Open File Envelope No. 8498

EL 1710

THIRD PLAIN – MOUNT MANTELL AREA

PROGRESS AND FINAL REPORTS TO LICENCE SURRENDER FOR THE PERIOD 16/4/1991 TO 15/11/1991

Submitted by
Pasminco Australia Ltd
1991

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101 Grenfell Street, Adelaide 5000

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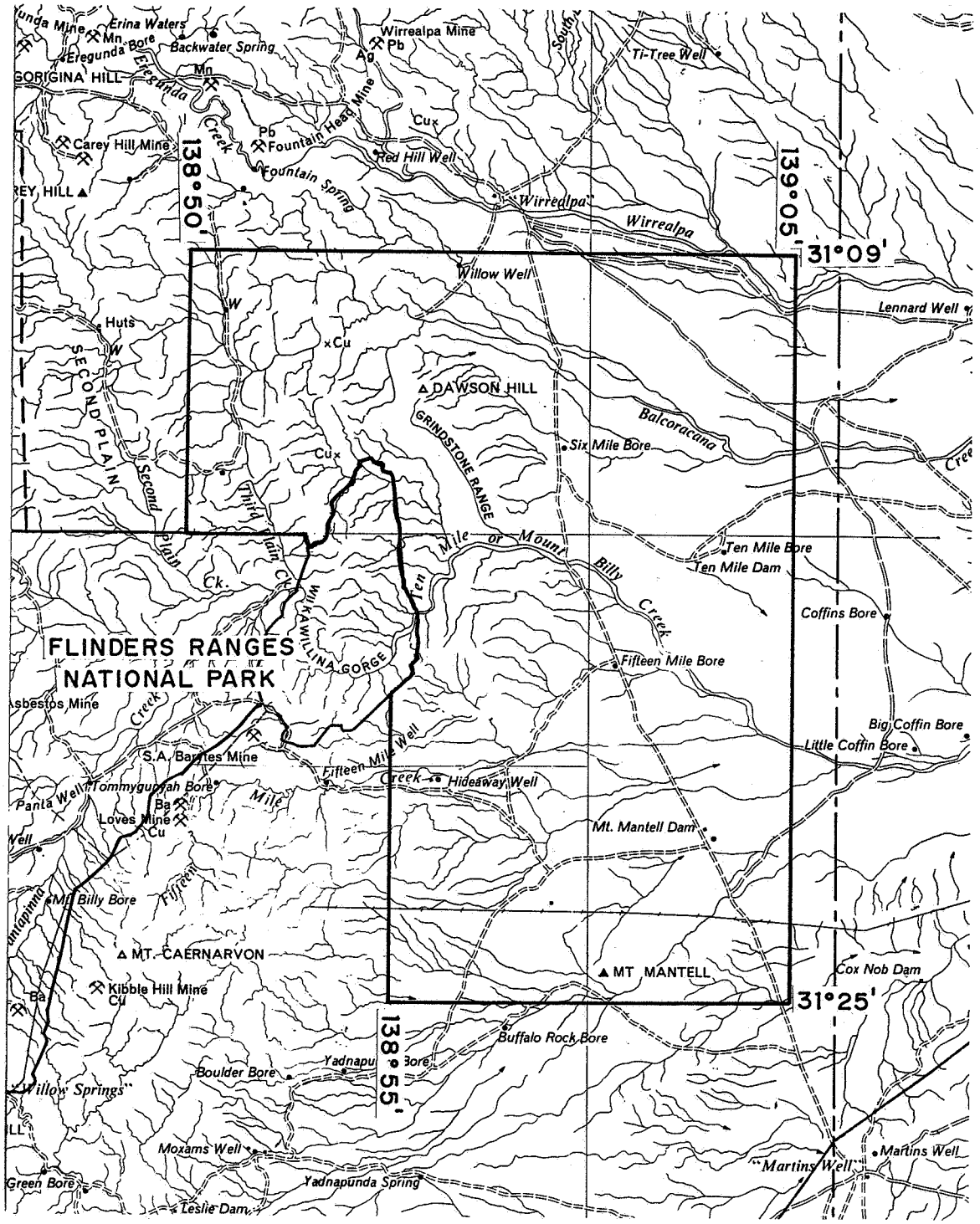
Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



SCALE 1:250,000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

APPLICANT: PASMINCO AUSTRALIA LTD.

DME 291/90 AREA: 546 square kilometres (approx.)

1:250000 PLANS: PARACHILNA

LOCALITY: THIRD PLAIN – MT. MANTELL AREA, approx. 35 km SE of Blinman

DATE GRANTED: 16-4-91 DATE EXPIRED: 15-4-92 EL No: 1710

SOUTH AUSTRALIA

DEPARTMENT OF MINES AND ENERGY

OPEN FILE ENVELOPE NO. 8498

EL 1710, THIRD PLAIN

PROGRESS AND FINAL REPORTS FOR THE PERIOD
15/7/91 TO NOVEMBER 1991

Submitted by

Pasminco Australia Limited

1991

ENVELOPE 8498

TENEMENT: EL 1710, Third Plain

TENEMENT HOLDER: Pasminco Australia Limited

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END OF CONTENTS

PASMINCO EXPLORATION

FIRST PROGRESS REPORT ON EL 1710 THIRD PLAIN SA, FOR THE THREE MONTH PERIOD ENDING JULY 15TH, 1991

AUTHOR: Terry C Lees

DATE: August 1991

Submitted to: Executive General Manager

Copies to: SA Department of Mines and Energy (1)
Pasminco Exploration - Melbourne (2)

Submitted by: Terry Lees

Accepted by: Tom Eadie

Melbourne File No: HW54

Hawthorn
August 1991
TCL055SR

1. INTRODUCTION

EL 1710 Third Plain (Fig 1) was granted to Pasminco Australia Limited on 16th April 1991, for a period of one year. The EL covers approximately 546 square kilometres.

Previous exploration is summarised by Robertson (1988).

2. EXPLORATION APRIL - JULY 1991

The Third Plain willemite deposit was visited and data on the deposit reviewed.

3. FUTURE WORK PROGRAM

A gravity survey over the Third Plain deposit is to be undertaken in July-August 1991.

