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BILLITON AUSTRALIA, THE METALS DIVISION OF
THE SHELL COMPANY OF AUSTRALIA LIMITED

EL 36/79 - LOONGANA

REPORT ON RELINQUISHED AREAS

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1. INTRODUCTION

The Loongana EL forms part of the Moina Joint Venture between Billiton Australia and Comalco Ltd. Billiton are operators for the JV and have 81.7% equity. The licence is due to be reduced from 277 sq. kms to 125 sq. kms on 1st May 1985. This report covers the work completed by Billiton on the areas to be relinquished (Plan 1, D/MZ 02/044).

2. PREVIOUS EXPLORATION

Pre 1973 :	Tasminex NL investigated the areas as part of EL 17/68. Exploration was directed towards the discovery of Kara-style scheelite occurrences around the periphery of the Housetop Granite.
1973 :	Tasminex - ANZECO (a subsidiary of Union Carbide) joint venture was formed to explore for both skarns and volcanogenic style mineralization associated with the Cambrian Volcanics.
1976 :	Geopeko Limited - EZ Company of Australia joint venture on EL 2/76. Exploration was centred on the Cambrian Volcanics.
July 1979 :	Pennzoil of Australia Limited entered the Geopeko - EZ joint venture.
August 1979:	EL 2/76 relinquished and EL 36/79 applied for by Shell.
1979-1985 :	Exploration by Shell for both replacement type Sn-W and volcanogenic type base metal deposits.

3. EXPLORATION APPROACH

Shell's interest in the licence area was originally focussed on the possibilities for replacement sulphide tin mineralization within Gordon Limestone.

The Devonian Housetop granite outcrops to the north of the area and the prospective Gordon Limestone is distributed in an EW structural basin which tends east along the Leven River. (Refer Plan 2, D/MZ 02/048). This coincides with the major fold axes in the region. Of particular significance is the northern extension of the Bismuth Creek Fault at Moina which transects Gordon Limestone in the basin. Movements related to this thrust fault, and other sub-parallel faults, have produced tension fracturing which are considered to be the main plumbing system for hydrothermal fluids from the Devonian granites.

The licence area was flown with low level, close-spaced aeromagnetics in March, 1980 to try to locate anomalies produced by Kara-Moina type magnetite skarns. (Refer Plan 3, D/MZ 02/074). The approach adopted was to locate this strongly magnetic style of mineralization on a first pass and later to search adjacent to these deposits for lower T and P sulphide tin-style mineralization.

The initial programme detected various low-order magnetic anomalies over areas of Gordon Limestone. Ground follow-up downgraded all of them as being due to basalt hills or nearby magnetite-bearing Cambrian volcanics.

In recent years work on Loongana has concentrated more on the investigation of volcanogenic base metal possibilities in the Cambrian volcanics. This work was built upon the early investigations by other exploration companies. The areas of Cambrian volcanics have been retained by the JV.

An INPUT survey was flown in January, 1982 to try to search for conductors through the extensive areas of basalt cover exposed on the central and western portions of the licence (plan 1, D/MZ02/044). Ground follow up consisted of IP and/or Max-Min surveys in association with geological mapping and sampling.

4. GEOLOGICAL SETTING

The Loongana licence covers the central western end of the WSW trending Fossey Mountain Trough at a position where this structure begins to trend SW into the Dundas Trough.

The area consists of a complex series of anticlines and synclines trending generally EW but with evidence for secondary NNE folding in the western part of the licence. (Plan 2, D/MZ 02/048). Major faulting trends NNW to NW. Much of the western side of the area is covered with thick vegetation and Tertiary basalt making an understanding of its structural geology extremely difficult.

Anticlinal cores are occupied by Cambrian acid-intermediate volcanics, sediments and cherts.

The Ordovician Roland Conglomerate-Moina Sandstone rest unconformably over these deposits, often in an angular unconformable relationship. Ordovician Gordon Limestone is preserved in a major EW trending synclinal structure partly exposed on the eastern end of the licence.

Disconnected outcrops of Silurian Florence Sandstone occur on the western boundary of the licence.

Tertiary basalt, of variable thickness, is present across much of the licence especially over its central and western portions.

5. WORK COMPLETED

March 1980 : Airborne magnetic and radioactive survey on E-W lines at 250 m spacing and terrain clearance of 100 m.

January 1982 : INPUT survey (electromagnetics and magnetics) on NW-SE lines at 300 m spacing and terrain clearance of 120 m. Steep topography in the centre of the EL resulted in an excessive survey height in that area.

1982-84 : Ground follow up consisting of gridding, geological mapping, soil, rock and stream sediment sampling and ground magnetic and eletromagnetic surveys was completed. In addition, 3 electrical soundings and 2 Audio-Magneto Telluric measurements were made.

6. RESULTS

6.1 Aeromagnetic Survey

Anomalies are plotted on Plan 2, D/MZ02/048 and listed in Table 1. In the relinquished area, Blythe River Prospect was selected for detailed follow up work, while several others were field checked. Most were in heavy bush, making ground location difficult. All anomalies were accurately located, with most occurring within 50-200 metres of their plotted position.

The follow-up technique was to do magnetics, soil, stream and rock sampling, and geology along flagged reconnaissance lines.

6.1.1 Blythe River Prospect - 4042/4

Evaluation of the aeromagnetic coverage of EL 36/79 located a NS trending anomaly on the NW corner of the licence adjacent to the southern edge of the Housetop Granite. The anomaly (4042/4) traces out the contact of the Gordon Limestone with Moina Sandstone and was suspected to be due to skarn development.

Follow-up with magnetics and geological inspection located a sharp-peaked 7000 nT anomaly and fragments of coarse grained magnetite skarn in an area of basalt and alluvial cover just east of the Blythe River (Refer Plan 4, D/MZ02/054).

The zone was initially covered with a 1.5 km long NS baseline and 8 cross lines at 100 m intervals over the main magnetic anomaly. The grid was soil sampled and magnetically surveyed. Results are shown plotted on plans 5-8, D/MZ02/036, 042, 038 and 041.

Later the baseline 4100E was extended 1.2 km further S to cover the full extent of the aeromagnetic feature. Three cross lines were cut to cover sections of the southern area. Ground magnetic and soil sampling results are plotted on plans 9-12, D/MZ02/037, 043, 039 and 040.

Soil sampling at 10 m intervals was carried out along a 150 m section of the baseline (4100E) between 2700N and 2850N to cover the magnetic anomaly peak of 70765 nT recorded at 2760N. Soil from 2760N contains 3900 ppm W and 260 ppm Sn with adjacent values ranging from 25-55 ppm W and 10-40 ppm Sn.

Further soil samples collected on grid lines 2500N, 2600N, 2800N and 2900N at 100 m centres gave low order basalt, granite or sandstone related values. The only spot high located occurs at 2900N 4000E with 45 ppm W, 310 ppm Sn. This site is also coincident with a 6300 nT high.

Ground magnetic surveys were used to close off the extent of the main magnetic anomaly which was found to extend for over 500 m, striking about 330^{o} M.

A shallow costean was excavated along line 2700N across the main magnetic/geochemical peak (Refer Section Plan 13, D/MZ02/055). A 15 m thick zone of coarse grained, magnetite skarn was uncovered dipping at 25^{o} SW. The skarn is developed at the base of the Gordon Limestone where it passes into the transition siltstones and shales. Test pitting to the east located the underlying Moina Sandstone. Down dip extent of the skarn from magnetics and the

costeaning appears to be only 15-20 m, severely limiting the tonnage potential of the prospect.

The total of 68 samples were sent in for assay and returned the following results:

Element	Range ppm	Average ppm
W	100 - 850	300
Sn	250 - 1600	500
Mo	8 - 24	12
Cu	8 - 100	25
Zn	12 - 230	100
Ba	15 - 150	35

The highest W values (up to 2400 ppm) were obtained in the shales and siltstones below the magnetite skarn. UV lamping of the samples detected no visible scheelite mineralization.

Another costean was excavated to the north on the 2750N line to test the magnetic anomaly and poorly exposed magnetite skarns adjacent to the granite contact. (Refer Section Plan 14, D/MZ02/075).

The skarned base of the Gordon Limestone was again exposed dipping at 25^{o}W. The skarn section is approximately 20 m thick but contains only two 3 m thick bands of magnetite skarn. Garnet-magnetite skarn occurs near the granite contacts.

A summary of the assay results from 135 channel samples from the costean shows that Sn is more abundant that W.

Element	Range ppm	Average ppm
W	55 - 1700	255
Sn	90 - 2100	710
Mo	30 - 310	55

The anomalous Sn values occur within the skarned sediments rather than the magnetite skarn and are possibly concentrated in the lattice of metasomatic biotite/amphibole minerals.

No further investigation of the Blythe River skarn is warranted due to its low tonnage potential and generally low order W content.

Any near surface scheelite concentrations present along strike in the skarns are also likely to have been oxidized in the pre-basalt weathering cycle.

6.1.2 Anomaly 4041/2 (flight line/fiducial 333/2982)

The airborne anomaly had an amplitude of 260 nT and was 200 m wide. There was no response in the potassium channel. It was interpreted to represent a near surface source, probably basalt. Ground magnetics gave very noisy profiles with no significant anomalies. This is typical of basalts, confirming the original interpretation.

Tertiary basalt is the only outcropping rock type. Susceptibilities range from 200-800 x 10^{-6} cgs units. Assuming an average basalt susceptibility of 400 x 10^{-6} cgs units, the observed anomaly amplitudes of 400-1000 nT can be explained as basalt sources.

Geology :	Tertiary basalt
Soil Geochem :	Maximum values, 71 samples: 30 ppm Sn, 20 ppm W, 95 ppm Cu, 240 ppm Ni, 8 ppm Pb, 185 ppm Zn, 8.5% Fe, 0.46% Mn.
Stream Geochem :	Maximum values, 4 samples: 6 ppm Sn, 15 ppm W, 55 ppm Cu, 185 ppm Ni, 4 ppm Pb, 200 ppm Zn, 6.45% Fe, 0.07% Mn.
Status :	No further work, basalt anomaly source.

6.1.3 Anomaly 4241/1

The anomaly occurs on the western side of the Wilmot River valley in an area of basalt covered Gordon Limestone (plan 15, D/MZ02/001). Although the anomaly peak corresponds to basalts, the basalt magnetic susceptibilities in outcrop were considered too low to explain the observed ground magnetic anomaly (1500 nT).

Later evaluation of aerial and ground magnetic data downgraded the anomaly as being a basalt source.

6.1.4 Anomaly 3941/1

A grid was established over this aeromagnetic anomaly. Ground magnetic results suggest that the anomaly is caused by a slightly elevated hill of Tertiary basalt (plan 18, D/MZ02/115). No further work is warranted.

6.1.5 Anomaly 4041/8

A grid was established across the anomaly (plan 18, D/MZ02/114). Very spikey, basalt-related profiles were obtained from the ground magnetic survey (plan 20, D/MZ02/068). No further work is warranted.

Two other aeromagnetic anomalies, 4141/2 (plan 10, D/MZ02/067) and 4041/1 (plan 17, D/MZ02/069) were also ground checked. Both appear to be related to basalt.

6.2 INPUT Survey

The INPUT data is shown on plans 21-27, D/MZ02/086, 107-112. A total of seven INPUT anomalies were selected for follow-up. (Refer Table 2 and plan 2, D/MZ02/048 for locations). These were initially checked using VLF EM and magnetics (plan 30-32, D/MZ02/066, 063, 059). Only one anomaly IL 2, was found to occur in an area free of basalt cover. Further surveying with max-min EM was undertaken over anomalies IL 1, 3, 8 and 10 to try to define bedrock conductors. (Refer plans D/MZ02/079-084). Single line IP surveys were later run across these anomalies to clarify the geophysical interpretation.

IL 1 - Dempster Creek (Plans 28, 33-35, D/MZ02/058, 079-081)

INPUT	- Priority 2, weak conductor on edge of broad conductive zone.
VLF (recce line)	- Broad, shallow conductive zone (dipping S?) in a basalt covered area.
Max-min (3 lines)	- (a) OE/100S: Conductor dipping shallowly south (less than 30^0) at a depth of 40 m. Conductivity-thickness of 2-3 mhos. (b) 200W: Conductor at 0-100N. (c) 400W: Broad conductor (or 2 conductors) dipping south from roughly 50N. Associated with topographic inflections.
Magnetics (3 lines)	- Noisy basalt-type response with no outstanding features.
IP (line 400W)	- Resistivity low at approx. 50S, corresponding to a chargeability low. This would appear to be the source of the INPUT (slight offset from max-min is due to different response of the two systems and to low resolution, especially of 100 m dipole-dipole IP but also of 200 m coil separation max-min). The lack of a chargeability anomaly indicates that a basalt-related weathering zone is the cause. A zone of higher resistivity and chargeabilty (10-20 msec) is apparent at the northern end of the line. Similar features occur at IL 3 (eastern end of line) and IL 5 (western end) and probably reflect the characteristics of fresh basalt.
Recommendations	- No further work.

IL 3 - Rabbit Plains Road (plans 29, 36-38, D/MZ02/060, 082-084)

INPUT - Priority 2 narrow anomaly on edge of broader response with discrete magnetic association (offset by 25 m).

VLF (recce line) - 2 conductors with western one coinciding with INPUT plot and having a magnetic association.

Max-min (3 lines) - (a) 200N: Conductor at 150W and dipping east. Another possible conductor off the western end of the line. The conductor at 150W gives a depth of 20 m and conductivity-thickness of 1-2 mhos (but increasing at low frequency). This conductor probably correlates to the conductors on the eastern ends of lines 0N and 200S (strike west of north is consistent with the INPUT results), and is probably the source of the large 6-channel INPUT response to the east of IL 3 (probably surficial conductor related basalt).

The anomaly at the western end of the line probably correlates to IL 3.

(b) 0N: Conductors at 450W and approx. 100W. The conductor at 450W dips west at a depth of 60 m (?) and has a conductivity-thickness of 8 mhos (and increasing at low frequency). This conductor appears to be the better of the two and is probably the source of the INPUT anomaly IL 3. It also looks fairly broad.

(c) 200S: Conductors at 500-550W and roughly 50E (off eastern end of line). The conductor at 500W probably dips west at a depth of 20-30 m and with a conductivity-thickness of 3-5 ohm metres (but decreasing at low frequency).

Magnetics (3 lines)	- All conductors are associated with noisy, 50 nT magnetic anomalies. The magnetic field is very flat between the conductors.
IP (ON)	- Resistivity/chargeability low dipping west from 450W is the source of the EM anomalies and is probably explained by basalt-related weathering effects.
Recommendations	- No further work.

IL 8 - Burghley Park

This one line 6 channel INPUT anomaly is part of a much broader conductive zone situated over Tertiary basalt just south of the southern licence boundary.

A single line of dipole-dipole IP was surveyed across the anomaly by Scintrex. The results are shown plotted on Plan 39, D/MZ02/092.

Chargeabilities are consistently low, usually less than 5 msecs, and resistivities are also low at between 50-70 ohm metres. The response is typical of a thick sequence of Tertiary basalt.

No further work is warranted.

IL 10 - Wey Road (plan 40, D/MZ02/061)

INPUT	- 6 channel response in surficial conductive zone.
VLF	- No anomaly.
Max-min (3 lines)	- (a) 100S: Broad conductive zone at 150W-0E (possibly 2 conductors at different orientations, with surficial conductor dipping E and deeper conductor dipping W). Deeper conductor is at 60-80 m and has a conductivity-thickness of 3-6 mhos.

(b) ON: Broad conductive zone at 100W-0E (again, possibly 2 conductors). Deeper conductor at 40-70 m depth and has good conductivity thickness (20-40 mhos? and increasing at low frequency) and probably dips west. Surficial conductor appears to dip east.

(c) 100N: Conductive zone at 0-100W. Dip 30-60°W depth of 20-30 m and conductivity thickness of 1-2 mhos.

IP (ON) - The section showed fairly uniform low resistivity (generally of the order of 50 omh-metres). The chargeability was also very low, but showed signs of EM coupling (i.e. negative readings) and no readings were obtained beneath n=4, with several n=4 readings being lost. Hence the INPUT anomaly can be ascribed to basalt-related weathering effects.

Recommendations - The INPUT anomaly is explained and is not worth any further work.

6.3 Electrical Soundings

Electrical soundings (Appendix I) were made at three sites on the licence in an attempt to determine basalt thicknesses and resistivities. (Refer plan 2, D/MZ02/048 for locations). Only line number 2 appears to have reached basement at about 160 m. Work on Loongana and adjacent licences showed that the soundings had severe problems in outlining basement due to the large spreads required, low return signals and problems with lateral variations.

6.4 Audio - Magneto Telluric Survey

Macquarie University's Centre for Geophysical Exploration Research carried out an AMT survey at 11 sites on Comalco and Shell licences

north from Guildford township. The work was planned to investigate resistivity contrasts to depths of up to 1000 m in the Tertiary basalts and underlying bedrock.

The aim of the survey was to test out the system and to determine the depth of basalt cover overlying prospective Cambrian and Ordovician stratigraphy. The AMT sites were situated close to drill holes or adjacent to previous electrical sounding sites.

Two of the sites, AMT 6 and AMT 12, were located on the western end of the Loongana licence east of Guildford. (Refer plan 2, D/MZ02/048).

Results from the survey are presented in Appendix 2.

The AMT technique proved to be an effective method of checking for basalt thickness and could have an application for mapping bedrock lithologies below the basalt cover.

7. CONCLUSIONS & RECOMMENDATIONS

Two extensive aerial surveys have been flown over the Loongana EL in the search for tin-tungsten and base metal mineralization.

In the areas recommended for relinquishment, detailed ground follow up to the various anomalies has failed to locate any zones of economic interest.

It is recommended that the area outlined on plan 2 be relinquished.

REFERENCES

Lawton, J.J., Wright, R.G., Buchhorn, I.J., Oakes, G.D., 1983. EL 36/79 Loongana, Progress Report on Exploration for the Period 1 May, 1980 - 30 June, 1983, Shell Company, Unpubl., Rep. 08.1266.

Wright, R.G., Smyth, W.D., 1984. EL 36/79 Loongana, Progress Report on Exploration for the Period 1 July, 1983 - 30 April, 1984, Shell Company, Unpubl. Rep. 08.2263.

TABLE 1 : Airborne Magnetic Anomalies

PROSPECT : LOONGANA

Anomlay Number	Line and Fiducial	Name	Location (AMG)	Description	Follow-up to Date	Modelling and Interpretation	Geology
4041/1	5.3720		408500E 5415000N	Low order Anomaly	Ground Check		Basalt over θm?
4041/2	333.2982			- Moderate K' & shape - No Topography	Ground Check		Basalt
4041/7						Topographic?	Fault associated θg Basalt
4041/8		Blythe Road South			Magnetics		Basalt over θg?
4041/9	37.6720?	Taylor Flat		- Low order Anomaly			Basalt over θg
4042/3	308.1400	Laurel Creek S.	407200E 5423300N				Granite
4042/4	316.1532	Blythe R.			IP, mag, max-min, trenching		Magnetite Skarn
4042/6			405800E 5422200N	E. of Blythe Road			Granite
4042/7			408300E 5422200N	SE of Laurel Creek S.			Granite, θm contact
4141/2	21.9284			Moderate K', no topo, Looks formational	Ground Check	Basalt	Basalt

4141/3	32.6977		415400E 5417100N	Moderate K', small Topography - not good shape.		Basalt over θm?
4241/1	67.?	Nietta South		Fairly large anomaly, possibly topographic.	Ground Mag.	Basalt

TABLE 2 : Input Anomalies

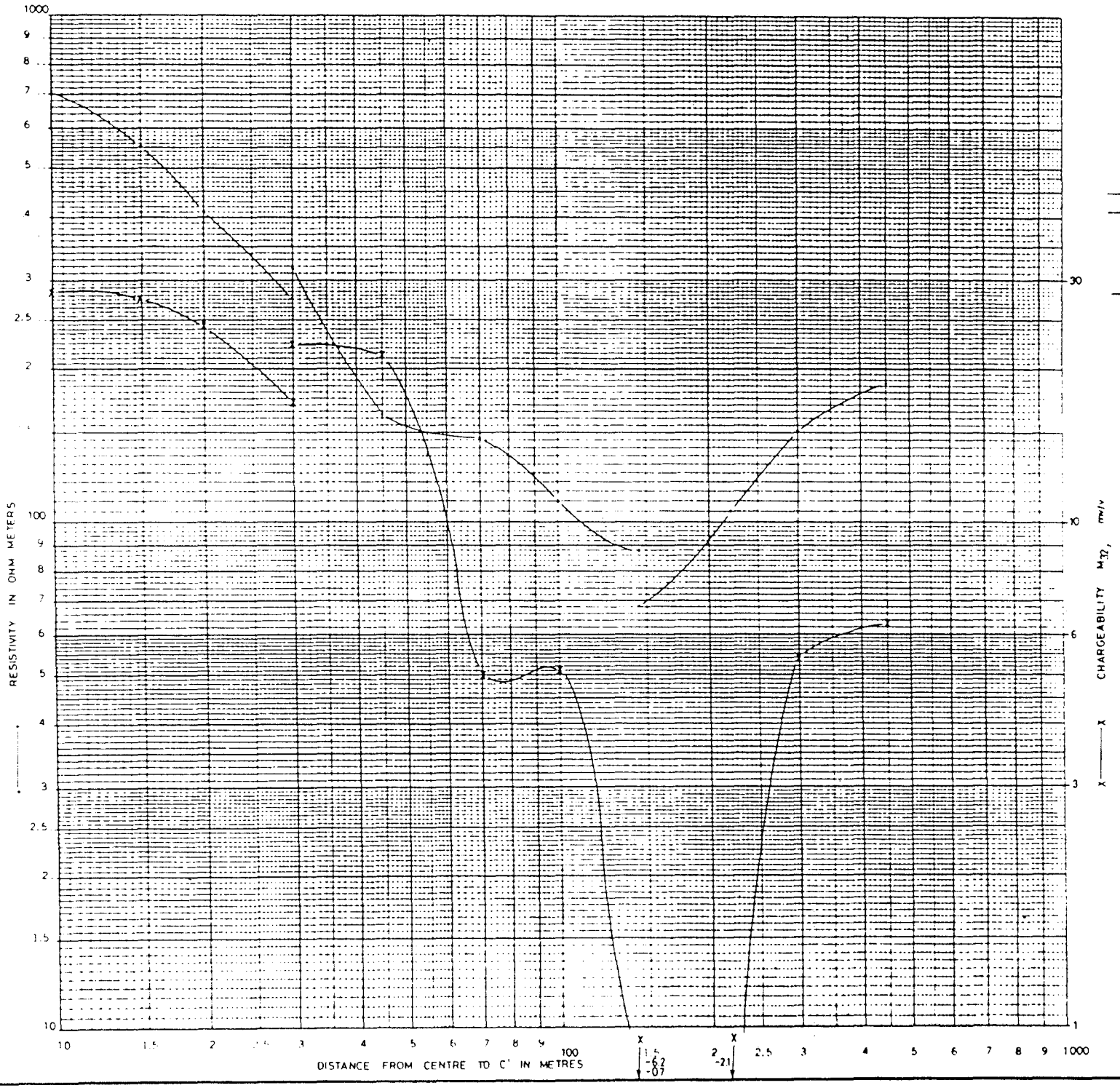
PROSPECT : LOONGANA

Anomaly Number	Line and Fiducial	Name	Location (AMG)	Description	Follow-up to Date	Modelling and Interpretation	Geology
4041/IL1	3332.66092 -3322.65611	Dempster Creek	404000E 5416500N	- Priority 2 INPUT - Weak conductor on edge of broad conductive zone.	- Ground Check - maximum, mag, IP	- Basalt-related weathering (No chargeable bodies)	Basalt over θm?
3841/IL3	3071.59016 -3051.58480	Rabbit Plains Road	395400E 5414000N	- Priority 2 INPUT & mag	Ground Check max-min, mag, IP	- Basalt related weathering zone	Basalt
4141/IL4	3511.48926		413400E 5415600N	- 5 Channel response in surficial zone.	Ground Check		Basalt over θg?
4041/IL8	3111.59992	Burghley Park	400700E 5410900N	- 6 Channel response in surficial zone.	Ground Check		Basalt over Er?
4041/IL9	3372.44556		404400E 5418400N	- 5 Channel response to small mag.	Ground Check		Basalt over θm?
3941/IL10 TEST LINES	3061.58705	Wey Road	393200E 5416300N	- 6 Channel response, picked	- Ground Check - Max-min, mag, IP.	- Basalt-related weathering zone.	Basalt
3941/IL11			393000E 5414800N	- 6 Channel INPUT and small mag.	Ground Check		Basalt, adjacent to DDH GF3.

APPENDIX I

Electrical Sounding

Resistivity - Chargeability Plots



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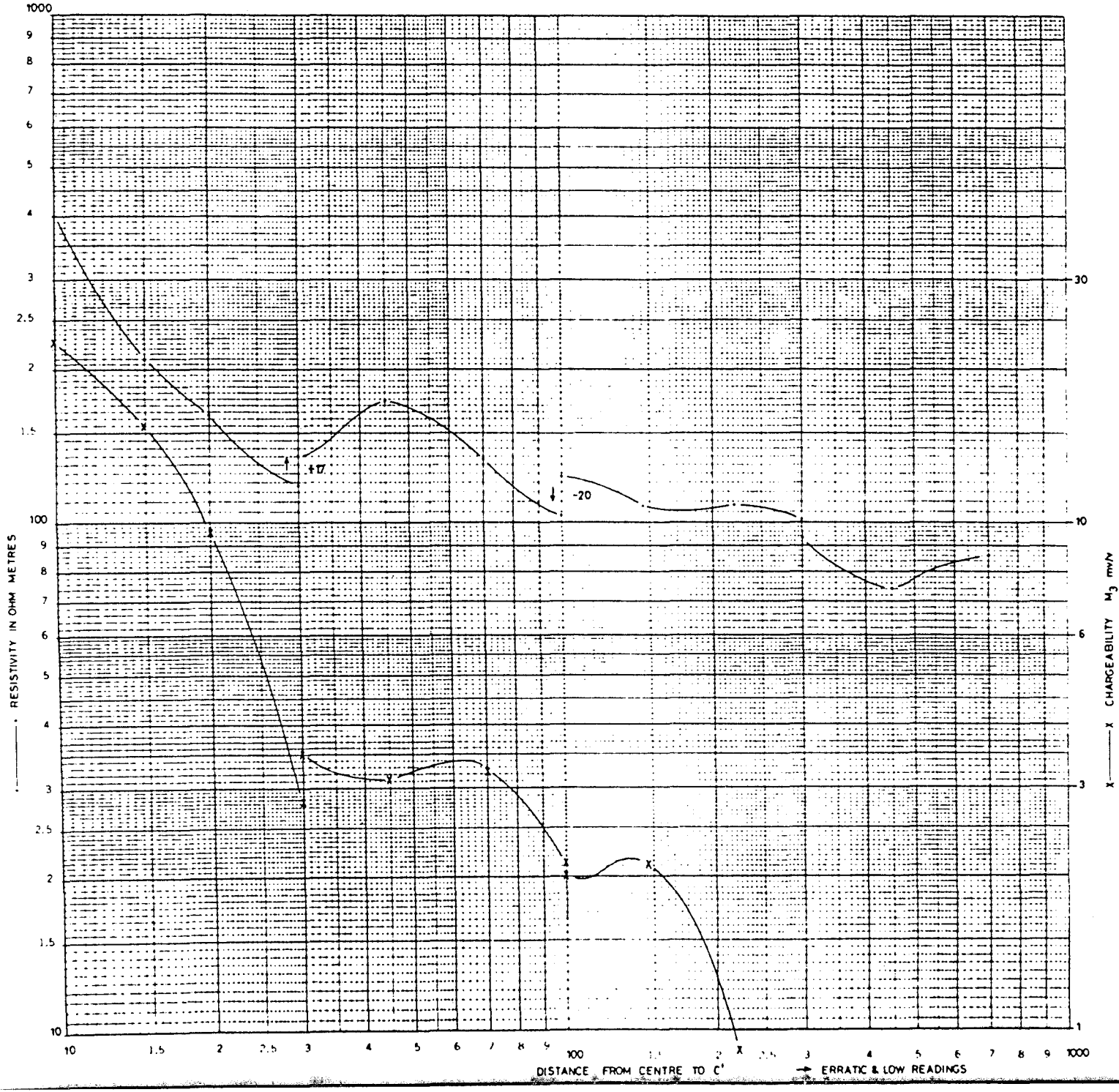
The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA LINE No 2 DEMPSTER SPUR Rd Resistivity & Chargeability	
SCALE	DATE 23-9-80
AUTHOR	DRAWN H L S
OFFICE Devonport	REPNo
DRG No DM202761	FILE No 20

Pot Dipoles :

4M Dip
10M
20M
50M



90Ω-m

104Ω-m

327Ω-m

78Ω-m

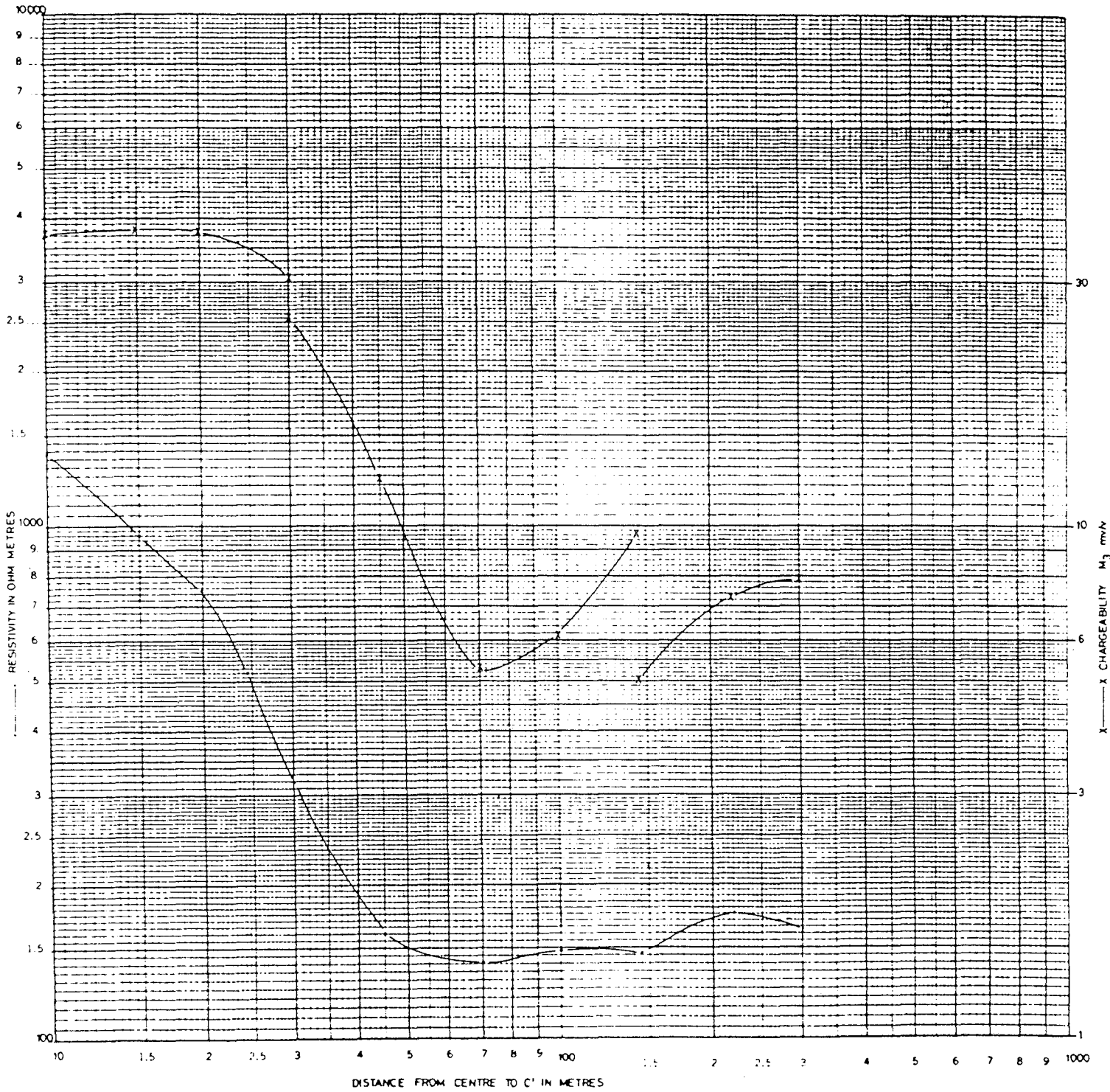
The Shell Company of Australia Ltd
METALS DIVISION

E.L. 36/79 LOONGANA

LINE No 3
(adjacent to DDH-GF3)

Resistivity & Chargeability

SCALE	DATE 23-5
AUTHOR	DRAWN M.L.
OFFICE Devonport	REP.No.
DRG.No DM/202/77	FIG.No. 21



1672 ~ m
73 (?)
226
162

The Shell Company of Australia Ltd
METALS DIVISION

E L 36/79 LOONGANA
LINE No 4
DEMPSTER CREEK
Resistivity & Chargeability

SCALE	DATE 23-5
AUTHOR	DRAWN H L S
OFFICE Devonport	REP. No
DRG No DM 000078	SIG. No 22

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APPENDIX II

Audio - Magnetic Telluric Survey

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MACQUARIE UNIVERSITY

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TO SPONSORS OF THIS PROJECT

DATE: 29 MAR 1983

22 March 1983

Final Report : Tasmania AMT Surveys - Shell EL

1. Introduction

AMT measurements were carried out at 11 locations on a Shell EL in the northwest of Tasmania. The general area is shown in Figure 1. The object of the survey was to determine whether AMT could define the thickness of the very irregular basalt cover, the depth to resistive basement, and the thickness of any material between. It is known that resistivities can vary widely amongst flows. Between flows and basement, sediments, skarn and weathered basement are found in places. Banks (1962) notes that the basalt flows covered a surface whose topographic relief in places exceeded 1000 feet. Basement rocks are not exposed in the immediate area but are thought to consist of lower paleozoic metasediments and granites.

To assist in the evaluation there were drill holes at five of the sites, electrical soundings at six sites and a dipole-dipole survey at a seventh. Several of the drill holes did not emerge from basalt, giving only minimum thicknesses. The sites were scattered over an area of 150 square kilometres. Borehole resistivity logs were available at a few places in the area, but values were much larger than observed from the surface measurements.

Dr Roger Lewis of the University of Tasmania helped with on-site inversio in the early part of the program.

2. Results

The equipment functioned without fault for the seven working days of the survey. Data quality was fair, although some power line interference was encountered at a few sites especially 5, 9 and 11. In addition the upper half frequency decade was distorted on both components at nearly all sites on account of high contact resistances. This gave a false downturn in apparent resistivity and phase. On inversion it produced a superficial layer of very low resistivity which artificially reduced the apparent depth to deeper interfaces. As a practical matter it was decided to reject the affected data points. (The problem does not arise with the new junction box).

Results and Discussion

The scalar apparent resistivities, phases and inversion models are shown in Figures 2-17. Resulting models are summarised in Table 1, alongside the drill data and DC inversions. Results are generally consistent with the external data and expectations. Most sites show a 3 layer pattern with a relatively conductive zone sandwiched between a moderately resistive surface layer and a more resistive basement. Basement resistivities are usually less than 1000 ohm-m, well resolved and direction-dependent.

Two outlying sites, 2 and 12, differ from the rest in that they do not have a conductive second layer, and their basement resistivities exceed 1000 ohm-m.

Tensor analyses yield definite strike directions and modest Tippers at all sites. These indicate distinct 'grain', and give its strike direction. This lies between WNW and NNW at sites 3, 4, 5, 10 and 11. At sites 2 and 12 it is NNE-NE. Tippers are largest at sites 1 and least at 2, 5 and 8. With more closely spaced sites it might be possible to map bedrock geology. The task would be complicated by buried topography but assisted by the frequency dependence of data rotations.

AMT results will differ from drill results for several reasons in an area of this kind. Buried topographic relief is important in some places. This is evidenced by major depth differences between the two AMT components, which are local averages in their respective directions. For example, at site 1 it appears that the base of the top (resistive) layer is roughly horizontal, but that the surface of the resistive basement has N-S oriented topographic relief, with an average (local) depth to the tops of 160 m. This accords with aeromagnetic indications.

