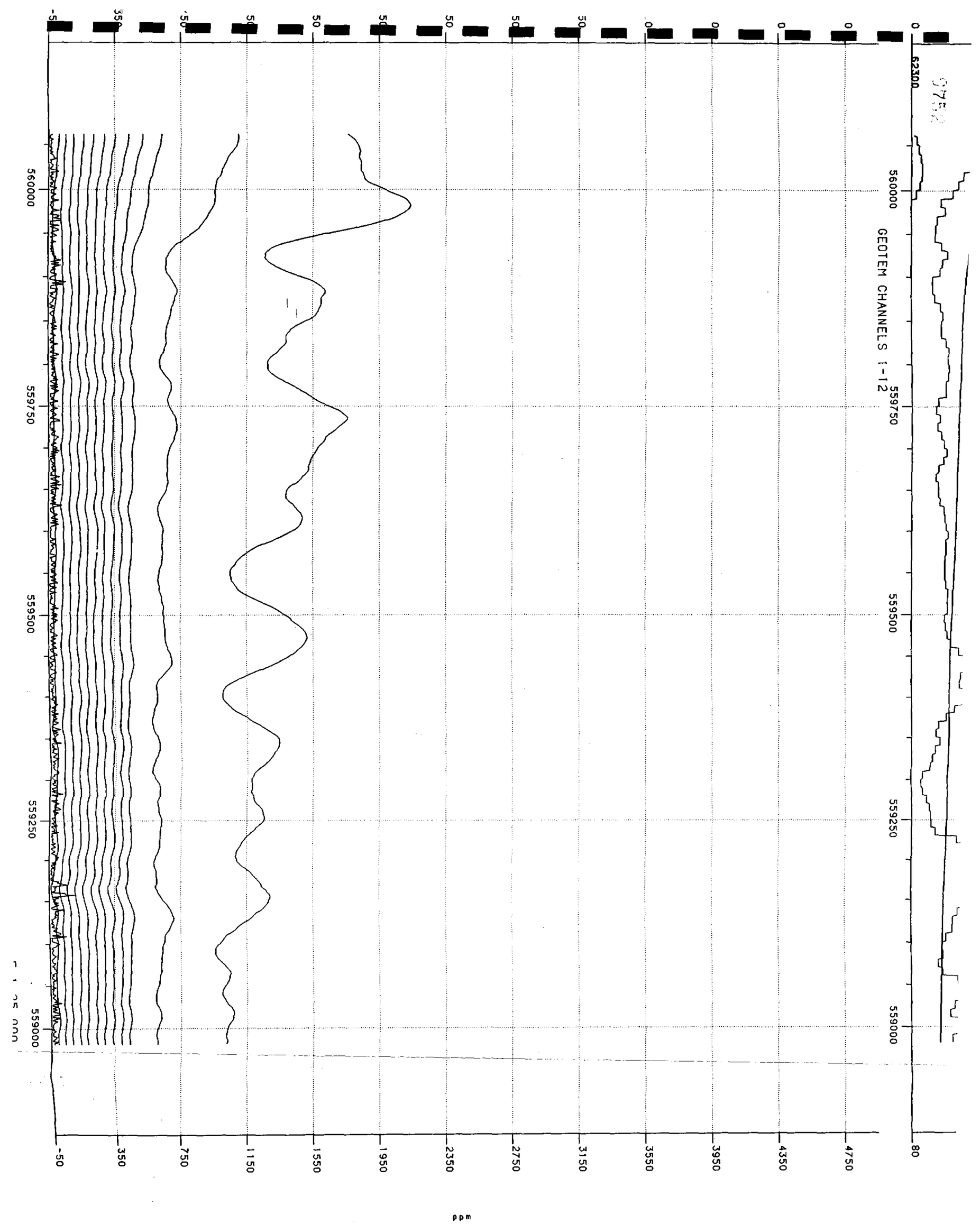
LINE 135/2

5 cm

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

438043

BHP-UTAH MINERALS INTERNATIONAL

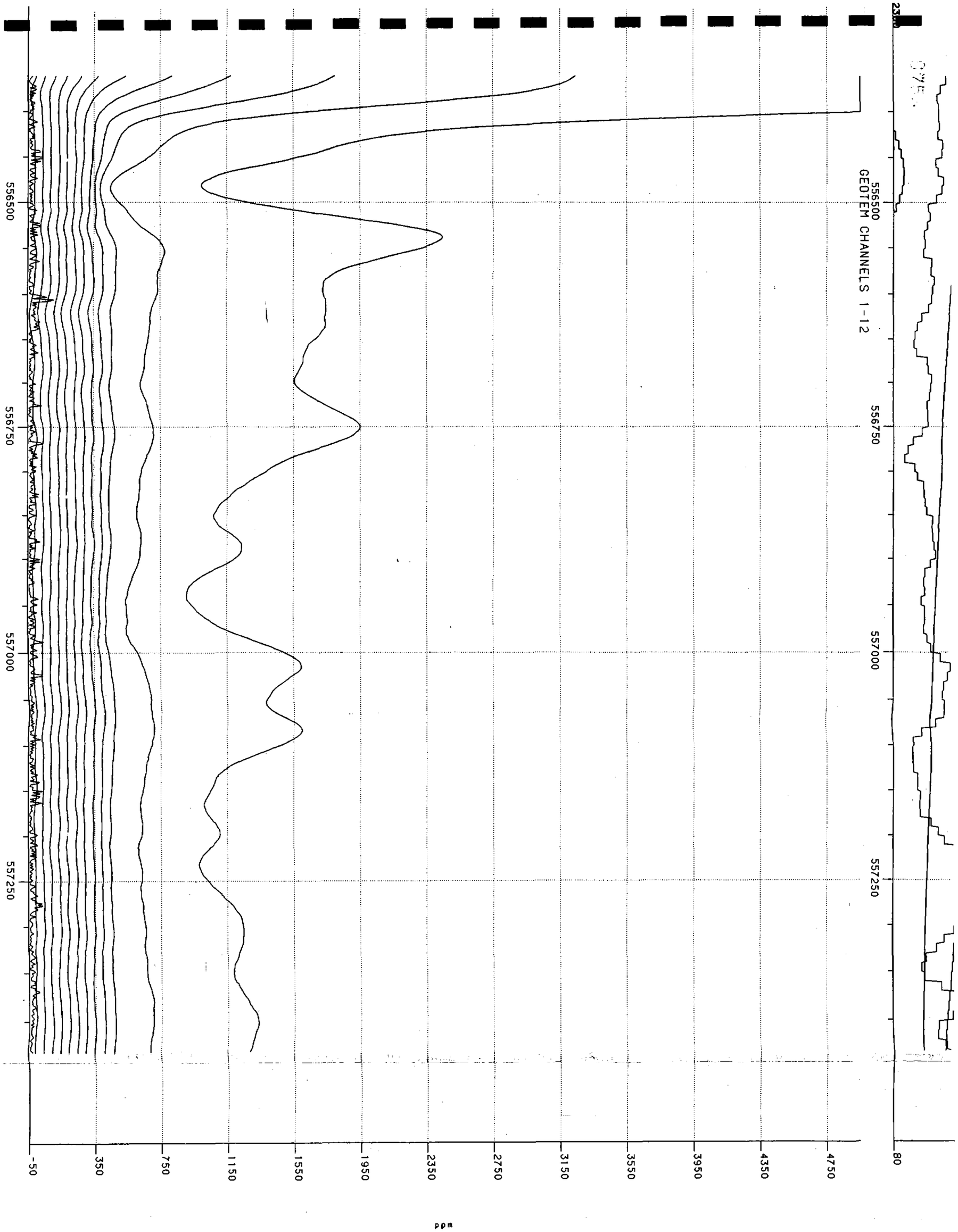


LINE 136/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

BHP-UTAH MINERALS INTERNATIONAL



LINE 137/1

5 cm

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

BHP-UTAH MINERALS INTERNATIONAL

438046

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 138/1

5cm

GEOTEM CHANNELS 1-12

ppm

62200 62300 80

554500 554250 554000 553750

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

GEOTERREX PTY LTD

SCALE 1:25.000

62200
62300
80
551000
551250
551500
551750
GEOTEM CHANNELS 1-12
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
5cm
438047

62200
62300
80
549250
549000
548750
548500
548250
GEOTEM CHANNELS 1-12
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
5cm
549250
549000
548750
548500
548250
GEOTERREX PTY LTD
SCALE 1:25,000
433048
2-626 MACQUARIE HARBOUR 125Hz GEOTEM
LINE 140/1