4. EXPENDITURE

Expenditure for the period 16 April - 15 July 1991, was at follows:

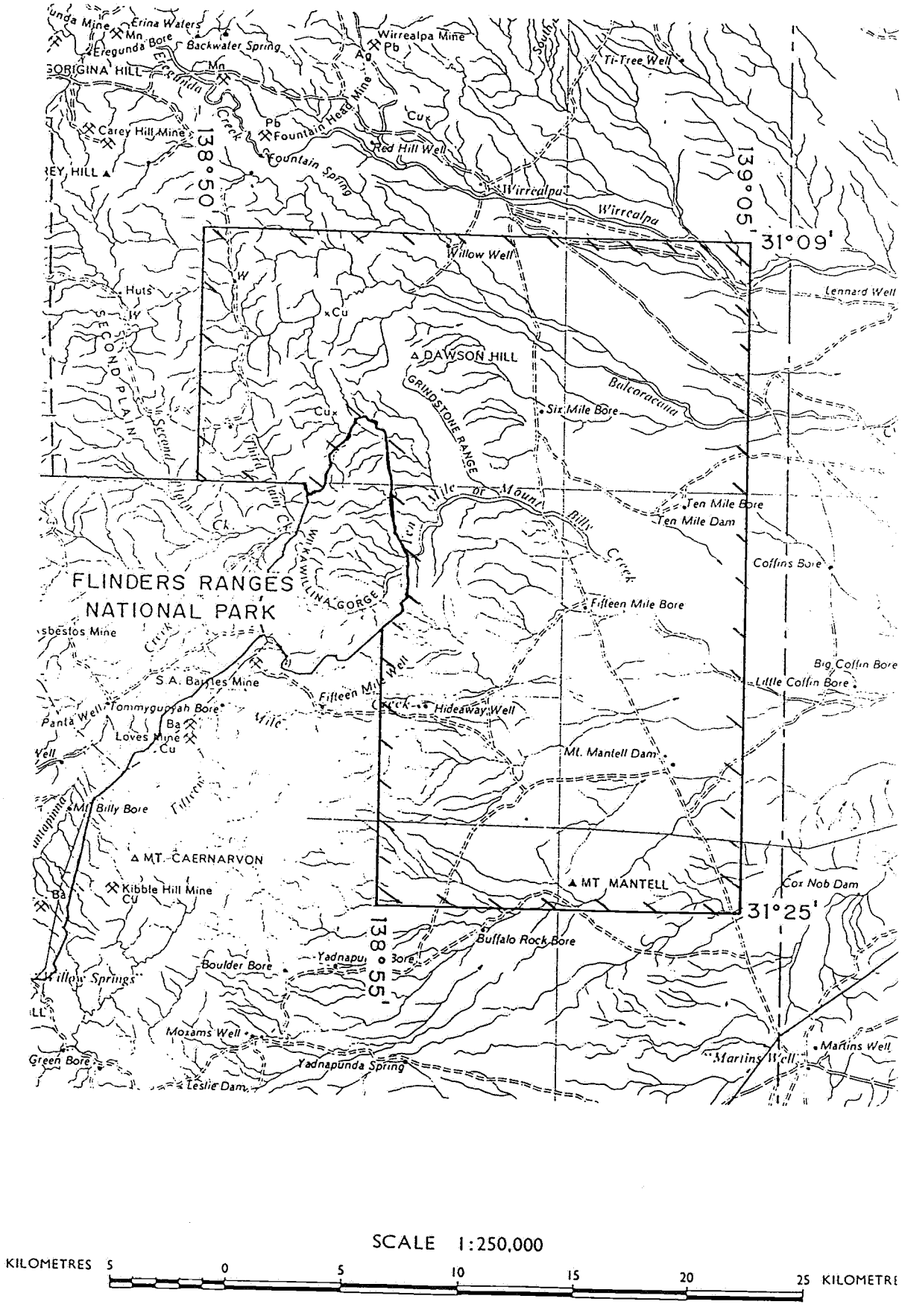
Salaries	1,920.00
Travel	514.00
Field Consumables	14.30
Tenement Application	4.00
Tenement Rental	1,392.30
Management Fee	384.00
Total Expenditure	4,228.60

5. KEYWORDS & LOCALITY

Adelaide Geosyncline, Parachilna SH 54-13, Third Plain.

6. REFERENCE

Robertson, R.S., 1988. Review of Lead-Zinc mineralisation in South Australia - Adelaide Geosyncline and Inliers, Stuart Shelf; Rept Bk No, 88/41, SADME.



SCALE 1:250,000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRE

Fig 1. Location EL 1710 (hatchured boundary)

PASMINCO EXPLORATION

SECOND PROGRESS REPORT ON EL 1710 THIRD PLAIN SA, FOR THE THREE MONTH PERIOD ENDING OCTOBER 15TH, 1991

AUTHOR: TC Lees & RS Smith

DATE: October 1991

Submitted to: Executive General Manager

Copies to: SA Department of Mines and Energy (1)
Pasminco Exploration - Melbourne (2)

Submitted by: 

Accepted by: 

Melbourne File No: HW 64

Hawthorn
October 1991

1. INTRODUCTION

EL 1710 Third Plain (Fig 1) was granted to Pasminco Australia Limited on 16th April 1991, for a period of one year. The EL covers approximately 546 square kilometres.

2. EXPLORATION JULY - OCTOBER 1991

Between 15th August and 20th August, 1991, a gravity survey was conducted along three lines 100m apart and 1000m long. The lines were centred over the Third Plain willemite deposit to test whether there is an associated gravity response. As the willemite outcrop is quite small, the expected response would be small, unless there are significant amounts of willemite at depth.

The survey was performed by Surtec Geosurveys Pty Ltd. The methodology and survey procedure are described in their report, included herein as an appendix. Because such a small area was covered and because the survey was essentially a test, it was decided not to tie the survey into the BMR gravity grid. Also it appears that the elevation of the base station (read from contours on the topographic map) is 50m too small. However, as the absolute values of gravity are floating, this does not cause a problem.

The elevation varies significantly along the profile, so the topographic or terrain correction will be significant. Accordingly, the 'Nettleton profiles' (profiles of Bouguer reduced data for a range of densities) shown in the Surtec report cannot be used to determine the density of the country rock, or to interpret the data.

Calculation of the terrain corrections and subsequent assessment of the data is required to determine the size of the willemite deposit.

3. EXPENDITURE

Expenditure for the period 16 July - 15 October 1991, was at follows:

Salaries	330.00
Travel	292.25
Ground Geophysical Survey	5,001.00
Management Fee	562.32
Total Expenditure	6,185.57

4. KEYWORDS & LOCALITY

Gravity, Adelaide Geosyncline, Parachilna SH 54-13, Third Plain.