Likewise AMT and DC results might differ for example because of their different responses to a thin resistive layer. Differences of this kind are resolved by joint inversion using anisotropic layers.

Usually the AMT and DC resistivities agree, and are much less than the borehole log values. The reason for the discrepancy is not known.

Conclusions

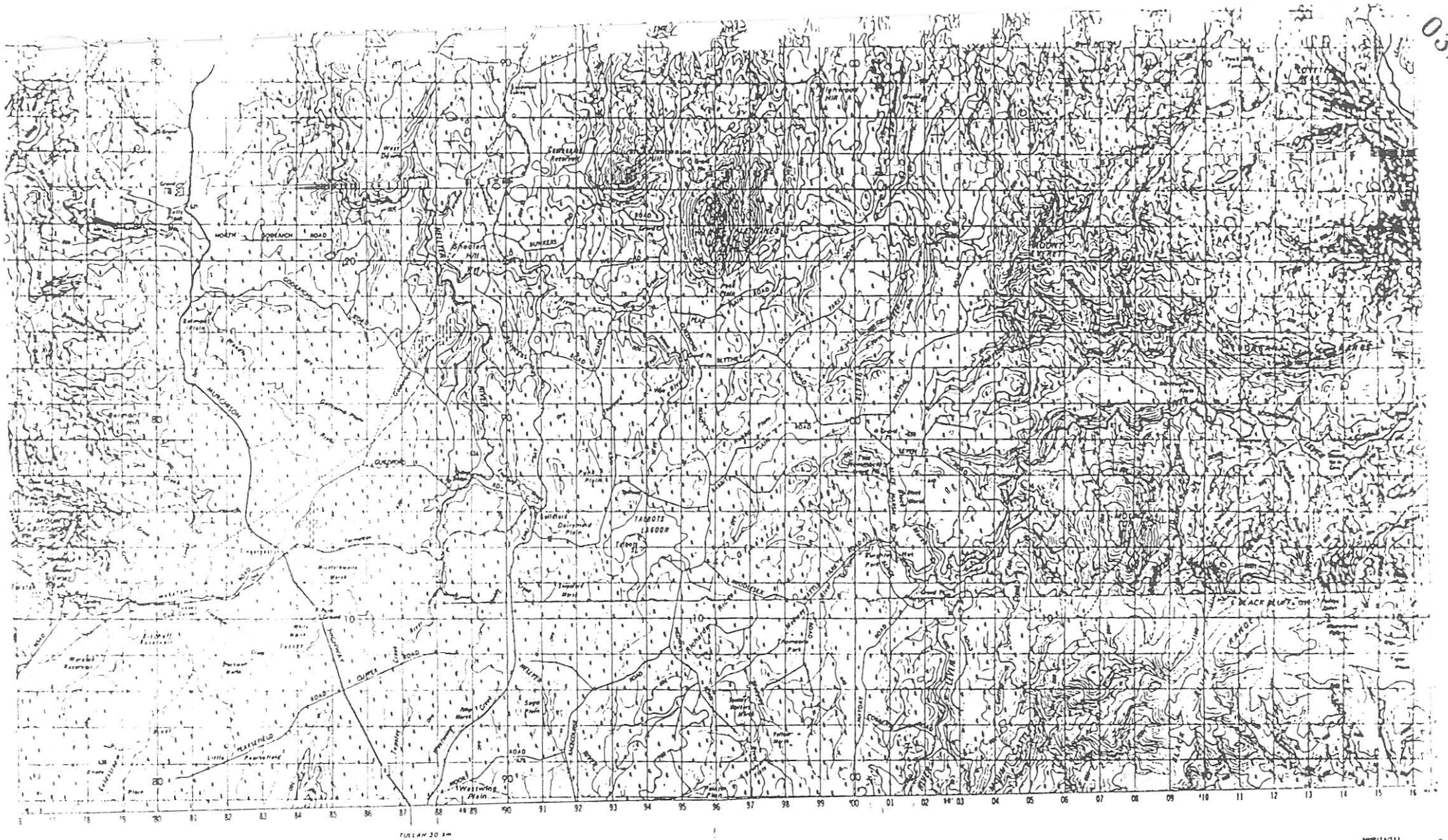
The AMT survey successfully achieved the objectives set out for it. The technique also indicated a potential for more detailed application to mapping bedrock beneath flows, but this would require more closely spaced sites.

While many improvements can be made, the system as it stands is practical and suited to its demonstration function.

We are indebted to Dr Roger Lewis for his help.

TABLE 1 Tasmania AMT Results : Shell Area : January 1983

SITE	EXHY	EYHX	JOINT with XY	JOINT with YX	DC	DRILLING	COMMENTS
1	87 / 26 / 570 — 119 / 245	85 / 16 / 1800 — 114 / 164	83 / 8 / 600 — 160 / 190			Basalt / Seds,skarn / Granite — 202 / 255	N-S aeromag trend Dipole-dipole
2	50 / 980 — 420	40 / 1800 — 360					
3	65 / 39 / 980 — 26 / 260	35 / 26 / 390 — 58 / 235				→250 m of basalt	
4	20 / 140 / 30 / 570 — 34 / 105 / 330	20 / 60 / 40 / 170 — 50 / 60 / 320	(1000) / 14 / 40 / 770 — 1.5 / 6 / 430	(1000) / 23 / 60 / 290 — 1.2 / 90 / 440	104 / 55 / 10 / (400) — 1 / 130 / 150		N-S DC sounding (#6)
5	(4000) / (3) / 620 — (230) / (250)	95 / 26 / 970 — 47 / 92					Noisy EXHY
6	76 / 9 / 2000 — 213 / 250	60 / 30 / 190 — 102 / 350		270 / 57 / 30 / 200 — 1 / 100 / 250	1000 / 130 / 10 / (300) — 4 / 180 / 230	Basalt >90 m	N-S DC sounding (#3)
7	NOT OCCUPIED						
8	50 / 5 / 440 — 230 / 270	60 / 19 / 260 — 200 / 330	53 / 3 / 430 — 245 / 255	53 / 7 / 280 — 245 / 300	700 / 60 / (11) / (300) — 5 / 220 / 250		NW-SE DC sounding (#5)
9	54 / 10 / 230 — 240 / 290	63 / 16 / 390 — 170 / 270				Basalt >90 m	Noisy
10	40 / 2 / 600 — 160 / 180	40 / 34 / 530 — 56 / 310					
11	50 / 25 / 400 — 190 / 280	40 / 25 / 180 — 120 / 200					Noisy
12	25 / 70 / 1000 — 13 / 210	16 / 50 / 1100 — 9 / 110					



SCALE 1 : 100000

5 cm

BLACK NUMBERED GRID LINES ARE 1000 METRE INTERVALS OF THE AUSTRALIAN MAP GRID, ZONE 55
GRID VALUES ARE SHOWN IN FULL ONLY AT THE SOUTH WEST CORNER OF THE MAP
HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1966
VERTICAL DATUM : AUSTRALIAN HEIGHT DATUM
TRANSVERSE MERCATOR PROJECTION
CONTOUR INTERVAL 20 METRES
ELEVATIONS IN METRES

INDEX TO ADJOINING MAPS

GRID REFERENCE

Fence: Loose or bank
Mine; Windmill; Yard; Quarry
Lake, perennial; Stream, perennial
Lake, intermittent; Stream, intermittent

032

214033

033

214034

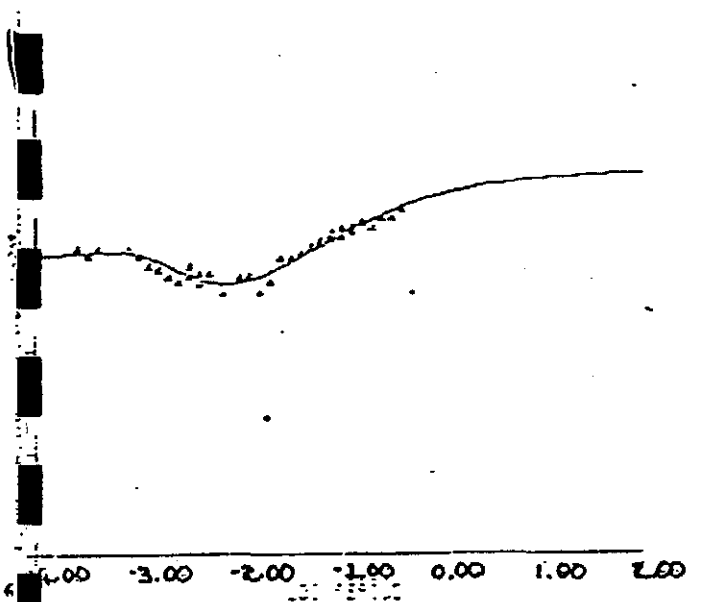
SHELL TASMANIA SITE 1 INV -3

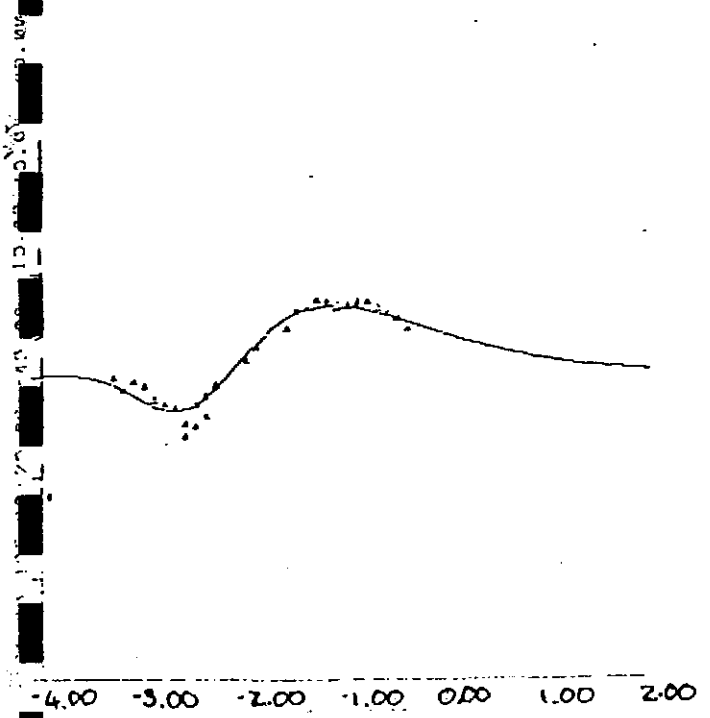
XY

86.8 — 119 (101 → 139)

25.7 — 245 (216 → 277)

572





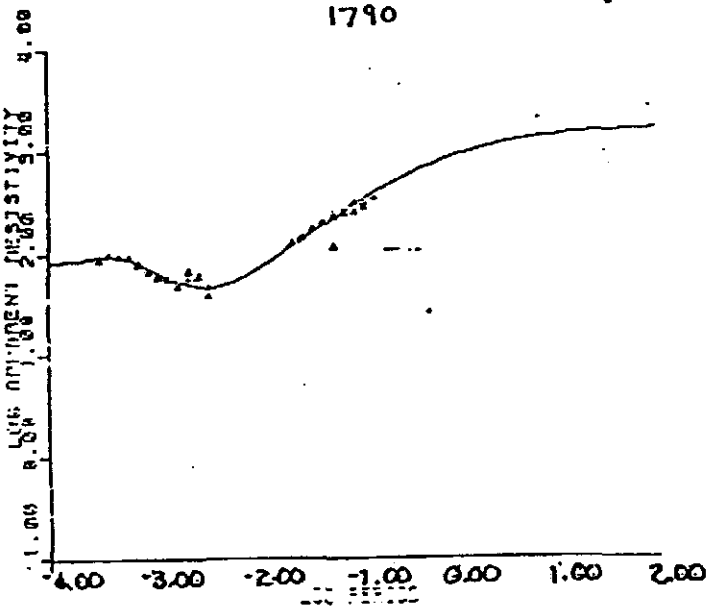
SHELL TASMANIA SITE 1 INV -3

YX

84.7 — 114 (108 → 119)

16.0 — 164 (158 → 170)

1790



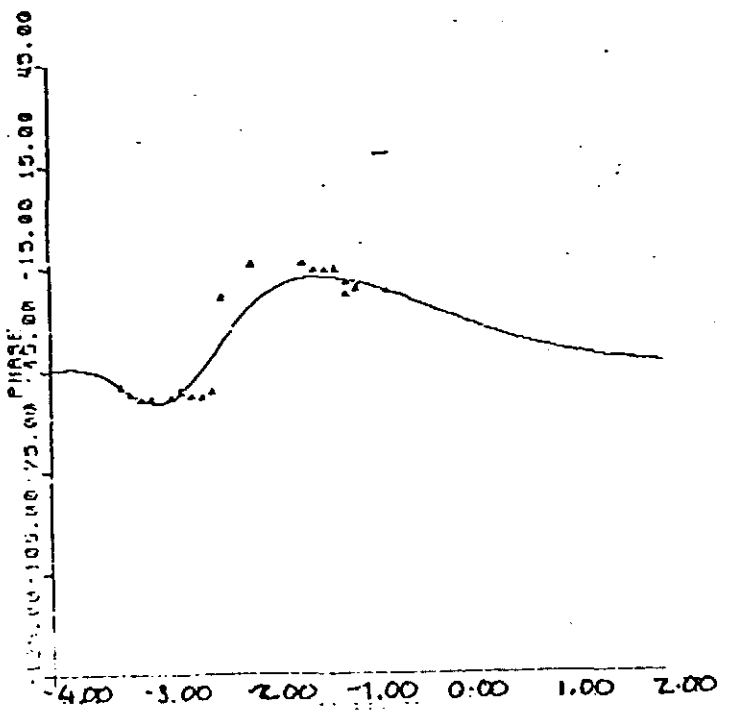


FIGURE 2

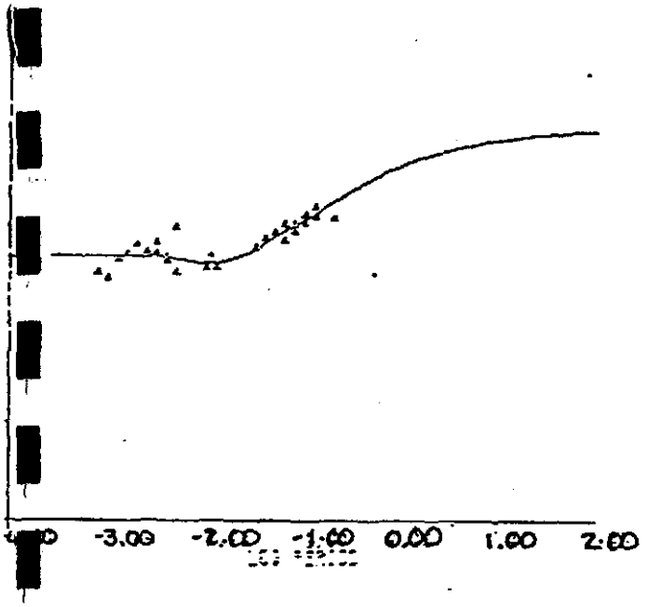
034

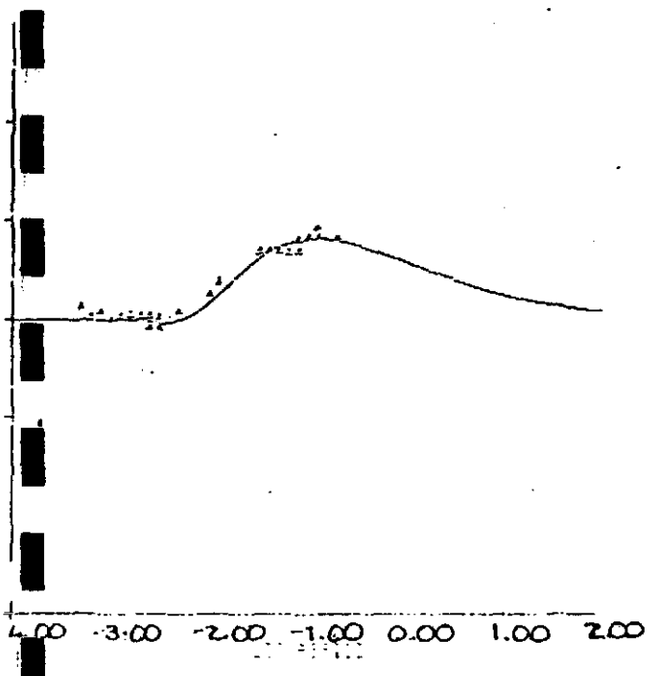
214035

SHELL TASMANIA SITE 2 IKV -3

XY

49.7
420 (402→438)
982

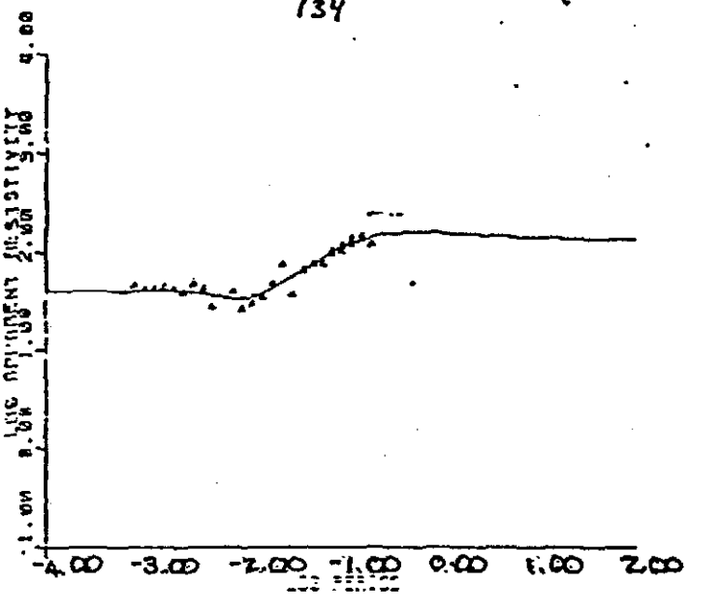




SHELL TASMANIA SITE 2 IKV -3

YX

41
362 (342→381)
1800
2017 (1756→2314)
134



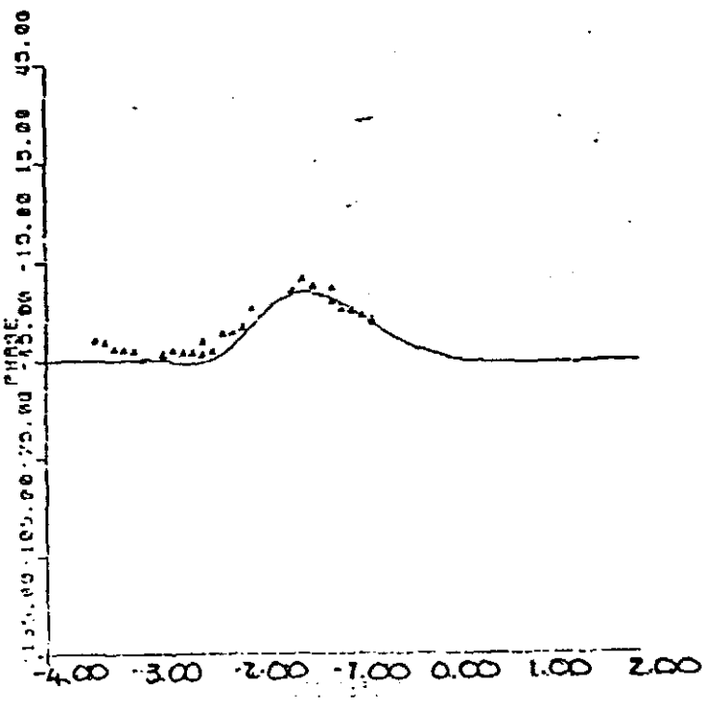


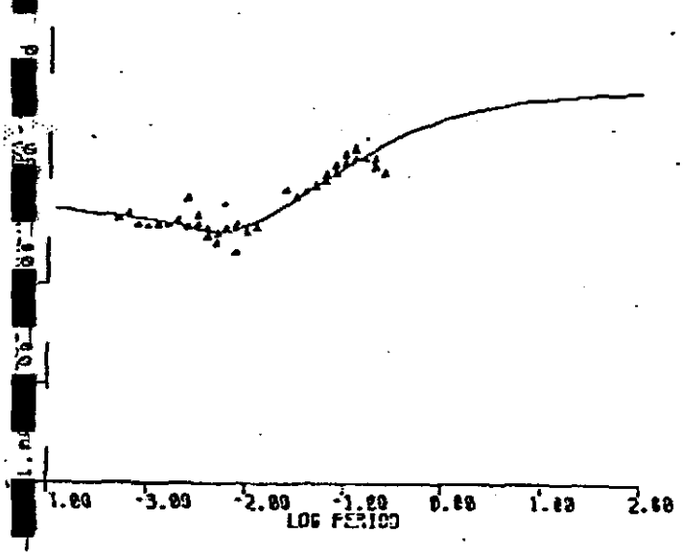
FIGURE 3

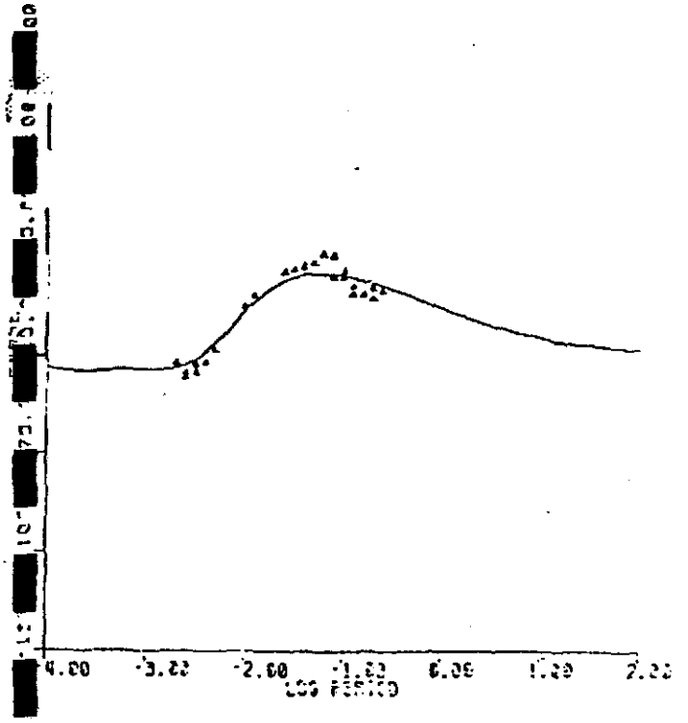
035

214036

SHELL TASMANIA SITE 3 INV-2
XY.

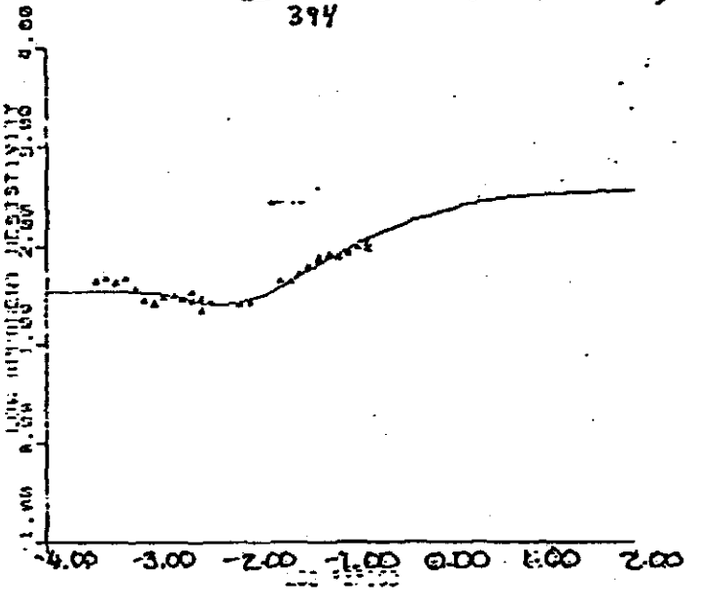
65.0
25.6 (23.6 → 27.7)
39.1
260 (242 → 277)
982





SHELL TASMANIA SITE 3 INV-3
YX

34.7
58.3 (34.6 → 98.2)
26.3
235 (210 → 264)
394



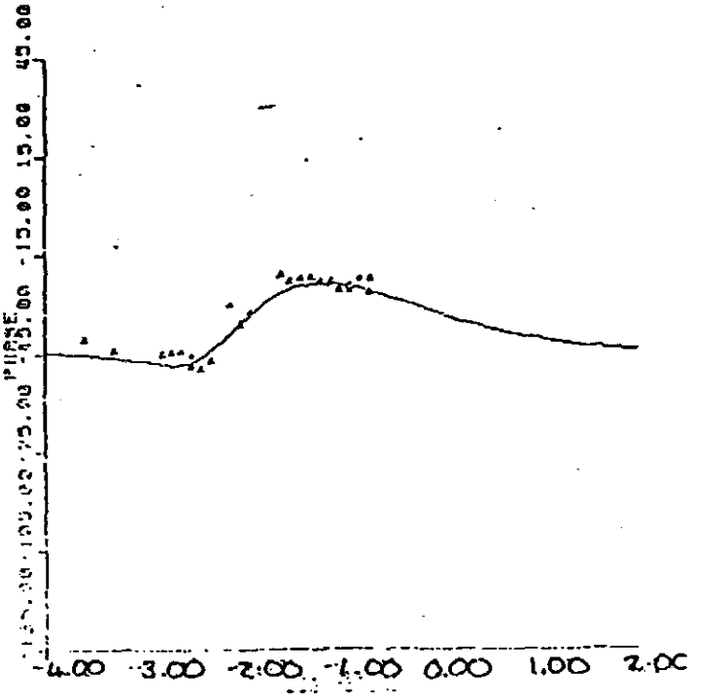


FIGURE 4

SHELL TASMANIA SITE 4 INV-3

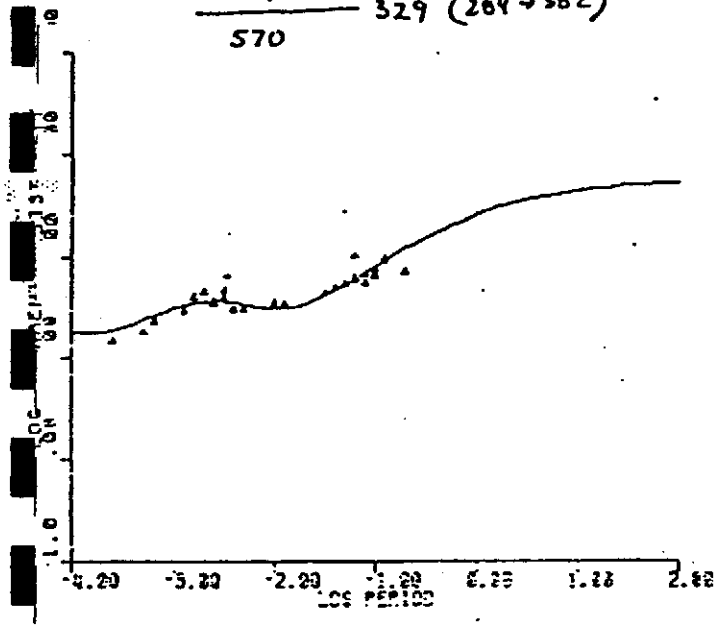
XY

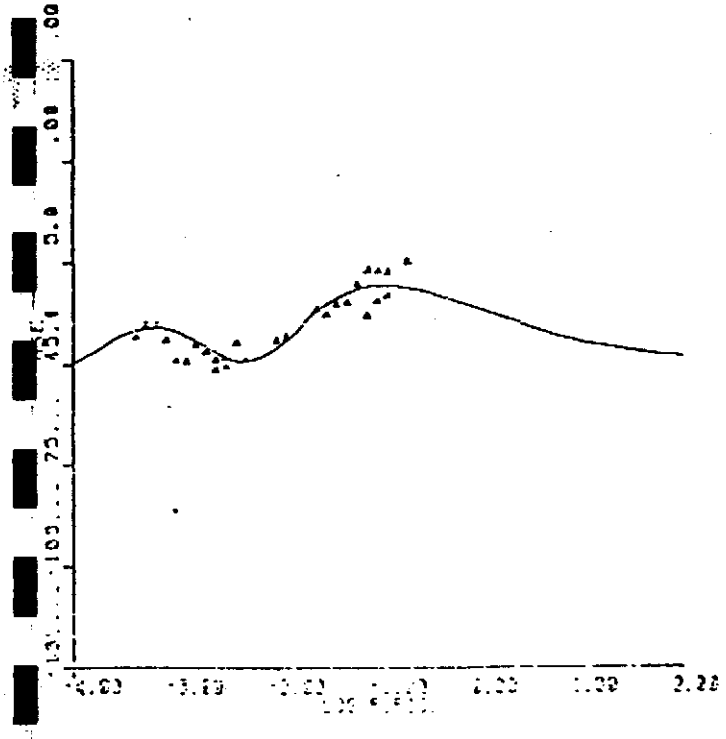
20 — 34 (26→45)

141 — 105 (81→134)

29 — 329 (284→382)

570





SHELL TASMANIA SITE 4 INV-4

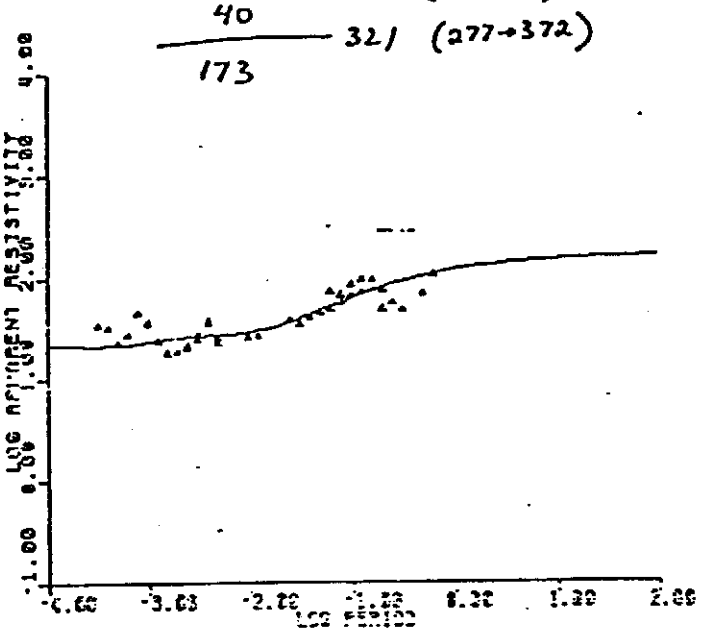
YX

22 — 50 (41→61)

659 — 59 (52→66)

40 — 321 (277→372)

173



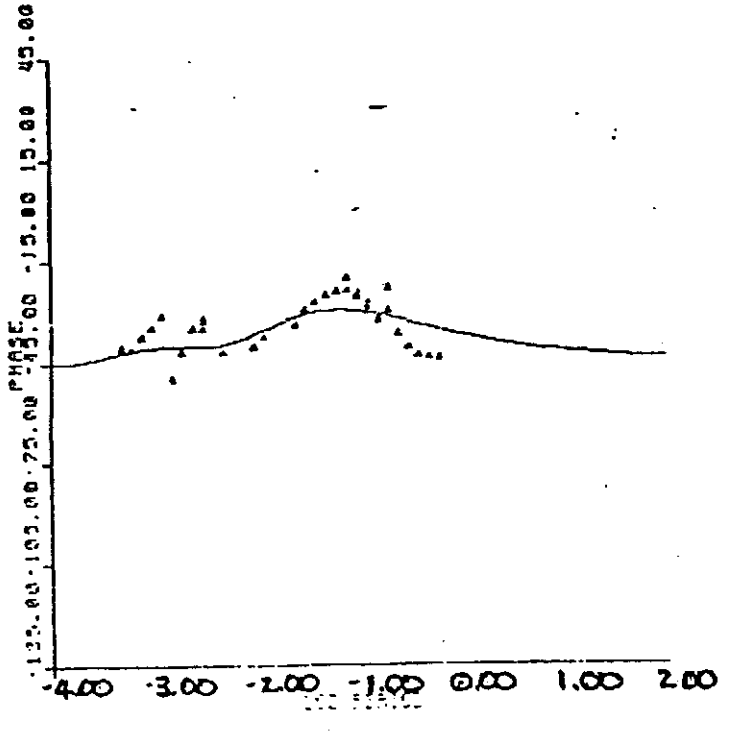


FIGURE 5

037

214038

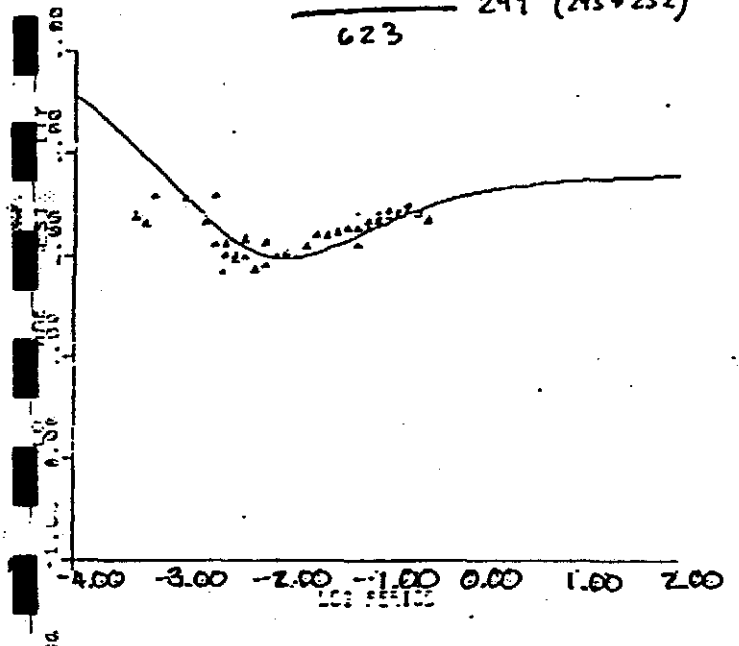
SHELL THERMAL SITE 5 INV -3

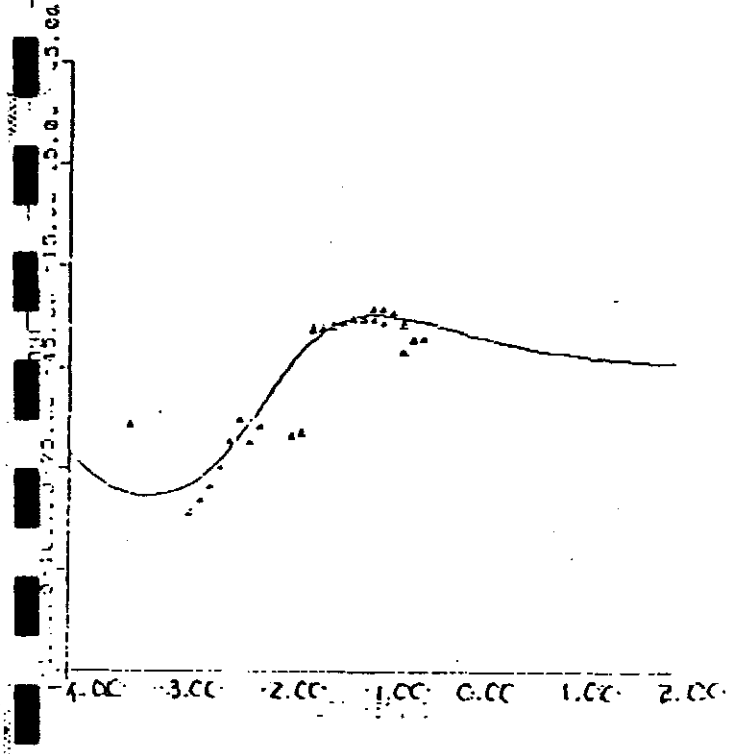
XY

4070 / 3.0 / 623

235 (231→238)

249 (245→252)