438049

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 141/1

ppm

5 cm

80

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

546500

546250

546000

545750

GEOTEM CHANNELS 1-12

SCALE 1:25,000

GEOTERREX PTY LTD

62200 62300

543750 543500 543250 543000 542750

80

GEOTEM CHANNELS 1-12

4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50

ppm

5cm

438050

MACQUARIE HARBOUR 125Hz GEOTEM

2-626

LINE 142/1

GEOTERREX PTY LTD

SCALE 1:25,000

438051

62200 62300

80

540250 540500 540750 541000

GEOTEM CHANNELS 1-12

4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50

ppm

5cm

540250 540500 540750 541000

GEOTERREX PTY LTD

SCALE 1:25,000

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 1437/1

62200 62300

538500 538250 538000 537750

80

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

ppm

5cm

438052

MACQUARIE HARBOUR 125Hz GEOTEM

2-626

LINE 144/1

GEOTERREX PTY LTD

SCALE 1:25,000

62200 62300 534000 534250 534500 534750 80

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

534000 534250 534500 534750

ppm

5cm

GEOTERREX PTY LTD

SCALE 1:25,000

62200 62300 80

526000 525750 525500 525250 525000

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50 ppm

526000 525750 525500 525250 525000

5cm

GEOTERREX PTY LTD

SCALE 1:25,000

9763

62300

52200

80

522250 522500 522750 523000 523250

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

522250 522500 522750 523000 523250

ppm

5 cm

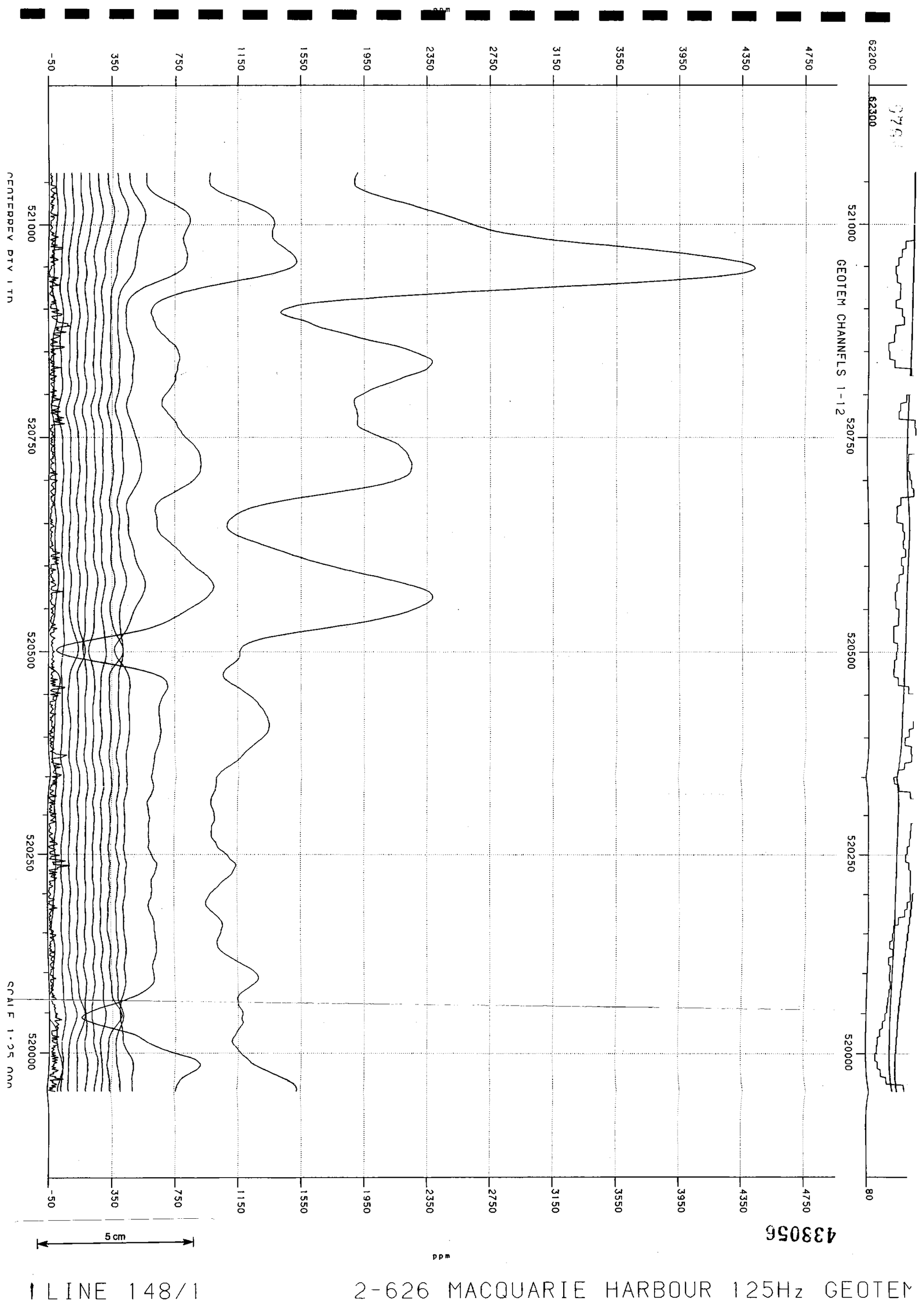
438055

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 147/1

GEOTERREX PTY LTD

SCALE 1:25,000



LINE 148/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 149/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