SURTEC GEOSURVEYS PTY LTD

THIRD PLAIN GRAVITY SURVEY
FOR
PASMINCO EXPLORATION
EXPLORATION LICENCE 1710
SOUTH AUSTRALIA

R. J. COURT

SURTEC GEOSURVEYS PTY LTD.
Suite 9, Level 1,
859 Pacific Highway,
Pymble N.S.W 2073

11 October 1991

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APPENDICES

LIST OF FIGURES

1. INTRODUCTION

A detailed gravity survey has been carried out along three east west grid lines centred on the Third Plain Willemite Prospect within South Australian Exploration Licence 1710 (EL 1710) see figure 1.

The Work was conducted by SURTEC GEOSURVEYS PTY LTD (SURTEC) for and on behalf of the tenement holder, PASMINCO MINING LTD (PASMINCO) during the period 15th August to 20th August, 1991.

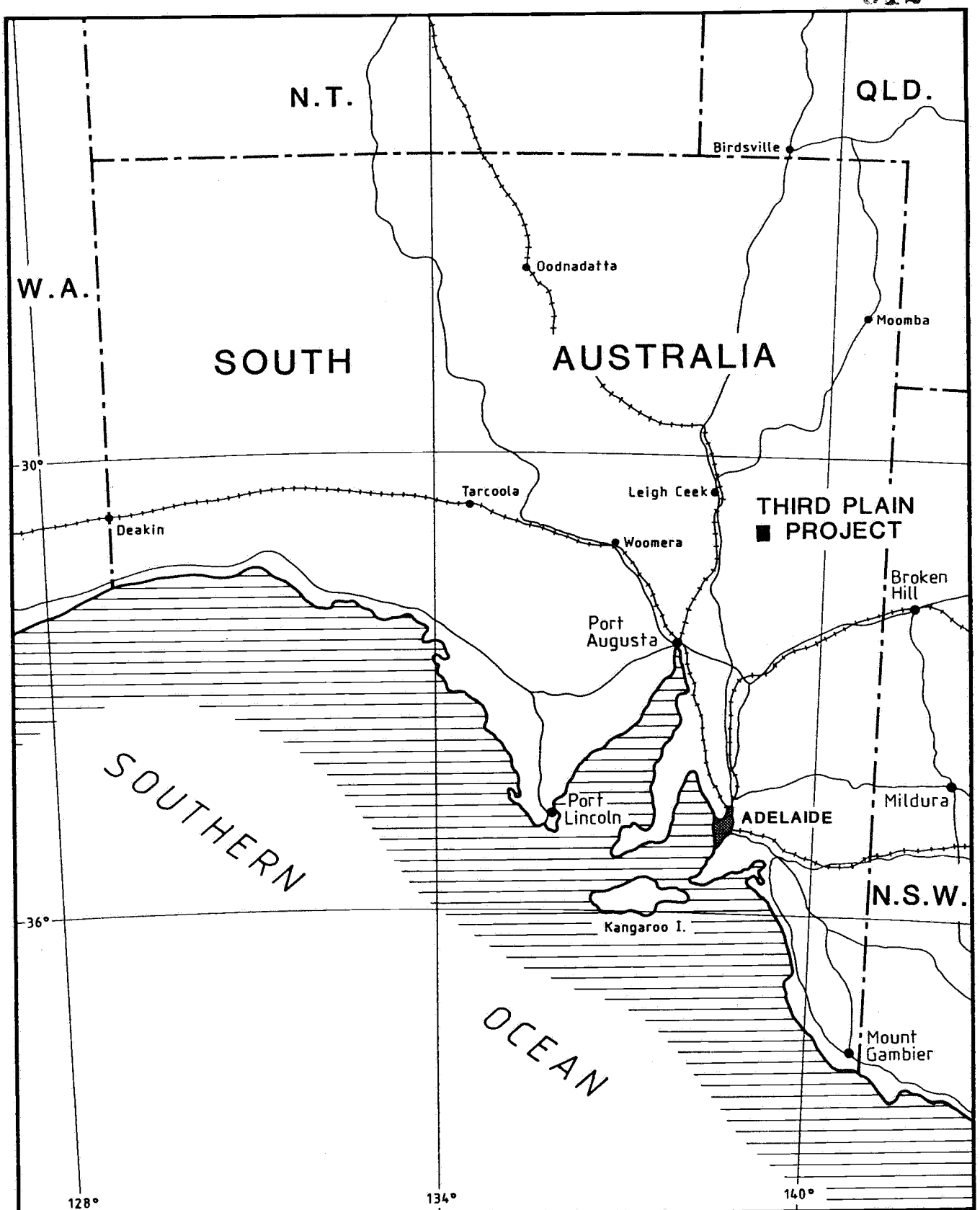
The work was conducted under the terms of a brief provided by Richard Smith, Principal Geophysicist of PASMINCO in a letter dated 23rd May, 1991:

> "The required line spacing is 100m and the station spacing 50m. It is not necessary to determine the absolute AMG co-ordinates of the station but their elevation should be known to $\pm$0.04m and their position on the grid to $\pm$1m."

Work conducted by SURTEC comprised three component parts:

a) GRIDDING AND LEVELLING
b) GRAVIMETRY OBSERVATION
c) DATA PROCESSING AND COMPUTER MAPPING

This report describes the data acquisition and reduction methods used and accuracies achieved. Results of the survey are included as appendix 1.