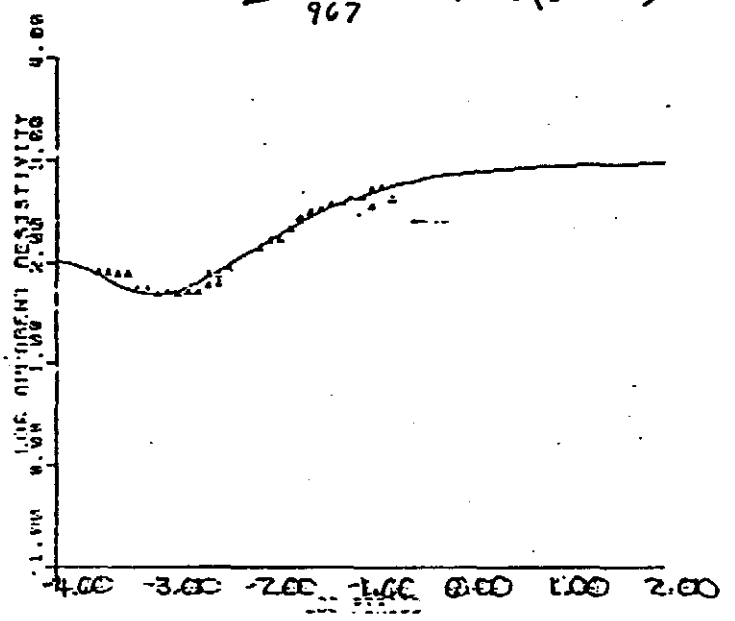
SHELL THERMAL SITE 5 INV -3

YX

94 / 26 / 967

46.7 (31.7→55)

92.2 (81→105)



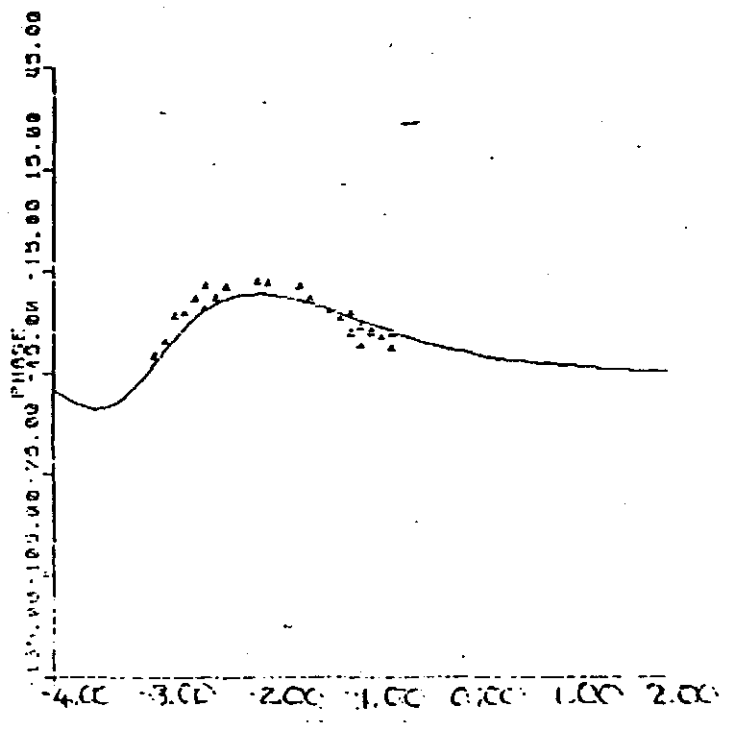


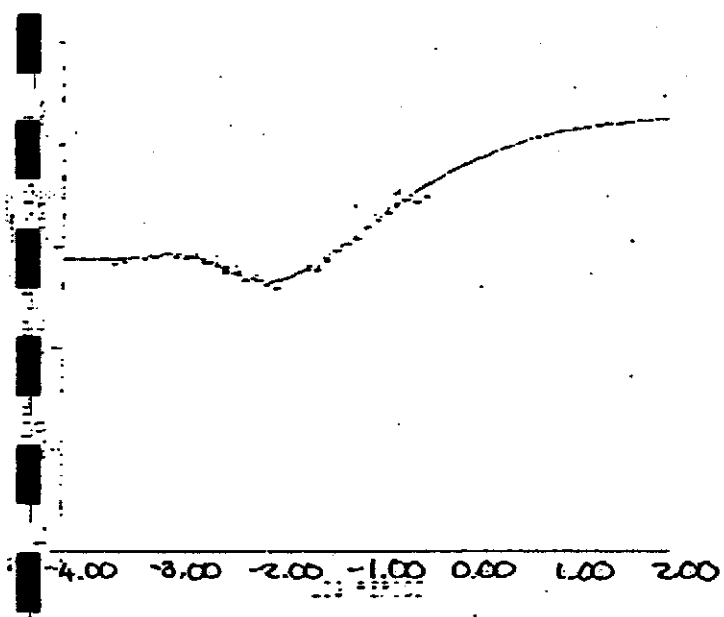
FIGURE 6

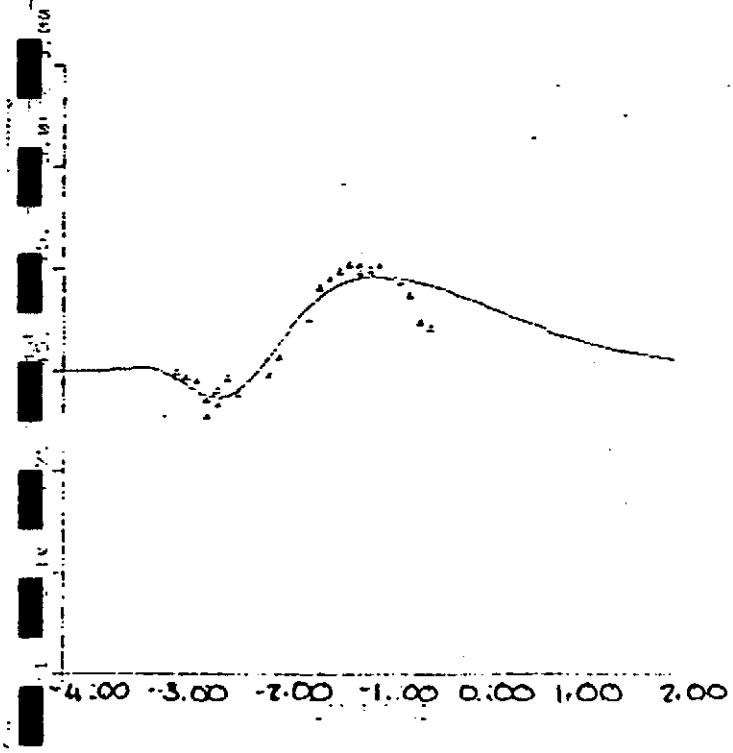
038

214039

SHELL TASMANIA SITE G INV #2
XY

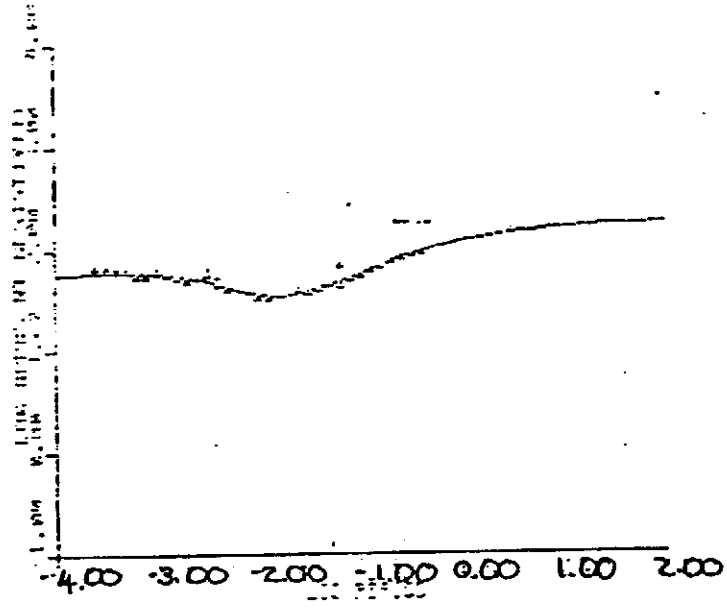
76 — 213 (203-223)
8.9 — 253 (244-263)
2000





SHELL TASMANIA SITE G INV #2
YX

58 — 102 (65-121)
29 — 351 (308-400)
189



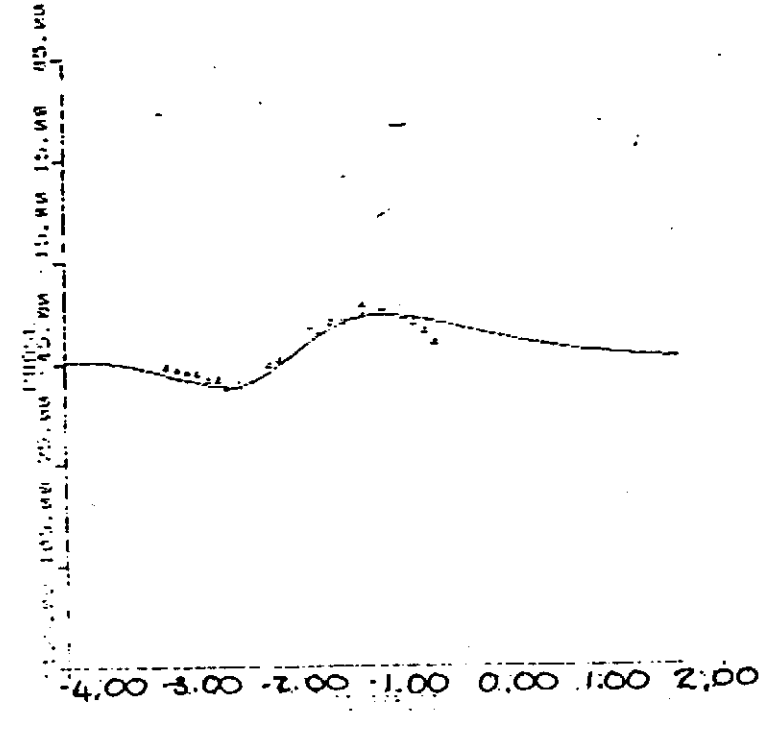


FIGURE 7

039

214040

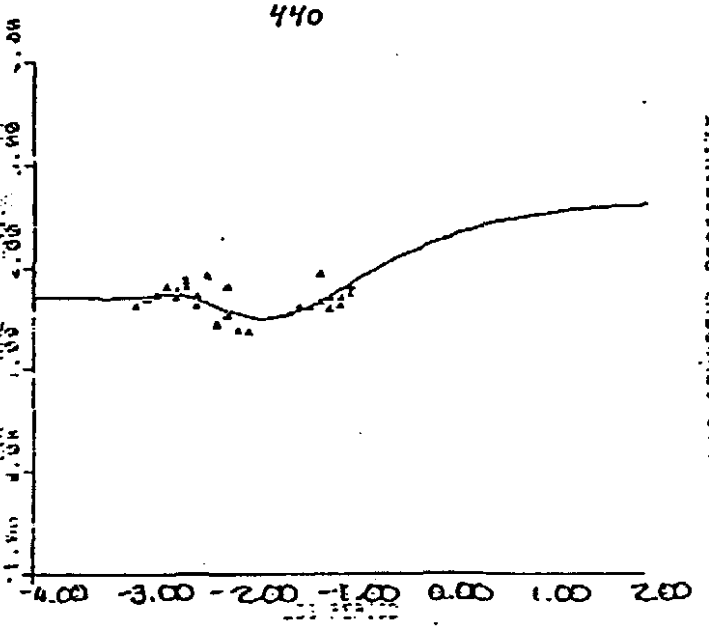
SHELL TASMANIA SITE 8 INV-3

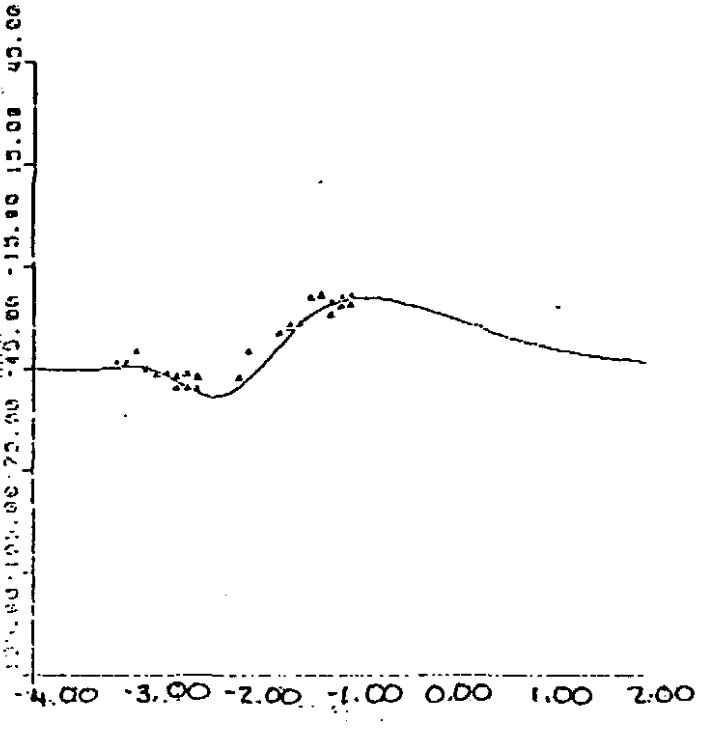
XY

51 — 230 (220→240)

5.1 — 266 (256→276)

440





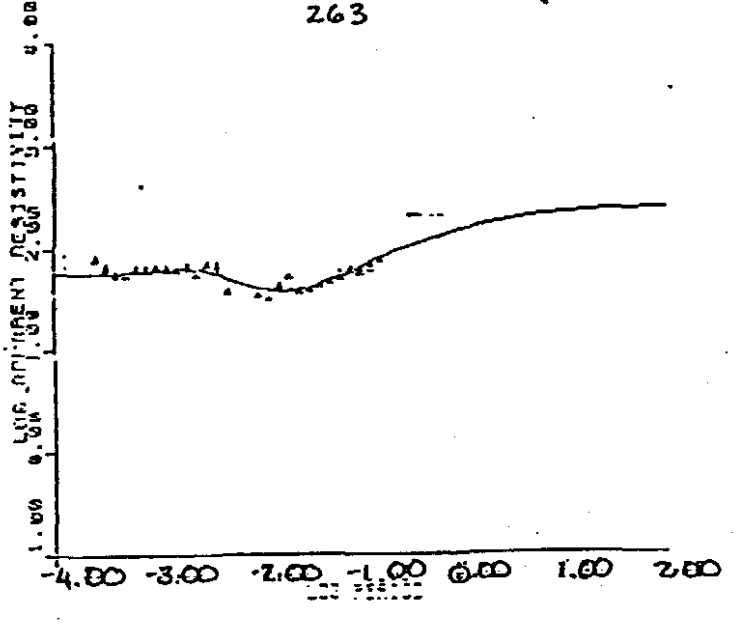
SHELL TASMANIA SITE 8 INV-3

YX

59 — 196 (160→238)

19 — 325 (271→390)

263



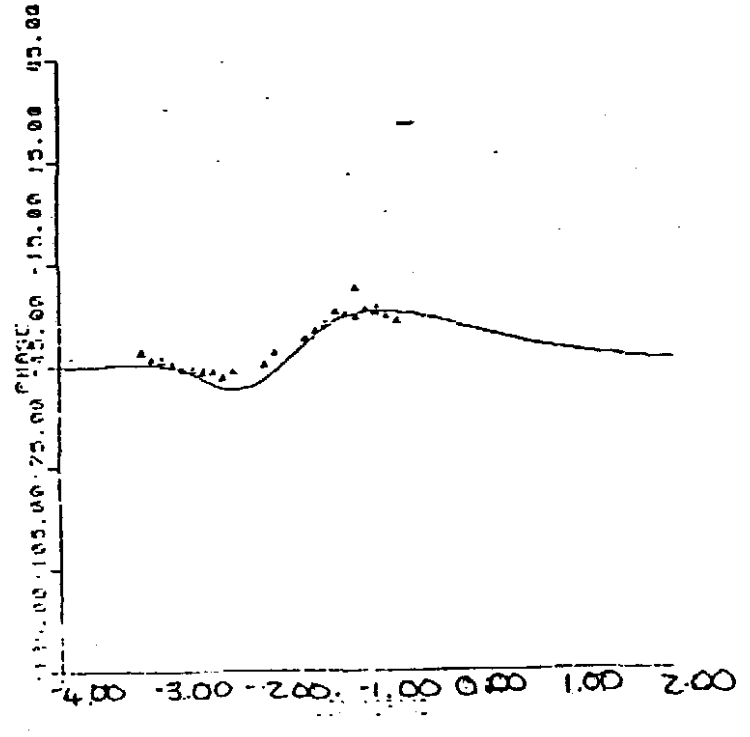


FIGURE 8

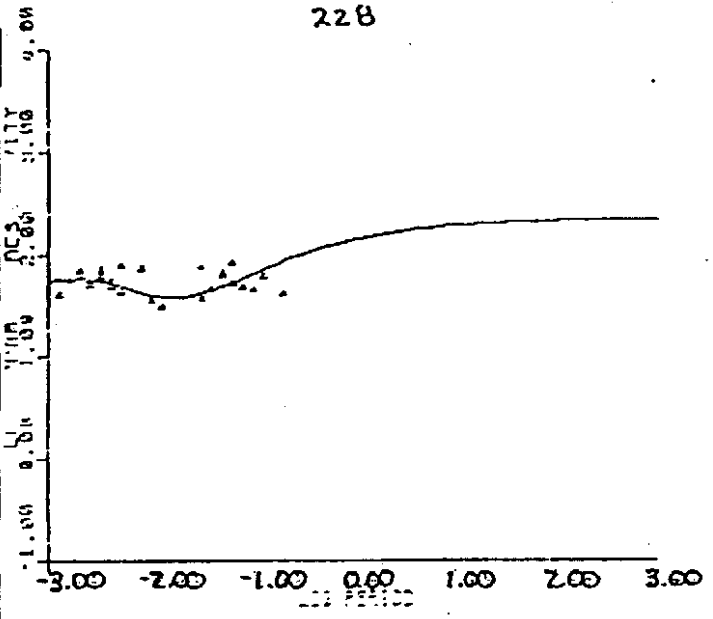
040

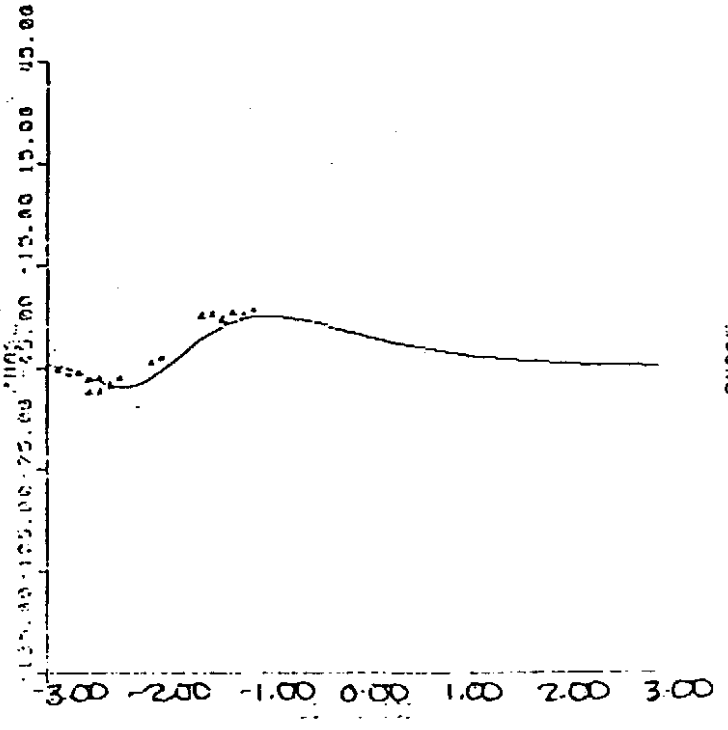
214041

SHELL TASMANIA SITE 9 INV-3

XY

54
237 (221→252)
10
291 (276→306)
228

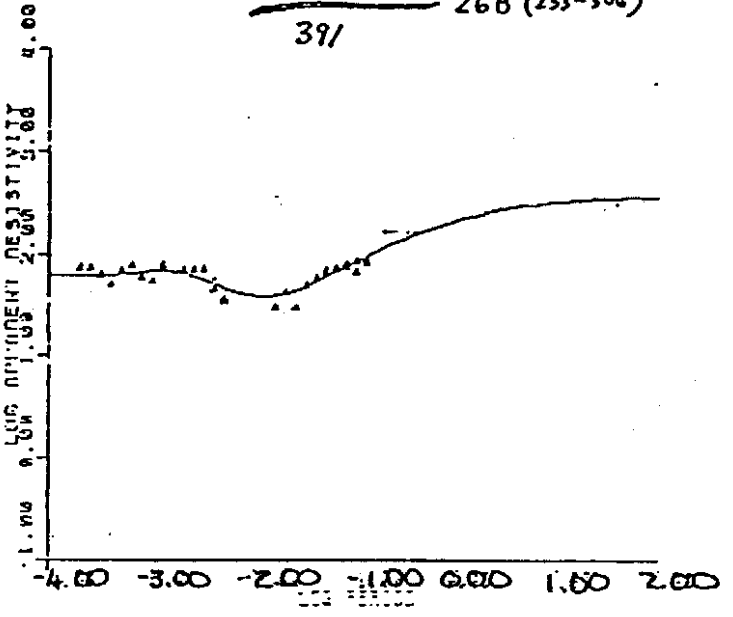




SHELL TASMANIA SITE 9 INV-3

YX

63
174 (151→201)
16
268 (233-306)
391



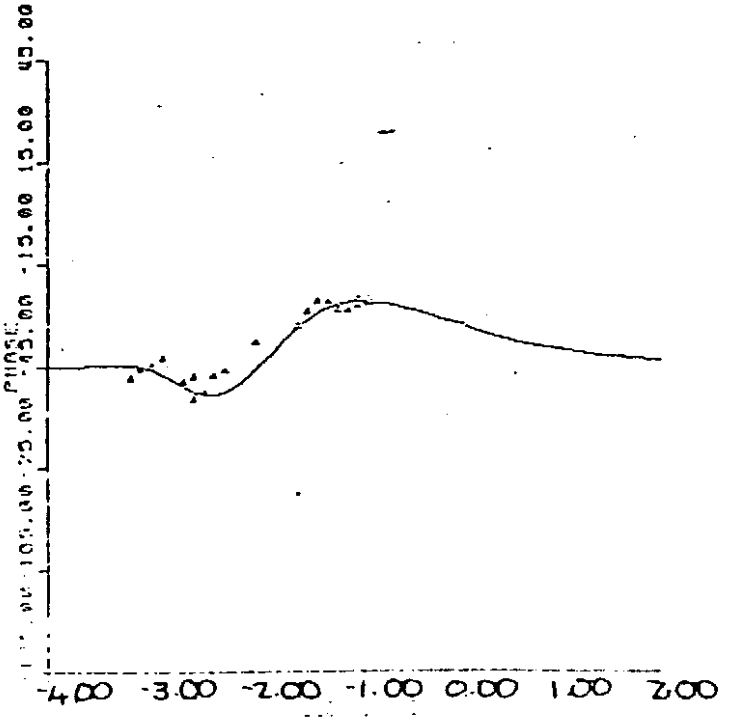


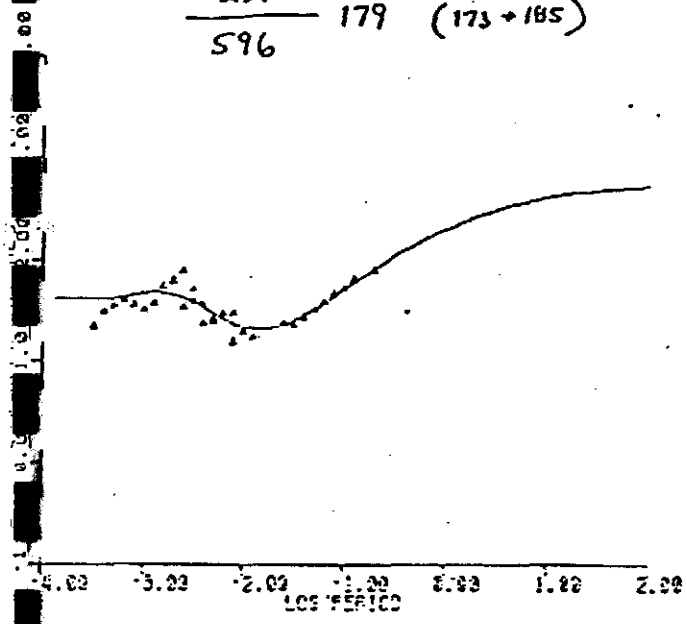
FIGURE 9

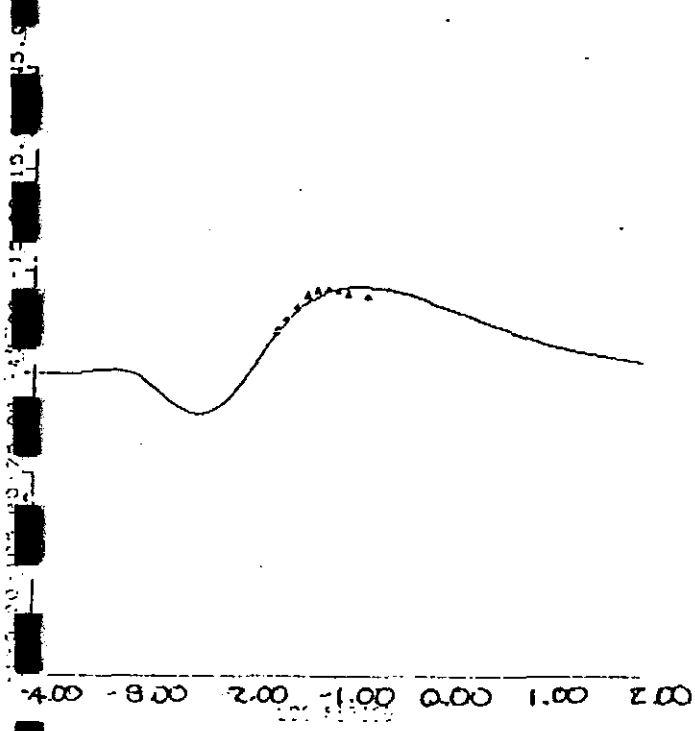
041

214042

SHELL TASMANIA SITE 18 INV-4
XY

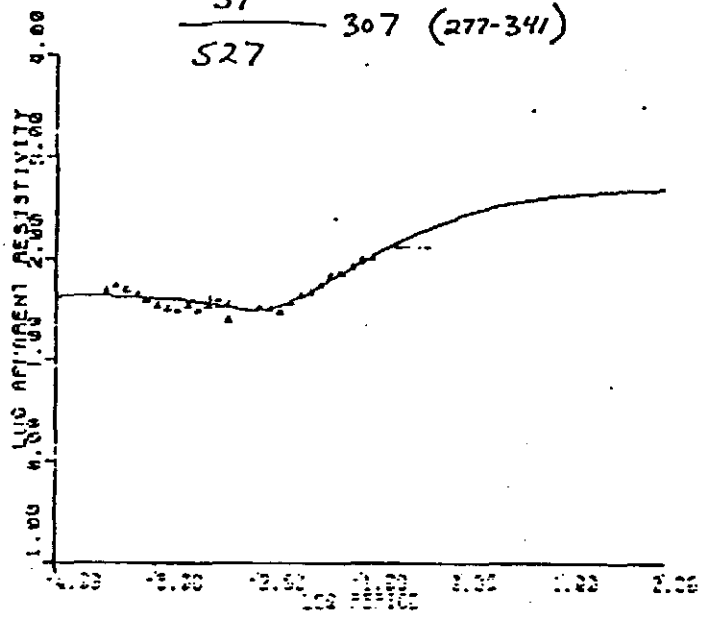
42
159 (153→165)
2.1
179 (173→185)
596





SHELL TASMANIA SITE 18 INV-4
YX

42
56 (34→93)
34
307 (277-341)
527



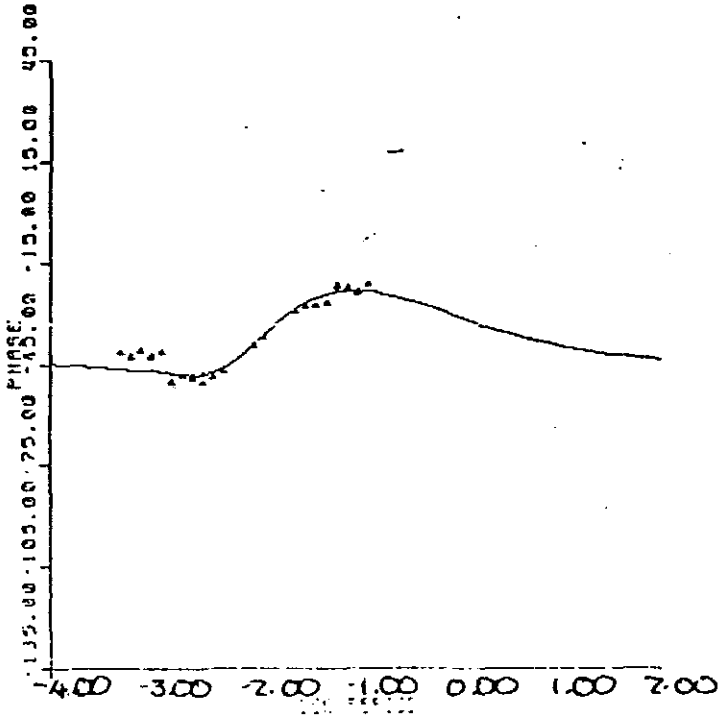


FIGURE 10

042

214043

SHELL TASMANIA SITE 11 INV -3

XY

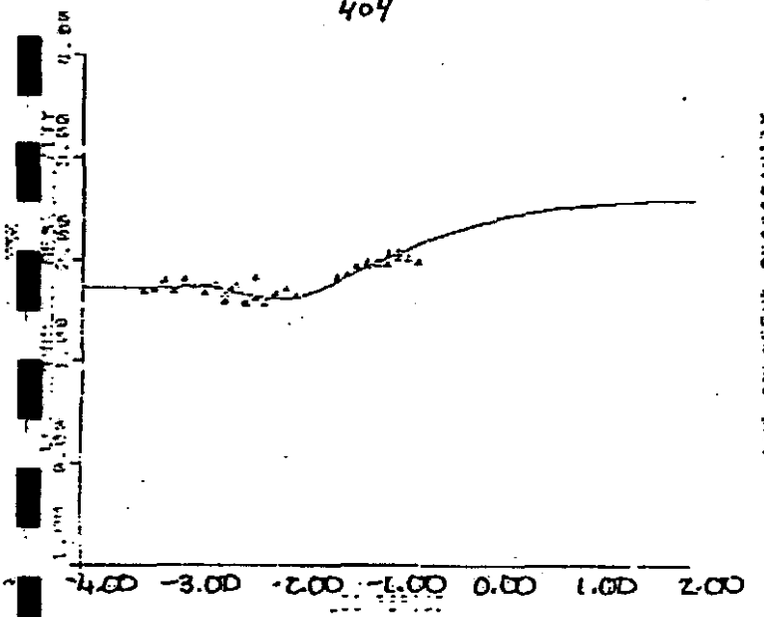
53

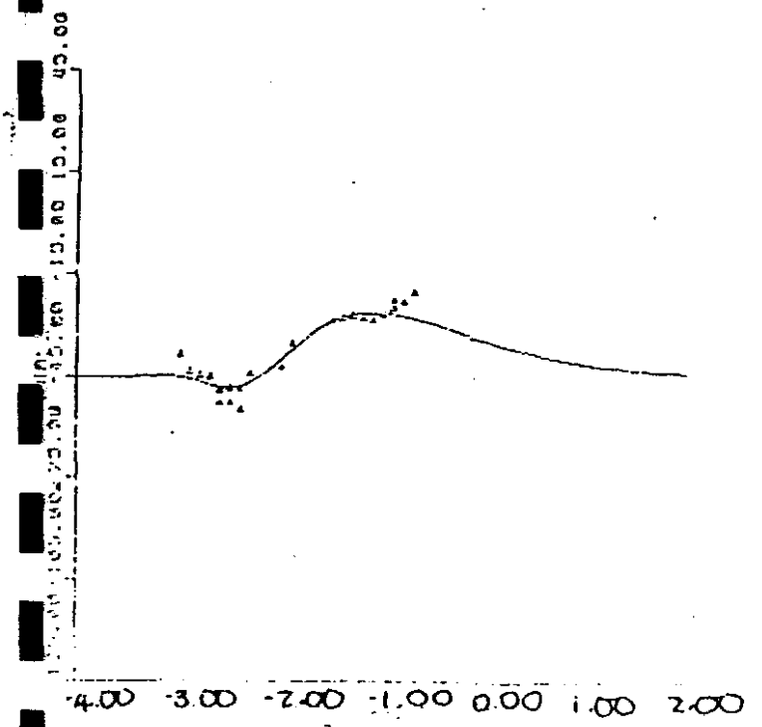
187 (152→223)

25

278 (247→312)

404





SHELL TASMANIA SITE 11 INV -3

YX

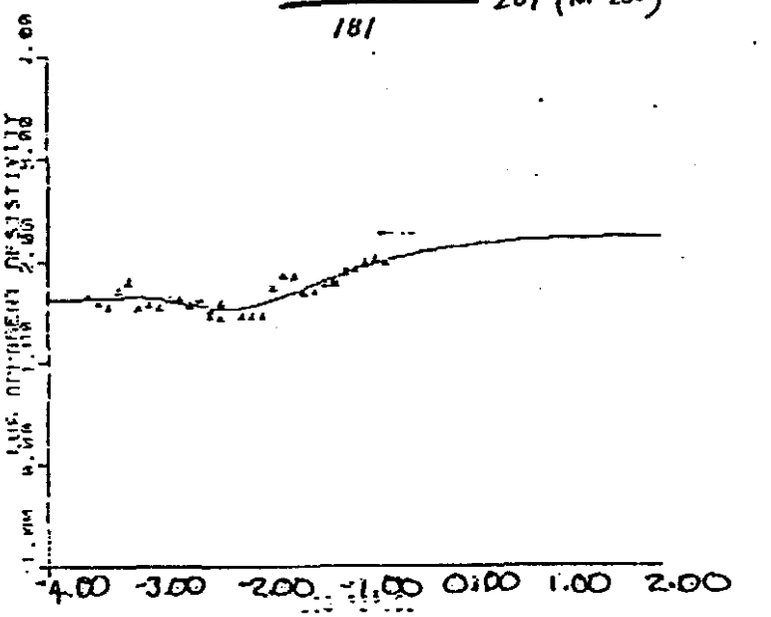
43

117 (81→160)

24

201 (161-250)