438057

ppm

5 cm

80 4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

518250 518000 517750 517500 517250

GEOTEM CHANNELS 1-12

SCALE 1:25,000

62300

GEOTERREX PTY LTD

62200 62300 80

515750 515500 515250 515000

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50 ppm

515750 515500 515250 515000

5cm

GEOTERREX PTY LTD

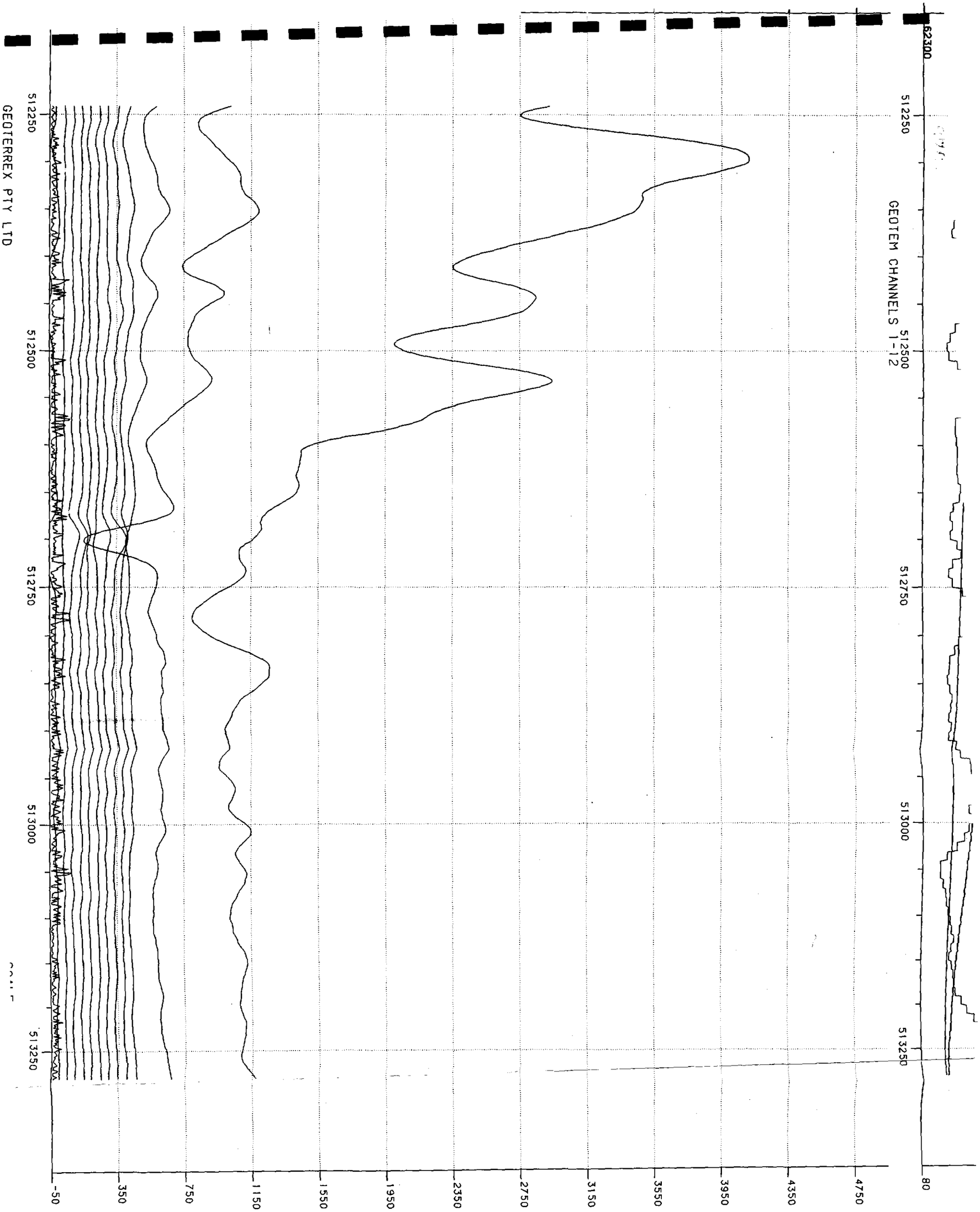
SCALE 1:25 000

433058

MACQUARIE HARBOUR 125Hz GEOTEM

2-626

LINE 150/1



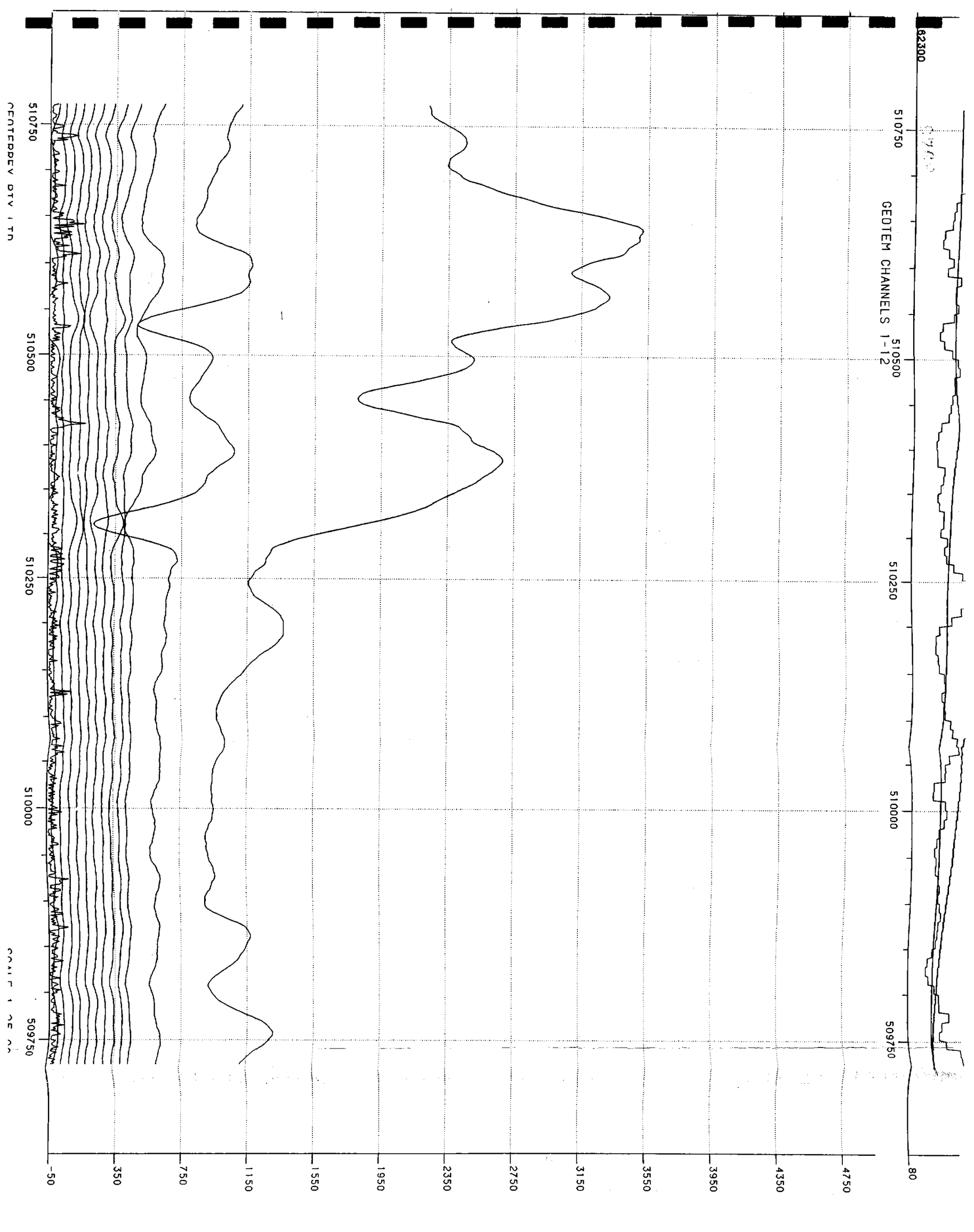
LINE 151/1

5 cm

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

433059

BHP-UTAH MINERALS INTERNATIONAL



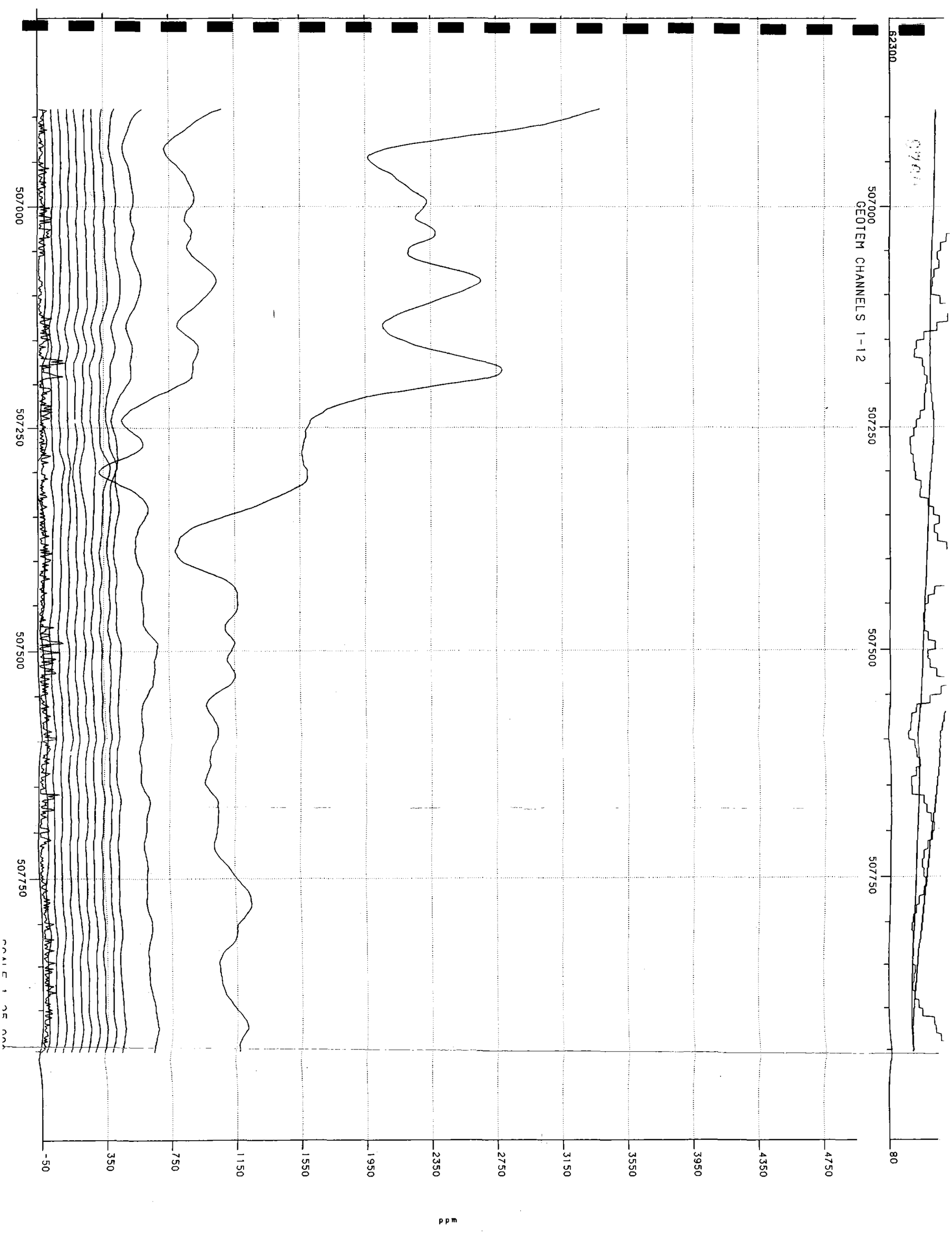
LINE 152/1

5 cm

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

438060

BHP-UTAH MINERALS INTERNATIONAL



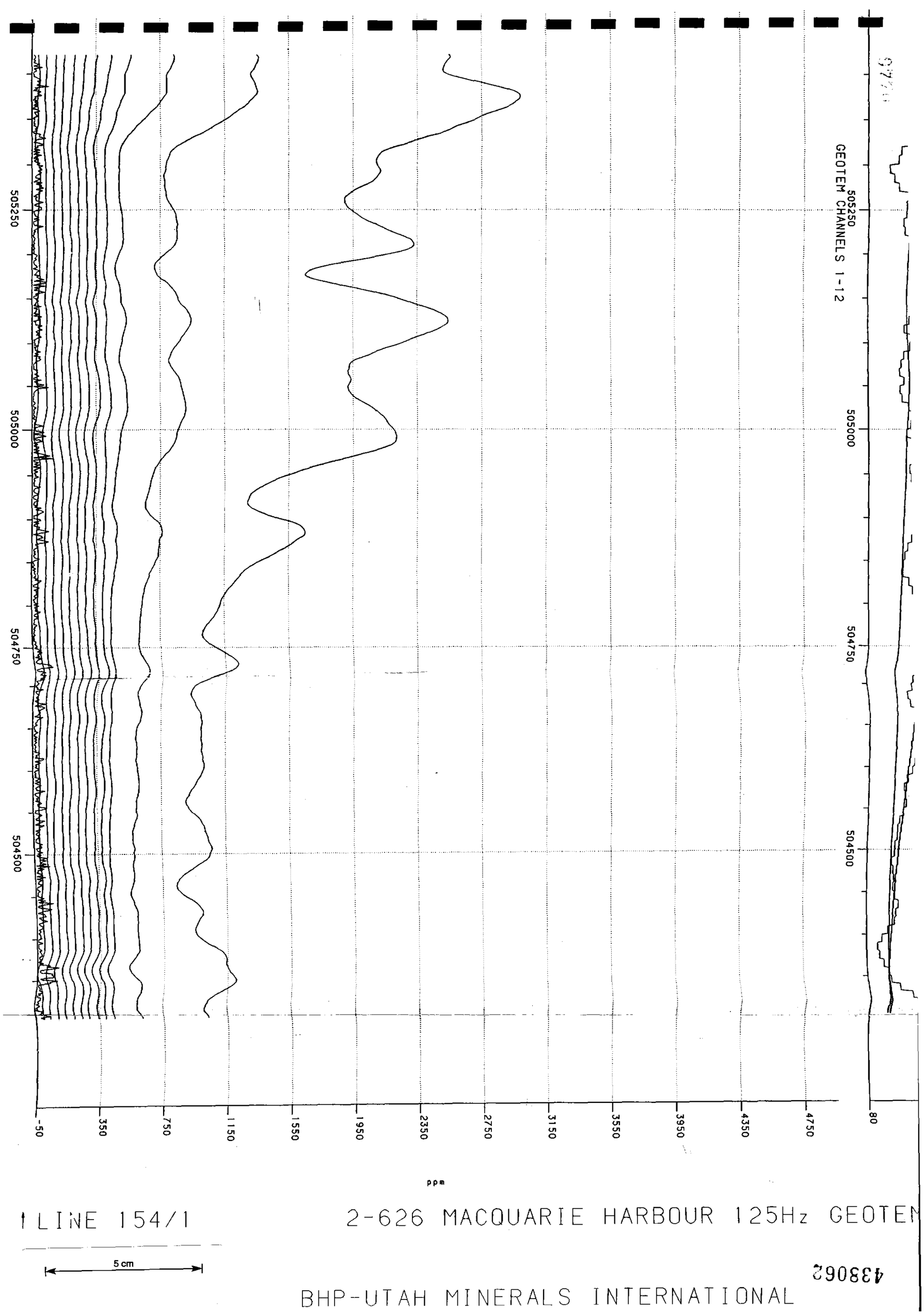
LINE 153/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

438061

BHP-UTAH MINERALS INTERNATIONAL



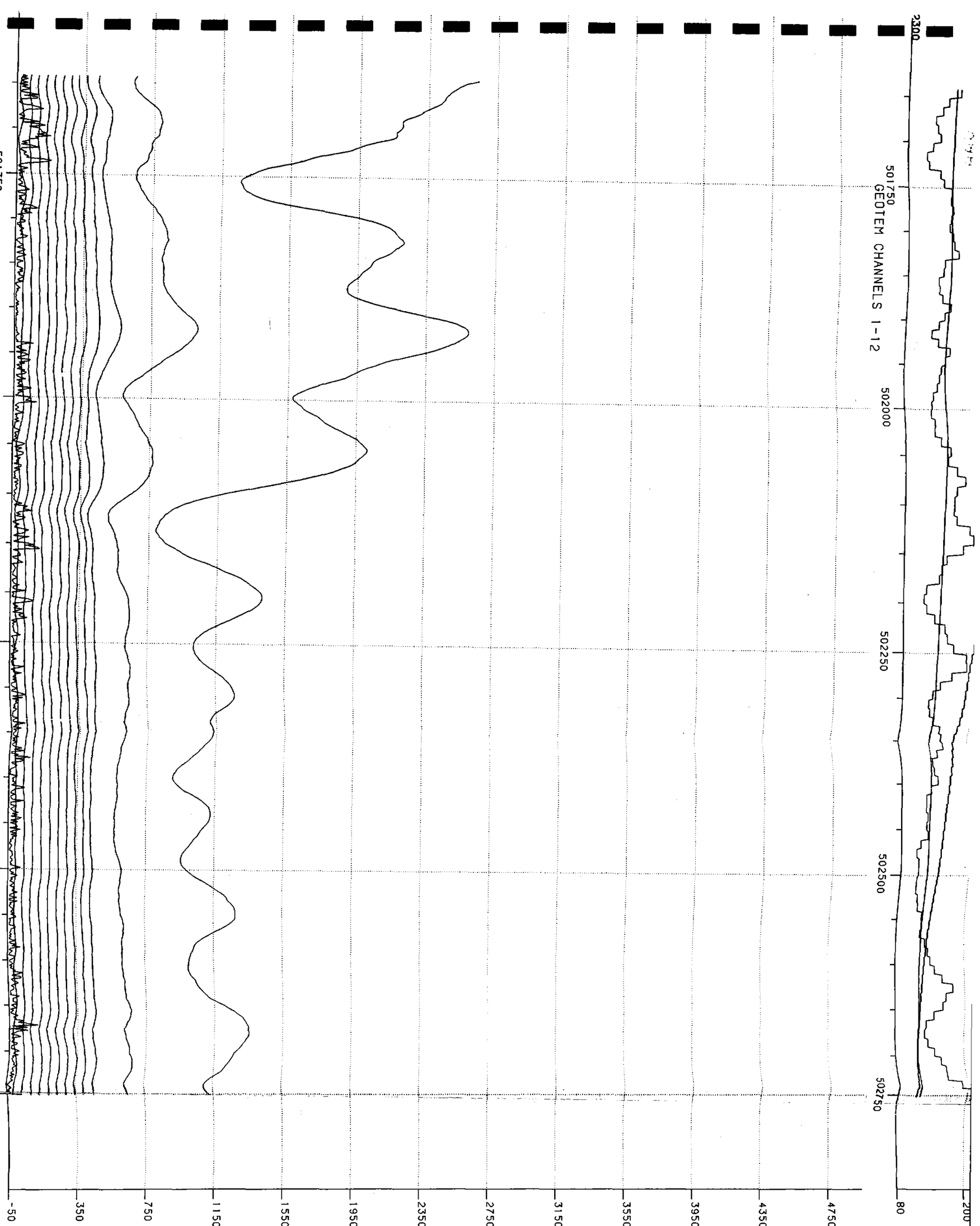
LINE 154/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