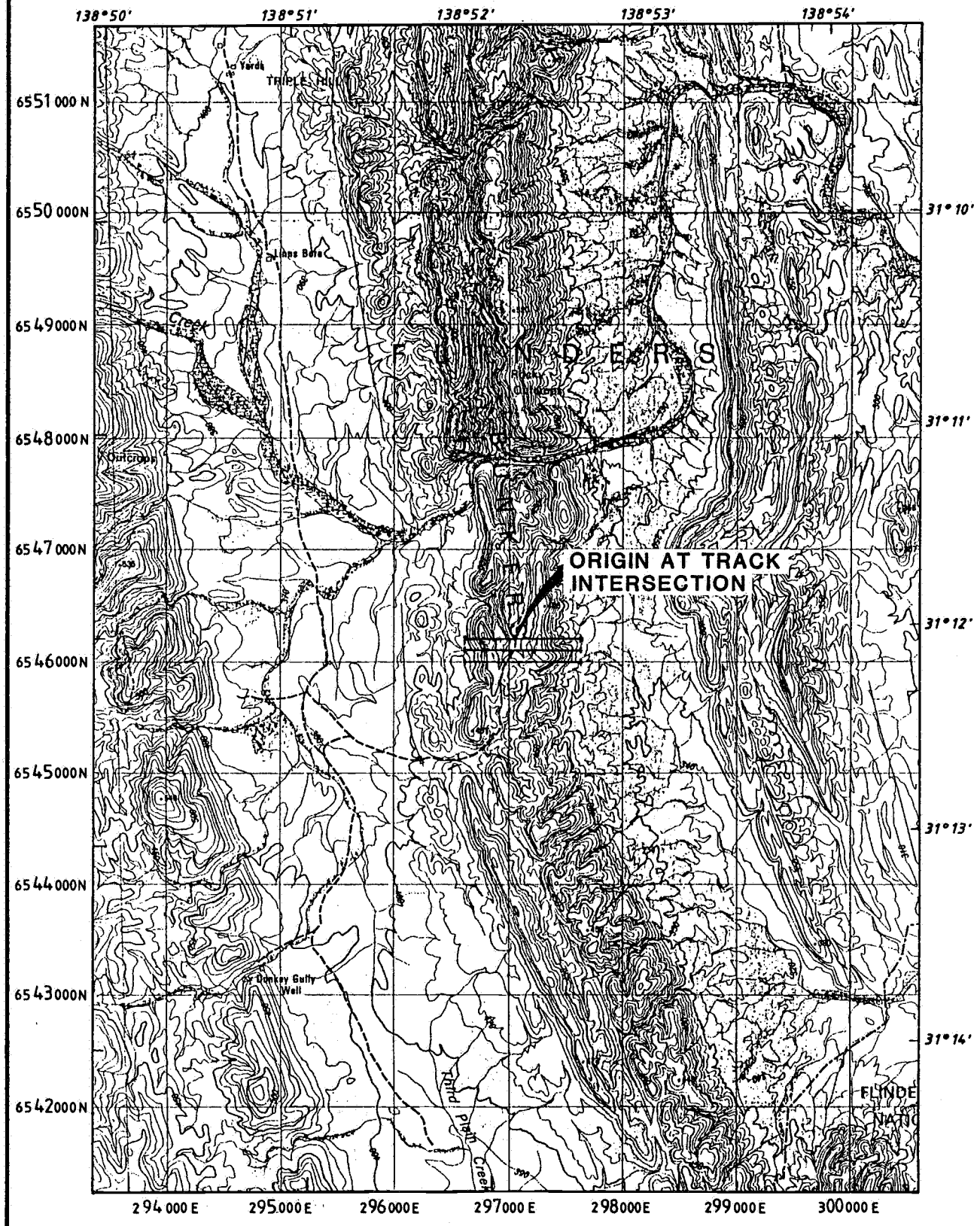
N

0 100 200 300 400
KILOMETRES

SURTEC GEOSURVEYS PTY LTD
PASMINCO EXPLORATION

THIRD PLAIN PROSPECT
LOCATION MAP

Author: R. COURT	Scale: 1 : 8 000 000
Drawn : A. BRAUN	
Date : OCT. 1991	Fig. N° 1



N

0 0.5 1.0 2.0 3.0

KILOMETRES

SURTEC GEOSURVEYS PTY. LTD

PASMINCO EXPLORATION

THIRD PLAIN PROSPECT GRID LOCATION

Author: R. COURT	Scale : 1:50 000
Drawn : A. BRAUN	Fig. N° 2
Date : OCT. 1991	

2. GRIDDING AND SURVEYING

2.1 POSITIONING OF GRID

The only map definable point close to the grid was a track intersection located at AMG Zone 54 co-ordinate 297,100E and 6,546,200N. The intersection of track centrelines at this point was used as a datum for the grid. An elevation of 400.00m was interpolated from contours and adopted as the ADH elevation datum for the survey.

Using a prismatic compass, a magnetic bearing was taken to a reference object. The grid bearing was then calculated to the reference object and this was used as an azimuth datum for the grid.

2.2 GRID SET-OUT

Using the adopted datum point and reference azimuth, a bearing of 180 degrees was set out with a theodolite and a 200m base line was established. Grid lines were turned off from the base line with the theodolite and then set out using a prismatic compass, a clinometer and survey chain.

All grid peg intervals were slope corrected. The grid was pegged at 50m intervals with 900 x 25 x 25mm painted pointed hardwood survey stakes. Co-ordinates were marked on grid pegs with felt pen and with permatags.

2.3 LEVELLING

Using a WILD NAK20 Auto-level, a level traverse was observed from the adopted datum south along the base line and back to the origin. Closed level traverses were then observed as loops from the base line to the end of grid lines and back to the base line.

Levelling miscloses were less than the specified accuracy for the work. All miscloses were adjusted by distributing the misclose equally between change points on each traverse.

3. GRAVIMETRY

3.1 GENERAL

All gravity observations were carried out by SURTEC exploration technician, Richard Duggan using a LACOSTE and ROMBERG Model G Land Gravity Meter (Serial number 607).

The Survey was tied to a BMR Isogal Station at Hawker and has been reduced to the ISOGAL 84 Datum in milligals.

Routine metering was carried out by traversing from one of 3 base stations with base station closures at 2 hourly intervals or less.

3.2 CALIBRATION OF INSTRUMENT

Prior to the commencement of the survey, the adjustment of the gravity meter level bubbles and reading line were checked, as was the instrument sensitivity. All were found to be at their optimum.

The instrument was checked on the gravity range in Sydney both prior to and following completion of the survey. In both cases, the calculated change in observed gravity agreed exactly with the values provided by the BMR.

3.3 CONNECTION TO BMR NETWORK

The survey was connected to Isogal Station Number 6491.1117 at Hawker. Essentially, the connection was made in two legs, namely Hawker to Parachilna and Parachilna to the grid datum, Base Station Number 1119 (BS 1119).

Each leg of the connection was observed three times with each connection being made at intervals of less than one hour.

Gravity observations were then converted to milligals, tide and drift corrected and then averaged to give a change in observed gravity from Isogal Station 6491.1117 to Base Station 1118 at Parachilna and from 1118 to BS1119. These changes in observed gravity were then added to the observed gravity value in milligals on the ISOGAL84 Datum to give observed gravity values for Base Stations 1118 and 1119. The calculated observed gravity value for BS 1119 was then adopted as the observed gravity datum for the survey.

3.4 BASE STATION NETWORK

Using BS 1119 as a start or a datum point, two other secondary Base Stations were established to facilitate two hourly Base Station closures without disruption to production.

Secondary Base Station observations were converted to milligals using the appropriate metre constant and then tide and drift corrected relative to BS 1119.

All subsequent gravity observations were connected to and reduced against the previously mentioned Base Stations.

3.5 ROUTINE METERING

Gravity observations were recorded on a PSION handheld electronic notebook in which were input station co-ordinate, elevation, height of instrument above ground, time and date.

All routine observations were carried out in one day. On completion of observations, the PSION was downloaded to a PROTEC XT field computer system, the data was formatted and then tide and drift corrected; the results then printed for inspection. The rate of meter drift for routine metering was 0.00014mgals/min.