181



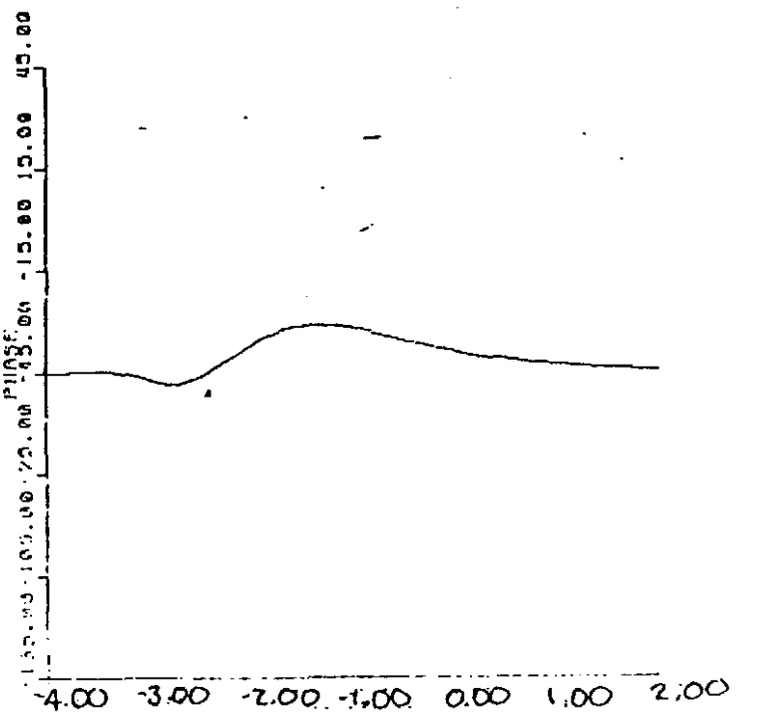


FIGURE 11

043

214044

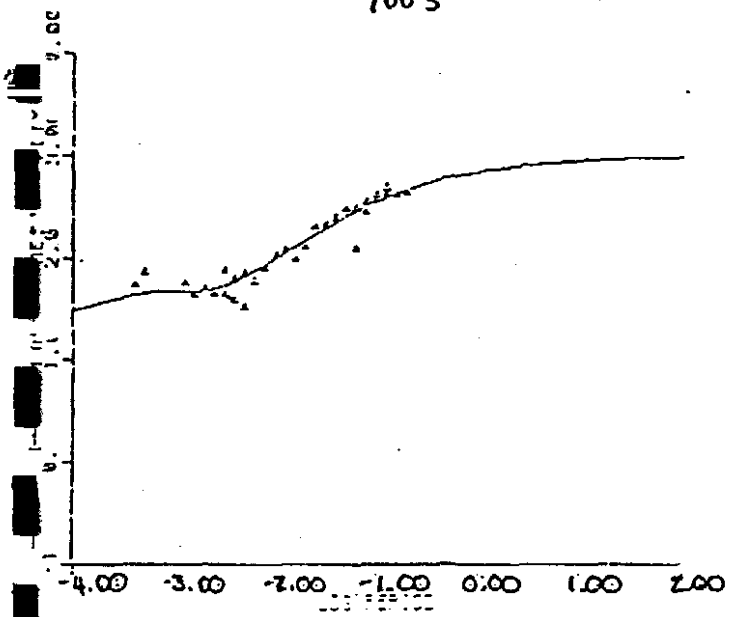
SHELL TASMANIA SITE 12 INV-3

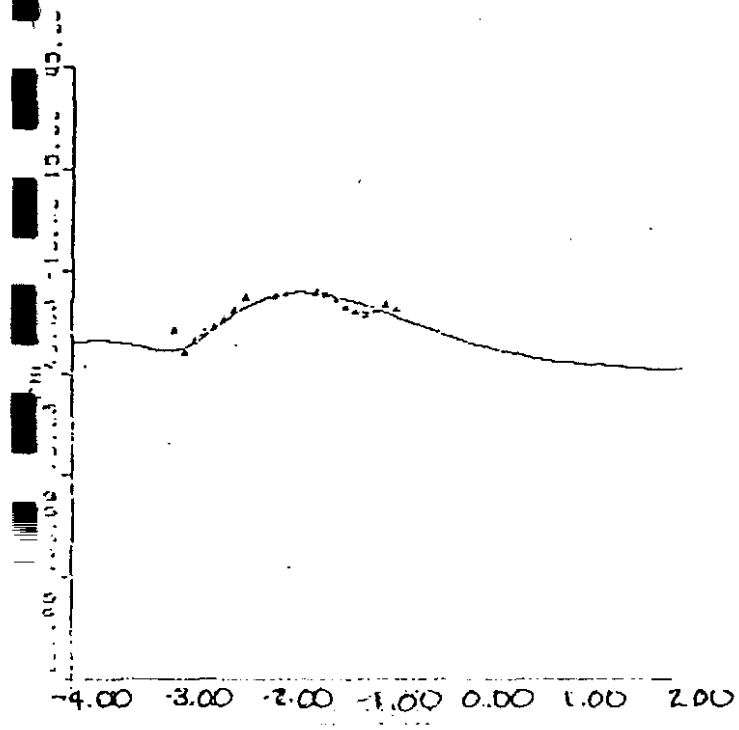
XY

25 — 12.7 (11.8 → 13.6)

72 — 207 (185 → 230)

1003





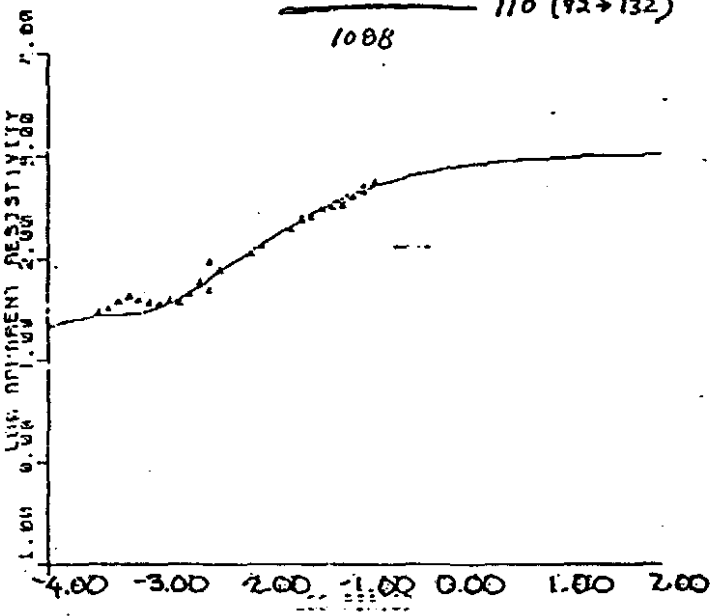
SHELL TASMANIA SITE 12 INV-3

YX

16 — 8.8 (7.9 → 9.7)

49 — 110 (92 → 132)

1088



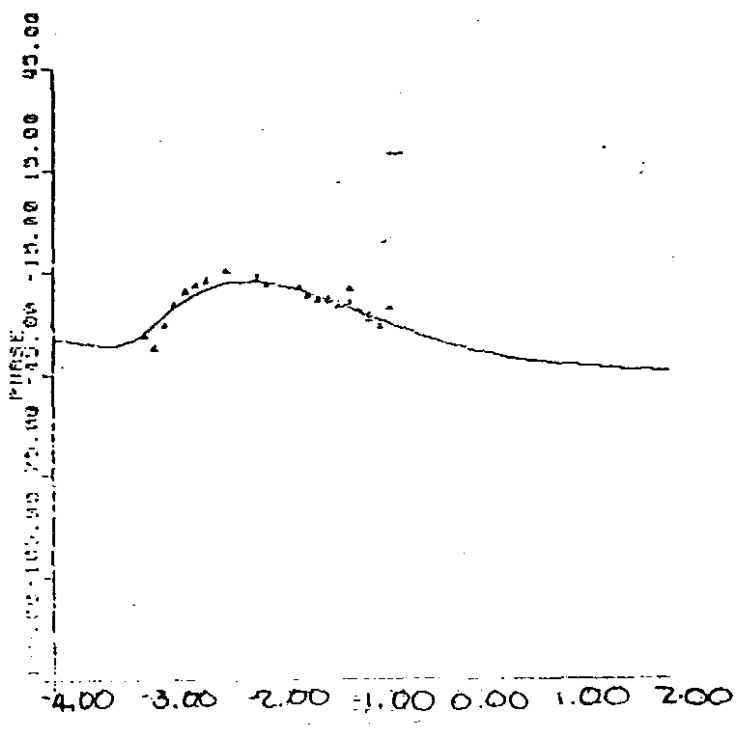


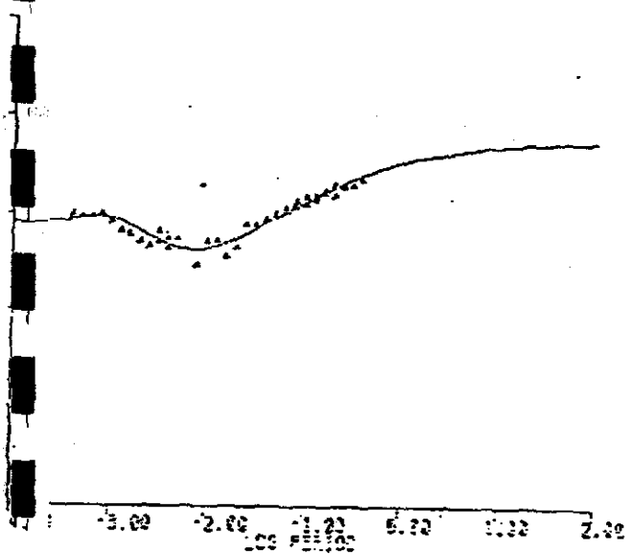
FIGURE 12

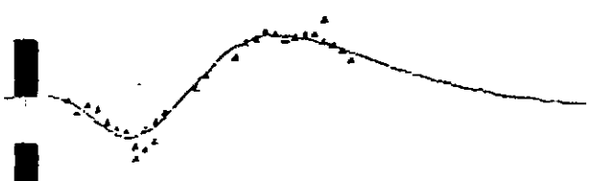
044

214045

SHELL TASMANIA SITE 1 JOINT INVERSION
AMT XY DATA AND DIPOLE DIPOLE

82.5 — 157 (150 → 164)
7.9 — 192 (184 → 199)
602





SHELL TASMANIA SITE 1 JOINT INVERSI
AMT XY DATA AND DIPOLE DIPOLE

N=1 → 80 Ω-m
2 70
3 64
4 65
5 70
6 80
7 100
8 → 140 Ω-m

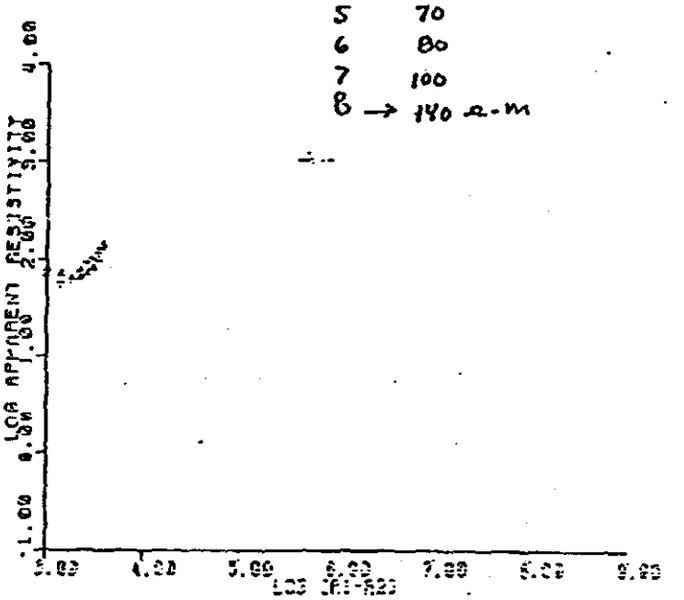


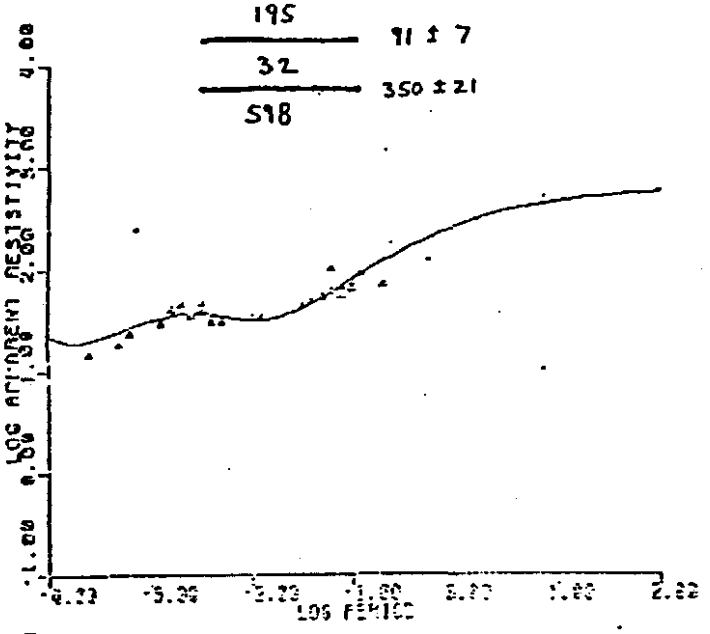
FIGURE 13

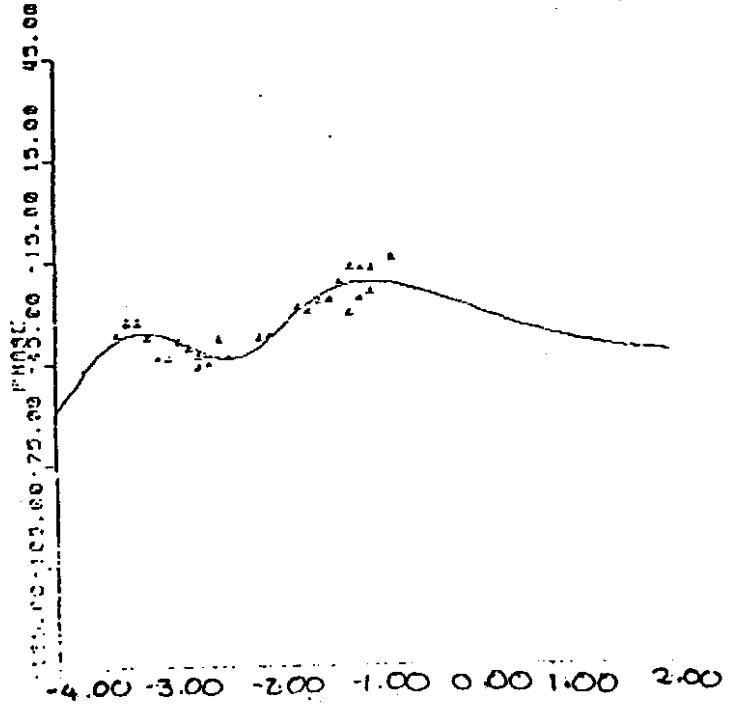
045

214046

SHELL TASMANIA SITE 4 JOINT INV-1
XY DATA WITH VES SITE 6

81	14.8 ± 1.0
.76	15.8 ± 1.0
195	91 ± 7
32	350 ± 21
518	





SHELL TASMANIA SITE 4 JOINT INV-1
XY DATA WITH VES SITE 6

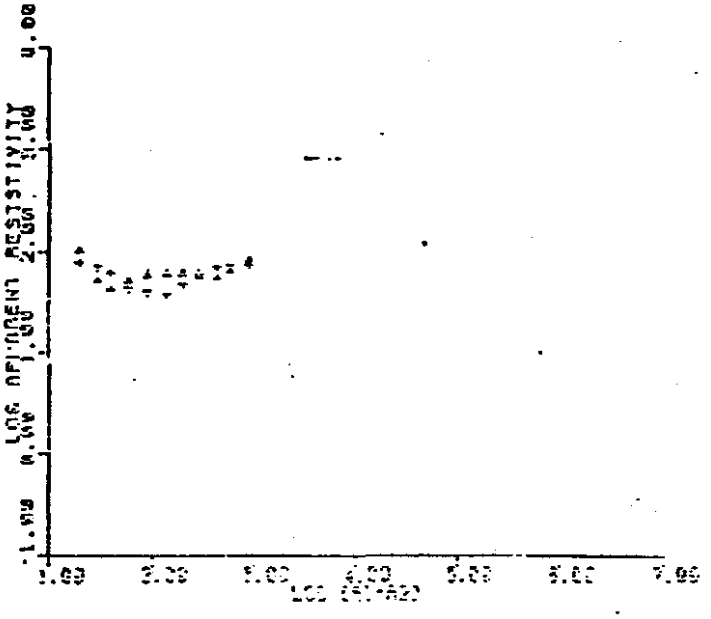
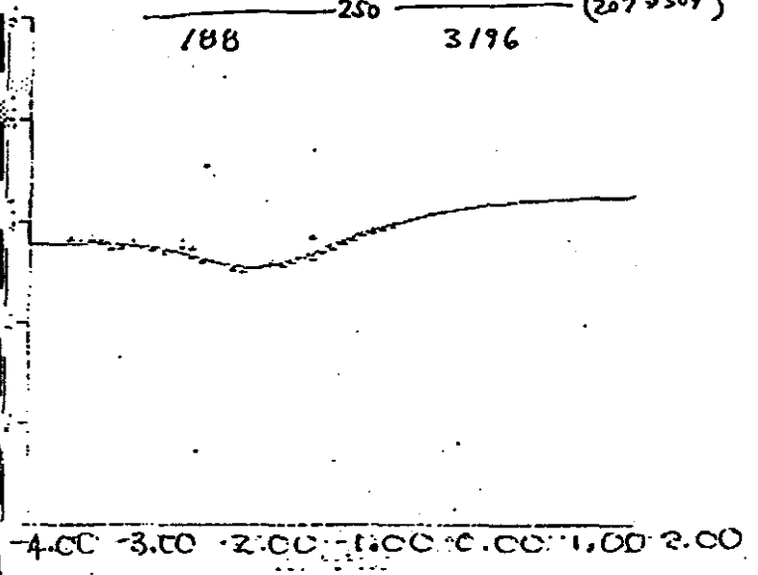


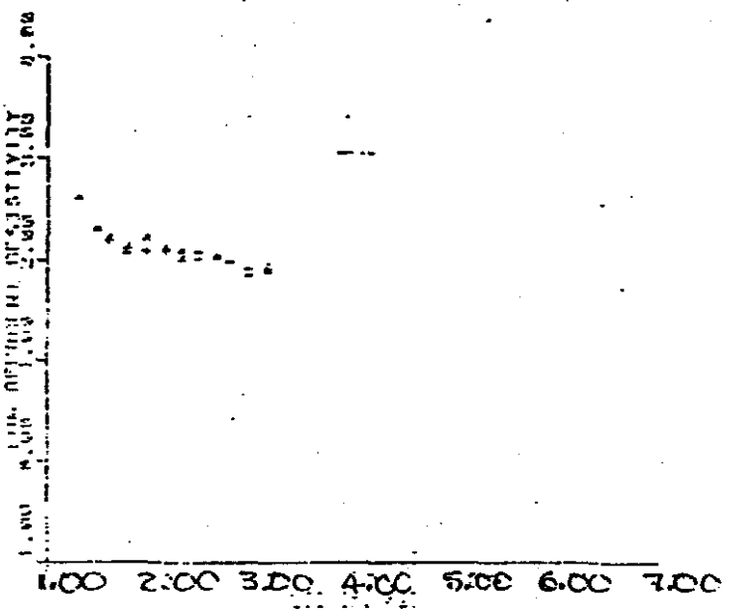
FIGURE 14

SHELL TASMANIA SITE 6 JOINT INV-1
MT YX DATA WITH VES-3 ANISOTR

HORIZONTAL		VERTICAL	
268	1.14	3280	(.1→1.4)
57	100	264	(82→122)
29	250	18	(207→304)
188		3196	



SHELL TASMANIA SITE 6 JOINT INV-1
MT YX DATA WITH VES-3 ANISOTR



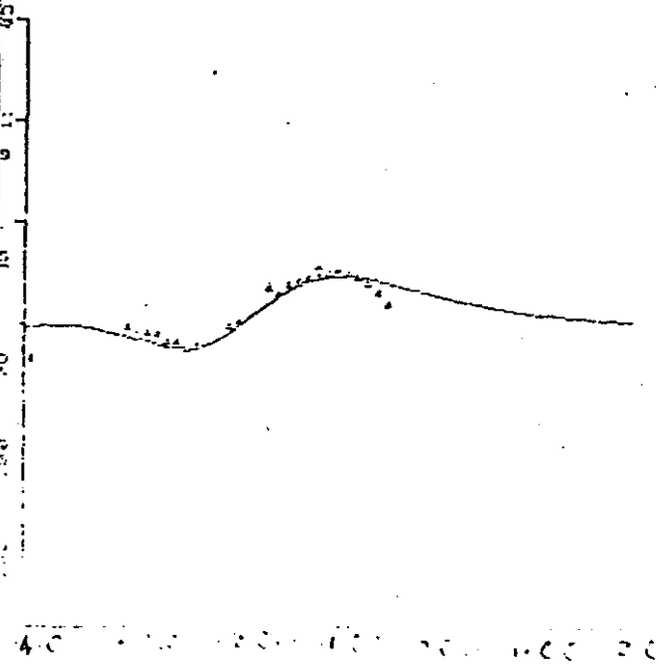
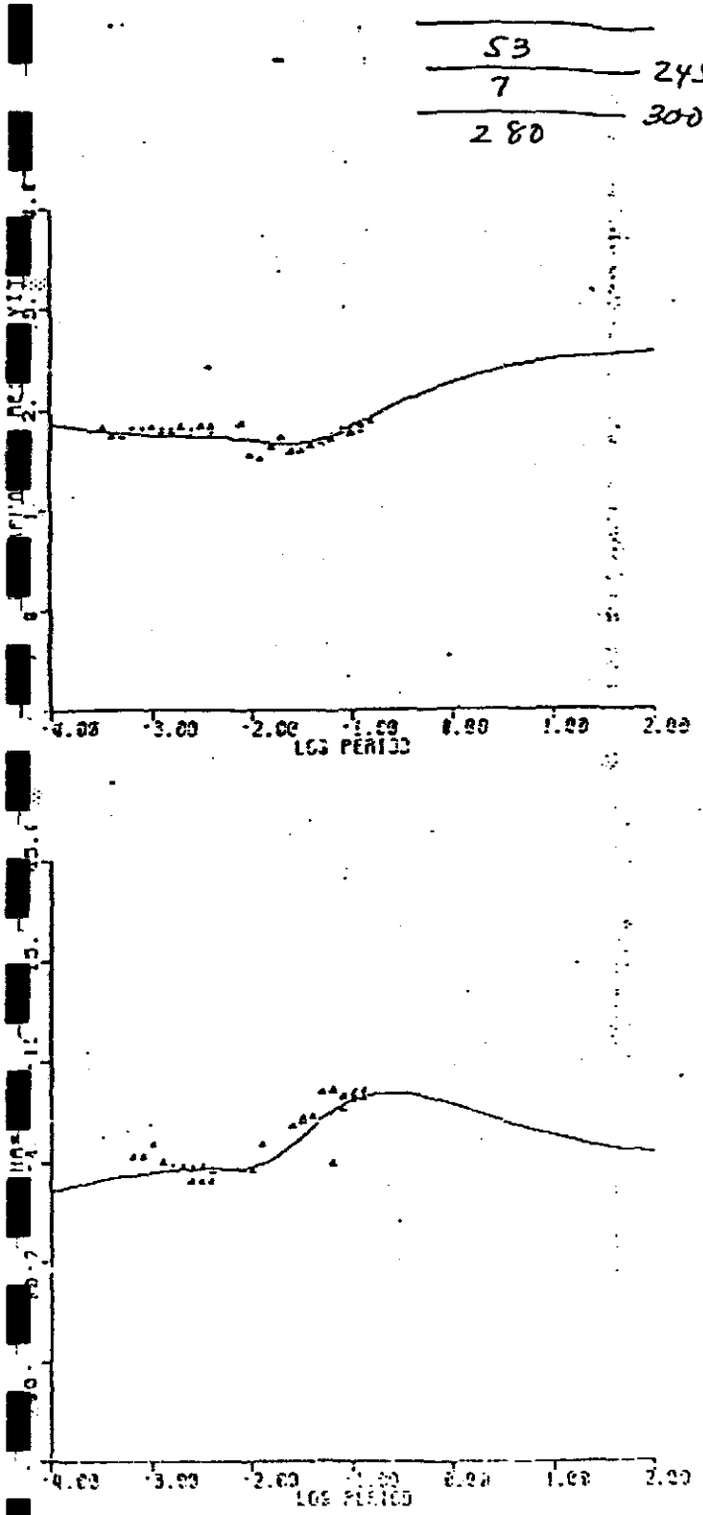


FIGURE 15

SHELL TASMANIA 8 YX JOINT WITH DC SOUND ING 5 ANIS -3



SHELL TASMANIA 8 XY JNT WITH DC SOUND G 5 ANIS -3

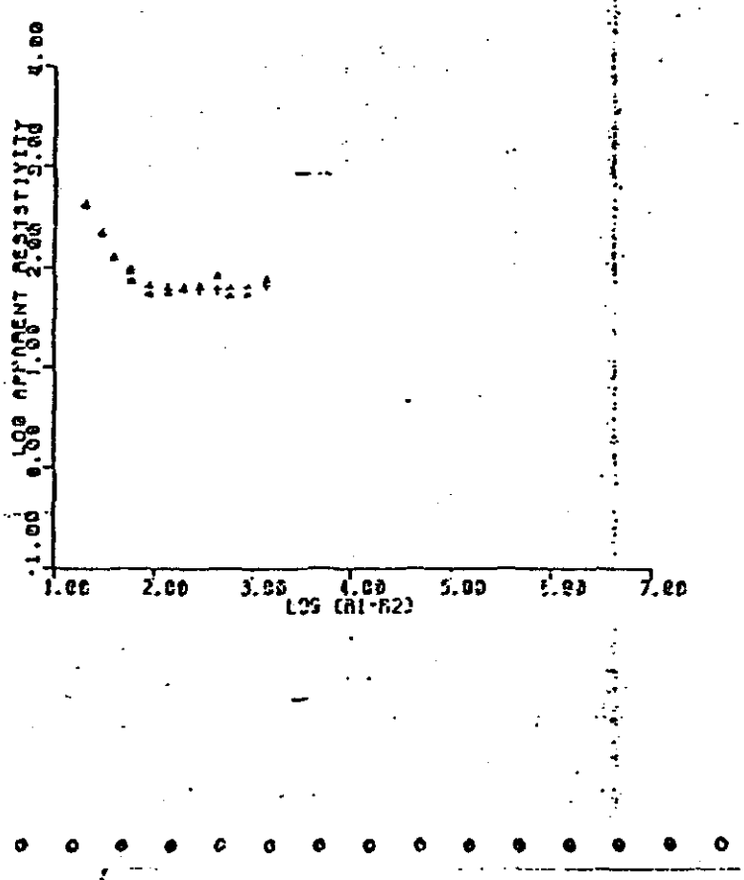
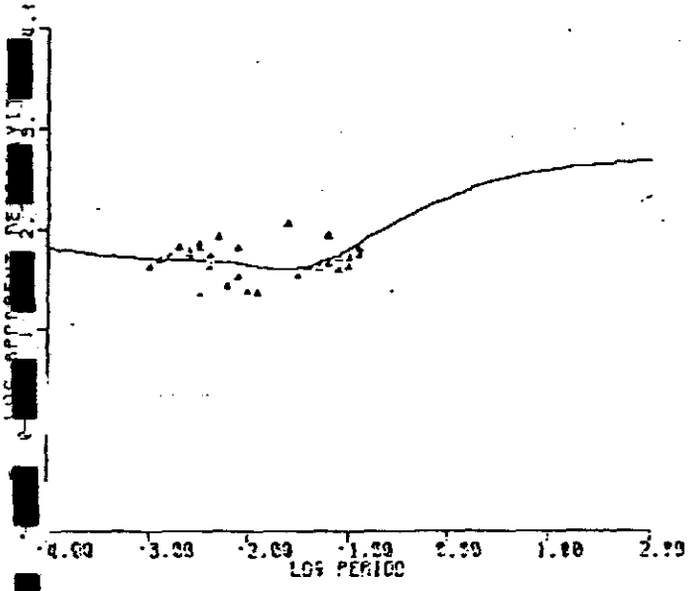


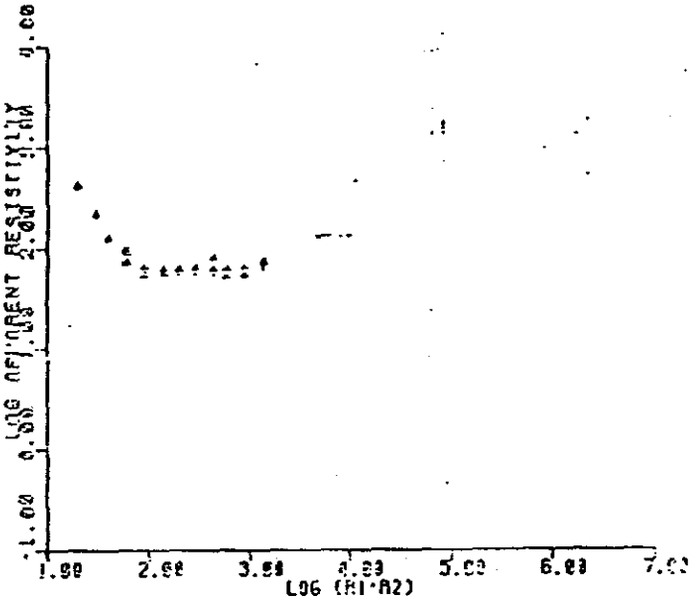
FIGURE 16

SHELL TASMANIA 8 XY JNT WITH DC SOUNDIN G 5 ANIS -3

SHELL TASMANIA 8 YX JOINT WITH DC SOUN ING 5 ANIS -3

53
245
3
255
430





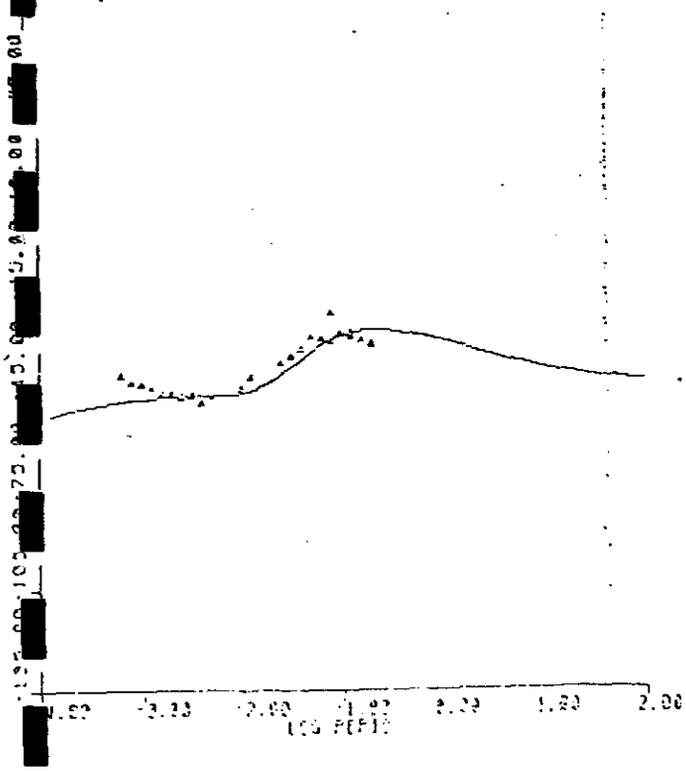
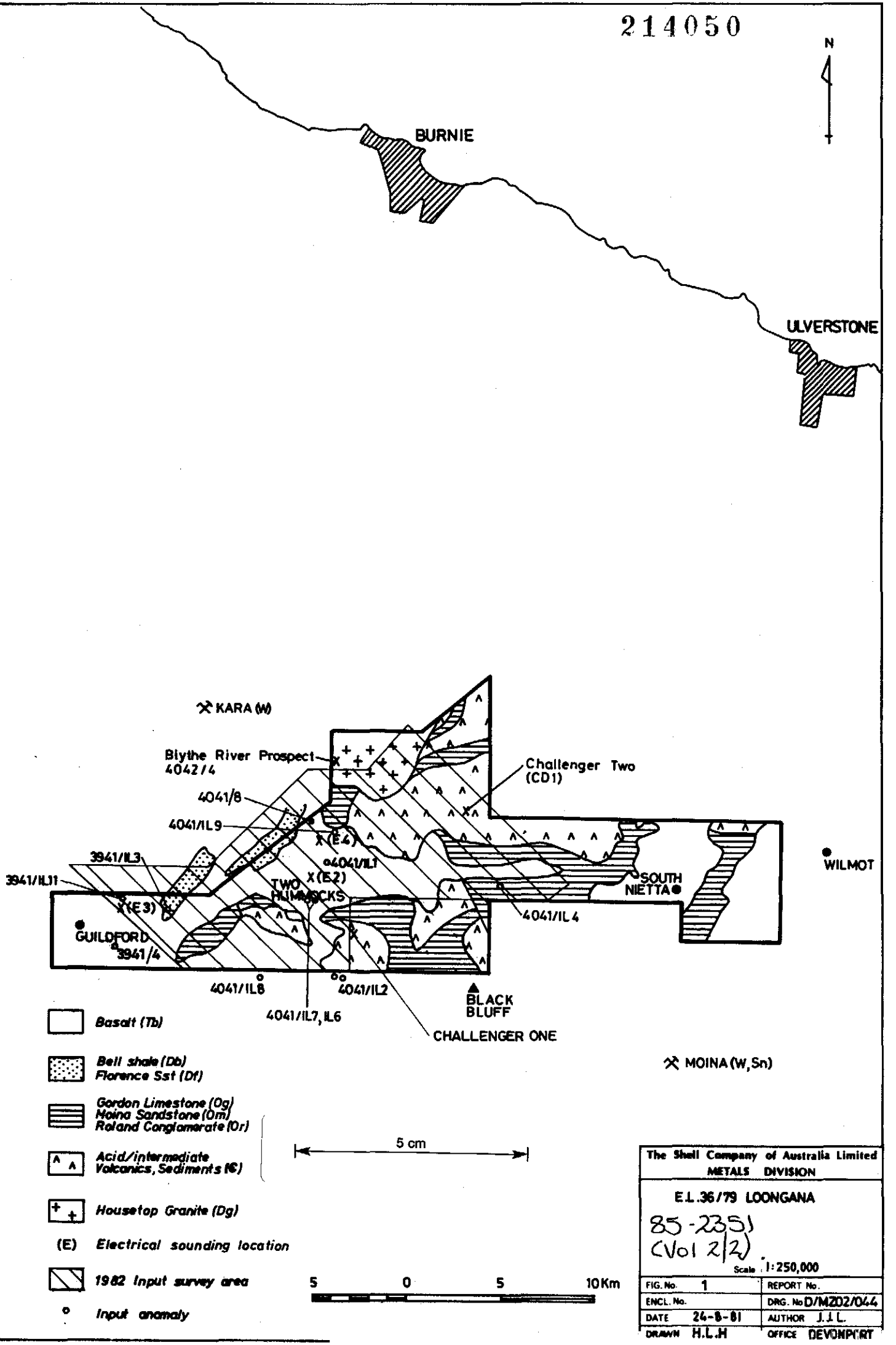


FIGURE 17



The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA	
85-2351 (Vol 2/2)	
Scale 1:250,000	
FIG. No. 1	REPORT No.
ENCL. No.	DRG. No D/MZD2/044
DATE 24-8-81	AUTHOR J.J.L.
DRAWN H.L.H	OFFICE DEVONPORT

214051

BILLITON AUSTRALIA, THE METALS DIVISION OF
THE SHELL COMPANY OF AUSTRALIA LIMITED

EL 36/79 - LOONGANA

REPORT ON RELINQUISHED AREAS

AUTHOR : D.N. CARTER

DATE : 25th March 1985

REPORT NO. 08.2838

COPY NO : 0

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LIST OF PLANS

PLAN NO.	DRAWING NO.	TITLE	SCALE
1	D/MZ 02/044	Location Plan In Text Vol I	1:250,000
2	D/MZ 02/048	Geology	1:50,000
3	D/MZ 02/074	Residual Aeromagnetic Contours	1:50,000
4	D/MZ 02/054	Blythe River 4042/4 - Soil Geochemistry & Geology - Northern Sheet	1:2,500
5	D/MZ 02/036	Blythe River 4042/4 - Ground Magnetics - Northern Sheet	1:2,500
6	D/MZ 02/042	Blythe River 4042/4 - Magnetic Profiles - Northern Sheet	1:2,500
7	D/MZ 02/038	Blythe River 4042/4 - Magnetic Profile - Line 4100E Northern Sheet	1:2,500
8	D/MZ 02/041	Blythe River 4042/4 - Soil Geochemistry - Northern Sheet	1:2,500
9	D/MZ 02/037	Blythe River 4042/4 - Ground Magnetics - Southern Sheet	1:2,500
10	D/MZ 02/043	Blythe River 4042/4 - Magnetic Profiles - Southern Sheet	1:2,500
11	D/MZ 02/039	Blythe River 4042/4 - Magnetic Profile - Line 4100E - Southern Sheet	1:2,500
12	D/MZ 02/040	Blythe River 4042/4 - Soil Geochemistry - Southern Sheet	1:2,500
13	D/MZ 02/055	Blythe River 4042/4 - Line 2700N Geology & Geochemistry	1:250
14	D/MZ 02/075	Blythe River 4042/4 - Line 2750N Costean Geology & Geochemistry	1:250
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16	D/MZ 02/067	Aeromagnetic Anomaly 4141/2 - Initial Ground Check	1:2,500
17	D/MZ 02/069	Aeromagnetic Anomaly 4041/1 Initial Ground Check	1:2,500

18	D/M 202/115	Talbots Lagoon 3941/1 Slope Correction	1:5,000
19	D/M 202/114	Blythe Road South 4041/8 Slope Correction	1:5,000
20	D/MZ 02/068	Aeromagnetic Anomaly 4041/8 Initial Ground Check	1:2,500
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22	D/MZ 02/107	Loongana, Tasmania - EM Anomaly Map - Sheet 20/3942	1:20,000
23	D/MZ 02/108	Loongana, Tasmania - EM Anomaly Map - Sheet 20/4042	1:20,000
24	D/MZ 02/109	Loongana, Tasmania - EM Anomaly Map - Sheet 20/4142	1:20,000
25	D/MZ 02/110	Loongana, Tasmania - EM Anomaly Map - Sheet 20/3941	1:20,000
26	D/MZ 02/111	Loongana, Tasmania - EM Anomaly Map - Sheet 20/4041	1:20,000
27	D/MZ 02/112	Loongana, Tasmania - EM Anomaly Map - Sheet 20/4141	1:20,000
28	D/MZ 02/058	INPUT Anomaly 4042/IL 1 - Initial Ground Check	1:2,500
29	D/MZ 02/060	INPUT Anomaly 3941/IL 3 - Initial Ground Check	1:2,500
30	D/MZ 02/066	INPUT Anomaly 4141/IL 4 - Initial Ground Check	1:2,500
31	D/MZ 02/063	INPUT Anomaly 4041/IL 9 - Initial Ground Check	1:2,500
32	D/MZ 02/059	INPUT Anomaly 3941/IL 11 - Initial Ground Check	1:2,500
33	D/MZ 02/079	IL 1 - Dempster Creek - Line 0E - Max-Min & Ground Magnetics	1:2,500
34	D/MZ 02/080	IL 1 - Dempster Creek - Line 200W Max-Min & Ground Magnetics	1:2,500
35	D/MZ 02/081	IL 1 - Dempster Creek - Line 400W Max-Min Ground Magnetics & IP/ Resistivity	1:2,500
36	D/MZ 02/083	IL 3 - Rabbit Plains Road - Line 200S - Max-Min & Ground Magnetics	1:2,500

37	D/MZ 02/082 ✓	IL 3 - Rabbit Plains Road - Line 00N - Max-Min Ground Magnetics & IP/Resistivity	1:2,500
38	D/MZ 02/084 ✓	IL 3 - Rabbit Plains Road - Line 200N - Max-Min & Ground Magnetics	1:2,500
39	D/MZ 02/092 ✓	Burghley Park 4041/IL 8 - IP/Resistivity Survey - Line 2000E	1:500
40	D/MZ 02/061 ✓	INPUT Anomaly 3941/IL 10 - Initial Ground Check	1:2,500

390 000 E | 400 000 E | 410 000 E | 420 000 E

5 430 000 N | 5 420 000 N | 5 410 000 N

LEGEND

Quaternary
- Alluvium
- Talus

Permo-Carboniferous
- Sandstone, siltstone, tillite

Devono-Silurian
- Bell shale
- Florence sandstone
- Magnetite rich skarn

Ordovician
- Limestone
- Sandstone
- Conglomerate

Cambrian
- Limestone, mudstone
- Acid / intermediate volcanics and sediments

Igneous Rocks
- Tertiary basalt
- Devonian granite - Housetop granite

KEY
- Highway
- Road
- River
- Emu Bay Railway
- •(E) Electrical sounding location
- CD1 ⊗ Drill hole location
- Landsat interpretation (Huntings)
- CF Circular Feature
- Aeromagnetic Anomaly
- Input Anomaly
- AMT Site

MOUNT HOUSETOP
LOYETEA PEAK
BLYTHE RIVER ANOMALY (4042/4)
4042/3
4042/6
4042/IL5
4041/8
4041/IL9
(E4)
4041/2
20/4041/IL1
(E2) 160 m
4041/1
4041/IL8
20/4041/IL2
MOUNT TOR
BLACK BLUFF
4141/2
4141/IL41
NIETTA
4241/1
NARRAWA
SOUTH NIETTA
3941/IL10
3941/IL11
GF 3 (>90m)
(E3)
AMT 6 - 250m
20/3941/IL3
3941/1
GF 1 (>152 m)
GUILDFORD
AMT 12 160 m
TALBOTS LAGOON
ROAD
RIVER
BLYTHE
GUILDFORD
WEY
LEVEN
LOONGANA
WILSON

214055

5 cm

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA GEOLOGY	
85-2351 (Vol 2/2)	829
Scale : 1: 50 000	
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/048
DATE 5-8-83	AUTHOR J.J. LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG 2

390 000 E

400 000 E

410 000 E

420 000 E

5 430 000 N

5 410 000 N

BLYTHE
RIVER
PROSPECT

5 cm

N

214056

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
RESIDUAL AEROMAGNETIC
CONTOURS

85-2351 (Vol 2|2) 830

SCALE 1: 50 000	DATE 19-8-82
AUTHOR J.J. LAWTON	DRAWN H.L.S.
OFFICE DEVONPORT	REP. No.
ENCL No.	DRG. No. D/MZ02/074

FIG 3

LEGEND

- RECENT — Alluvium
- TERTIARY — Basalt
- ORDOVICIAN — Sandstone
- Magnetite Skarn
- DEVONIAN — Housetop Granite

BLYTHE RIVER

S.S. Flood

TRACK

3600 E
3700 E
3800 E
3900 E
4000 E
4100 E
4200 E
4300 E
4400 E
4500 E
4600 E
4700 E

1700 N
1800 N
1900 N
2000 N
2100 N
2200 N
2300 N
2400 N
2500 N
2600 N
2700 N
2800 N
2900 N
3000 N
3100 N
3200 N

N

Sn = Analyses in ppm.
(W) = Analyses in ppm.