438062

BHP-UTAH MINERALS INTERNATIONAL



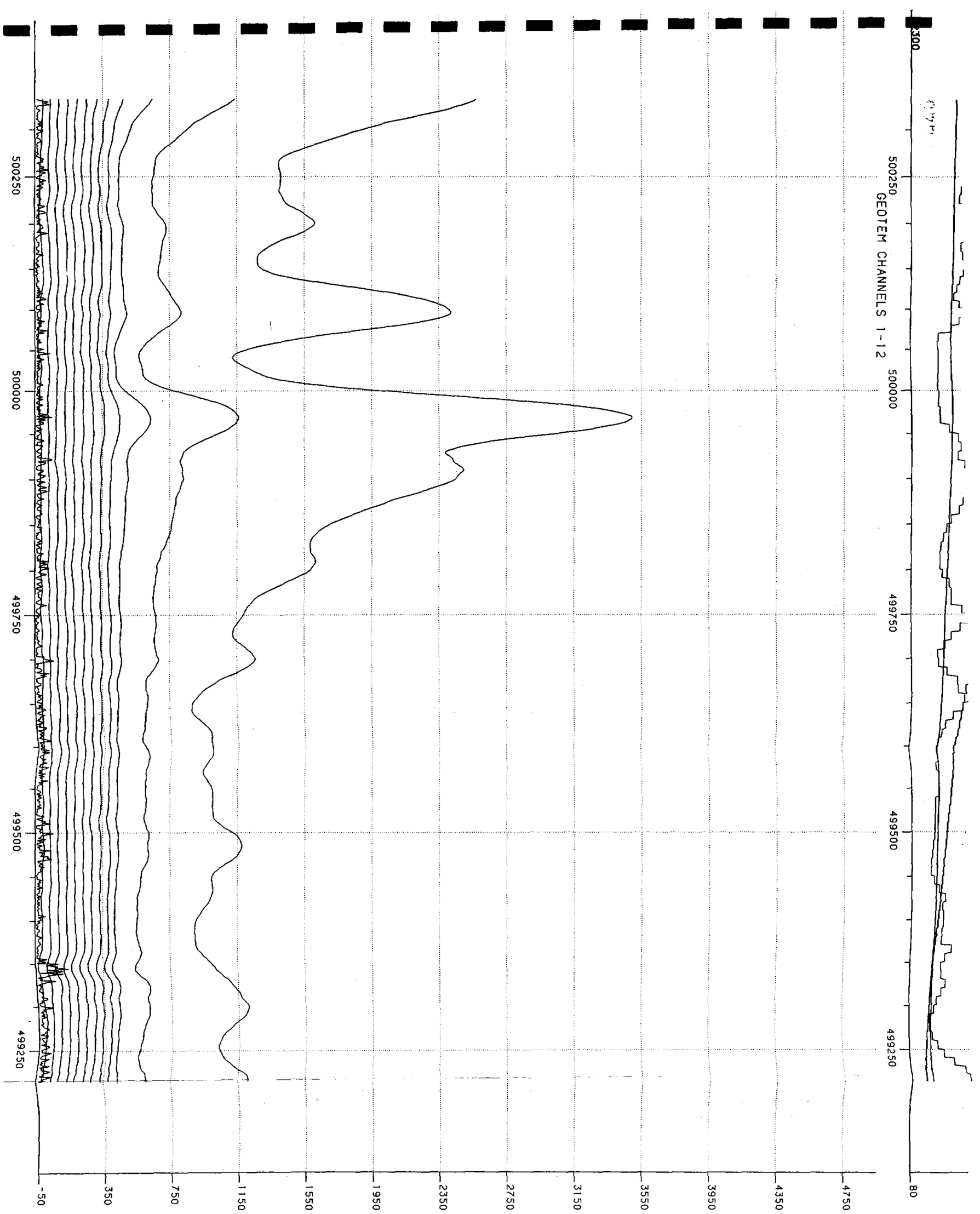
LINE 155/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