4. DATA PROCESSING & COMPUTER MAPPING.

4.1 SOFTWARE

On completion of the field work, all gravity data was re-reduced using SURTEC proprietary gravity reduction software. The programs used are briefly described and listed below:

GRAVIN - A program used to download data from the PSION electronic notebook to the computer.

TEXTSORT - A program that sorts a selected column of formatted data (eg station number) on the basis of lowest value to highest value.

MERGFILE - A program to merge observed gravity data sorted against station number with co-ordinate and elevation data.

GSORTSTD - A program to sort an merged file on the basis of time prior to carrying out time related gravity reductions.

GRAVRED - A program to reduce gravity observations prior to bouguer reductions. Input for the program is an GSORTSTD file. The program refers to a file of all adopted base station values listed as XY co-ordinate and adopted observed gravity value. The program outputs four files, each used for various functions:-

Gddmmyy.CHK is a formatted file of field data used for editing data,

Gddmmyy.COR is a file listing station number, co-ordinate, elevation, instrument height, observation time (day, month, year) with tide, latitude, drift corrections and observed gravity value for each station.

Gddmmyy.ABS is a file of XY co-ordinates and observed gravity values,

Gddmmyy.RED is a file listing station number, co-ordinate, instrument elevation (RL + hgt inst) and latitude corrected observed gravity (normal gravity).
A column is left free for the input of terrain corrections.

BOUGUER - A program used to reduce co-ordinated normal gravity values to bouguer corrected values. It allows multiple runs using different densities. The program outputs 3 files:-

Gddmmyy.BOU is a file listing free air and bouguer corrections, principal facts and bouguer corrected values,

Gddmmyy.BGR is a file of co-ordinated bouguer corrected values used for plotting,

Gddmmyy.ELE is a file containing XYZ co-ordinates used for plotting elevations.

4.2 REDUCTION PROCEDURE

The program GRAVRED can be used for either regional or local surveys. For this survey, data was reduced on a local basis with all corrections being applied relative to BS1119. A Bouguer corrected value was then computed for BS1119 and a gross datum shift was applied to all data values to bring them back to the ISOGAL84 datum.

Essentially, the computerised reduction procedure using GRAVRED was as described below:

a. After merging of observed data with co-ordinates and elevations, metered gravity values were reduced to milligals relative to a local datum value for BS1119 using the instrument makers factor for the appropriate interval.

b. Using an upgraded version of the BMR's earth tide reduction routine, ERTIDE1, a tide correction was computed and applied to the corrected meter reading relative to the latitude and longitude of BS1119.

c. The data was then scanned and any station listed in the base station file (ie a base station connection) was flagged and adjusted to the adopted observed local datum value for BS1119. Drift from one base station to the next was then computed and distributed against intermediate observed stations as a function of time.

d. A latitude gradient correction was then applied to all stations on the basis of the distance north or south an observed station was from BS1119 (ie ± x milligals/km N or S of BS1119). As the co-ordinate system used was the Australian Map Grid (AMG), it was not necessary to apply an angular correction to latitude corrections.

e. Free air and bouguer corrections were then applied to latitude gradient corrected observed gravity values. The corrections were applied using a density of 2.20g.cm^3 and the difference in elevation between BS1119 and each gravity station.

f. At this point, all gravity stations have therefore been reduced to bouguer anomaly values relative to BS1119 (ie they have been reduced to a local datum based on an arbitrary value for BS1119). The next step therefore was to compute the actual ISOGAL84 value for BS1119, calculate the difference between the arbitrary local datum and the ISOGAL84 datum values for BS1119 and then adjust all local datum values by the difference with the ISOGAL84 datum.

g. Using the ISOGAL84 datum observed gravity value, the adopted Universal Transverse Mercator Projection (UTM) latitude and longitude and the adopted Australian Height Datum (AHD) reduced level for BS1119, a corrected bouguer gravity value was calculated for the station using the following formula as defined in BMR publication No. 261 by Wellman, Barlow and Murray, 1985 (Gravity Base Station Network Values, Australia):-

$$\Delta g_{BA}(1984) = g_{obs} - [978031.8(1 + 0.0053024 \sin^2\Phi - 0.0000059 \sin^2 2\Phi)] + 0.3086\mathbf{h} - 0.0419\rho\mathbf{h} \quad \text{(in milligals).}$$

Where:

$\Delta g_{BA}(1984)$ = Bouguer Anomaly (ISOGAL84 Datum)
g_{obs} = Observed Gravity (ISOGAL84 Datum)
Φ = Latitude
$\mathbf{h}$ = AHD Elevation
ρ = Density (g/cm^3)

g. All bouguer corrected values (local datum) were then adjusted by the difference in the two values obtained for BS1119 (ie The difference between the local datum and ISOGAL84 datum values for BS1119).

4.3 ESTIMATED ACCURACY

Based on the inspection of both surveying and gravity data reductions, the estimated accuracy of the data relative to the datum is as follows:

	Reading	Bouguer Eq.
Observed Gravity	± 0.01mgal	0.03mgal
Elevation	± 0.02m	0.01mgal
Position	± 1.00m	0.00mgal

4.4 COMPUTER MAPPING

The following maps were produced:-

a. Point posted AHD Elevations
b. Point posted Bouguer Corrected Gravity - 2.20g/cm^3.
c. Stack profiled Bouguer Corrected Gravity
   1.80g/cm^3.
   2.00g/cm^3.
   2.15g/cm^3.
   2.20g/cm^3.
   2.25g/cm^3.
   2.40g/cm^3.
   2.60g/cm^3.
d. Stack profiled elevations
e. Line profiles of Bouguer Corrected Gravity for a density of 2.20g/cm^3 for each grid line.
f. Line profiles of elevations for each grid line.

Computer drawn maps as listed above are contained in Appendix Three.

5. GENERAL DATA

5.1 FIELD PARTIES

Throughout the course of the work, there was a two man survey party comprising a senior technician (R. Duggan) with and a senior exploration technician on site.