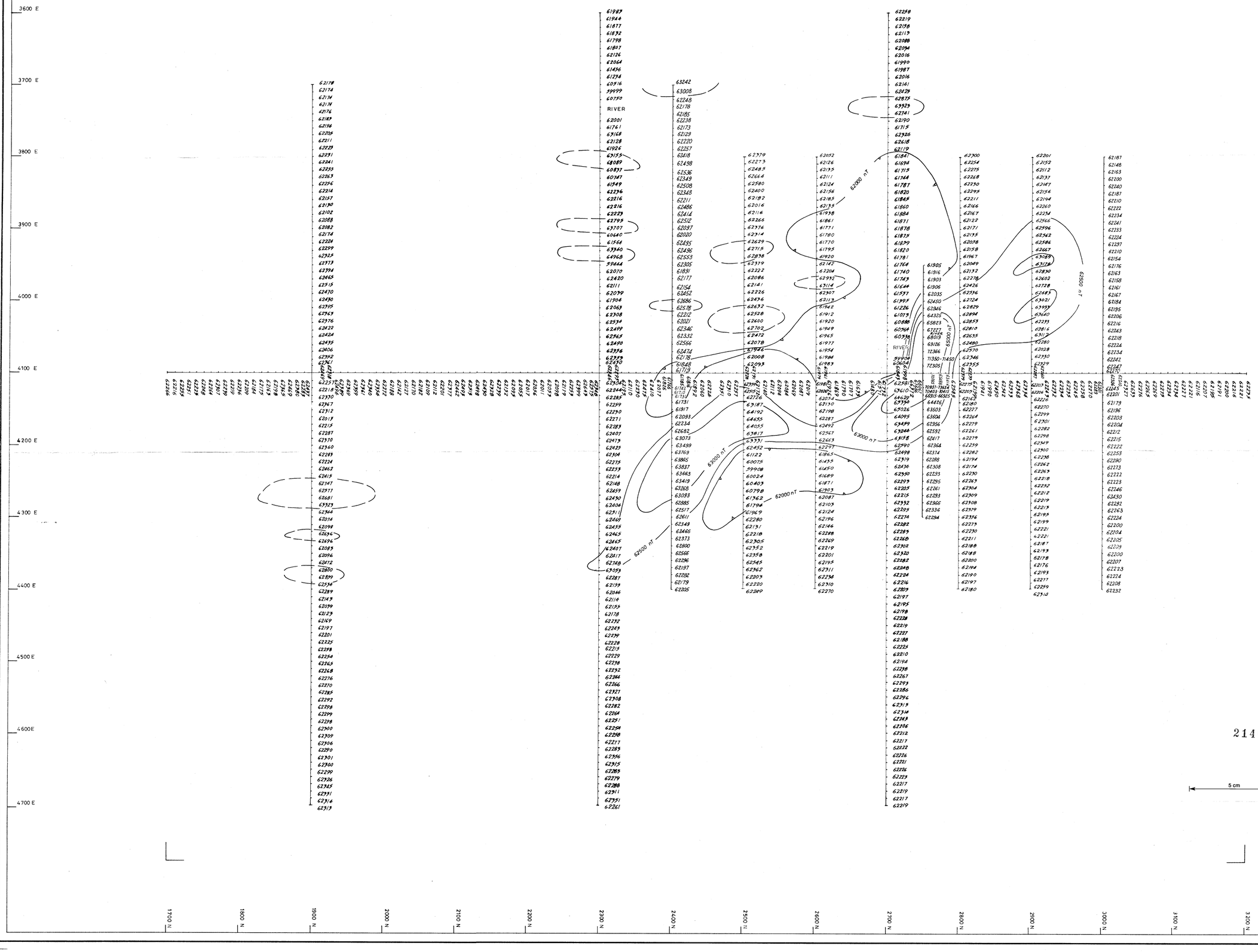
214057

5 cm

0 100 200 M

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA BLYTHE RIVER 4042/4 SOIL GEOCHEMISTRY & GEOLOGY NORTHERN SHEET	
85-2351 (W612/2) Scale 1:2500	831
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/054
DATE 8-9-81	AUTHOR J.J.LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG 4



214058

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
BLYTHE RIVER 4042/4
GROUND MAGNETICS
NORTHERN SHEET

85-2351
CV01 2/3

Scale 1:2500

832

FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/036
DATE 8-9-81	AUTHOR J.J LAWTON.
DRAWN H.L.H.	OFFICE DEVONPORT

FIG 5

LINE 1900 N
LINE 2300 N
LINE 2400 N
LINE 2500 N
LINE 2600 N
LINE 2700 N
LINE 2750 N
LINE 2800 N
LINE 2900 N
LINE 3000 N

3600 E
3700 E
3800 E
3900 E
4 000 E
4100 E
4 200 E
4300 E
4 400 E
4500 E
4 600 E
4700 E

PIT
COSTEAN

61000 nT
62000 nT
63000 nT

69126
72366
71400
72305
70900 - 73650
70400

N

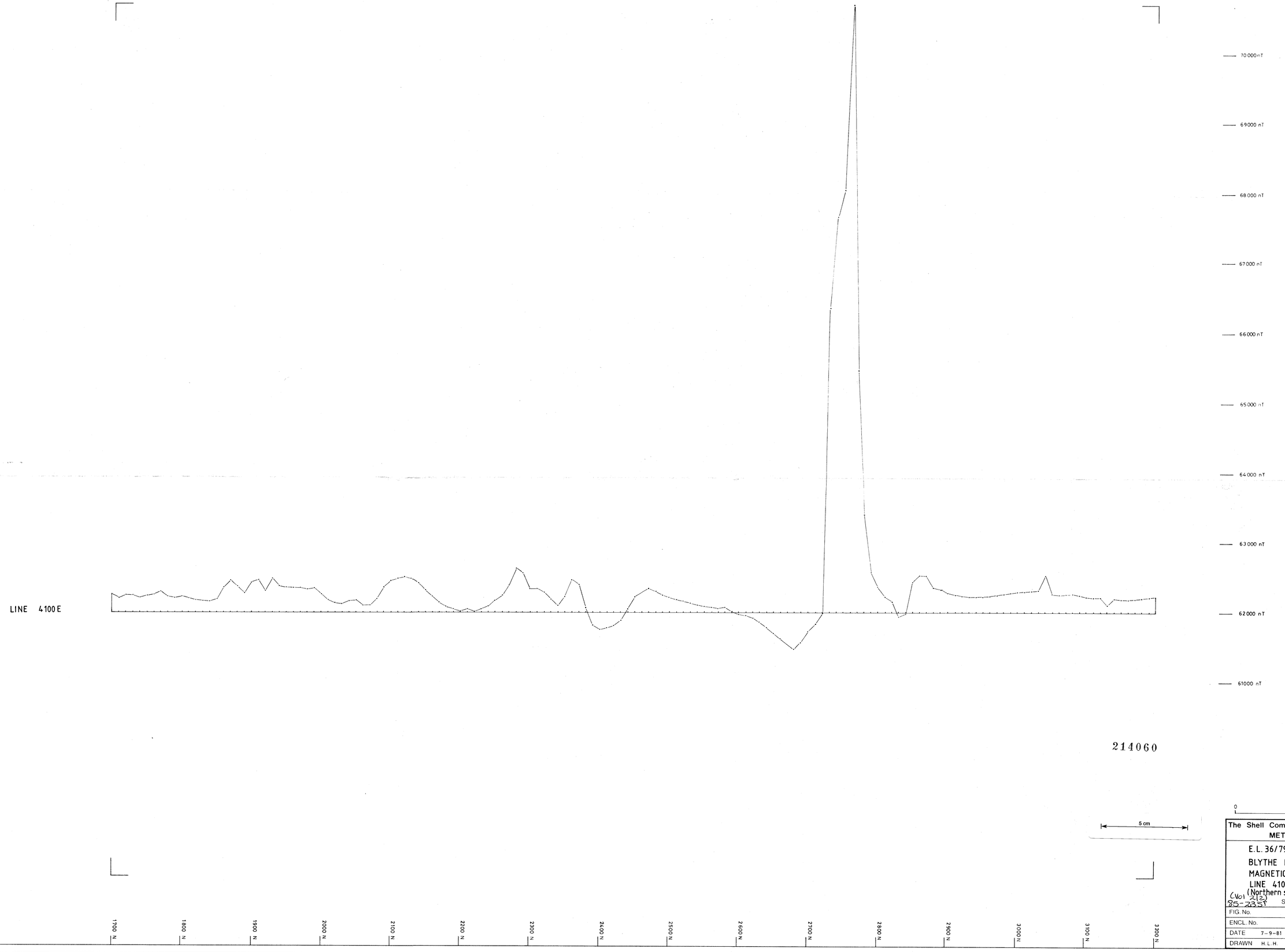
214059

5 cm

0 100 200 M

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA BLYTHE RIVER 4042/4 MAGNETIC PROFILES Northern Sheet 833	
85-2351 (C.V012/2) Scale 1cm = 250 nT VERTICAL 1 2500 HORIZONTAL	
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/042
DATE 11-9-81	AUTHOR J. J. LAWTON
DRAWN H. L. H.	OFFICE DEVONPORT

FIG. 6



214060

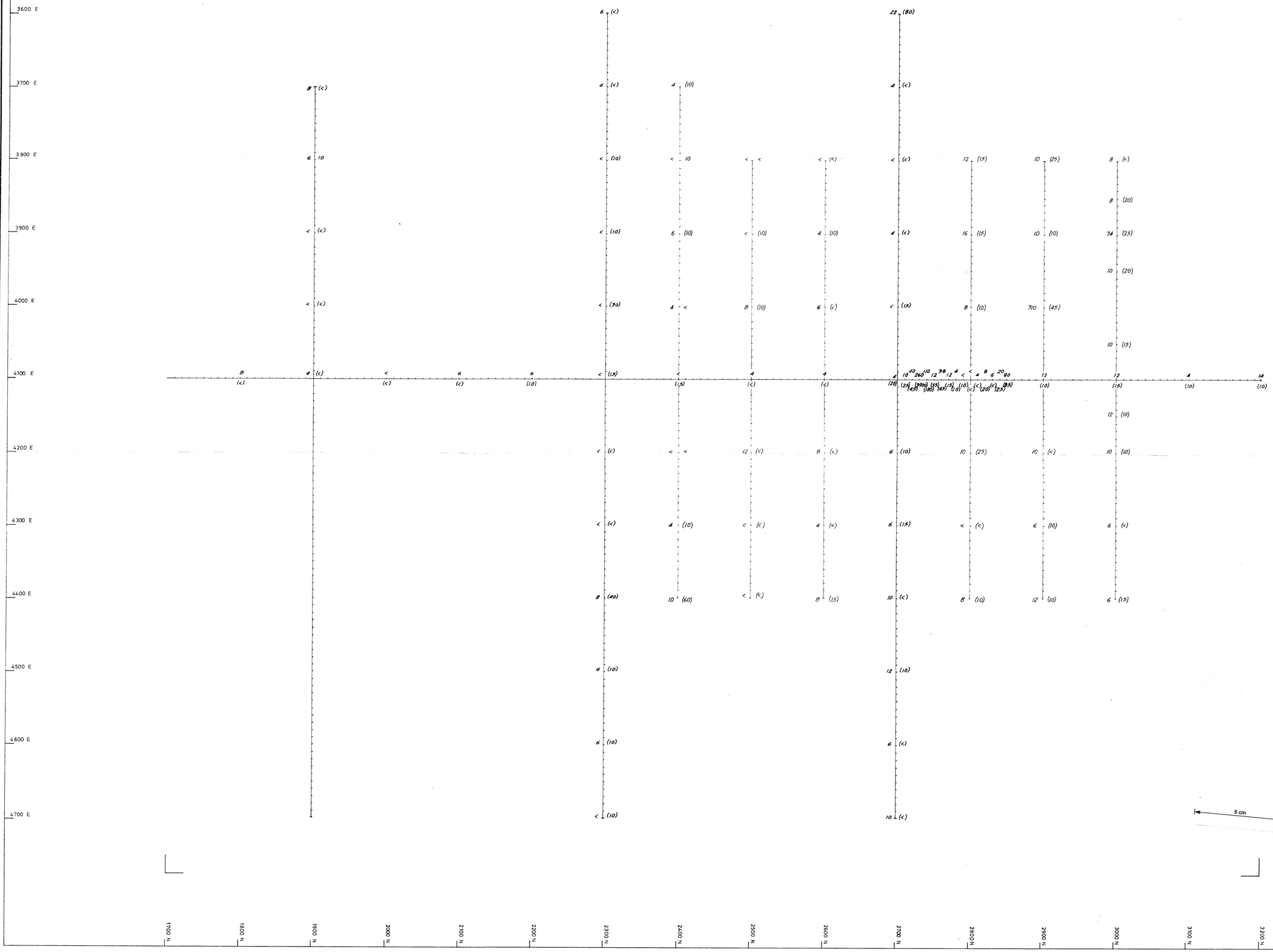
The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
BLYTHE RIVER 4042/4
MAGNETIC PROFILE
LINE 4100 E 834
(Northern sheet)
CVol 2(2)
85-2351

Scale : 1cm = 250 nT VERTICAL
1:2500 HORIZONTAL

FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/038
DATE 7-9-81	AUTHOR J.J. LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG. 7



Sn = Analyses in ppm.

(W) = Analyses in ppm.

214061

0 100 200 M

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA BLYTHE RIVER 4042/4 SOIL GEOCHEMISTRY NORTHERN SHEET	
85-2351 (Vol 2/2) Scale 1:2500	835
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/041
DATE 8-9-81	AUTHOR J.J.LAWTON.
DRAWN H.L.H.	OFFICE DEVONPORT.

FIG 8

3700 E

3800 E

3900 E

4000 E

4100 E

4200 E

4300 E

4400 E

4500 E

N

214062

0 100 200 M

5 cm

The Shell Company of Australia Limited METALS DIVISION	
E.L.36/79 LOONGANA BLYTHE RIVER 4042/4 GROUND MAGNETICS SOUTHERN SHEET	
85-2351 (Vol 2(2)). Scale 1:2500	836
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/037
DATE 8-9-81	AUTHOR J.J.LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG. 9

LINE 800 N

LINE 1000 N

LINE 1200 N

3700 E

3800 E

3900 E

4000 E

4100 E

4200 E

4300 E

4400 E

4500 E

61000 nT

62000 nT

63000 nT

61000 nT

62000 nT

63000 nT

61000 nT

62000 nT

63000 nT

5 cm

0 100 200 M

214063

The Shell Company of Australia Limited
METALS DIVISION

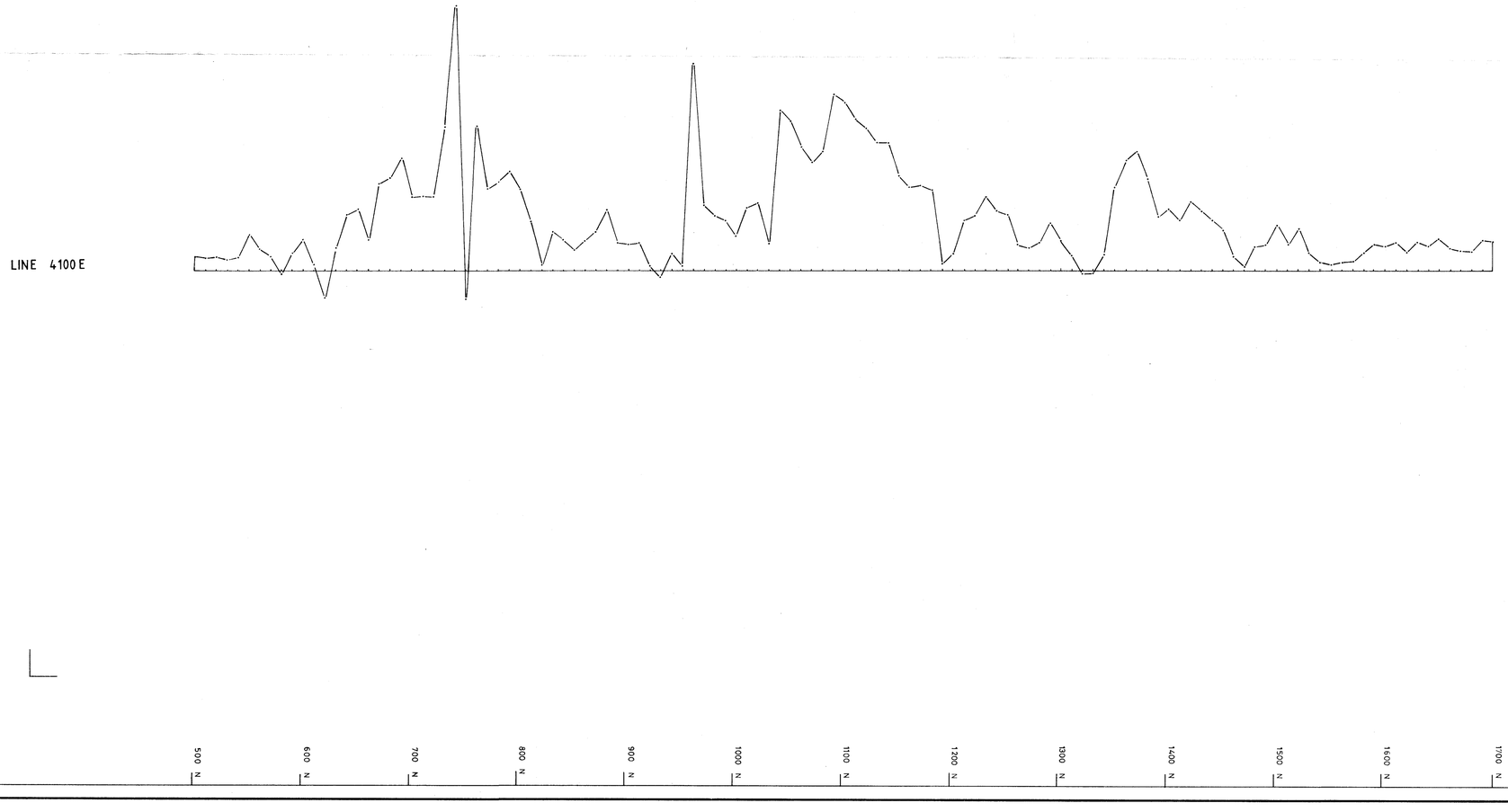
E.L. 36/79 LOONGANA
BLYTHE RIVER 4042/4
MAGNETIC PROFILES
Southern Sheet 837

85-2351
CV01 2|2)

Scale 1cm = 250nT VERTICAL
1: 2500 HORIZONTAL

FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/043
DATE 11-9-81	AUTHOR J.J.LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG. 10



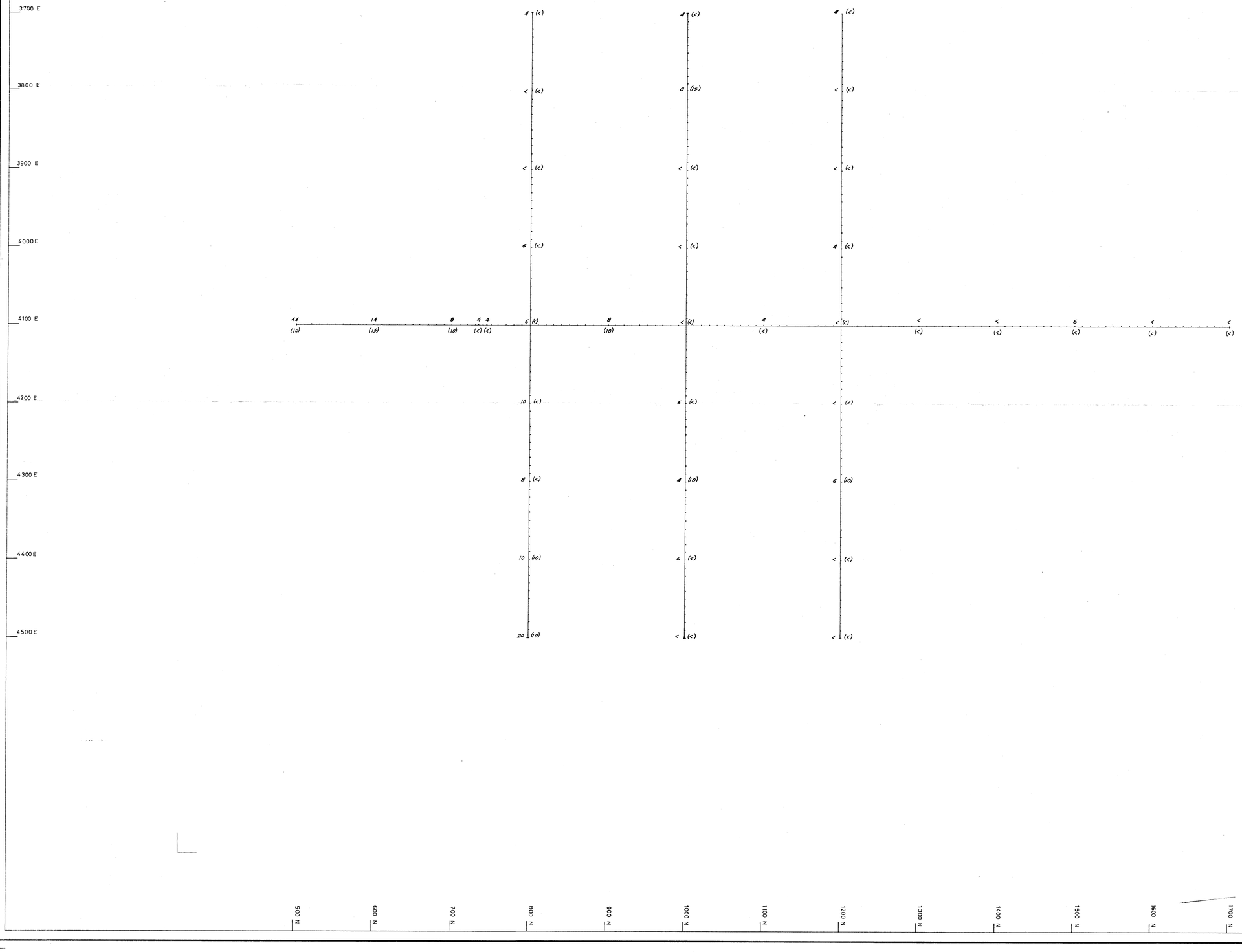
214064

0 100 200M

5 cm

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA BLYTHE RIVER 4042/4 MAGNETIC PROFILE LINE 4100 E (Southern Sheet) 85-2351 (Vol 2 [2]) Scale 1cm = 250nT VERTICAL 1:2500 HORIZONTAL	838
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/039
DATE 7-9-81	AUTHOR J.J.LAWTON
DRAWN H.L.H.	OFFICE DEVONPORT

FIG 11

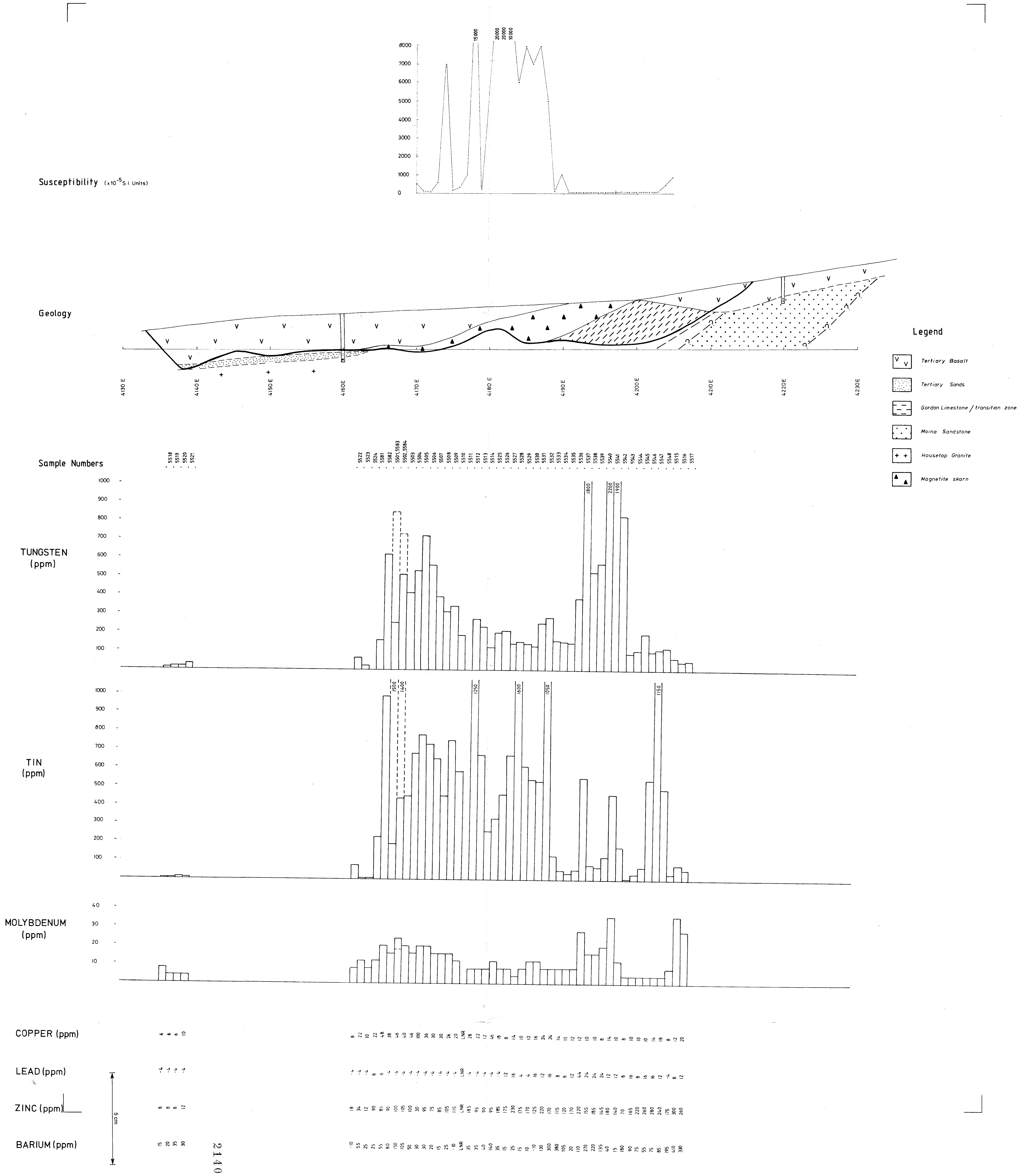


Sn = Analyses in ppm.
(W) = Analyses in ppm.

214065

The Shell Company of Australia Limited METALS DIVISION	
E.L. 36/79 LOONGANA BLYTHE RIVER 4042/4 SOIL GEOCHEMISTRY SOUTHERN SHEET 85-2351 (Vol 2/2)	
Scale 1:2500	839
FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ02/040
DATE 7-9-81	AUTHOR J. LAWTON.
DRAWN H.L.H.	OFFICE DEVONPORT.

FIG 12



214066

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
BLYTHE RIVER 4042/4
LINE 2700 N
GEOLOGY AND GEOCHEMISTRY

85-2351
(Vol 2/2)

840

SCALE	1:250	DATE	2-6-82
AUTHOR	J.J. LAWTON	DRAWN	H.L.H.
OFFICE	DEVONPORT	REP No	
ENCL No		DWG No	D/MZ02/055

FIG 13

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
BLYTHE RIVER 4042/4
LINE 2750 N
COSTEAN GEOLOGY &
GEOCHEMISTRY

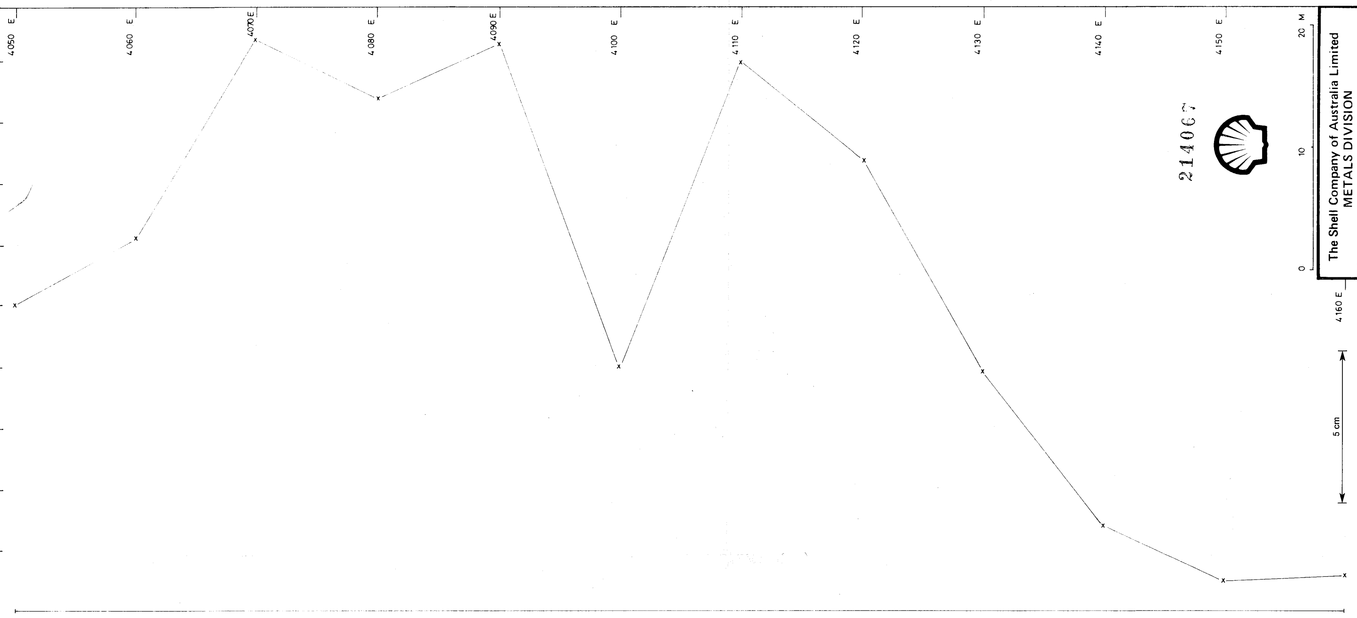
85-2351 (Vol 2)(2) 841

SCALE	1:250	DATE	7-9-82
AUTHOR	J.J. LAWTON	DRAWN	H.L.S.
OFFICE	DEVONPORT	REP No.	
ENCL No.		DRG No.	DM2021075

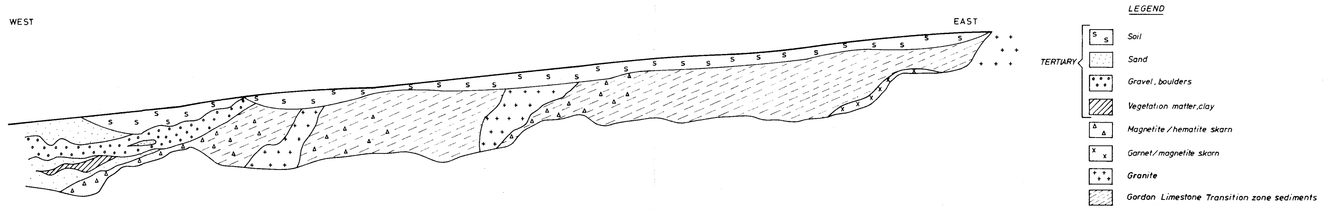
FIG 14

21406?