433063

BHP-UTAH MINERALS INTERNATIONAL



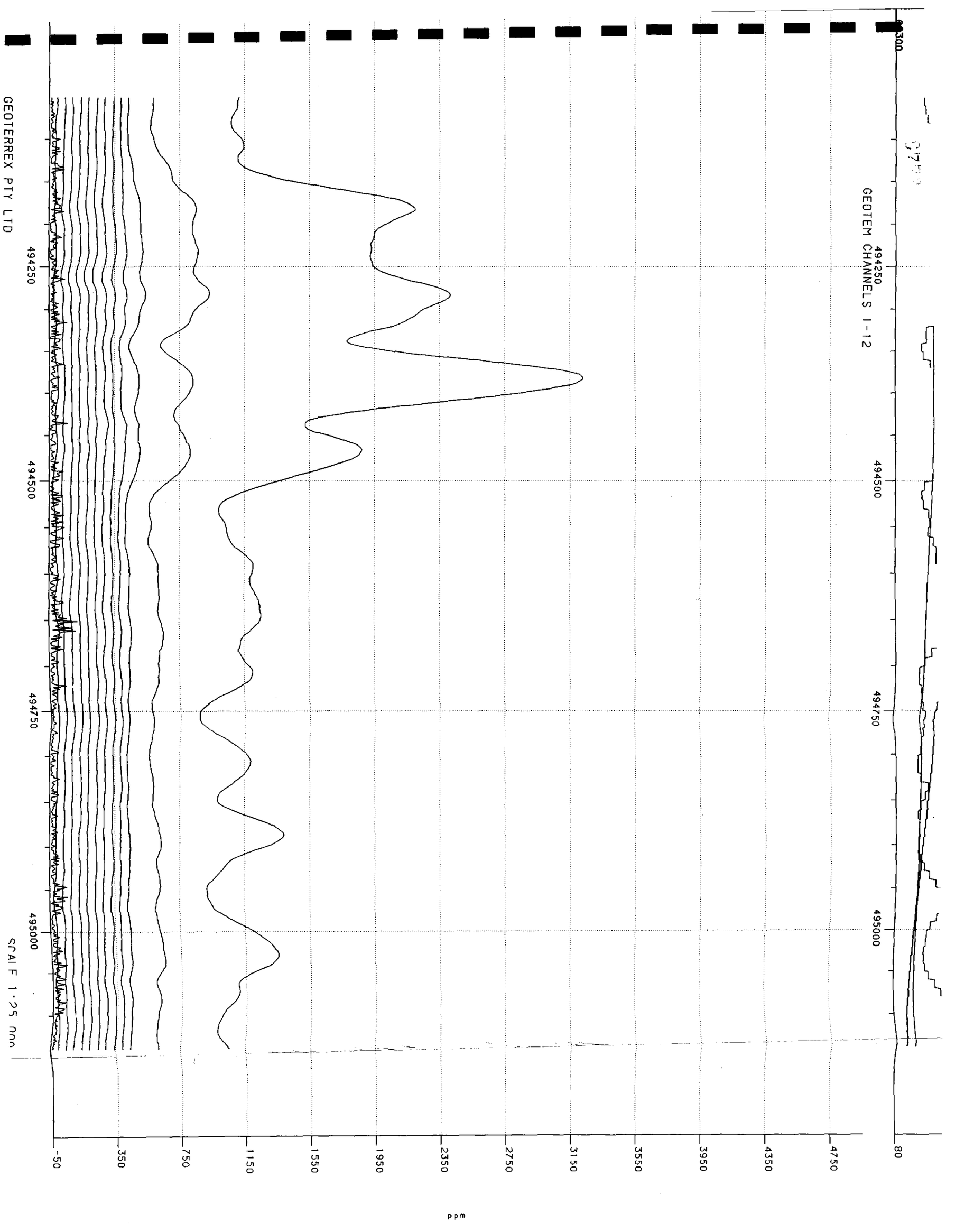
LINE 156/2

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

433064

BHP-UTAH MINERALS INTERNATIONAL



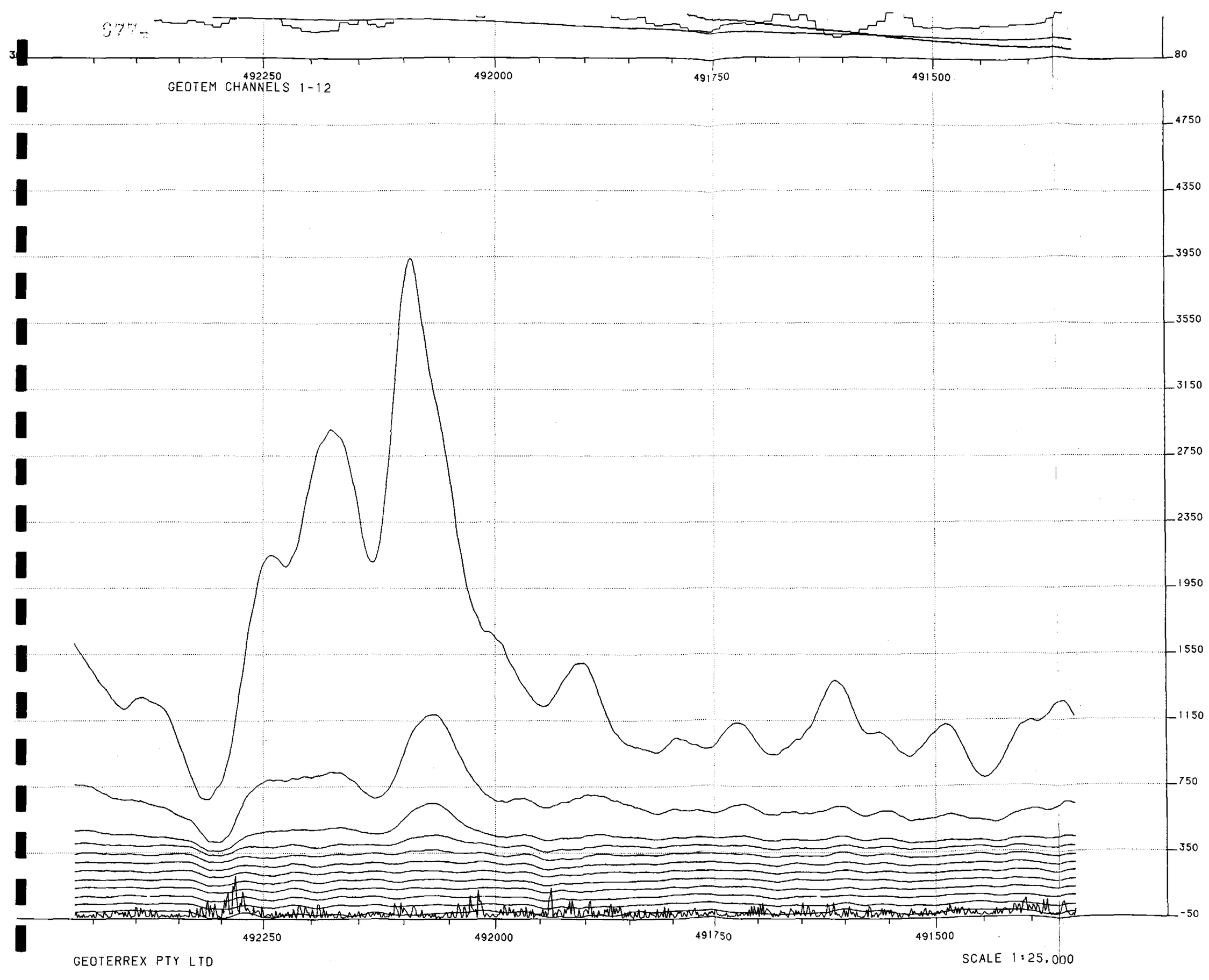
LINE 157/1

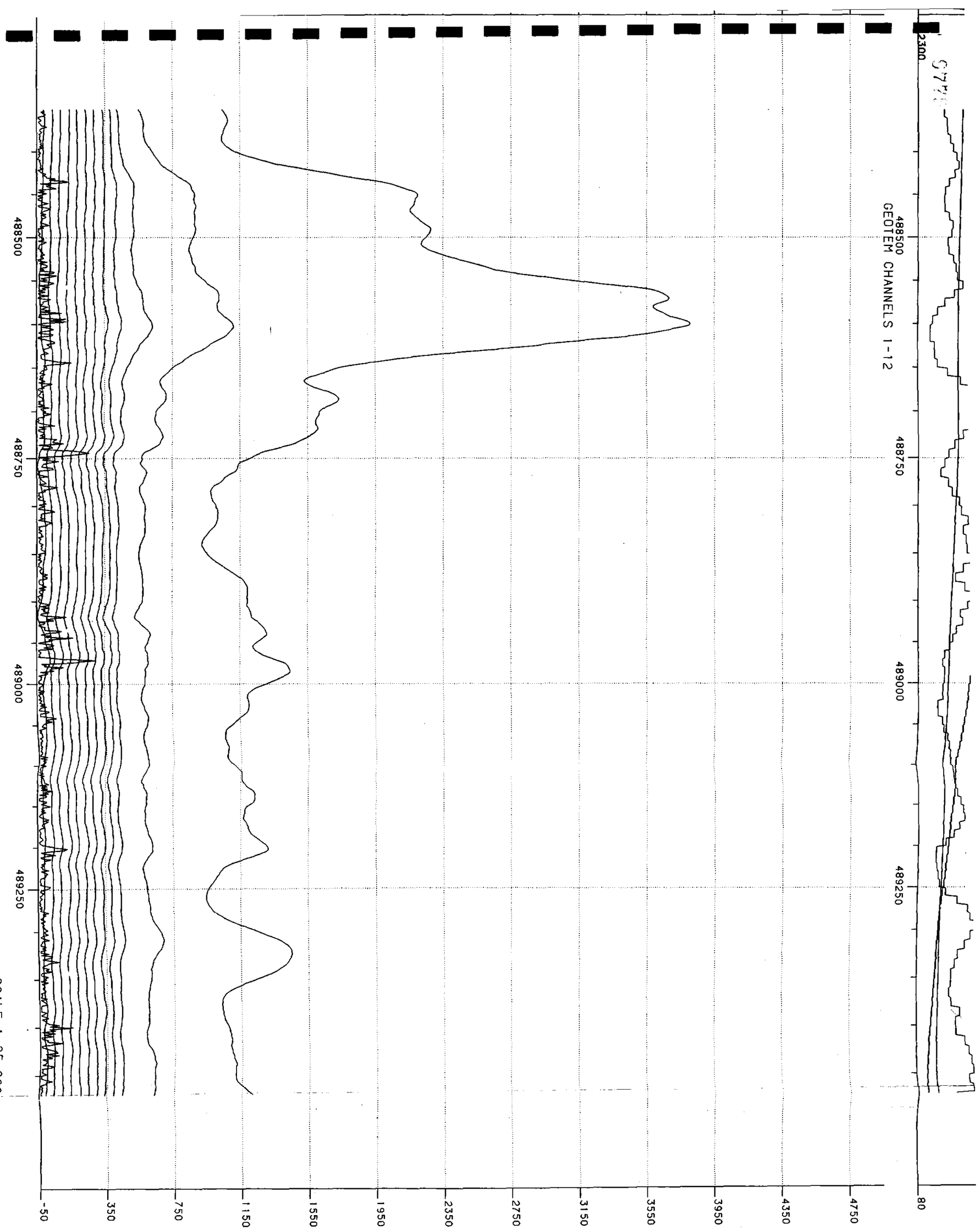
2-626 MACQUARIE HARBOUR 125Hz GEOTEM

435065

5 cm

BHP-UTAH MINERALS INTERNATIONAL


492250
492000
491750
491500
GEOTEM CHANNELS 1-12
80
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
MACQUARIE HARBOUR 125Hz GEOTEM
433069
2-626 MINERALS INTERNATIONAL
RHP-IITAH MINERALS INTERNATIONAL
LINE 158/1
5cm
GEOTERREX PTY LTD
SCALE 1:25,000



LINE 159/1

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

5 cm

433067

BHP-UTAH MINERALS INTERNATIONAL

RIO TINTO MINERALS INTERNATIONAL

GEOTEM 2·626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 160/1

5cm

S776

300

80

486500 486250 486000 485750 485500

GEOTEM CHANNELS 1-12

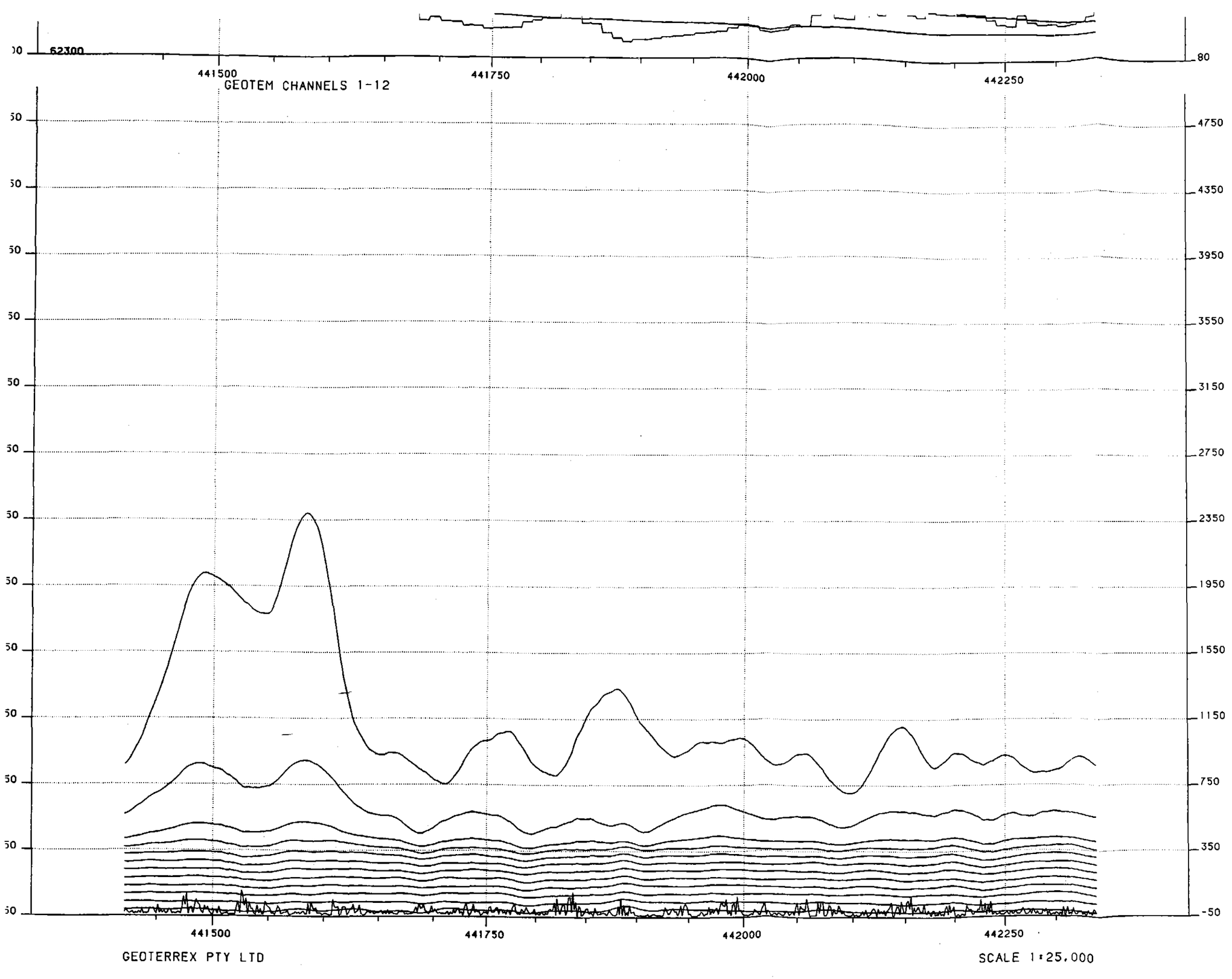
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50