5.2 EQUIPMENT

5.2.1 Survey & Gridding

1 WILD T1 Precision Theodolite (3")
1 WILD NAK20 Precision Auto Level.
1 2.4m Plumbing Pole
1 5.0m Levelling Staff
3 YAESU 5watt Trancievers + battery charger
1 TOYOTA LANDCRUISER LWB 4WD Trayback
1 6' x 4' Trailer. (Mob/Demob only)
Sundry Tools

5.2.2 Gravity Operator

1 LACOSTE & ROMBERG Model G Land Gravity Meter Serial Number 607
1 PSION Electronic Notebook
1 HONDA TRX 4WD Quad Bike.

5.2.3 Data Processing On Site

1 PROTECH 20mb Hard Disc XT Computer.
1 DMP40 A3 Single Pen Plotter
1 NEC P6 Printer
SURTEC Proprietary Software

5.3 STATISTICS

Total No. Gravity Stns Established:	69
Total Length of Levelling Traverses:	4.6kms
Date Fieldwork Commenced:	15/8/91
Date Fieldwork Finished:	20/8/91

6. BIBLIOGRAPHY

Gravity Base Station Network Values, Australia - P. Wellmam, B.C. Barlow, & A.S. Murray, 1985.

APPENDIX 1

ISOGAL 84 OBSERVED GRAVITY

ISOGAL84 OBSERVED GRAVITY

* THIRD PLAIN, S.A.

STATION	EASTING	NORTHING	ELEV	GRAVITY
1119	297100.00	6546200.00	400.00	979331.11
1120	297100.00	6546000.00	413.87	979328.38
1121	296600.00	6546100.00	340.87	979344.42
1119	297100.00	6546200.00	400.00	979331.11
7102	297100.00	6546200.00	400.00	979331.11
7052	297050.00	6546200.00	398.31	979331.35
7002	297000.00	6546200.00	397.73	979331.58
6952	296950.00	6546200.00	403.63	979330.50
6902	296900.00	6546200.00	397.54	979331.74
6852	296850.00	6546200.00	416.39	979327.29
6802	296800.00	6546200.00	419.18	979326.27
6752	296750.00	6546200.00	392.53	979332.25
6702	296700.00	6546200.00	364.75	979338.64
6652	296650.00	6546200.00	347.26	979342.63
6602	296600.00	6546200.00	349.52	979342.44
6601	296600.00	6546100.00	340.87	979344.42
6651	296650.00	6546100.00	341.20	979344.16
6701	296700.00	6546100.00	349.39	979342.05
6751	296750.00	6546100.00	359.94	979339.73
6801	296800.00	6546100.00	379.02	979335.54
6851	296850.00	6546100.00	408.87	979329.20
6901	296900.00	6546100.00	407.72	979329.67
6951	296950.00	6546100.00	399.38	979331.49
7001	297000.00	6546100.00	394.53	979332.42
7051	297050.00	6546100.00	402.81	979330.50
7101	297100.00	6546100.00	403.49	979330.33
7102	297100.00	6546200.00	400.00	979331.11
7152	297150.00	6546200.00	404.48	979330.05
7202	297200.00	6546200.00	406.05	979329.77
7252	297250.00	6546200.00	416.86	979327.51
7302	297300.00	6546200.00	426.39	979325.21
7352	297350.00	6546200.00	412.55	979328.27
7402	297400.00	6546200.00	392.33	979332.56
7452	297450.00	6546200.00	371.57	979337.01
7502	297500.00	6546200.00	357.17	979340.19
7552	297550.00	6546200.00	345.16	979342.71
7602	297600.00	6546200.00	343.02	979343.18
7601	297600.00	6546100.00	349.17	979341.61
7551	297550.00	6546100.00	367.45	979337.83
7501	297500.00	6546100.00	379.78	979335.15
7451	297450.00	6546100.00	390.18	979332.89
7401	297400.00	6546100.00	403.55	979330.05
7351	297350.00	6546100.00	420.45	979326.53
7301	297300.00	6546100.00	430.13	979324.48
7251	297250.00	6546100.00	424.80	979325.58
7201	297200.00	6546100.00	415.37	979327.75
7151	297150.00	6546100.00	405.23	979330.12
1120	297100.00	6546000.00	413.87	979328.38
7100	297100.00	6546000.00	413.87	979328.38
7150	297150.00	6546000.00	408.57	979329.52
7200	297200.00	6546000.00	407.97	979329.50
7250	297250.00	6546000.00	412.27	979328.50
7300	297300.00	6546000.00	421.33	979326.19
7350	297350.00	6546000.00	421.96	979325.84
7400	297400.00	6546000.00	413.05	979327.56
7450	297450.00	6546000.00	393.32	979332.12
7500	297500.00	6546000.00	374.26	979335.86
7550	297550.00	6546000.00	357.61	979340.06

7600	297600.00	6546000.00	340.46	979343.38
7050	297050.00	6546000.00	419.24	979327.34
7000	297000.00	6546000.00	409.94	979329.37
6950	296950.00	6546000.00	405.39	979330.34
6900	296900.00	6546000.00	413.38	979328.57
6850	296850.00	6546000.00	404.23	979330.31
6800	296800.00	6546000.00	377.46	979336.25
6750	296750.00	6546000.00	357.93	979340.33
6700	296700.00	6546000.00	347.66	979342.70
6650	296650.00	6546000.00	356.11	979341.45
6600	296600.00	6546000.00	369.72	979338.46