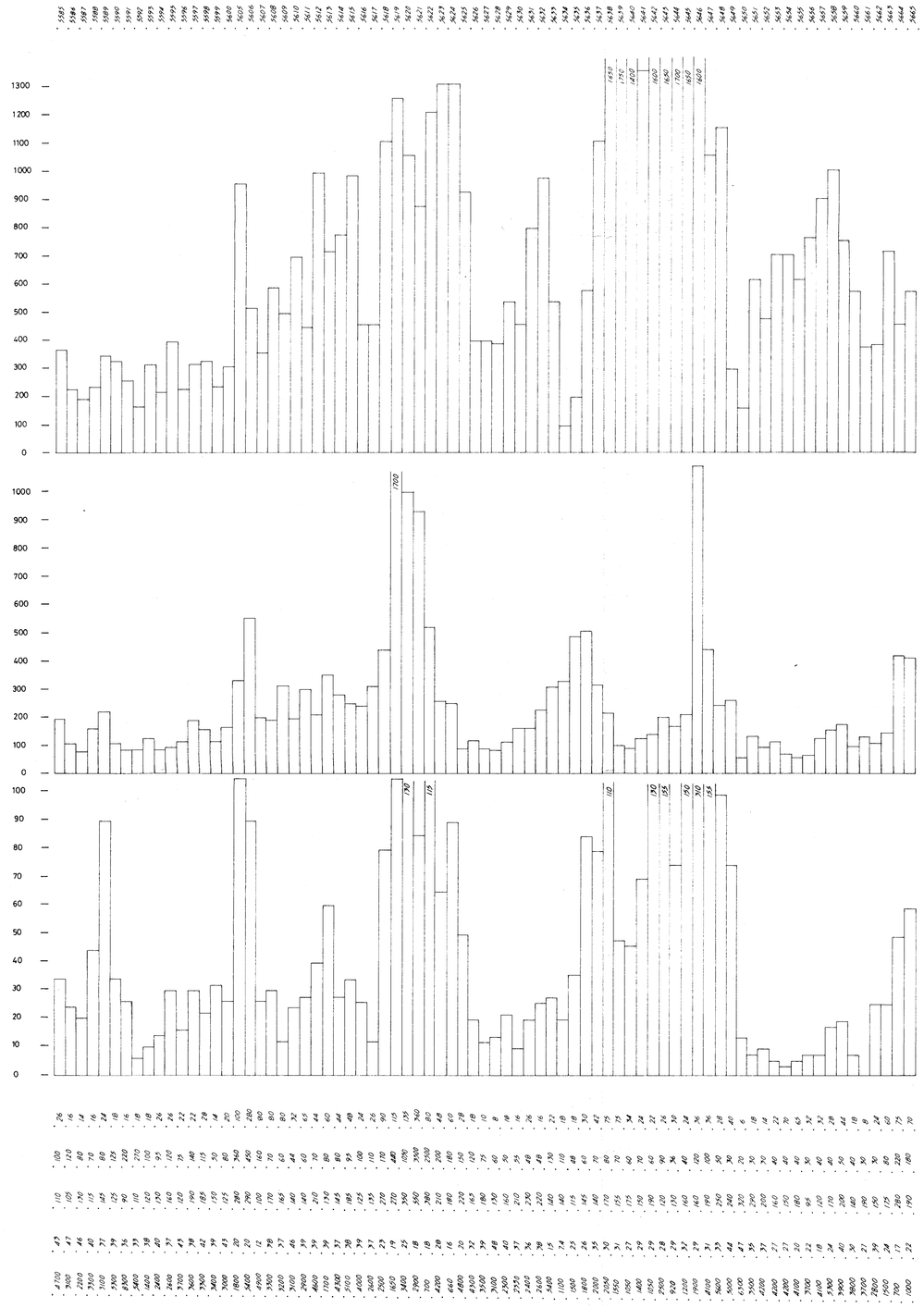
GROUND MAGNETICS
(nT)



GEOLOGY

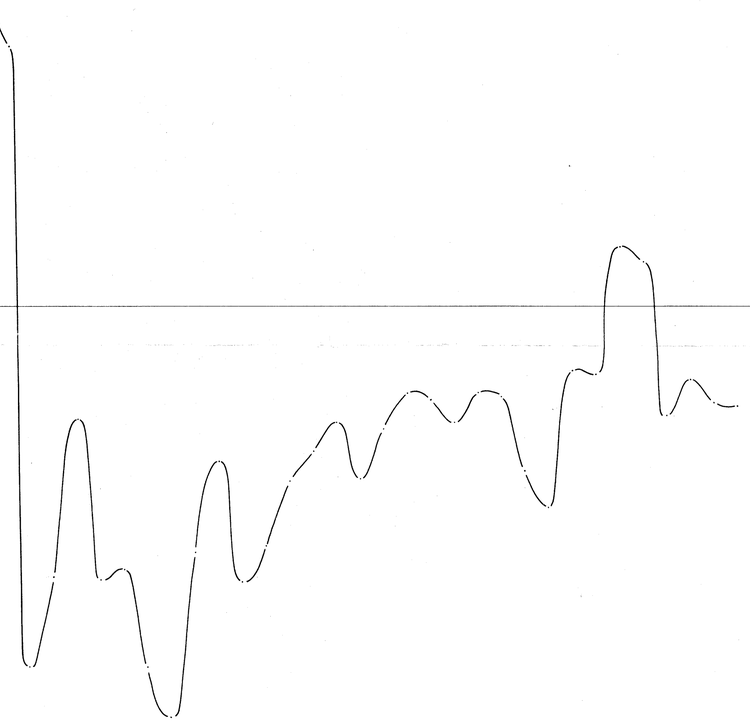


SAMPLE No.'s



1000E 1100E 1200E 1300E 1400E 1500E 1600E 1700E 1800E 1900E 2000E

64500
64000
63500
63000
62500
LINE 2000 N
62000
61500
61000



GROUND CHECK DATA

GEOMETRICS ANOMALY	:	06608 / T 67 N
LOCATION	:	5417250 N / 424800 E
OUTCROP GEOLOGY	:	Red basaltic soil, common basalt outcrop.
MAGNETIC SUSCEPTIBILITY	:	350 - 550 x 10^{-6} cgs units.

214065

ANOMALY 4241/1

5 cm

The Shell Company of Australia Limited
METALS DIVISION

LOONGANA E.L. 36/79

NIETTA SOUTH ANOMALY

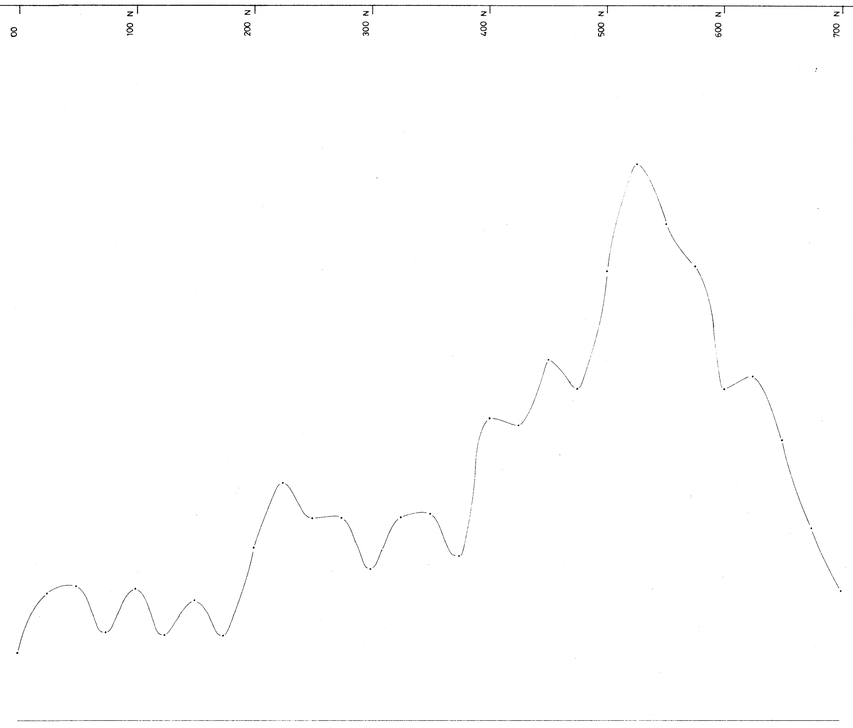
PROTON PRECESSION MAGNETOMETRY
LINE 2000N
PRELIMINARY GROUND CHECK

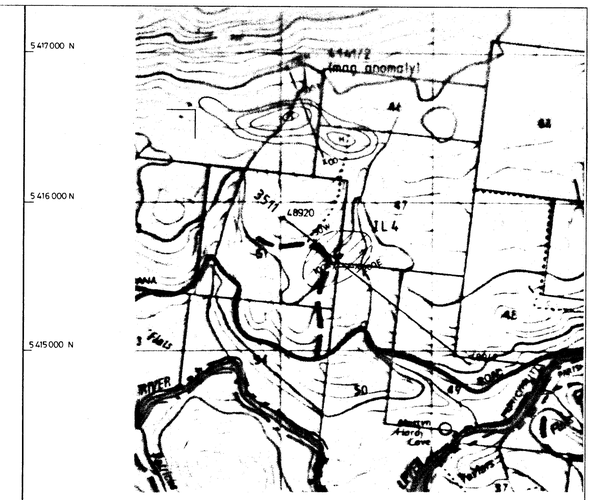
85-2351 (Vol 2(2))

1cm = 100nT (magnetics)
Scale : 1:2500 (horizontal axis)

FIG. No.	REPORT No.
ENCL. No.	DRG. No. D/MZ 02/001
DATE 1st SEPT. 1980	AUTHOR I.J. BUCHHORN
DRAWN O. HEDDITCH	OFFICE DEVONPORT

842 FIG 15





LOCATION ON CADASTRAL 20/4141

Scale 1: 20 000

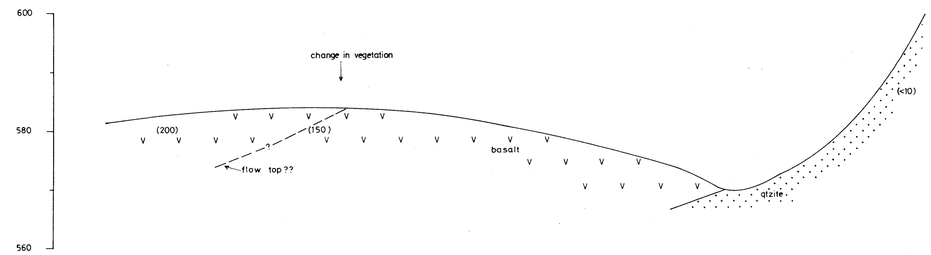
X——X Ground recce line

APPROX. TOPOGRAPHY

Metres A.S.L.

Numbers in brackets are magnetic susceptibility in units of 10^{-3} S.I.

Most likely explanation of magnetic anomaly is a basalt sheet, flat-lying or dipping shallowly South.



214069

5 cm

0 100 200M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
AEROMAGNETIC ANOMALY 4141/2
INITIAL GROUND CHECK

85-235 (Vol 2/2) 843

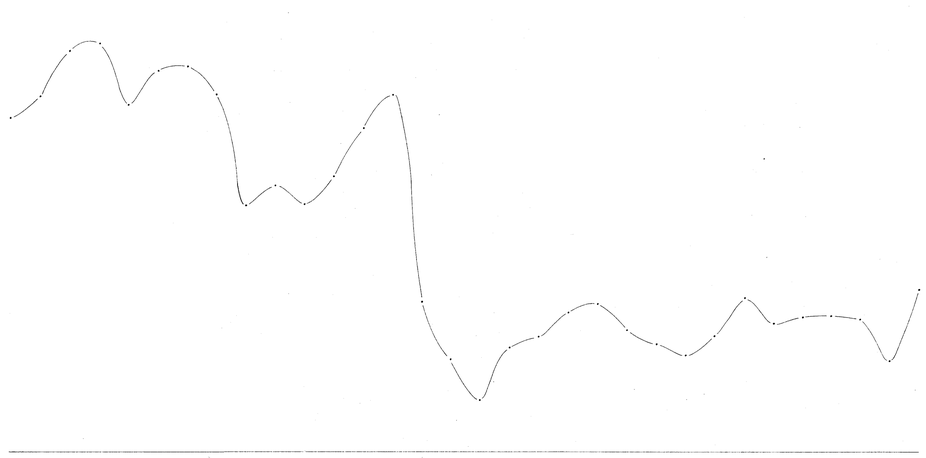
SCALE	1: 2500	DATE	5-8-82
AUTHOR	G OAKES	DRAWN	H L S
OFFICE	DEVONPORT	REP No	
ENCL No		DRG No	D/MZ02/067

FIG 16

800 W | 700 W | 600 W | 500 W | 400 W | 300 W | 200 W | 100 W | 00 E

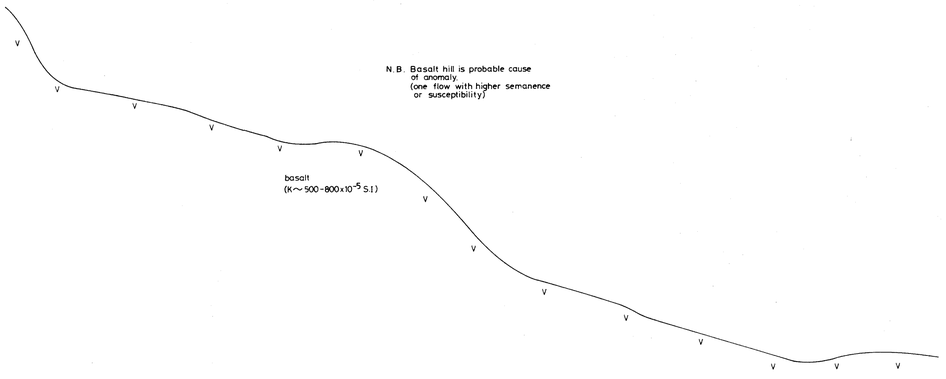
MAGNETICS

63000nT
62500nT
62000nT
61500nT



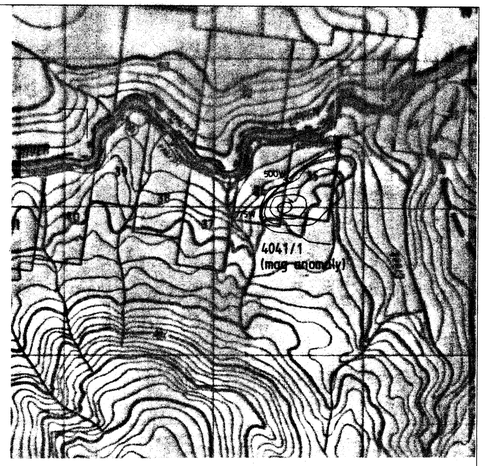
APPROX. TOPOGRAPHY
(Metres A.S.L.)

500
480
460
440



5 cm

5 416 000 N
5 415 000 N
5 414 000 N



LOCATION ON CADASTRAL 20/4041

Scale 1: 20 000
X——X Ground recce line

407 000E | 408 000E | 409 000E

214070

0 | 100 | 200 M

The Shell Company of Australia Limited
METALS DIVISION

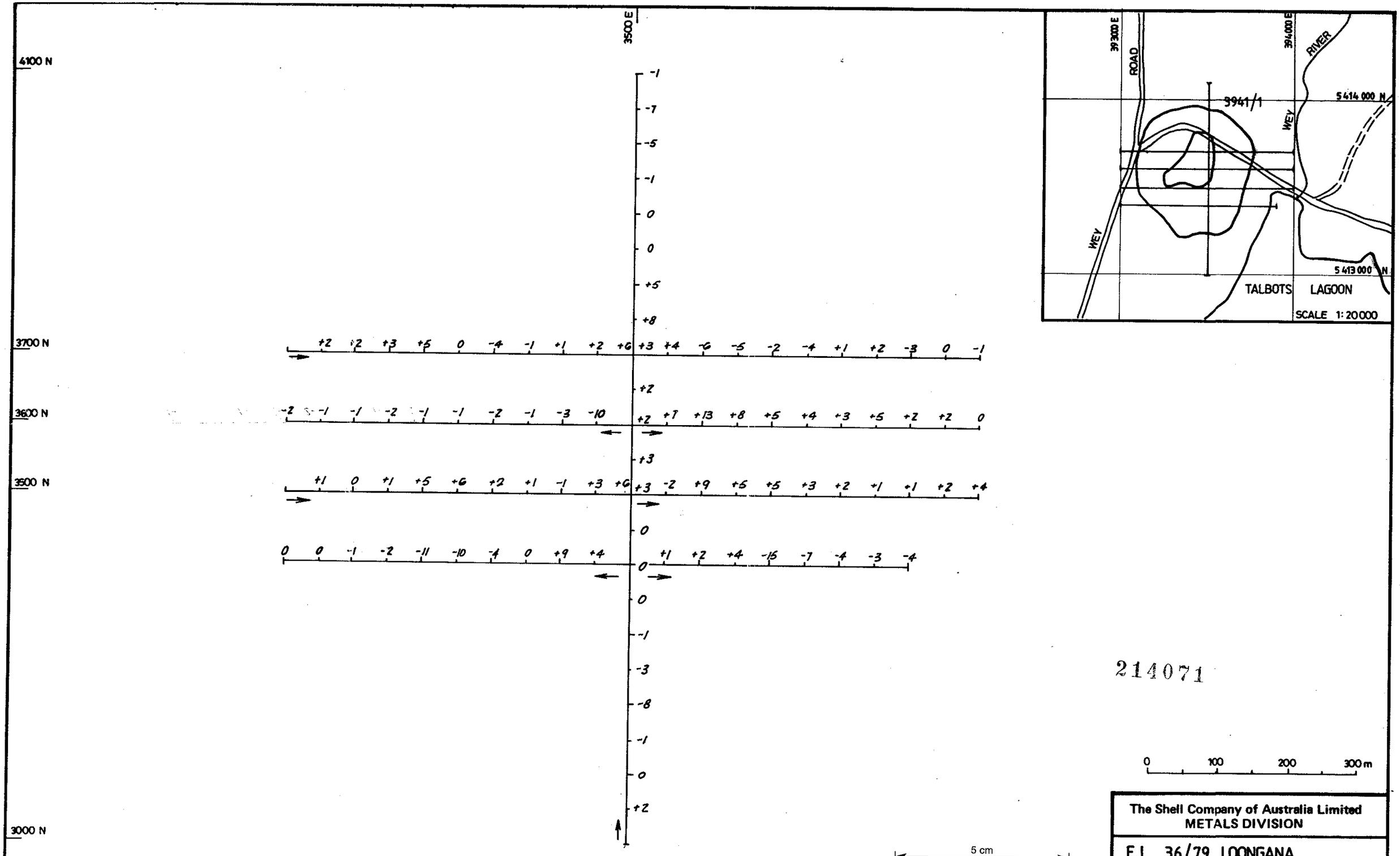
E.L. 36/79 LOONGANA
AEROMAGNETIC ANOMALY 4041/1
INITIAL GROUND CHECK

844

85-2351 (No 2/2)

SCALE	1: 2500	DATE	5-8-82
AUTHOR	G. OAKES	DRAWN	H.L.S.
OFFICE	DEVONPORT	REP. No.	
ENCL No.		DRG No	D/MZ02/069

FIG. 17



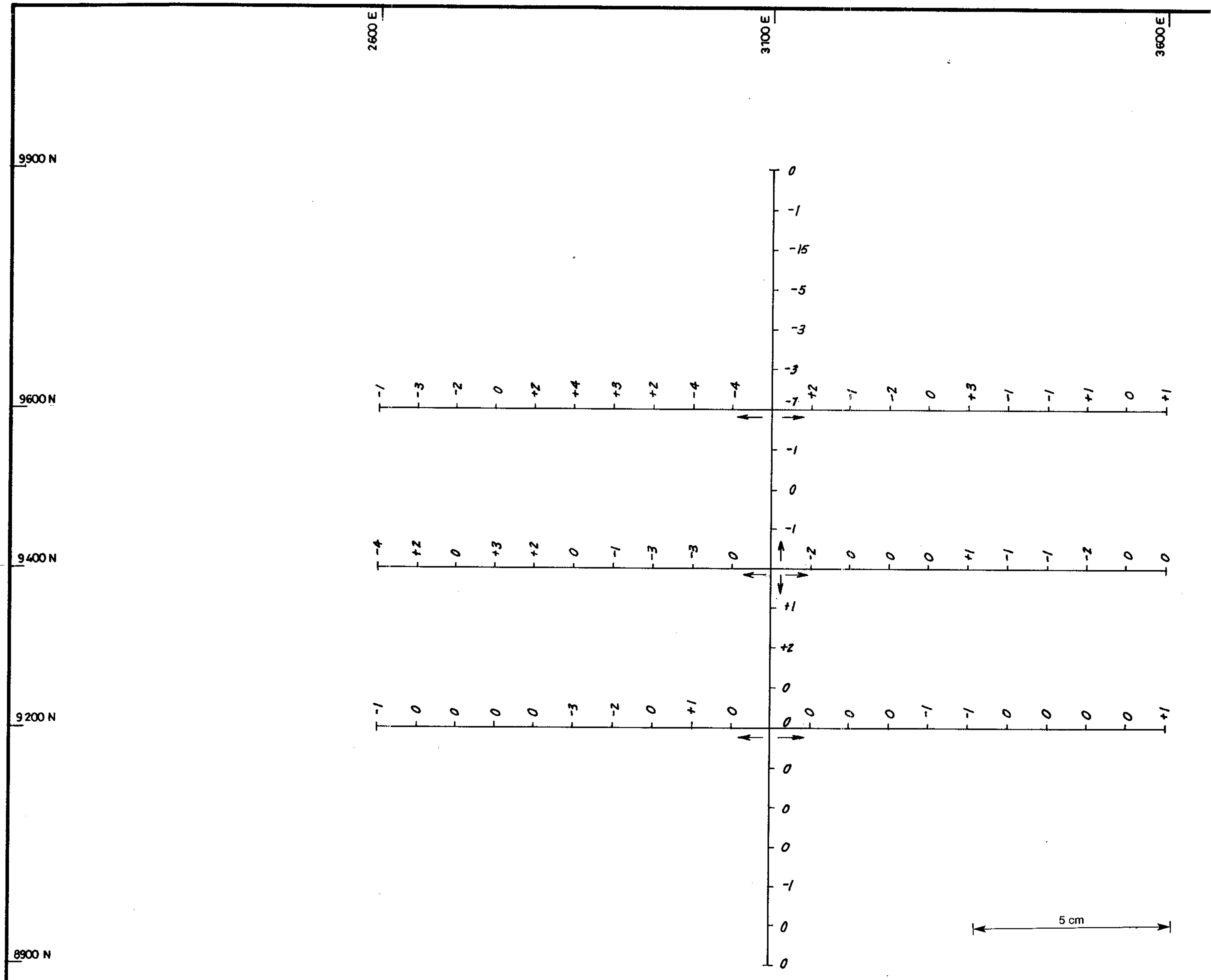
214071

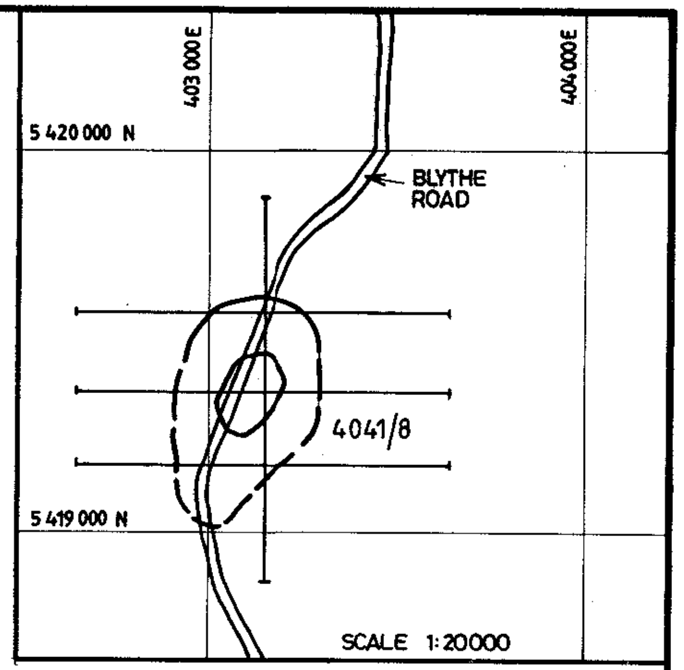
0 100 200 300 m

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
ANOMALY 3941/1
TALBOTS LAGOON
SLOPE CORRECTIONS 845
85-2351 (101 3/2)

SCALE 1:5000	DATE 9-11-83
AUTHOR W.D.S.	DRAWN J.L.L.
OFFICE DEVONPORT	REP.No.
DRG.No. D/MZ02/115	FIG.No. FIG 18





214072

0 100 200 300 m

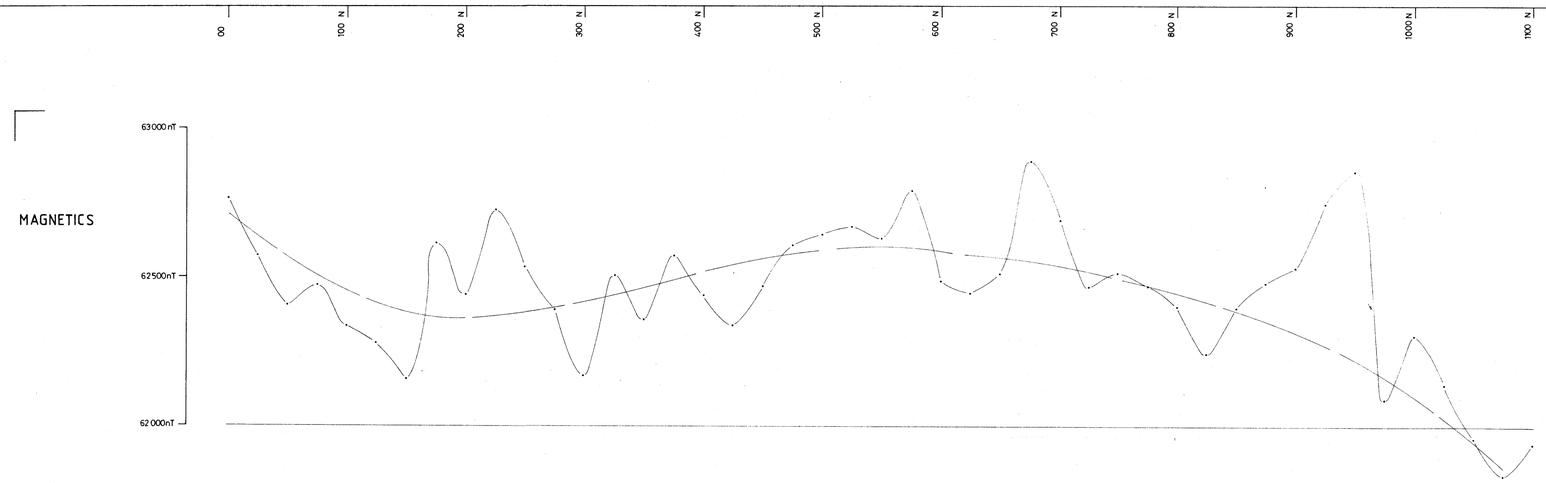
The Shell Company of Australia Limited
METALS DIVISION

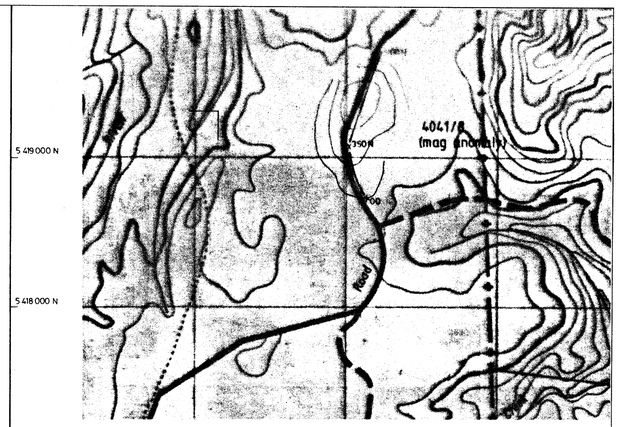
E.L. 36/79 LOONGANA
ANOMALY 4041/8
BLYTHE ROAD SOUTH
SLOPE CORRECTIONS

846

85-2351 (Vol 2/2)

SCALE 1:5000	DATE 20-10-83
AUTHOR W.D.S.	DRAWN J.L.L.
OFFICE DEVONPORT	REP.No.
DRG.No. D/MZ02/114	FIG.No. FIG 19

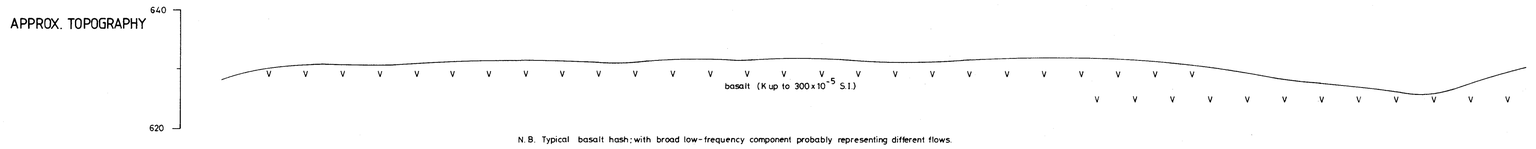




LOCATION ON CADASTRAL 20/4041 Scale 1: 20000

X——X Ground recce lines

402 000 E
403 000 E
404 000 E



N.B. Typical basalt hash; with broad low-frequency component probably representing different flows.

214073

5 cm

0 100 200 M

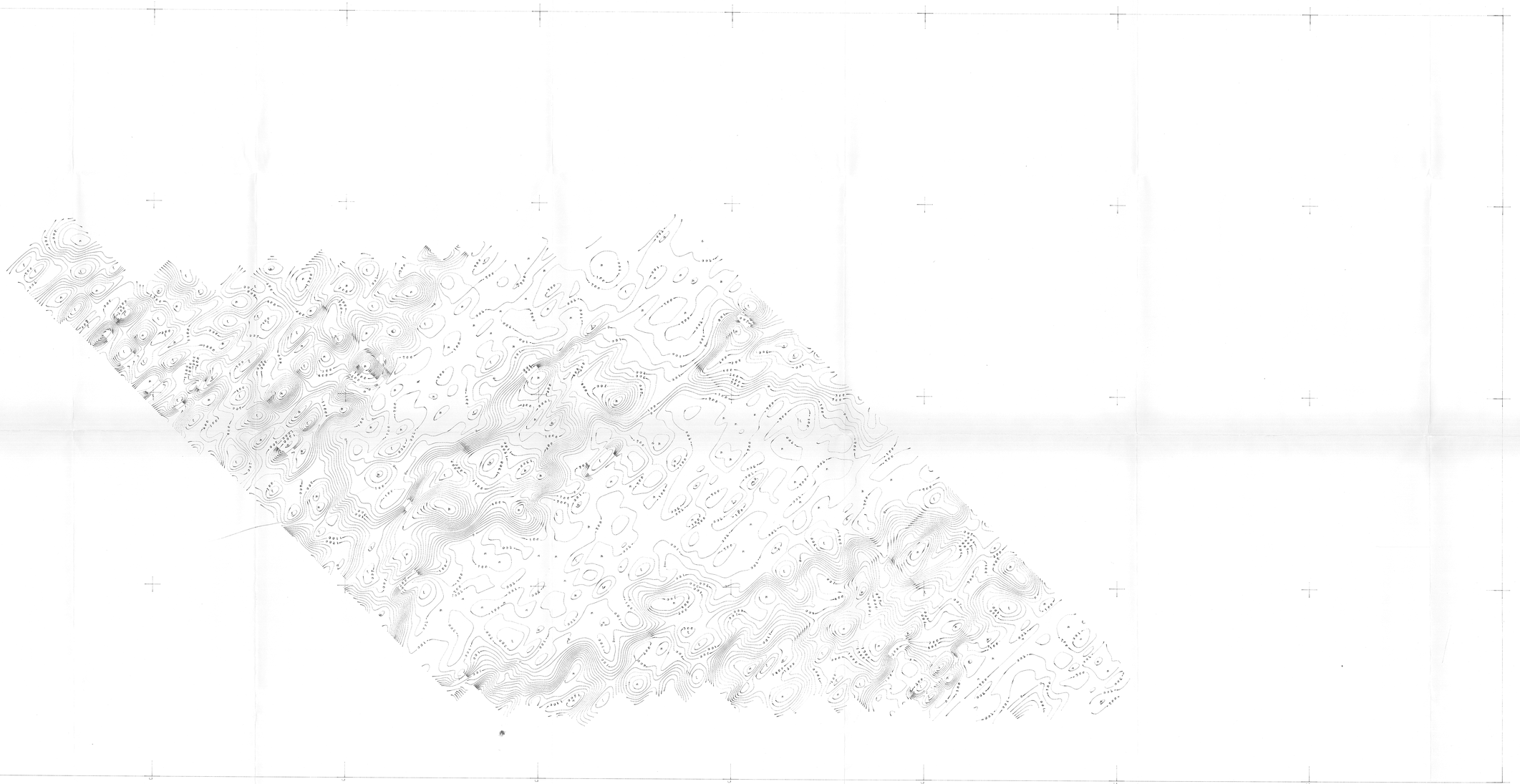
The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
AEROMAGNETIC ANOMALY 4041/8
INITIAL GROUND CHECK

85-2351 (Vol 2/2) 847

SCALE 1: 2500	DATE 5-8-82
AUTHOR G. OAKES	DRAWN H.L.S.
OFFICE DEVONPORT	REP. No.
ENCL. No	DRG. No. D/M202/068

FIG 20



214074

SHELL COMPANY OF AUSTRALIA
PETROLEUM DIVISION

LOONGANA
INPUT

CHANNEL 3

848

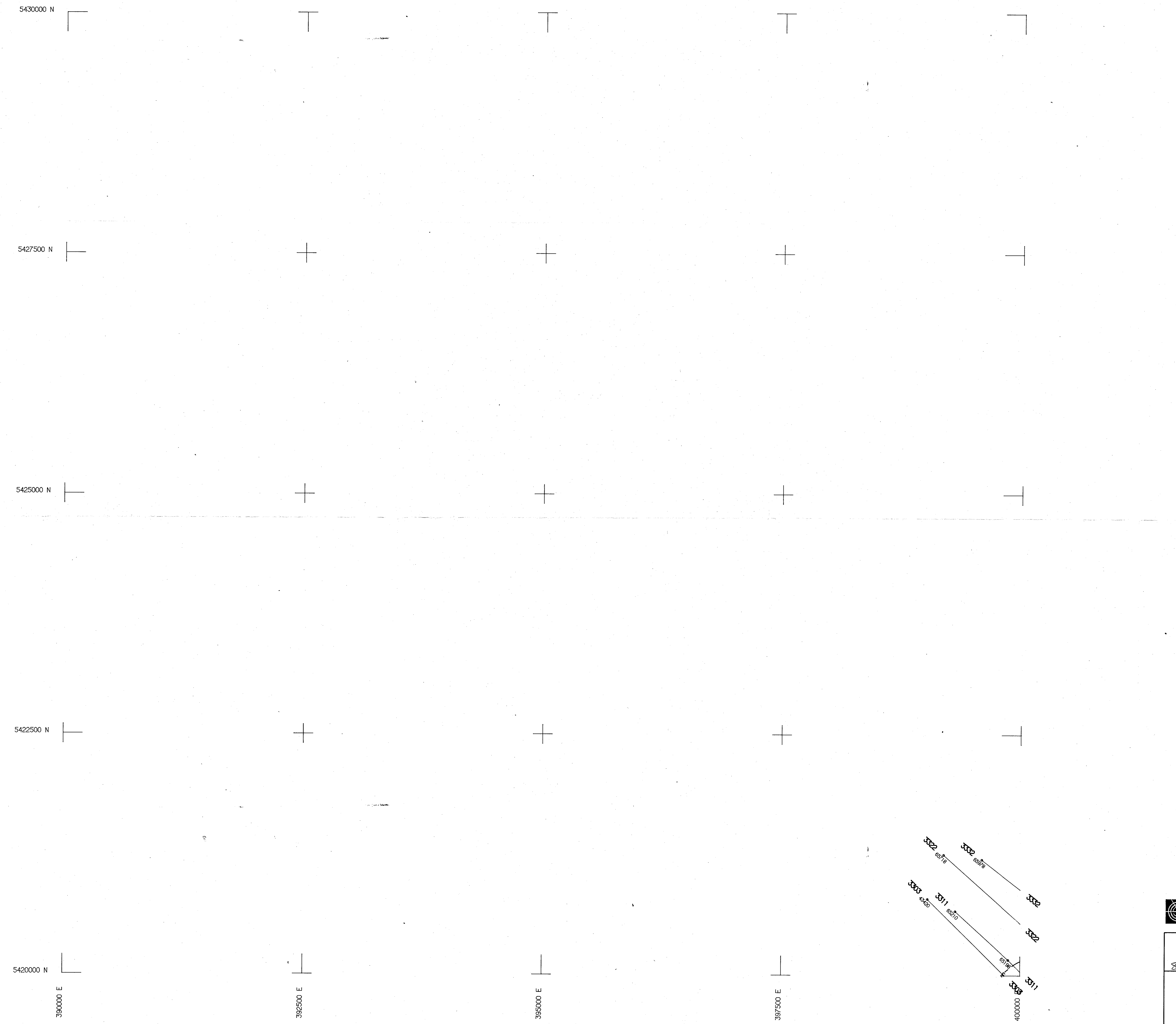
85-2351
(No(2)2)

SCALE: 1 : 200000.