ppm

486500 486250 486000 485750 485500

GEOTERREX PTY LTD

SCALE 1:25,000



433069

BHP-UTAH MINERALS INTERNATIONAL

2-626 MACQUARIE HARBOUR 125Hz GEOTEM

LINE 161/2

5cm

0778

62200 62300 80

480750 480500 480250 480000

GEOTEM CHANNELS 1-12

4350700

4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50

ppm

5 cm

480750 480500 480250 480000

SCALE 1:25,000

LINE 163/1

2-626 MACQUARIE HARBOUR 12.5Hz GEOT

438071

ppm

5 cm

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

80

471500

471250

471000

470750

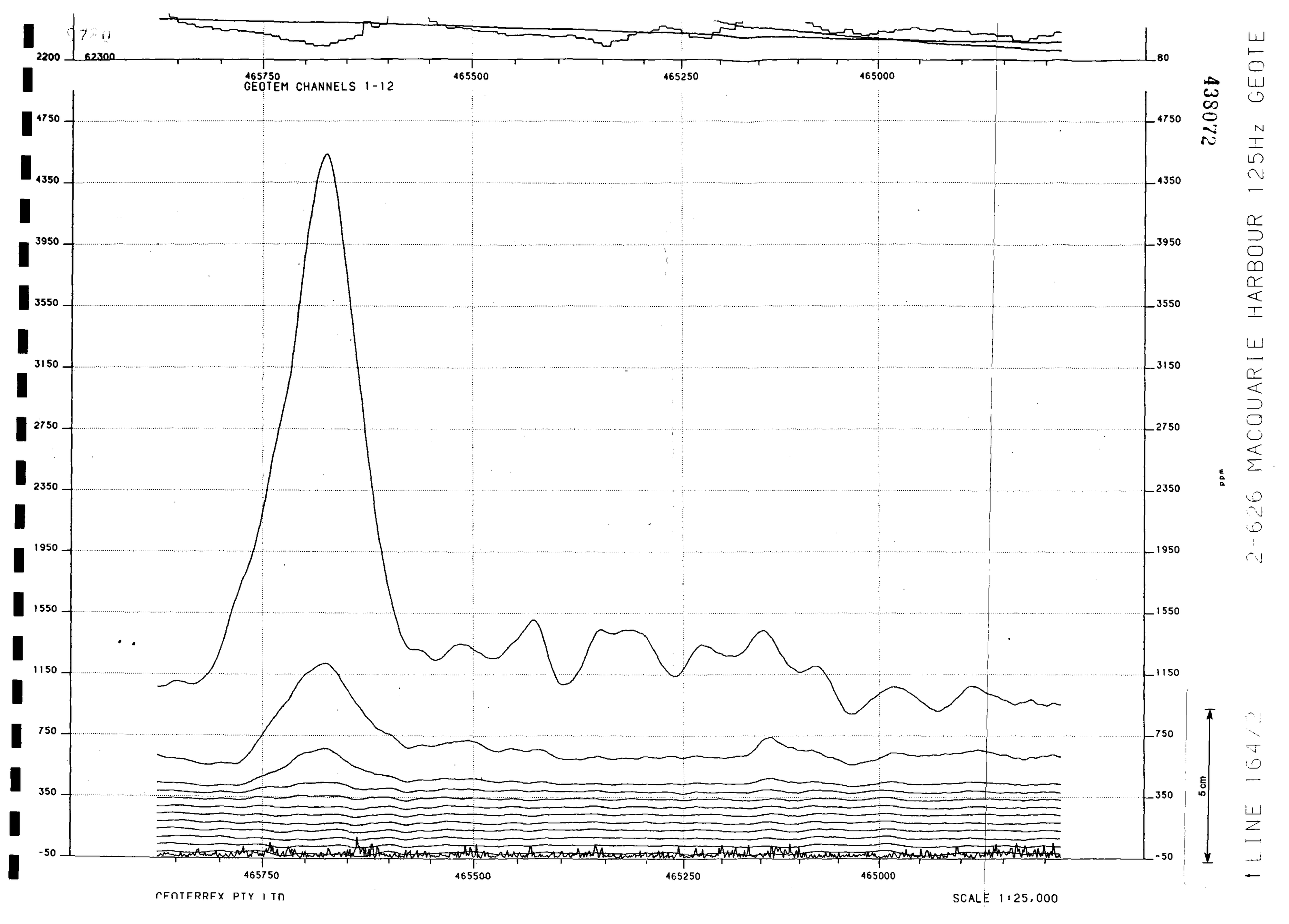
GEOTEM CHANNELS 1-12

SCALE 1:25,000

62300

62200

GEOTERREX PTY LTD


62300
2200
80
465750
465500
465250
465000
GEOTEM CHANNELS 1-12
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
5cm
43807.2
2-626 MACQUARIE HARBOUR 125Hz GEOTE
LINE 16472
GEOTERREX PTY LTD
SCALE 1:25,000