APPENDIX 2

GRAVITY OBSERVATIONS AND REDUCTIONS

CHK. FILE

* THIRD PLAIN, S.A.
* AMG ZONE 54.0
* BASE LAT/LONG -31.20060 138.87040
* LOCAL TIME = GREENWICH MEAN TIME + 9.5

* STN	EAST	NORTH	READING	HEIGHT	ELEV	MIN	HR	DAY	MON	YEAR
1119.	297100.00	6546200.00	2843.39	.060	400.000	52	8	19	8	1991
1120.	297100.00	6546000.00	2840.76	.050	413.873	7	9	19	8	1991
1121.	296600.00	6546100.00	2856.34	.067	340.872	29	9	19	8	1991
1119.	297100.00	6546200.00	2843.46	.070	400.000	51	9	19	8	1991
7102.	297100.00	6546200.00	2843.47	.070	400.000	57	9	19	8	1991
7052.	297050.00	6546200.00	2843.69	.060	398.312	51	10	19	8	1991
7002.	297000.00	6546200.00	2843.92	.047	397.725	57	10	19	8	1991
6952.	296950.00	6546200.00	2842.86	.058	403.627	2	11	19	8	1991
6902.	296900.00	6546200.00	2844.06	.063	397.544	8	11	19	8	1991
6852.	296850.00	6546200.00	2839.74	.068	416.394	14	11	19	8	1991
6802.	296800.00	6546200.00	2838.75	.055	419.180	34	11	19	8	1991
6752.	296750.00	6546200.00	2844.55	.061	392.527	43	11	19	8	1991
6702.	296700.00	6546200.00	2850.74	.067	364.752	52	11	19	8	1991
6652.	296650.00	6546200.00	2854.62	.045	347.258	58	11	19	8	1991
6602.	296600.00	6546200.00	2854.43	.040	349.517	1	12	19	8	1991
1121.	296600.00	6546100.00	2856.35	.050	340.872	8	12	19	8	1991
6601.	296600.00	6546100.00	2856.35	.050	340.872	11	12	19	8	1991
6651.	296650.00	6546100.00	2856.10	.049	341.196	15	12	19	8	1991
6701.	296700.00	6546100.00	2854.05	.060	349.394	20	12	19	8	1991
6751.	296750.00	6546100.00	2851.80	.050	359.942	24	12	19	8	1991
6801.	296800.00	6546100.00	2847.72	.075	379.018	37	12	19	8	1991
6851.	296850.00	6546100.00	2841.57	.055	408.866	44	12	19	8	1991
6901.	296900.00	6546100.00	2842.03	.037	407.719	49	12	19	8	1991
6951.	296950.00	6546100.00	2843.79	.060	399.385	53	12	19	8	1991
7001.	297000.00	6546100.00	2844.69	.052	394.532	7	13	19	8	1991
7051.	297050.00	6546100.00	2842.82	.057	402.812	14	13	19	8	1991
7101.	297100.00	6546100.00	2842.66	.056	403.487	20	13	19	8	1991
7102.	297100.00	6546200.00	2843.41	.057	400.000	26	13	19	8	1991
1119.	297100.00	6546200.00	2843.39	.057	400.000	3	14	19	8	1991
7152.	297150.00	6546200.00	2842.36	.065	404.482	7	14	19	8	1991
7202.	297200.00	6546200.00	2842.09	.052	406.048	10	14	19	8	1991
7252.	297250.00	6546200.00	2839.90	.060	416.864	16	14	19	8	1991
7302.	297300.00	6546200.00	2837.67	.062	426.389	20	14	19	8	1991
7352.	297350.00	6546200.00	2840.64	.059	412.553	25	14	19	8	1991
7402.	297400.00	6546200.00	2844.80	.051	392.335	30	14	19	8	1991
7452.	297450.00	6546200.00	2849.12	.030	371.568	36	14	19	8	1991
7502.	297500.00	6546200.00	2852.20	.050	357.172	40	14	19	8	1991
7552.	297550.00	6546200.00	2854.64	.073	345.163	47	14	19	8	1991
7602.	297600.00	6546200.00	2855.10	.063	343.022	50	14	19	8	1991
7601.	297600.00	6546100.00	2853.58	.030	349.172	57	14	19	8	1991
7551.	297550.00	6546100.00	2849.91	.050	367.446	2	15	19	8	1991
7501.	297500.00	6546100.00	2847.31	.062	379.775	9	15	19	8	1991
7451.	297450.00	6546100.00	2845.12	.058	390.185	19	15	19	8	1991
7401.	297400.00	6546100.00	2842.37	.038	403.553	27	15	19	8	1991
7351.	297350.00	6546100.00	2838.95	.045	420.450	36	15	19	8	1991
7301.	297300.00	6546100.00	2836.96	.055	430.132	41	15	19	8	1991
7251.	297250.00	6546100.00	2838.03	.050	424.798	45	15	19	8	1991
7201.	297200.00	6546100.00	2840.13	.042	415.368	50	15	19	8	1991
7151.	297150.00	6546100.00	2842.43	.043	405.234	54	15	19	8	1991
1120.	297100.00	6546000.00	2840.74	.053	413.873	0	16	19	8	1991
7100.	297100.00	6546000.00	2840.75	.053	413.873	2	16	19	8	1991
7150.	297150.00	6546000.00	2841.85	.068	408.573	7	16	19	8	1991
7200.	297200.00	6546000.00	2841.82	.068	407.972	10	16	19	8	1991
7250.	297250.00	6546000.00	2840.85	.065	412.268	13	16	19	8	1991
7300.	297300.00	6546000.00	2838.62	.030	421.326	16	16	19	8	1991

7350.	297350.00	6546000.00	2838.27	.059	421.960	19	16	19	8	1991
7400.	297400.00	6546000.00	2839.92	.077	413.053	25	16	19	8	1991
7450.	297450.00	6546000.00	2844.35	.035	393.318	30	16	19	8	1991
7500.	297500.00	6546000.00	2847.96	.078	374.257	35	16	19	8	1991
7550.	297550.00	6546000.00	2852.03	.085	357.612	40	16	19	8	1991
7600.	297600.00	6546000.00	2855.26	.058	340.460	43	16	19	8	1991
7050.	297050.00	6546000.00	2839.68	.058	419.243	57	16	19	8	1991
7000.	297000.00	6546000.00	2841.65	.071	409.940	0	17	19	8	1991
6950.	296950.00	6546000.00	2842.58	.070	405.386	4	17	19	8	1991
6900.	296900.00	6546000.00	2840.86	.074	413.385	7	17	19	8	1991
6850.	296850.00	6546000.00	2842.55	.055	404.230	11	17	19	8	1991
6800.	296800.00	6546000.00	2848.30	.078	377.463	17	17	19	8	1991
6750.	296750.00	6546000.00	2852.26	.035	357.935	22	17	19	8	1991
6700.	296700.00	6546000.00	2854.55	.064	347.664	25	17	19	8	1991
6650.	296650.00	6546000.00	2853.33	.068	356.108	29	17	19	8	1991
6600.	296600.00	6546000.00	2850.48	.063	369.717	32	17	19	8	1991
1121.	296600.00	6546100.00	2856.21	.048	340.872	39	17	19	8	1991

COR. FILE

* THIRD PLAIN, S.A.