ENG.REF:	REFS.REF:
ENGL.REF:	DRG.REF: D/M202/086
DATE:	AUTHOR:
DRAWN:	OFFICE:

5 cm

FIG 21



AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500,700,900,1200, 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system,digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW, tie lines not flown

E.M. ANOMALY MAP
Sheet 20/3942
Grid notation refers to Australian Map Grid
Path recovery digitized from 1:20000 topo maps

Large 6 channel response
6 channel response
5 channel response
4 channel response
3 channel response
2nd & 5th channel amplitudes 10/1.0
Altitudes (metres) 120
Offset magnetic anomaly 25nT
Hertz response Hz
Zone number 20/4041/IL1
Conductor boundary
Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

N

214075

0 1 2 Km
SCALE 1:20000

5 cm

JOB NO : 83-548
Flown by GEOTERREX PTY LTD : JANUARY 1982
Compiled by EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY OF AUSTRALIA LIMITED

85-2351 (Vol 2/2)

LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/3942

849

PROJ NO. D/MZ02/107	DATE: 3-MAR-82

FIG 22

5430000 N

5427500 N

5425000 N

5422500 N

5420000 N

400000 E

402500

405000 E

407500 E

410000 E

AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500.700.900.1200. 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system,digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW. tie lines not flown

E.M. ANOMALY MAP

Sheet 20/4042

Grid notation refers to Australian Map Grid

Path recovery digitized from 1:20000 topo maps

Large 6 channel response

6 channel response

5 channel response

4 channel response

3 channel response

2nd & 5th channel amplitudes

Altitudes (metres)

Offset magnetic anomaly

Hertz response

Zone number 20/4041/IL1

Conductor boundary

Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

214076

0 1 2 Km

SCALE 1:20000

5 cm

JOB NO : 83-548
Flown by GEOTERREX PTY LTD : JANUARY 1982
Compiled by EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY
OF AUSTRALIA LIMITED

85:2351, CV01 2(2)

LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/4042

850

PROJ NO. D/MZ02/108

DATE: 3-MAR-82

FIG 23

5430000 N

5427500 N

5425000 N

5422500 N

5420000 N

410000 E

412500 E

415000 E

417500 E

420000 E

3601 3591 3581 3571 3561 3551

3540 3520 3500 3480 3460 3440 3420

AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500,700,900,1200, 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system,digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW, tie lines not flown

E.M. ANOMALY MAP

Sheet 20/4142

Grid notation refers to Australian Map Grid

Path recovery digitized from 1:20000 topo maps

Large 6 channel response

6 channel response

5 channel response

4 channel response

3 channel response

2nd & 5th channel amplitudes 10/1.0

Altitudes (metres) 120

Offset magnetic anomaly 25nT

Hertz response 1 Hz

Zone number 20/4041/IL1

Conductor boundary

Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

N

0 1 2 Km

SCALE 1:20000

214077

5 cm

JOB NO : 83-548

Flown by GEOTERREX PTY LTD : JANUARY 1982

Compiled by EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY OF AUSTRALIA LIMITED

85-2351 CVol 2(2)

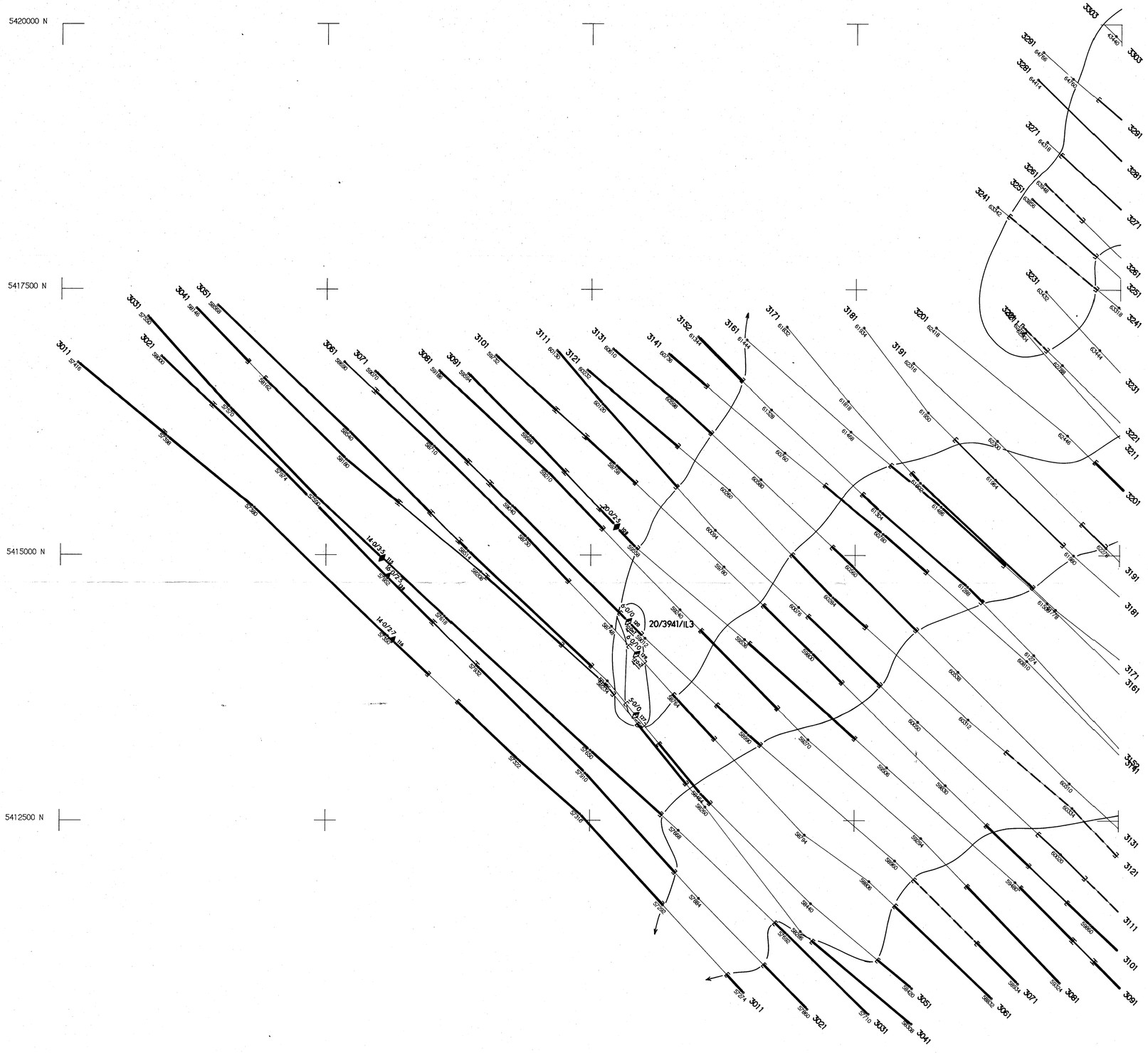
LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/4142

851

PROJ NO. D/MZ02/109

DATE: 3-MAR-82

FIG 24



AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500.700.900.1200. 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system.digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW, tie lines not flown

E.M. ANOMALY MAP

Sheet 20/3941

Grid notation refers to Australian Map Grid

Path recovery digitized from 1:20000 topo maps

Large 6 channel response

6 channel response

5 channel response

4 channel response

3 channel response

2nd & 5th channel amplitudes

Altitudes (metres)

Offset magnetic anomaly

Hertz response

Zone number 20/4041/IL1

Conductor boundary

Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

0 1 2 Km

SCALE 1:20000

5 cm

JOB NO : 83-548

Flown by GEOTERREX PTY LTD : JANUARY 1982

Compiled by: EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY OF AUSTRALIA LIMITED 214078

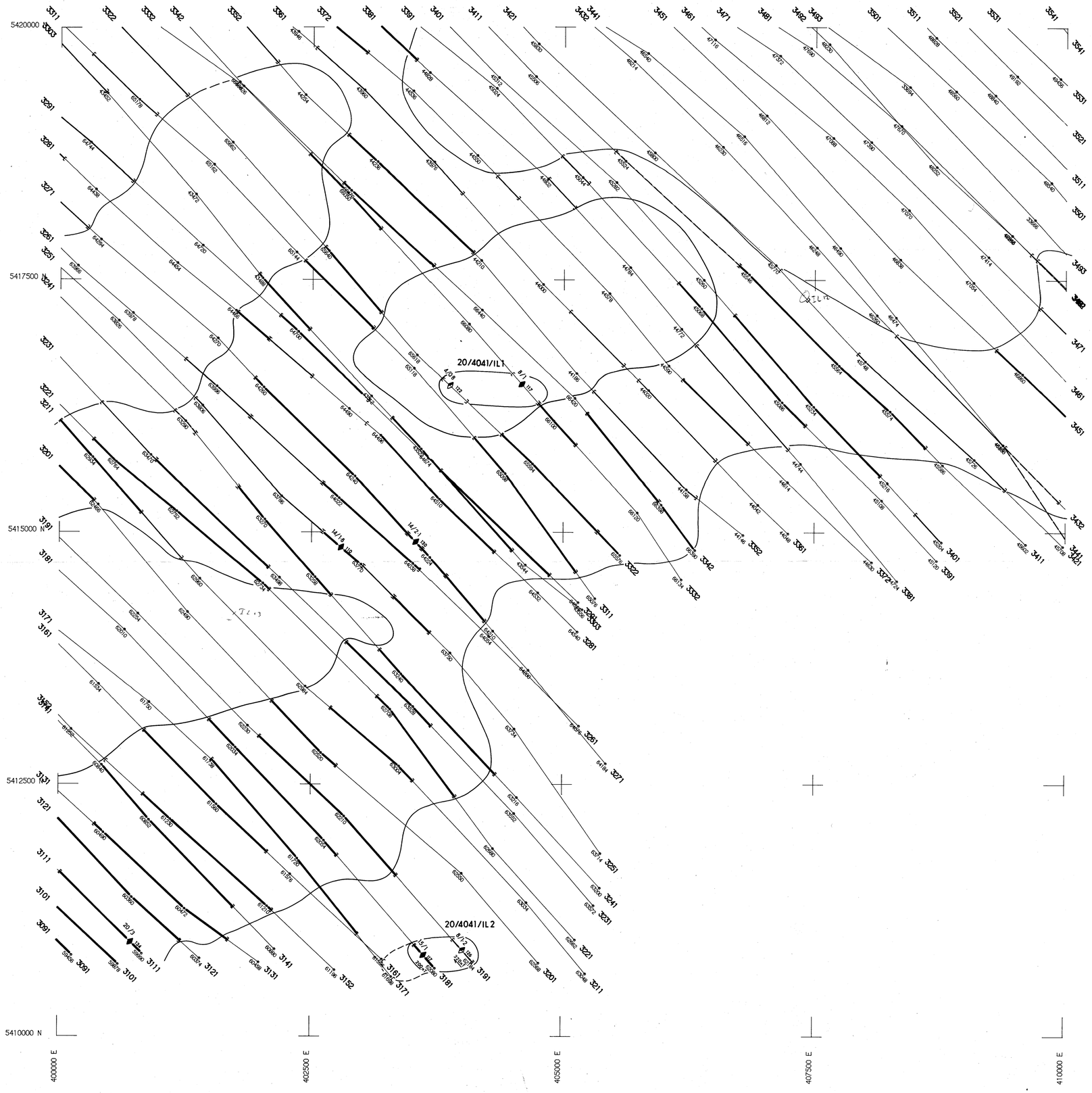
85 2351 CV012(3)

LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/3941

852

PROJ NO. D/MZ02/110 | DATE: 3-MAR-82

FIG 25



AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500.700.900.1200. 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system,digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW, tie lines not flown

E.M. ANOMALY MAP

Sheet 20/4041

Grid notation refers to Australian Map Grid

Path recovery digitized from 1:20000 topo maps

Large 6 channel response

6 channel response

5 channel response

4 channel response

3 channel response

2nd & 5th channel amplitudes

Altitudes (metres) — 120

Offset magnetic anomaly — 23nT

Hertz response — Hz

Zone number — 20/4041/IL1

Conductor boundary

Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

0 1 2 Km

SCALE 1:20000

5 cm

JOB NO : 83-548

Flown by GEOTERREX PTY LTD : JANUARY 1982

Compiled by EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY OF AUSTRALIA LIMITED 214079

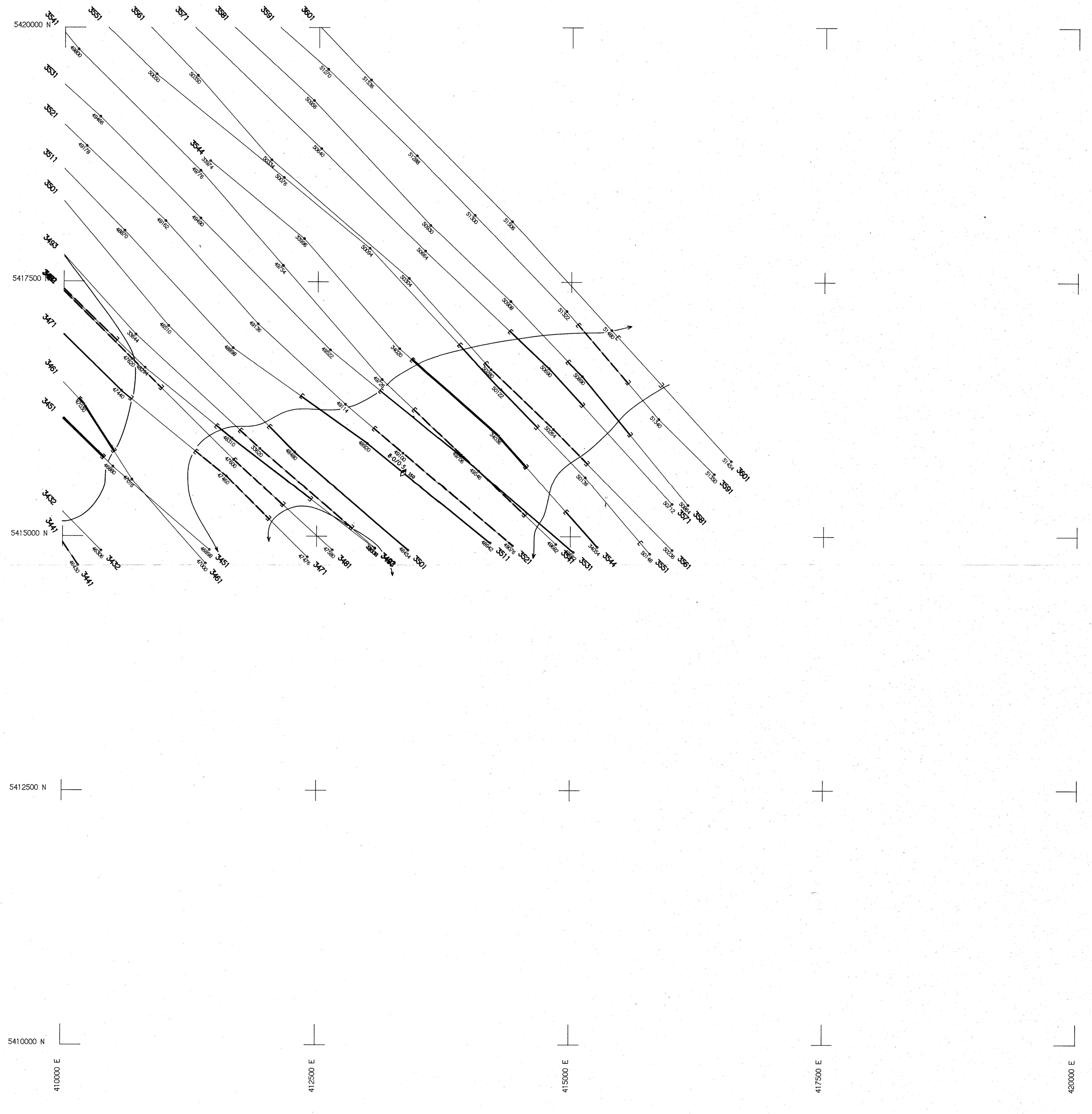
85-2351 (Vol 2)2)

LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/4041

853

PROJ NO. D/MZ02/111 | DATE: 3-MAR-82

FIG 26



AIRBORNE SURVEY SPECIFICATIONS

EM SYSTEM :	INPUT MARK V Channel centres:500,700,900,1200, 1600 and 2100 microseconds after transmitter switch off.
EM RECORDING INTERVAL :	0.2 sec (approx 13 metres)
MAGNETOMETER :	Geometrics G803 ,sensitivity 1.0nT.
MAG RECORDING INTERVAL :	1.0 sec (approx 60 metres)
DATA RECORDING :	Geoterrex Madacs system,digital to mag tape
NOMINAL SPEED :	mean ground speed 220 km per hour.
NOMINAL TERRAIN CLEARANCE :	Mag and spectrometer in aircraft at 120m. EM transmitter in aircraft at 120m. EM detector in bird at 40m.
FLIGHT PATH RECORD :	Geocam continuous 35mm tracking camera
NOMINAL LINE SPACING :	Traverses 300m SE-NW, tie lines not flown

E.M. ANOMALY MAP

Sheet 20/4141

Grid notation refers to Australian Map Grid

Path recovery digitized from 1:20000 topo maps

Large 6 channel response

6 channel response

5 channel response

4 channel response

3 channel response

2nd & 5th channel amplitudes 10/1-0

Altitudes (metres) 120

Offset magnetic anomaly 25nT

Hertz response Hz

Zone number 20/4041/IL1

Conductor boundary

Inferred boundary

20/3942	20/4042	20/4142
20/3941	20/4041	20/4141

N

0 1 2 Km

SCALE 1:20000

5 cm

JOB NO : 83-548

Flown by GEOTERREX PTY LTD : JANUARY 1982

Compiled by EXPLORATION COMPUTER SERVICES PTY LTD

THE SHELL COMPANY OF AUSTRALIA LIMITED

214080

85-2351 (Vol 2/2)

LOONGANA , TASMANIA
E.M. ANOMALY MAP
SHEET 20/4141

854

PROJ NO. D/MZ02/112 | DATE: 3-MAR-82

FIG 27

V.L.F. – EM

(Japan & N.W. Cape)

——— N.W. Cape (+ve dip to N)

x — — x Japan (+ve dip to E)

DIP

20°

10°

0

-5°

LEVEL

240%

220%

200%

180%

160%

140%

120%

100%

80%

conductive zone

150 N

200 N

300 N

400 N

500 N

MAGNETICS

62 500 nT

62 000 nT

61 500 nT

APPROX. TOPOGRAPHY & CULTURE (Metres A.S.L.)

630

620

610

600

track

INPUT LINE 3332

CHANNEL 6

CHANNEL 5

CHANNEL 4

CHANNEL 3

CHANNEL 2

CHANNEL 1

ALTITUDE

MAGNETICS

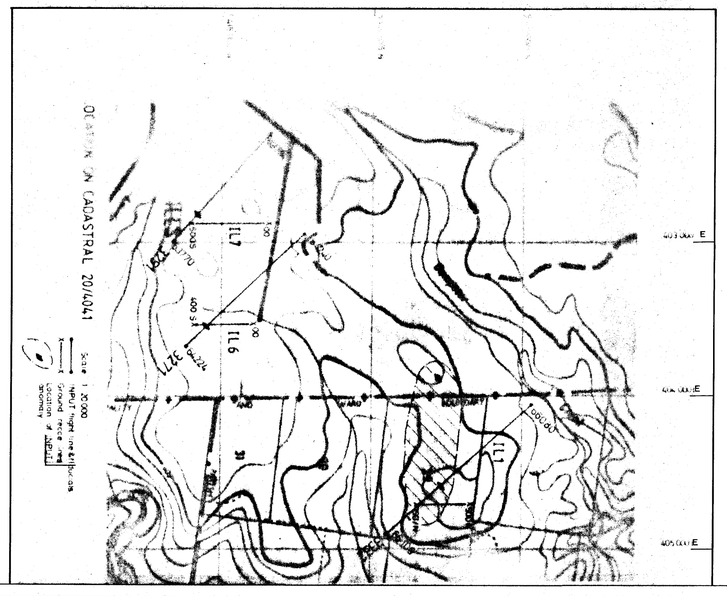
N.W

IL1

66100

66130

S.E



5 cm

0 100 200M

The Shell Company of Australia Limited
METALS DIVISION

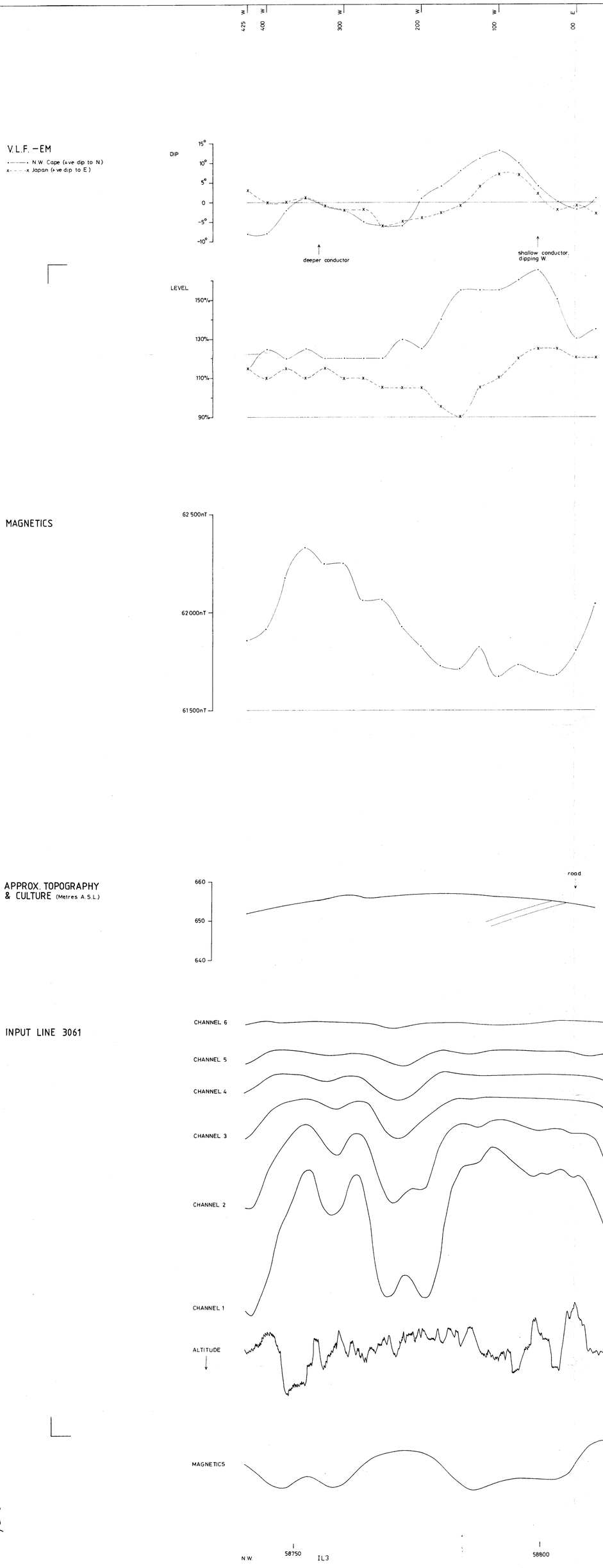
E.L. 36/79 LOONGANA
INPUT ANOMALY 4041/IL1
INITIAL GROUND CHECK

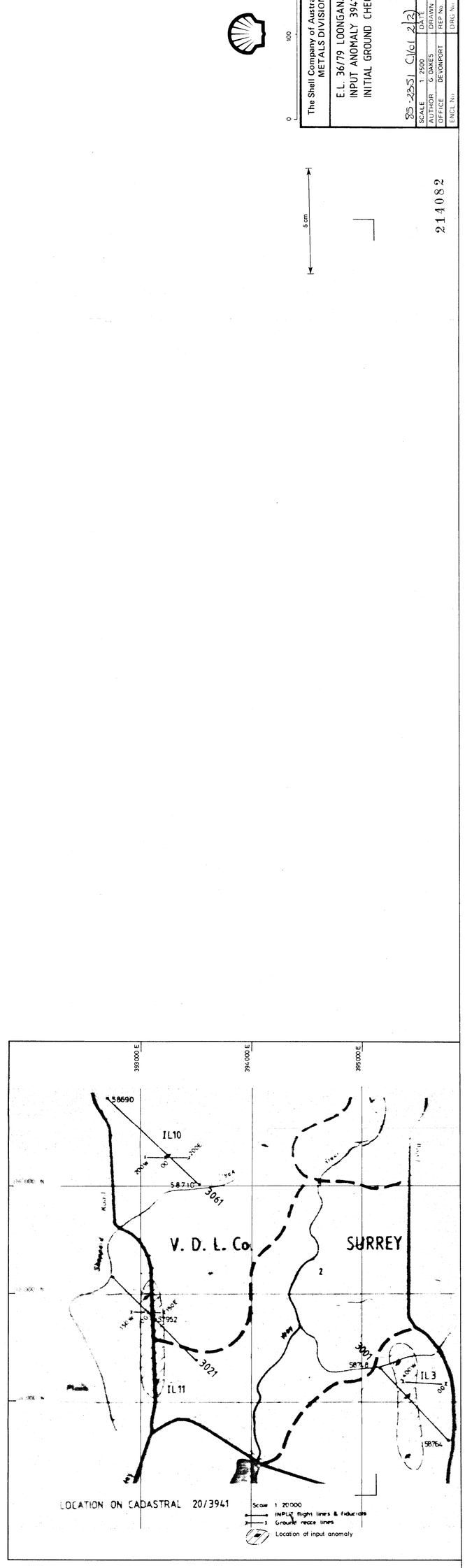
85-2351 CVol 2/2) 855

SCALE 1:2500	DATE 80 7 82
AUTHOR G. OAKES	DRAWN H.L.H.
OFFICE DEVONPORT	TEL. No.
ENCL No.	DRG. No. DZM/2072/058

214081

FIG 29





200W 100 0

5 cm

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
INPUT ANOMALY 3941/IL3
INITIAL GROUND CHECK

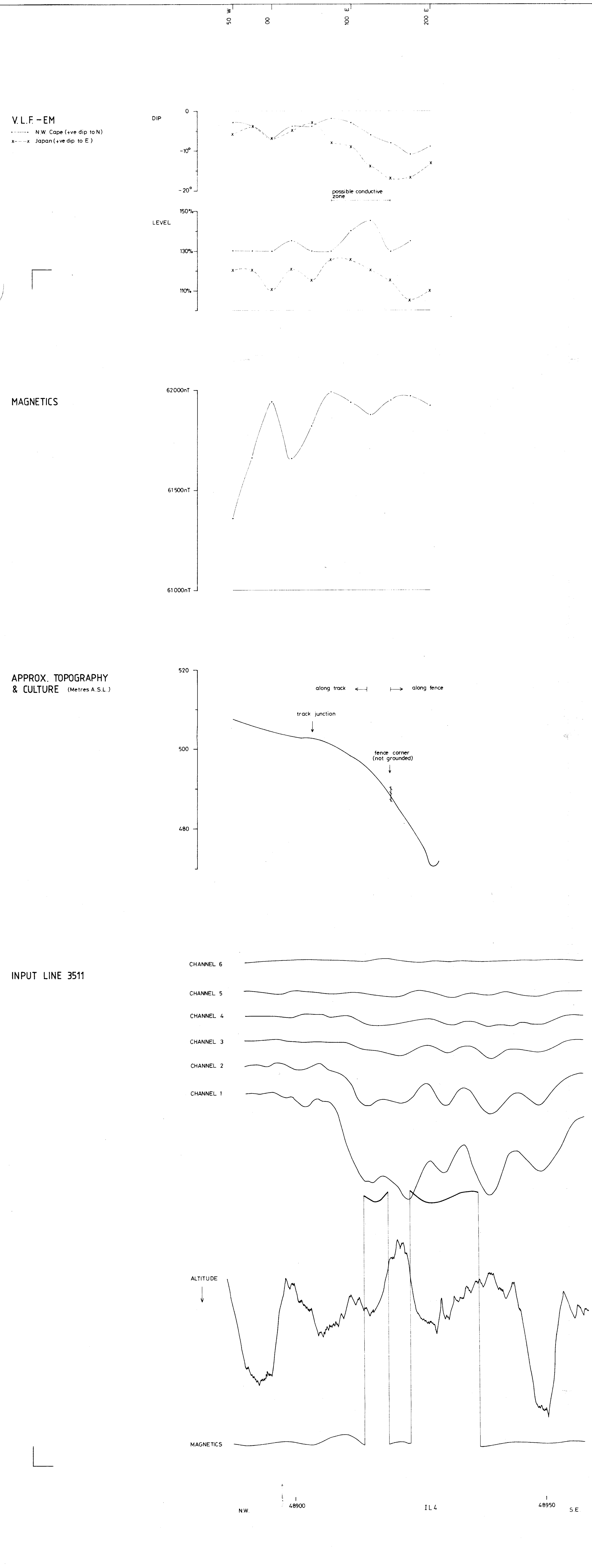
856

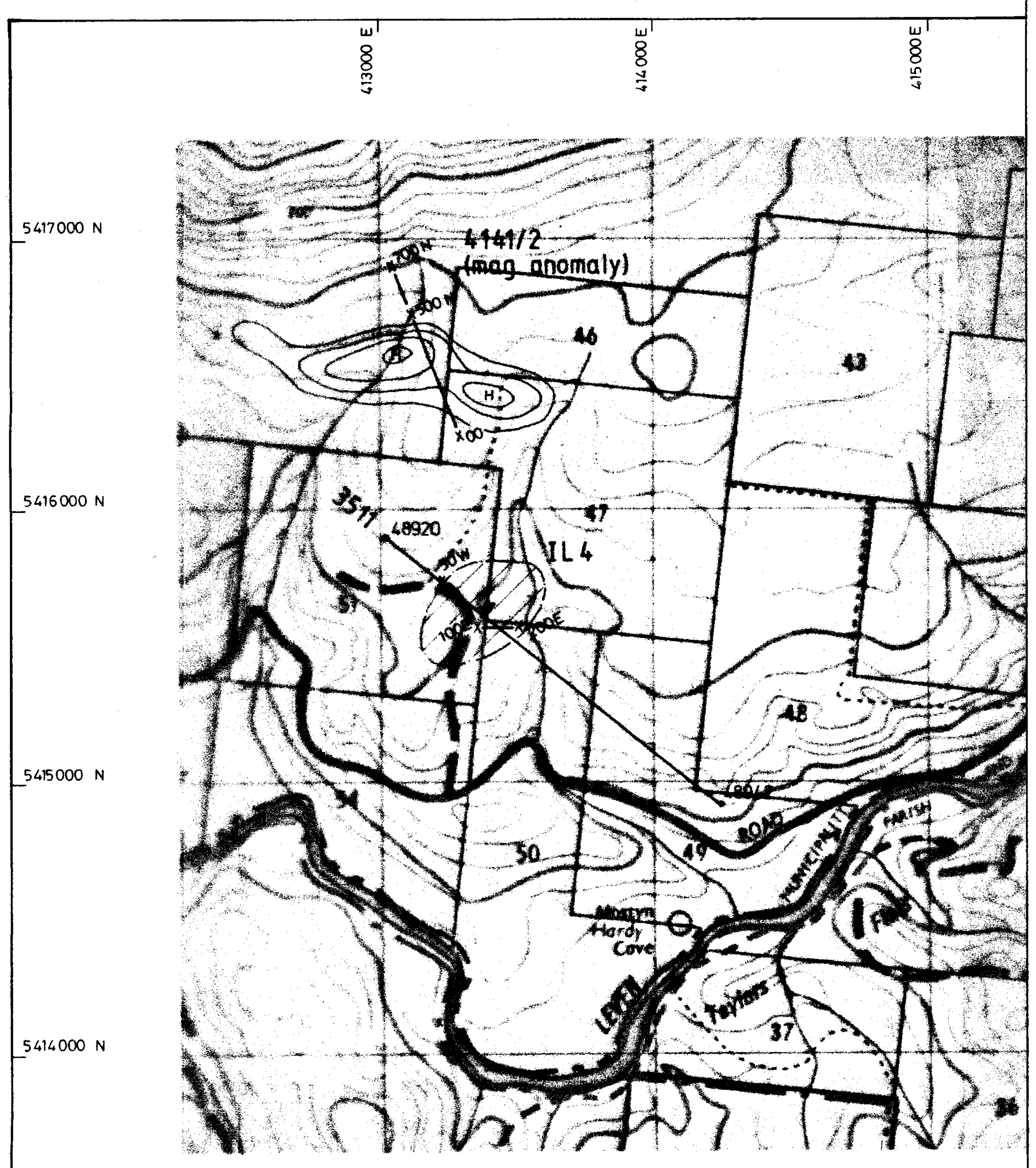
SCALE	1 : 2500
DATE	2-8-82
AUTHOR	G. DARES
DRAWN	H L S
OFFICE	DEVONPORT
REP No.	
ENCL No.	
DRG No.	D/M202/060

FIG 29

214082

856





LOCATION ON CADASTRAL 20/4141

Scale 1:20,000
INPUT flight lines & fiducials
Ground recce lines
Location of INPUT anomaly

0 100 200M

5 cm

214083

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
INPUT ANOMALY 4141/IL4
INITIAL GROUND CHECK

85-2351 CVol 2(2) 857

SCALE	1:2500	DATE	4-8-82
AUTHOR	G. OAKES	DRAWN	H.L.S.
OFFICE	DEVONPORT	REP No	
ENCL No		DRG No	D/MZ02/066

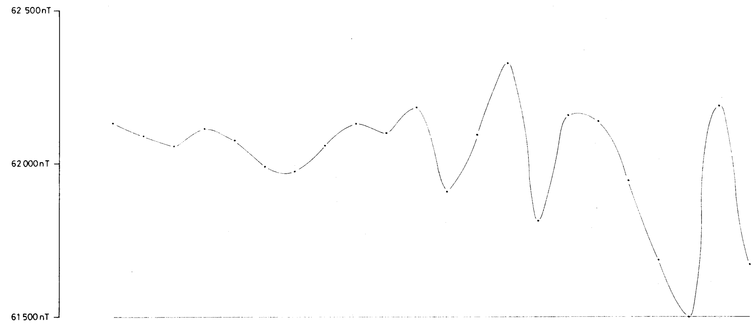
FIG 30

857

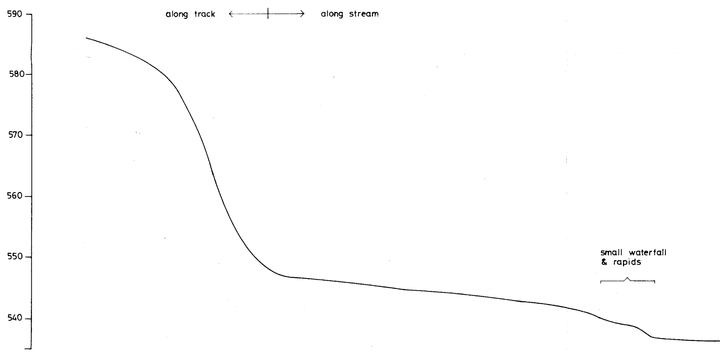
525 N.W. 500 N.W. 400 N.W. 300 N.W. 200 N.W. 100 N.W. 00

V.L.F.-EM
(N.W. Cape station)

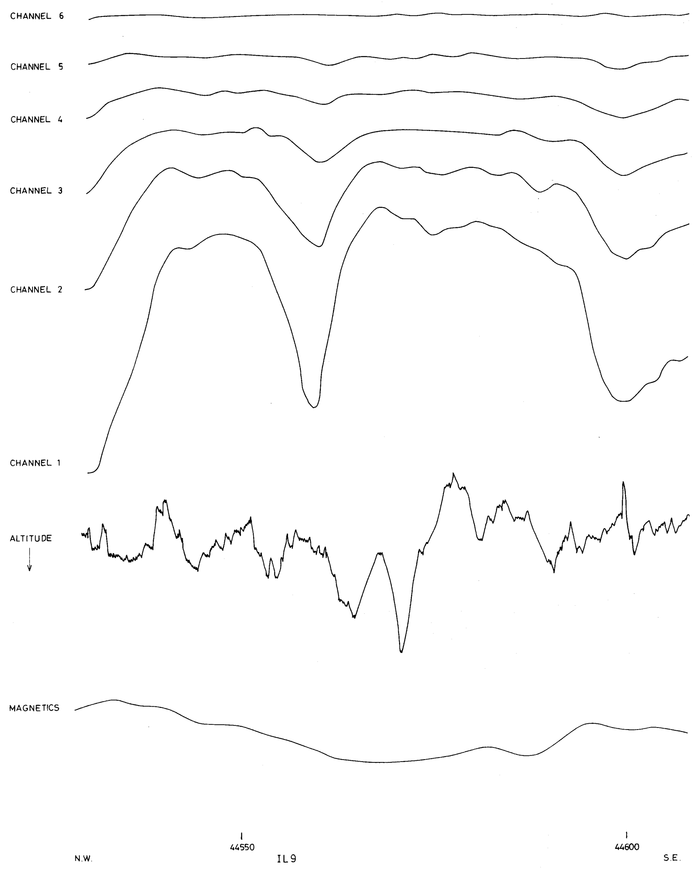
MAGNETICS

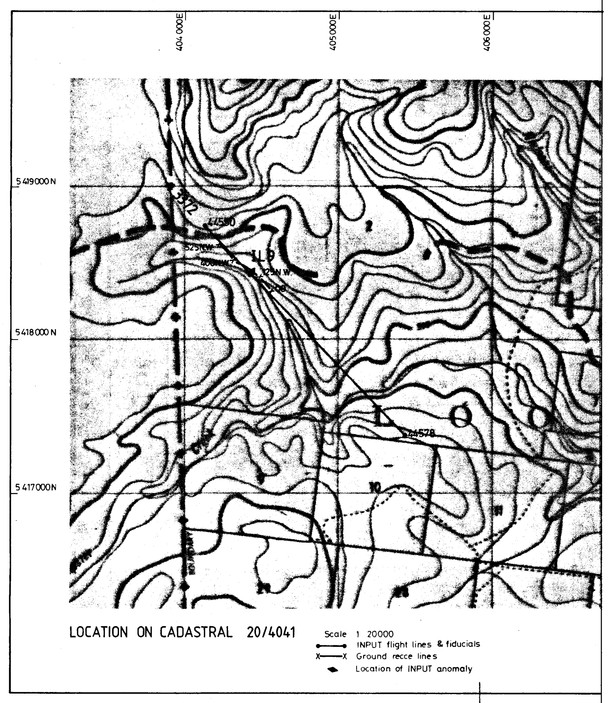


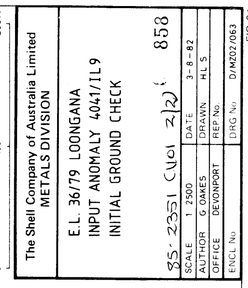
APPROX. TOPOGRAPHY & CULTURE (Metres A.S.L.)