438073

2-626 MACQUARIE HARBOUR 125Hz GEOT

LINE 1651

ppm

5cm

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

80

458750

458500

458250

458000

457750

GEOTEM CHANNELS 1-12

SCALE 1:25.000

62300

200

438074

2-626 MARDUARIE HARBOUR 125Hz GEOT

62200 62300 80

455750 455500 455250 455000

GEOTEM CHANNELS 1-12

4750 4350 3950 3550 3150 2750 2350 1950 1550 1150 750 350 -50

5cm

455750 455500 455250 455000

GEOTERREX PTY LTD

SCALE 1:25,000

MACQUARIE HARBOUR 125Hz GEOTEM

2-626 MLINE 1675

438075

GEOTEM CHANNELS 1-12

62300

2200

80

446250

446500

446750

447000

4750

4350

3950

3550

3150

2750

2350

1950

1550

1150

750

350

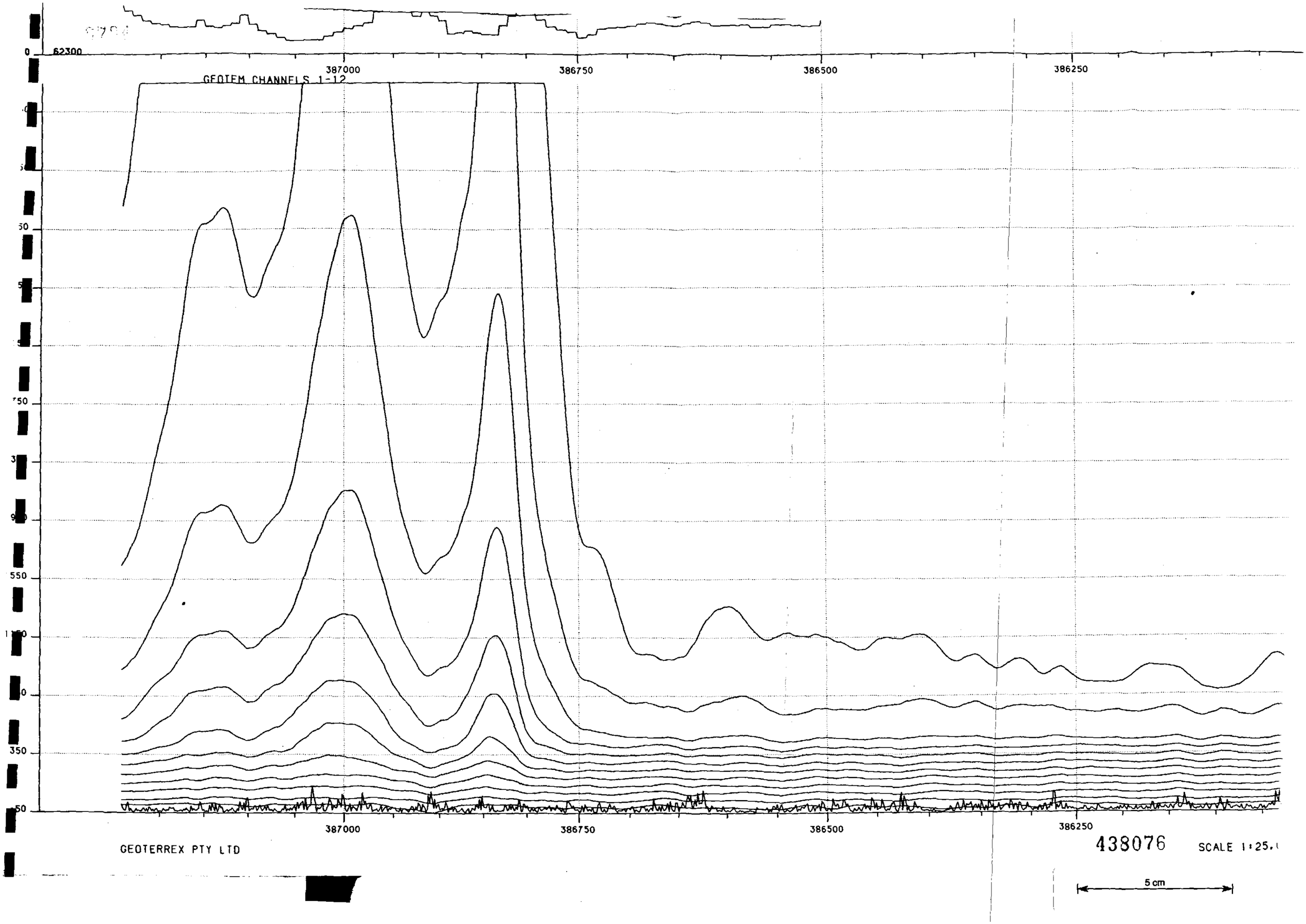
-50

ppm

5cm

GEOTERREX PTY LTD

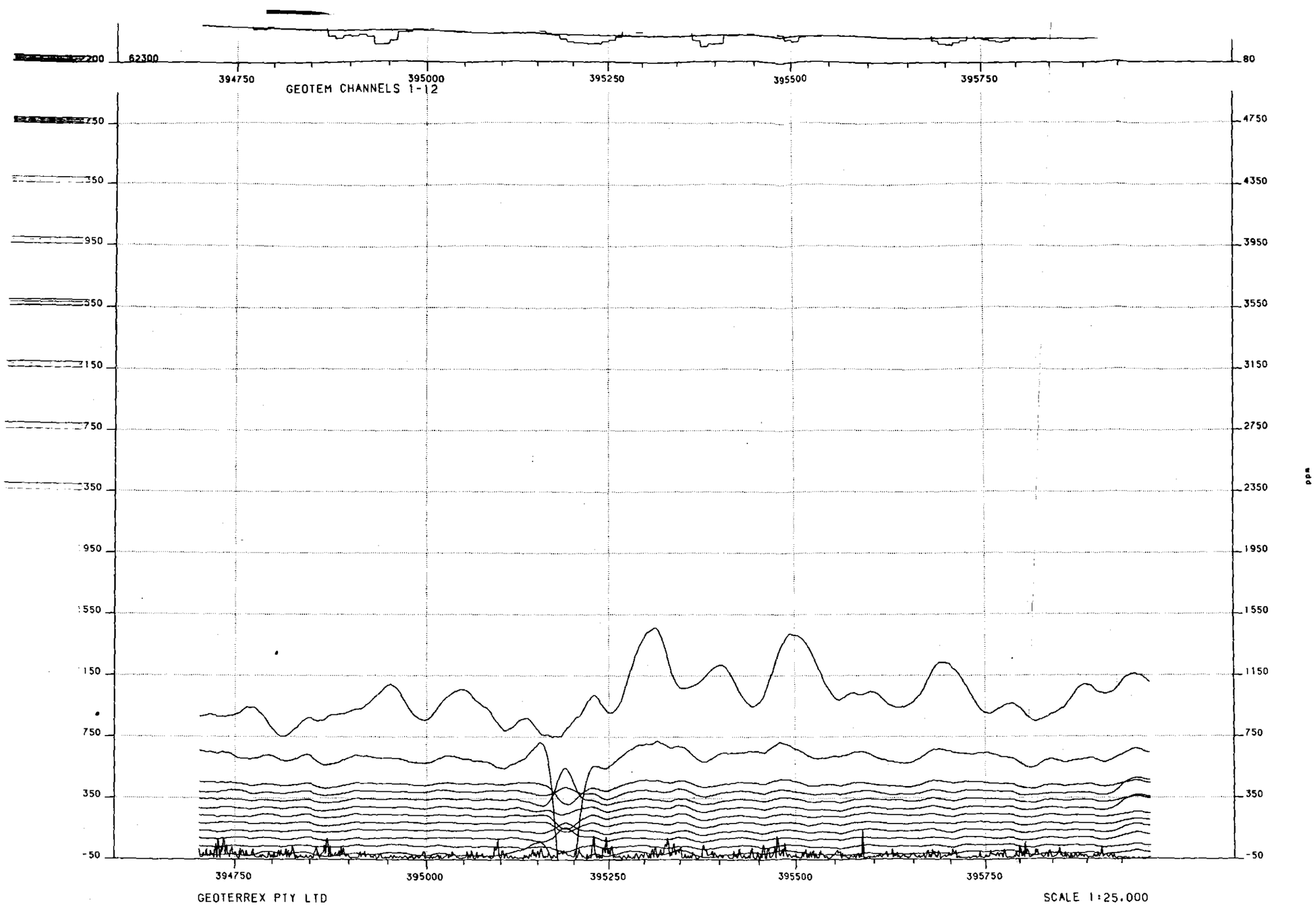
SCALE 1:25,000



GEOTERREX PTY LTD

438076 SCALE 1:25.(

5 cm



2-626 MACQUARIE HARBOUR 125Hz GEOT

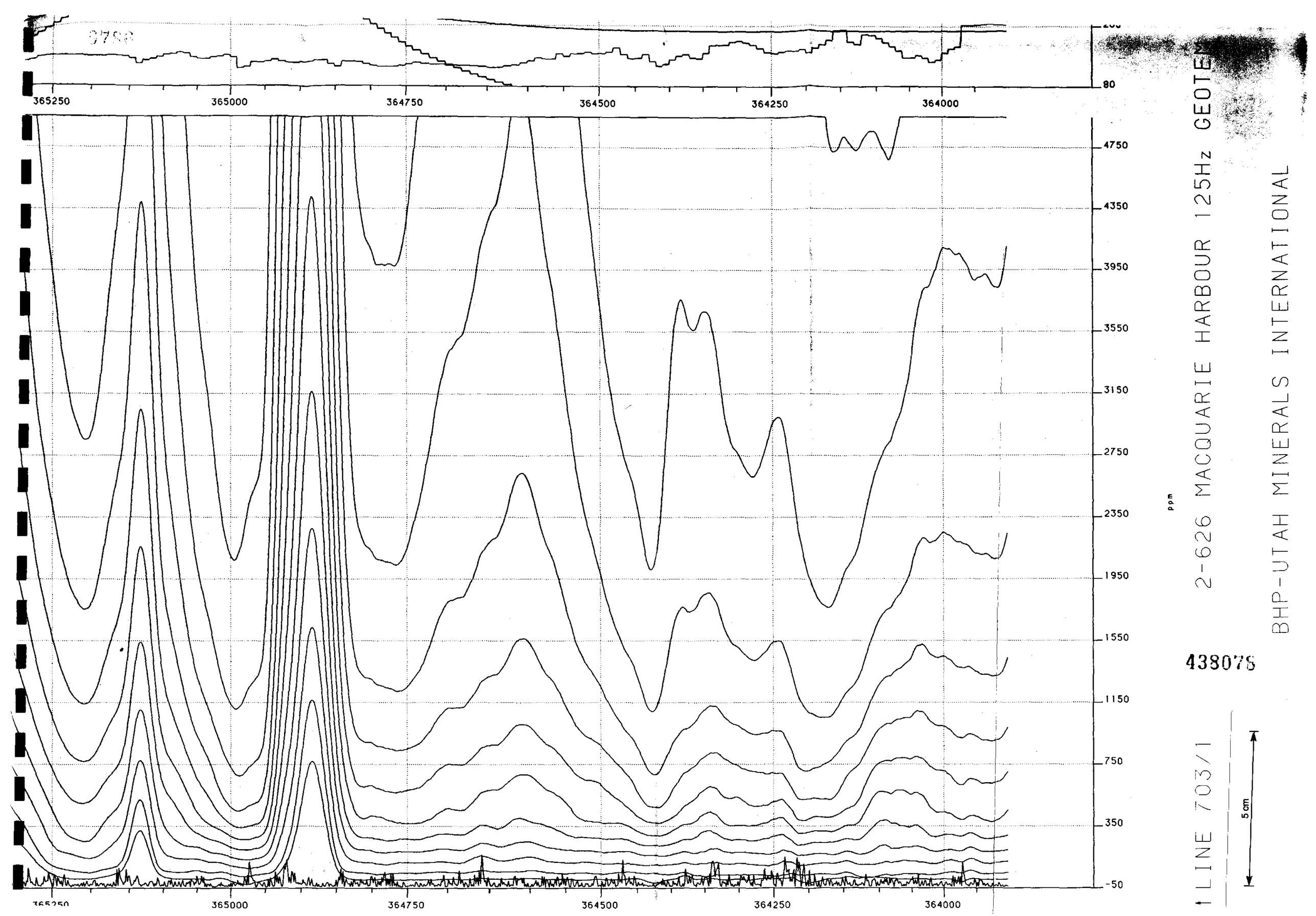
LINE 702/2

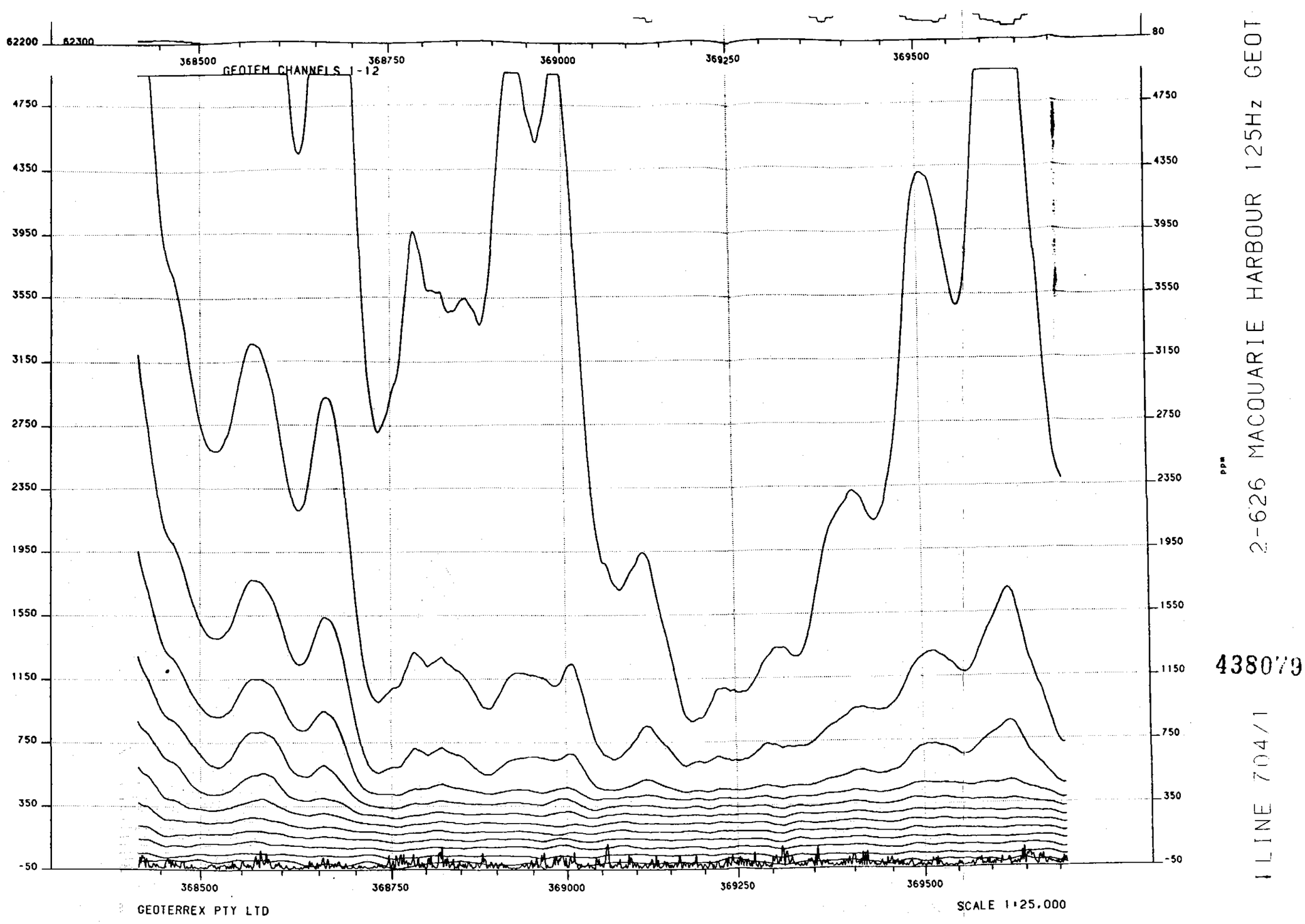
GEOTERREX PTY LTD

SCALE 1:25,000

5 cm

438077


365250
365000
364750
364500
364250
364000
80
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
BHP-UTAH MINERALS INTERNATIONAL
2-626 MACQUARIE HARBOUR 125Hz GEOTEM
438078
LINE 703/1
5cm