INPUT LINE 3372







5cm

2114084

858

698

V.L.F. – EM

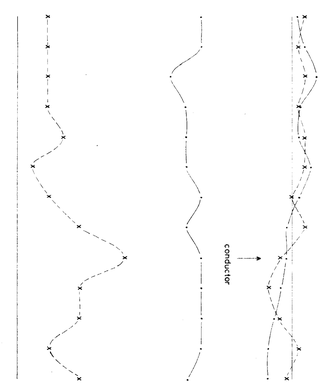
(Japan & N.W. Cape)

..... N.W. Cape (+ve dip to N)

x——x Japan (+ve dip to E)

DIP

5°
0
-5°



LEVEL

150%
130%
110%
90%

MAGNETICS

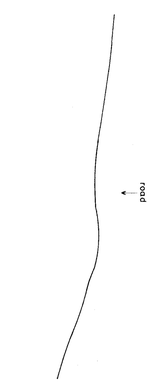
62 500nT

62 000nT

61 500nT

APPROX. TOPOGRAPHY & CULTURE (Metres A.S.L.)

650
640
630



INPUT LINE 3021

CHANNEL 6

CHANNEL 5

CHANNEL 4

CHANNEL 3

CHANNEL 2

CHANNEL 1

ALTITUDE

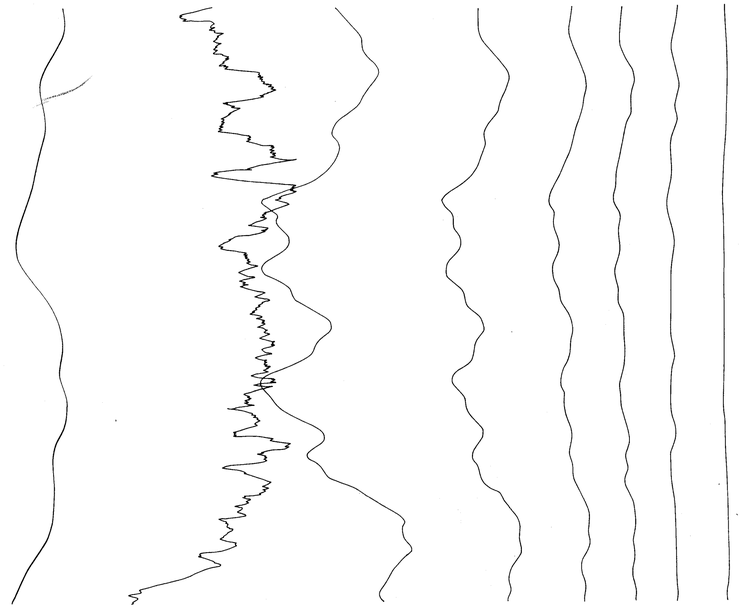
MAGNETICS

5800 N.W.

S.E.

IL 11

57950



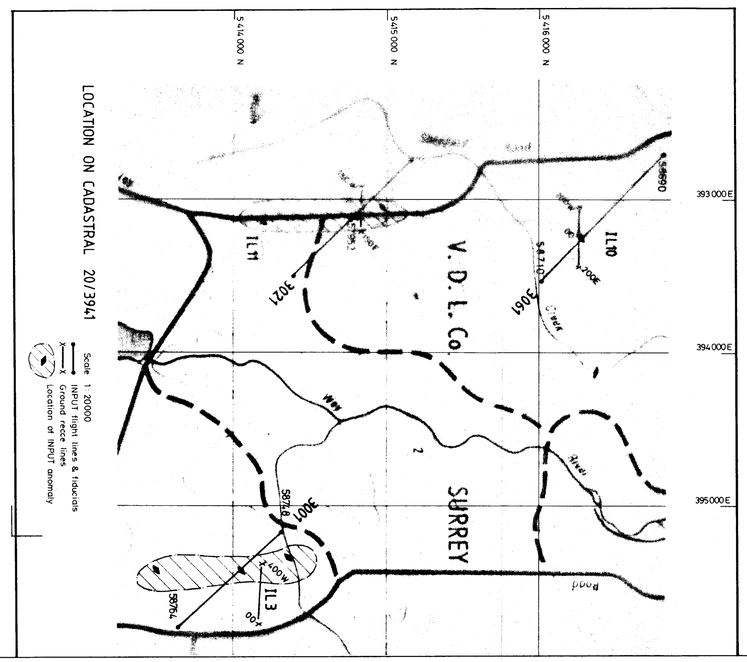
LOCATION ON CADASTRAL 20/3941

Scale 1:20000

INPUT flight lines & tielines

Ground recce lines

Location of INPUT anomaly



5 cm

0 100 200M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
INPUT ANOMALY 3941/IL 11
INITIAL GROUND CHECK

85-2351 (Vol 2/2) 859

SCALE	1:2500	DATE	2-8-82
AUTHOR	G. OAKES	DRAWN	H.L.S.
OFFICE	DEVONPORT	REP. No.	
ENCL No.		DRG No.	D/M202/059

214085

FIG 32

098

MAX-MIN

COIL SEPARATION = 200M

------ IN PHASE

o——o OUT PHASE

+20%

222 Hz 0

-20%

888 Hz

+40% +20% 0 -20% -40%

1777 Hz

+20% 0 -20%

2441 Hz

500 S

300 S

100 S

100 N

300 N

GROUND MAGNETICS

READING SCALE = 200nT/cm

61500 nT

62500 nT

0 100 200M

5 cm

214086

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA

IL1-DEMPSTER CK.-LINE 0E
-MAX-MIN
-GROUND MAGNETICS

85-2351 (V)(1 2|2) 860

SCALE 1:2500	DATE 24-9-82
AUTHOR G. OAKES	DRAWN H.L.S.
OFFICE DEVONPORT	REP.No.
ENCL No.	DRG No. D/MZ02/079

FIG 33

198

MAX – MIN

COIL SEPARATION: 200M
IN PHASE ———
OUT PHASE o——o

+70 %
0
-70 %

222 Hz

+20 %
0
-20 %

888 Hz

+20 %
0
-20 %

1777 Hz

+40 %
+20 %
0
-20 %
-40 %

4444 Hz

+20 %
0
-20 %

GROUND MAGNETICS

READING SCALE = 200nT/cm

62000nT
61000nT

500 S
300 S
100 S
100 N
300 N

5 cm

0 100 200 M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
IL1 – DEMPSTER CK – LINE 200W
– MAX – MIN
– GROUND MAGNETICS

85-235 (Vol 2/2) 861

SCALE	1:2500	DATE	27-9-82
AUTHOR	G. OAKES	DRAWN	H. L. S.
OFFICE	DEVONPORT	REP. No.	
ENCL No		DRG No.	D/MZ02/080

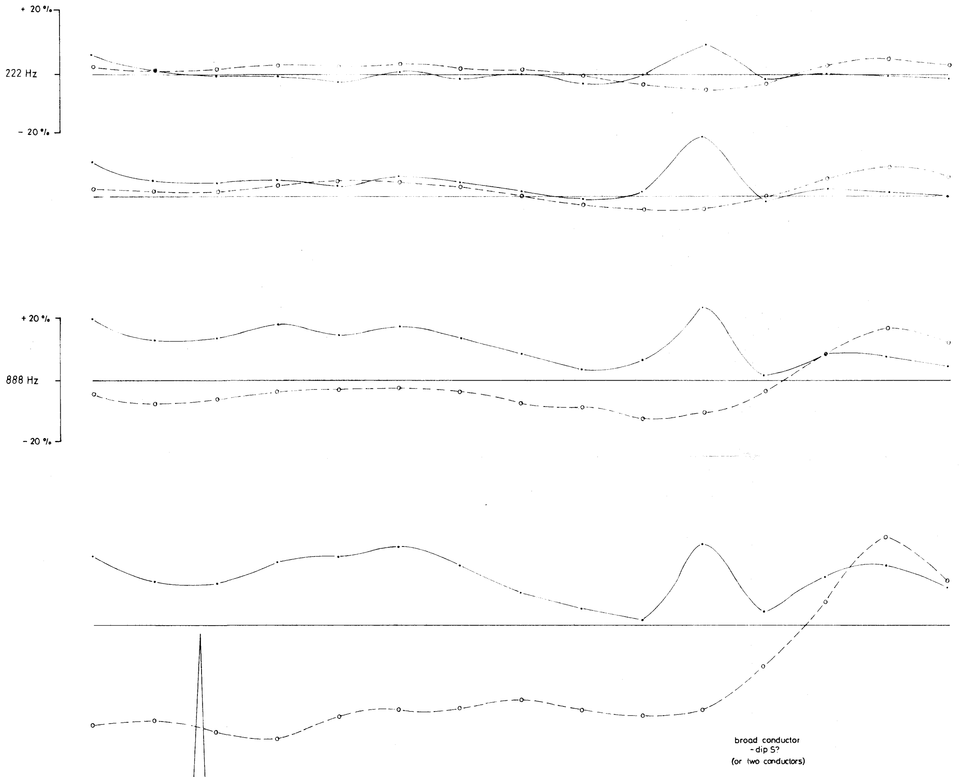
214087

FIG 34

500 S | 300 S | 100 S | 100 N | 300 N

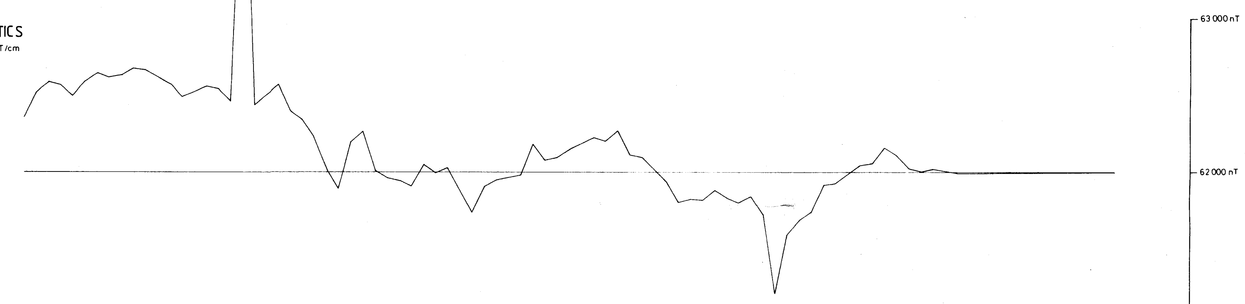
MAX-MIN

COIL SEPARATION = 200M
IN PHASE ·——·
OUT PHASE o— —o

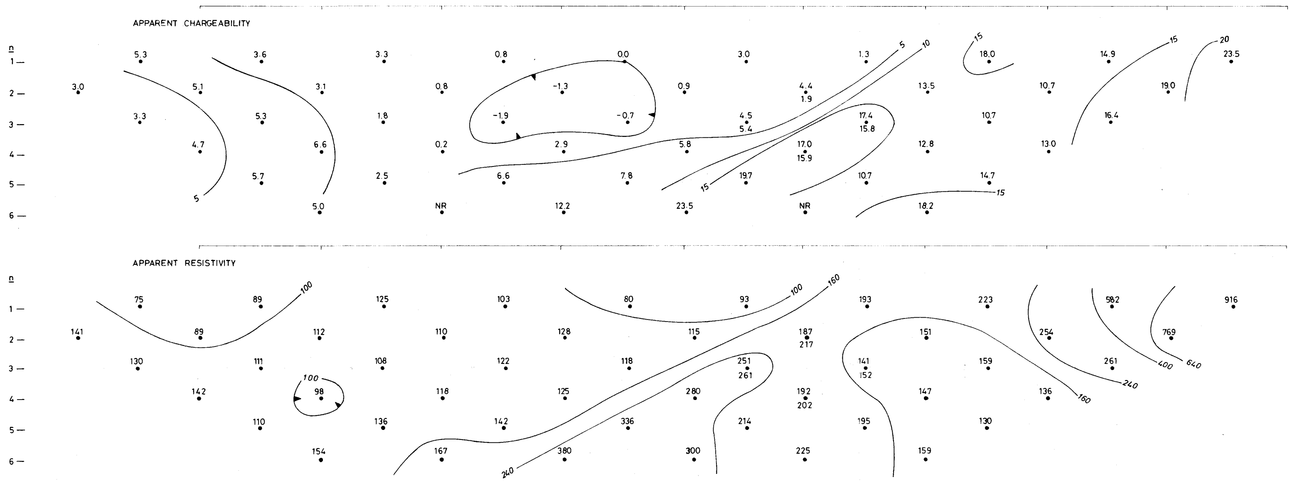


GROUND MAGNETICS

READING SCALE = 200nT/cm



IP / RESISTIVITY



Contractor	: SCINTREX
Date	: 5-10-82
Timing	: 2 SEC
Transmitter	: IPC 7 2.5kw
Receiver	: IPR 8
Array	: DIPOLE-DIPOLE
Dipole length	: 100M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
IL1-DEMPSTER CK. - LINE 400W
— MAX-MIN
— GROUND MAGNETICS
— IP/RESISTIVITY

35-2351 (Vol 2/2) 862

SCALE	1:2500
AUTHOR	G. OAKES
OFFICE	DEVONPORT
ENCL No.	
DATE	27-9-82
DRAWN	H.L.S.
REP No	
DWG No	GM82/2158

FIG 35

0 | 100 | 200M

5 cm

211088

298

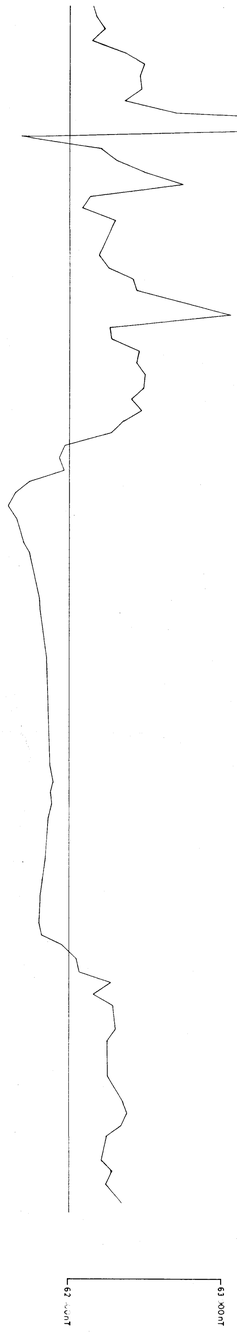
598

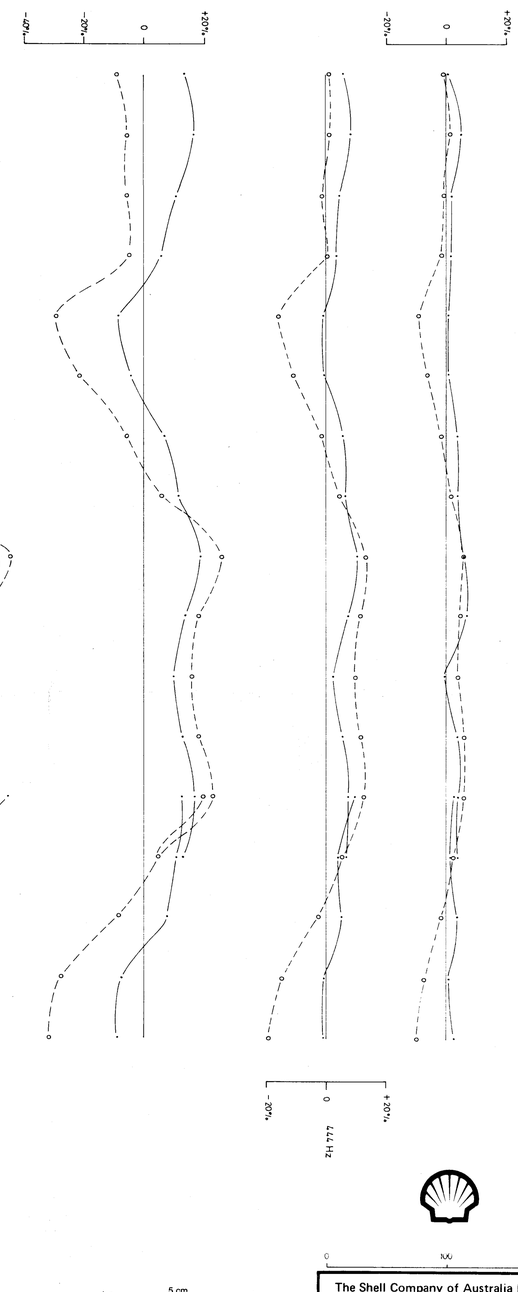
MAX-MIN

COIL SEPARATION = 200M
IN PHASE ——
OUT PHASE - - - -

GROUND MAGNETICS

READING SCALE = 200nT/cm





5 cm

0 100 200M

214089

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
IL3-RABBIT PLAINS RD.— LINE 200S
— MAX-MIN
— GROUND MAGNETICS

863

85: 2351 (Vol 2/2)

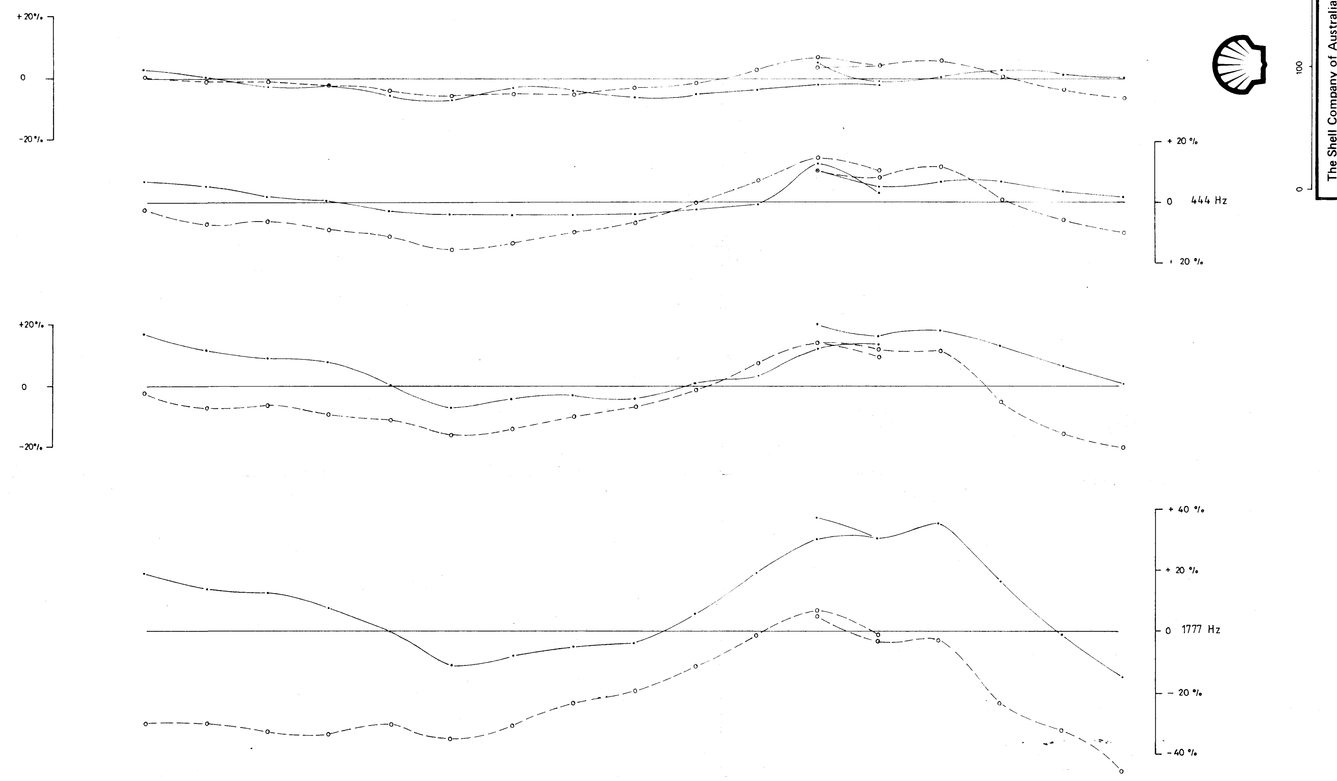
SCALE 1: 2500	DATE 28-9-82
AUTHOR G. OAKES	DRAWN H.L.S.
OFFICE DEVONPORT	REP.No.
ENCL No.	DRG No. D/MZ02/083

FIG 36

800 W | 600 W | 400 W | 200 W | 00 E

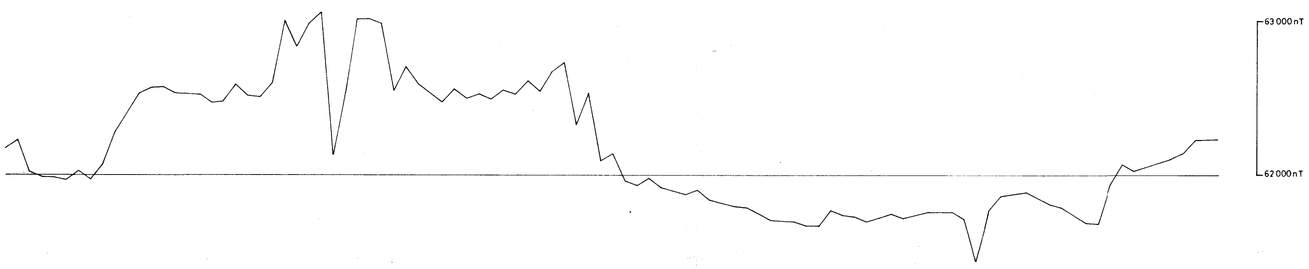
MAX-MIN

COIL SEPARATION = 200M
IN PHASE ·——·
OUT PHASE o– –o



GROUND MAGNETICS

READING SCALE = 200nT/cm



IP / RESISTIVITY

Contractor : SCINTREX
Date : 5-10-82
Timing : 2 SEC
Transmitter : IPC 7 2.5kw
Receiver : IPR 8
Array : DIPOLE – DIPOLE
Dipole length : 100M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
IL 3 – RABBIT PLAINS RD – LINE ON
– MAX-MIN
– GROUND MAGNETICS
– IP / RESISTIVITY

864

35-235 SW01 212

SCALE	1 2500
DATE	27-9-82
AUTHOR	G OAKES
DRAWN	H L S
OFFICE	DEVONPORT
REP No.	
ENCL No.	
DRG No.	DJM2027/082

FIG 37

214090

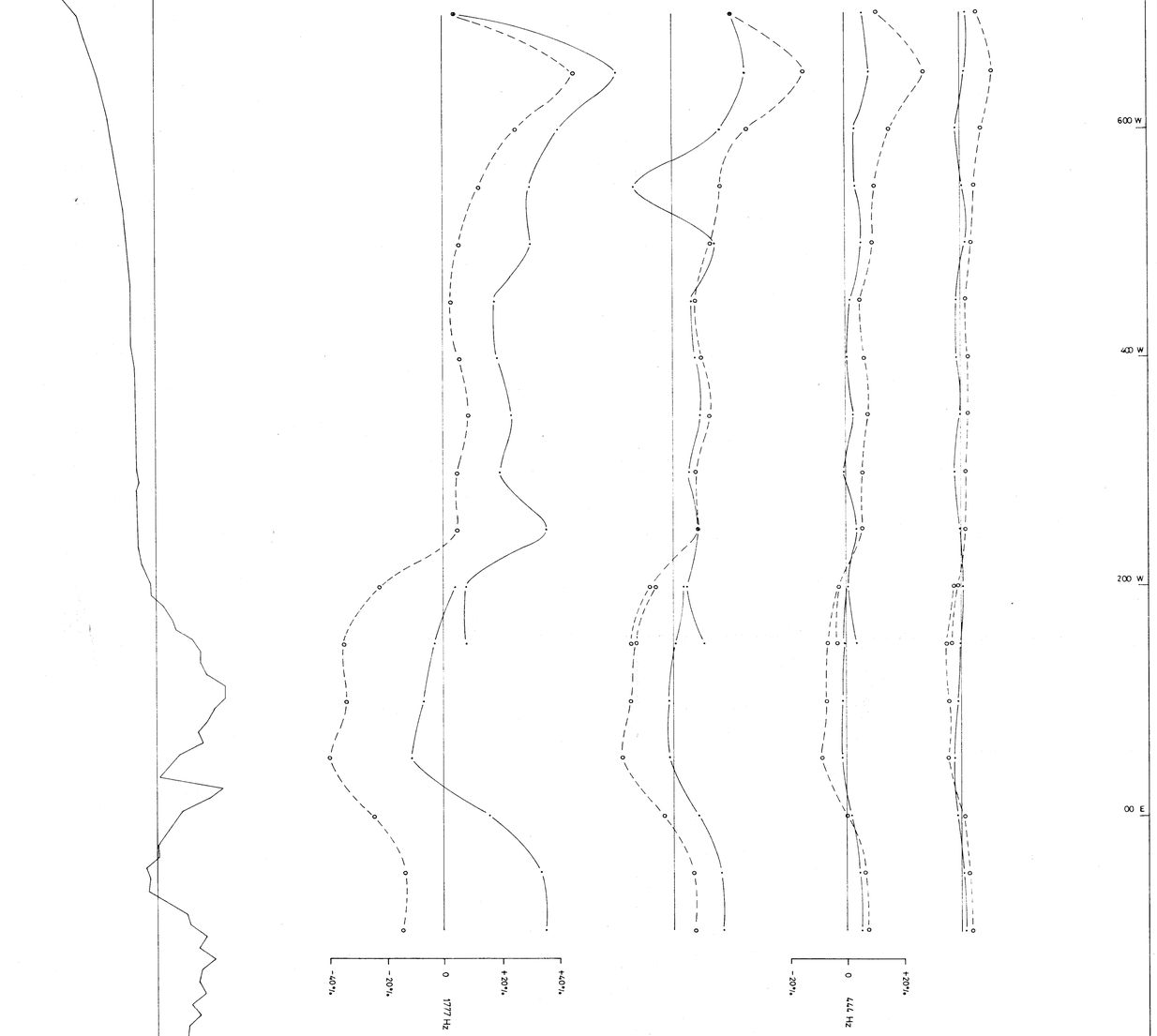
864

MAX-MIN

COIL SEPARATION = 200M

IN PHASE ——————

OUT PHASE o — — — o



GROUND MAGNETICS

READING SCALE = 200nT/cm

0 100 200M

5 cm

214091

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
IL3 - RABBIT PLAINS RD - LINE 200N
— MAX-MIN
— GROUND MAGNETICS

85-23 Vol 2 (2) 865

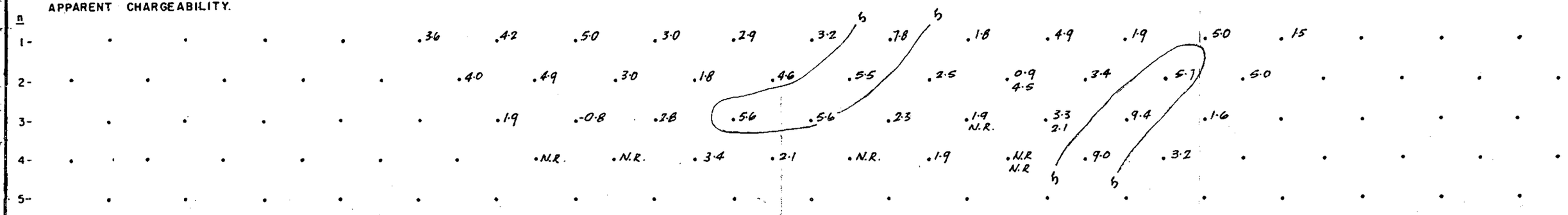
SCALE 1:2500	DATE 28-9-82
AUTHOR G. OAKES	DRAWN H.L.S.
OFFICE DEVONPORT	REP. No.
ENCL. No	DRG. No D/MZ02/084

FIG 38

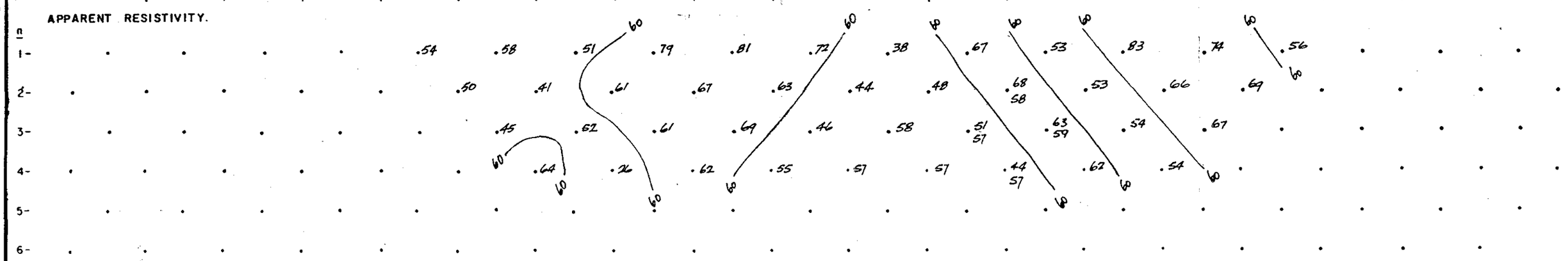
AIRBORNE GEOPHYSICS
(EM, MAG, etc)

GEOLOGY
& TOPOGRAPHY

APPARENT CHARGEABILITY.



APPARENT RESISTIVITY.



Contractor : SCINTREX
Date : 29-8-83
Timing : 2 Sec
Transmitter : 1 PTAA 2·5 kw
Receiver : 1 PR8
Integration time :
Array : DIPOLE - DIPOLE
Dipole length : 100 m

214092

5 cm

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
BURGHLEY PARK 4041/IL8
I.P. /RESISTIVITY SURVEY
LINE 2000 E
85-2351 (101 2/3)

1:500	29-8-83
	J.L.L.
D'PORT.	
D/MZ02/92	2

866 FIG 39

698

V.L.F-EM

N.W. Cape (+ve dips to N)
Japan (+ve dips to E)

DIP 5° 0 -5°

LEVEL 150% 130% 110%

MAGNETICS

62 500nT
62 000nT
61 500nT

225 W 200 W 100 W 00 E 100 E 200 E

APPROX. TOPOGRAPHY & CULTURE (metres A.S.L.)

640 630 620

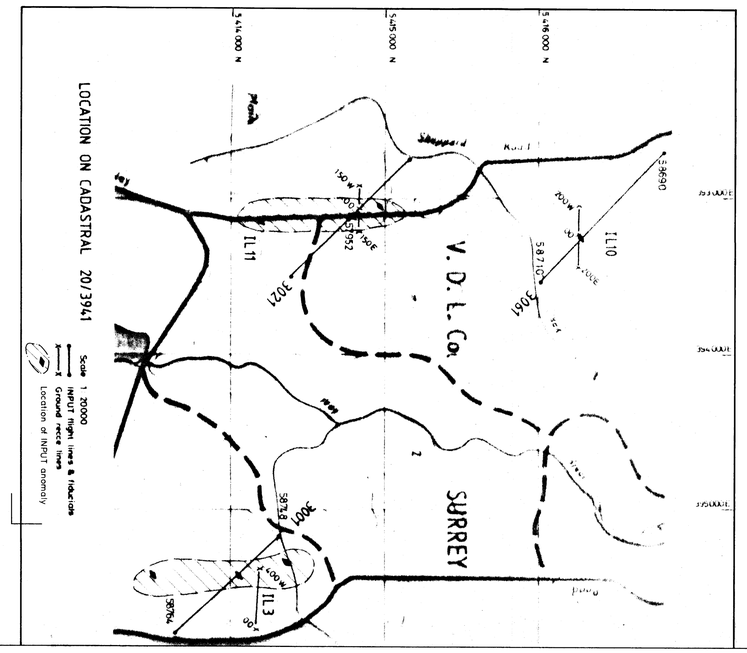
INPUT LINE 3061

CHANNEL 6
CHANNEL 5
CHANNEL 4
CHANNEL 3
CHANNEL 2
CHANNEL 1
ALTITUDE
MAGNETICS

N.W. 58660 58700 S.E. IL 10

LOCATION ON CADASTRAL 20/3941

Scale 1: 20000
INPUT flight lines & induction
Ground recce lines
Location of INPUT anomaly



5 cm

214093

0 100 200 M

The Shell Company of Australia Limited
METALS DIVISION

E.L. 36/79 LOONGANA
INPUT ANOMALY 3941/IL10
INITIAL GROUND CHECK

85-2351 CV61(2) 867

SCALE 1: 2500	DATE 2-8-82
AUTHOR G. OAKES	DRAWN H.L.S.
OFFICE DEVONPORT	REP. No.
ENCL. No.	DRG. No. D/MZ02/061

FIG 40