62200
62300
80
368500
368750
369000
369250
369500
GEOTEM CHANNELS 1-12
4750
4350
3950
3550
3150
2750
2350
1950
1550
1150
750
350
-50
ppm
2-626 MACQUARIE HARBOUR 125Hz GEOT
ILINE 7041
438079
GEOTERREX PTY LTD
SCALE 1:25,000
5 cm

APPENDIX 4

Geotem Data Tape Specifications

BHP-UTAH MINERALS INTERNATIONAL
MACQUARIE HARBOUR, TASMANIA
ELECTROMAGNETIC SURVEY
LOCATED DATA TAPE FORMAT

COLUMN	DESCRIPTION
1 - 4	FLIGHT NUMBER
5 - 12	LINE
13 - 20	FIDUCIAL
21 - 28	AMG EASTING
29 - 36	AMG NORTHING
37 - 44	TOTAL MAGNETIC FIELD
45 - 48	RADAR ALTIMETER
49 - 54	GEOTEM CHANNEL 1
55 - 60	GEOTEM CHANNEL 2
61 - 66	GEOTEM CHANNEL 3
67 - 72	GEOTEM CHANNEL 4
73 - 78	GEOTEM CHANNEL 5
79 - 84	GEOTEM CHANNEL 6
85 - 90	GEOTEM CHANNEL 7
91 - 96	GEOTEM CHANNEL 8
97 - 102	GEOTEM CHANNEL 9
103 - 108	GEOTEM CHANNEL 10
109 - 114	GEOTEM CHANNEL 11
115 - 120	GEOTEM CHANNEL 12
121 - 126	GEOTEM 50 HZ MONITOR

RECORD LENGTH	=	126 Bytes
BLOCK SIZE	=	8064 Bytes
CODE	=	9-TRACK ASCII
DENSITY	=	1600 bpi

APPENDIX 5

Expenditure Statement

438083

Strahan EL 29/87 Expenditure Total
18/9/89 to 9/4/90

Wages and Salaries	7,918
Field Support	1,588
Vehicles	84
Equipment	8,315
Air Charter	2,608
Geochemistry	2,010
Geophysics	32,234
Gridding	6,448
Office Expenses	1,589
In-House Services	3,128
Other	4,029
TOTAL	76,171

041

362000 364000 366000 368000 370000 372000 374000

42°06'00" 42°08'30" 42°11'00" 42°13'30" 42°16'00"

5336000 5334000 5332000 5330000 5328000 5326000 5324000 5322000 5320000

145°19'00" 145°21'30" 145°24'00" 145°26'30" 145°29'00"

E.L.29/87

E.L.30/87

KING RIVER

MACQUARIE HARBOUR

AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	GEOTEM II 125 Hz Channel centres: 369.587.806.1025.1244 1463.1681.1900.2119.2338.2556 and 2775 microseconds after transmitter turn off.
RECORDING INTERVAL :	1/7 sec (approx 9m sampling) at mean ground speed of 235 km/hour
MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity ± 0.1 nT
RECORDING INTERVAL :	1.0 sec (approx 65m sampling) at mean ground speed of 235 km/hour
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Magnetometer sensor in aircraft at 120m EM transmitter in aircraft at 120m EM receiver in towed bird at 54m
NOMINAL LINE SPACING :	Traverse lines 250m Tie lines 5km
FLIGHT PATH NAVIGATION :	Visual using 1:20.000 black & white enlargements of medium level photography.
FLIGHT PATH RECORD : FLIGHT PATH RECOVERY :	SONY VHS colour video system Visual to 1:20.000 black & white enlargements of medium level photography.

GEOTEM FLIGHT PATH MAP

Grid notation refers to Australian Map Grid Zone 55
Recovered Fiducial 32768

GN TN MN

Grid Convergence = -0.2°
Declination = 12.0°

SCALE 1:25000

500 0 500 1000 1500 2000 m

5 cm

FIG. 2 90-3184.

JOB NO : 2-626
Flown by GEOTERREX PTY LTD : Mar 1990
Compiled by GEOTERREX PTY LTD. SYDNEY
Processed by GEOTERREX PTY LTD. SYDNEY

BHP - UTAH
MINERALS INTERNATIONAL

E.L.29/87 STRAHAN, E.L.30/87 KING RIVER, TASMANIA

GEOTEM SURVEY

438084 FLIGHT PATHS

(Flown March 1989)

DRAWING NO: A1 - 2434 | DATE : 16-AUG-1990

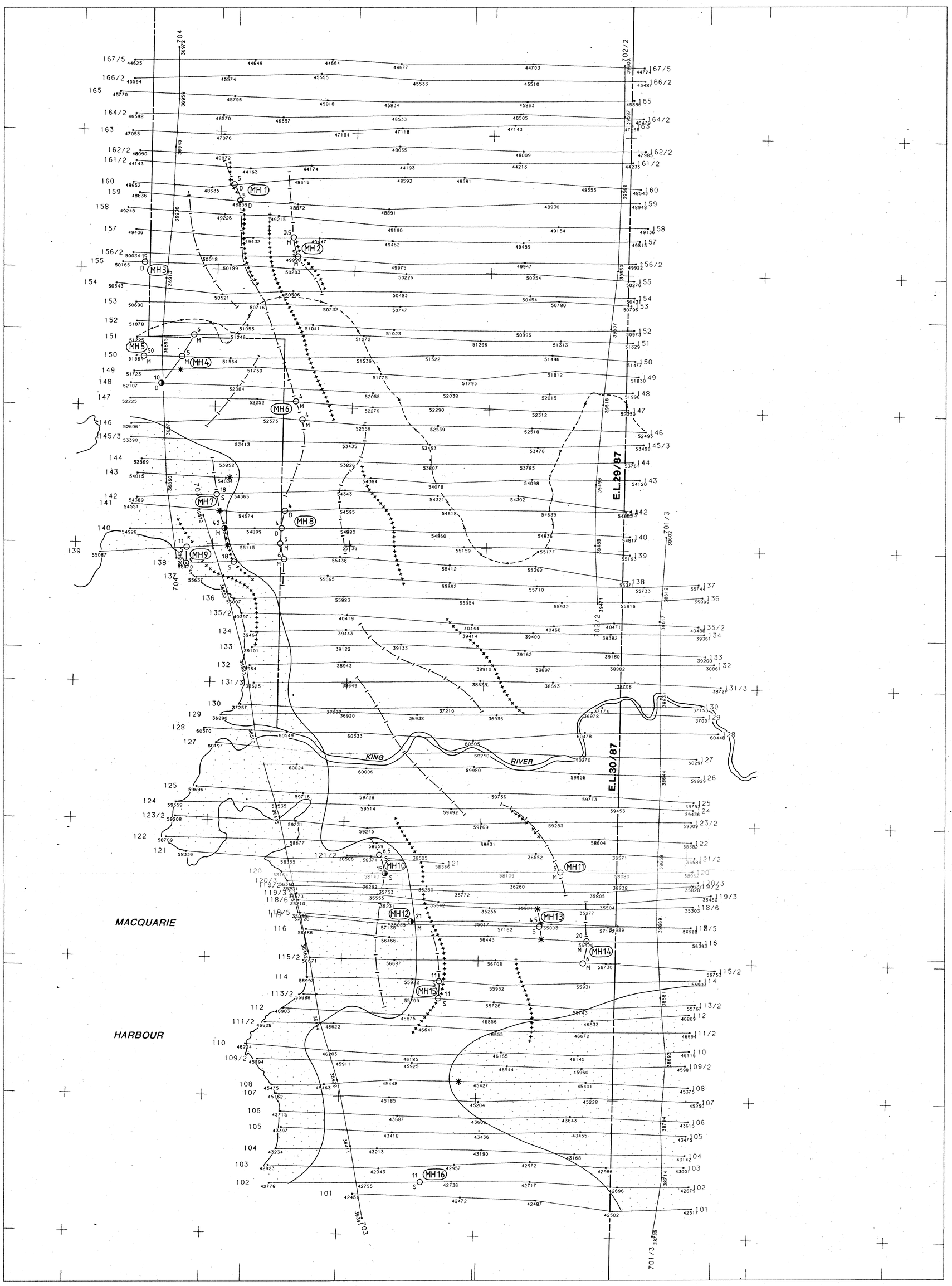
042

362000 364000 366000 368000 370000 372000 374000

42°06'00" 42°08'30" 42°11'00" 42°13'30" 42°16'00"

5336000 5334000 5332000 5330000 5328000 5326000 5324000 5322000 5320000

145°19'00" 145°21'30" 145°24'00" 145°26'30" 145°29'00"



AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	GEOTEM II 125 Hz Channel centres: 368.540.671.806.1025. 1244.1462.1681.1900.2119.2338 and 2556 microseconds after transmitter turn off.
RECORDING INTERVAL :	1/7 sec (approx 9m sampling) at mean ground speed of 235 km/hour
MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.1 nT
RECORDING INTERVAL :	1.0 sec (approx 65m sampling) at mean ground speed of 235 km/hour
DATA RECORDING :	Geoterrex MADACS acquisition system Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Magnetometer sensor in aircraft at 120m EM transmitter in aircraft at 120m EM receiver in towed bird at 54m
NOMINAL LINE SPACING :	Traverse lines 250m Tie lines 5km
FLIGHT PATH NAVIGATION :	Visual using 1:20.000 black & white enlargements of medium level photography.
FLIGHT PATH RECORD : FLIGHT PATH RECOVERY :	SONY VHS colour video system Visual to 1:20.000 black & white enlargements of medium level photography.

GEOTEM INTERPRETATION MAP

Grid notation refers to Australian Map Grid Zone 55
Recovered Fiducial
32768

- Conductive Surficial
- High Priority Conductor
- Medium Priority Conductor
- Low Priority Conductor
- Anomaly Trend
- Conductor Number (MH3)
- CTP Estimate 5
- Depth (Shallow Medium Deep) M
- Magnetic Trend +++++++
- Trend of Anomaly
- Power Line

GN
TN
MN

Grid Convergence = -0.2°
Declination = 12.0°

SCALE 1:25000

500 0 500 1000 1500 2000 m

5 cm

FIG. 3 **90-3184.**

JOB NO : 2-626
Flown by GEOTERREX PTY LTD : Mar 1990
Compiled by GEOTERREX PTY LTD, SYDNEY
Processed by GEOTERREX PTY LTD, SYDNEY

BHP - UTAH
MINERALS INTERNATIONAL

E.L.29/87 STRAHAN, E.L.30/87 KING RIVER, TASMANIA

GEOTEM SURVEY

438085 **INTERPRETATION**

(Flown March 1989)

DRAWING NO: **A1 - 2433** | DATE : 24-JUL-1990