STATION	TRUE COORDINATE EAST	TRUE COORDINATE NORTH	TIME MINUTES	<----CORRECTIONS----> TIDE	LATITUDE	HEIGHT	DRIFT	ELEVATION	GRAVITY DRIFT CORR'D
1119.	297100.00	6546200.00	.00	-.03	.00	.02	.00	400.00	9331.11
1120.	297100.00	6546000.00	15.00	-.03	.14	.02	.02	413.87	9328.38
1121.	296600.00	6546100.00	37.00	-.03	.07	.02	.04	340.87	9344.42
1119.	297100.00	6546200.00	59.00	-.03	.00	.02	.07	400.00	9331.11
7102.	297100.00	6546200.00	65.00	-.03	.00	.02	.08	400.00	9331.11
7052.	297050.00	6546200.00	119.00	-.04	.00	.02	.06	398.31	9331.35
7002.	297000.00	6546200.00	125.00	-.04	.00	.01	.06	397.73	9331.58
6952.	296950.00	6546200.00	130.00	-.04	.00	.02	.06	403.63	9330.50
6902.	296900.00	6546200.00	136.00	-.04	.00	.02	.06	397.54	9331.74
6852.	296850.00	6546200.00	142.00	-.04	.00	.02	.06	416.39	9327.29
6802.	296800.00	6546200.00	162.00	-.04	.00	.02	.05	419.18	9326.27
6752.	296750.00	6546200.00	171.00	-.04	.00	.02	.05	392.53	9332.25
6702.	296700.00	6546200.00	180.00	-.04	-.01	.02	.04	364.75	9338.64
6652.	296650.00	6546200.00	186.00	-.04	-.01	.01	.04	347.26	9342.63
6602.	296600.00	6546200.00	189.00	-.04	-.01	.01	.04	349.52	9342.44
1121.	296600.00	6546100.00	196.00	-.04	.07	.02	.04	340.87	9344.42
6601.	296600.00	6546100.00	199.00	-.04	.07	.02	.04	340.87	9344.42
6651.	296650.00	6546100.00	203.00	-.04	.07	.02	.04	341.20	9344.16
6701.	296700.00	6546100.00	208.00	-.04	.07	.02	.03	349.39	9342.05
6751.	296750.00	6546100.00	212.00	-.04	.07	.02	.03	359.94	9339.73
6801.	296800.00	6546100.00	225.00	-.04	.07	.02	.03	379.02	9335.54
6851.	296850.00	6546100.00	232.00	-.04	.07	.02	.03	408.87	9329.20
6901.	296900.00	6546100.00	237.00	-.04	.07	.01	.02	407.72	9329.67
6951.	296950.00	6546100.00	241.00	-.04	.07	.02	.02	399.38	9331.49
7001.	297000.00	6546100.00	255.00	-.04	.07	.02	.02	394.53	9332.42
7051.	297050.00	6546100.00	262.00	-.04	.07	.02	.02	402.81	9330.50
7101.	297100.00	6546100.00	268.00	-.04	.07	.02	.01	403.49	9330.33
7102.	297100.00	6546200.00	274.00	-.04	.00	.02	.01	400.00	9331.11
1119.	297100.00	6546200.00	311.00	-.03	.00	.02	.00	400.00	9331.11
7152.	297150.00	6546200.00	315.00	-.03	.00	.02	.00	404.48	9330.05
7202.	297200.00	6546200.00	318.00	-.03	.00	.02	.00	406.05	9329.77
7252.	297250.00	6546200.00	324.00	-.03	.00	.02	.00	416.86	9327.51
7302.	297300.00	6546200.00	328.00	-.03	.00	.02	.00	426.39	9325.21
7352.	297350.00	6546200.00	333.00	-.03	.00	.02	.00	412.55	9328.27
7402.	297400.00	6546200.00	338.00	-.03	.00	.02	.00	392.33	9332.56
7452.	297450.00	6546200.00	344.00	-.03	.01	.01	.01	371.57	9337.01
7502.	297500.00	6546200.00	348.00	-.03	.01	.02	.01	357.17	9340.19
7552.	297550.00	6546200.00	355.00	-.02	.01	.02	.01	345.16	9342.71
7602.	297600.00	6546200.00	358.00	-.02	.01	.02	.01	343.02	9343.18
7601.	297600.00	6546100.00	365.00	-.02	.08	.01	.01	349.17	9341.61
7551.	297550.00	6546100.00	370.00	-.02	.08	.02	.01	367.45	9337.83
7501.	297500.00	6546100.00	377.00	-.02	.08	.02	.01	379.78	9335.15
7451.	297450.00	6546100.00	387.00	-.01	.08	.02	.02	390.18	9332.89
7401.	297400.00	6546100.00	395.00	-.01	.08	.01	.02	403.55	9330.05
7351.	297350.00	6546100.00	404.00	-.01	.08	.01	.02	420.45	9326.53
7301.	297300.00	6546100.00	409.00	.00	.08	.02	.02	430.13	9324.48
7251.	297250.00	6546100.00	413.00	.00	.07	.02	.02	424.80	9325.58
7201.	297200.00	6546100.00	418.00	.00	.07	.01	.03	415.37	9327.75
7151.	297150.00	6546100.00	422.00	.00	.07	.01	.03	405.23	9330.12
1120.	297100.00	6546000.00	428.00	.00	.14	.02	.03	413.87	9328.38
7100.	297100.00	6546000.00	430.00	.00	.14	.02	.04	413.87	9328.38
7150.	297150.00	6546000.00	435.00	.01	.15	.02	.04	408.57	9329.52
7200.	297200.00	6546000.00	438.00	.01	.15	.02	.04	407.97	9329.50
7250.	297250.00	6546000.00	441.00	.01	.15	.02	.03	412.27	9328.50
7300.	297300.00	6546000.00	444.00	.01	.15	.01	.03	421.33	9326.19
7350.	297350.00	6546000.00	447.00	.01	.15	.02	.03	421.96	9325.84

7400.	297400.00	6546000.00	453.00	.01	.15	.02	.03	413.05	9327.56
7450.	297450.00	6546000.00	458.00	.02	.15	.01	.02	393.32	9332.12
7500.	297500.00	6546000.00	463.00	.02	.15	.02	.02	374.26	9335.86
7550.	297550.00	6546000.00	468.00	.02	.15	.03	.02	357.61	9340.06
7600.	297600.00	6546000.00	471.00	.02	.15	.02	.02	340.46	9343.38
7050.	297050.00	6546000.00	485.00	.03	.14	.02	.01	419.24	9327.34
7000.	297000.00	6546000.00	488.00	.03	.14	.02	.01	409.94	9329.37
6950.	296950.00	6546000.00	492.00	.03	.14	.02	.00	405.39	9330.34
6900.	296900.00	6546000.00	495.00	.03	.14	.02	.00	413.38	9328.57
6850.	296850.00	6546000.00	499.00	.04	.14	.02	.00	404.23	9330.31
6800.	296800.00	6546000.00	505.00	.04	.14	.02	.00	377.46	9336.25
6750.	296750.00	6546000.00	510.00	.04	.14	.01	-.01	357.93	9340.33
6700.	296700.00	6546000.00	513.00	.04	.14	.02	-.01	347.66	9342.70
6650.	296650.00	6546000.00	517.00	.05	.14	.02	-.01	356.11	9341.45
6600.	296600.00	6546000.00	520.00	.05	.14	.02	.04	369.72	9338.46
1121.	296600.00	6546100.00	527.00	.05	.07	.01	-.02	340.87	9344.42

REC. FILE

* THIRD PLAIN, S.A.
* AMG ZONE 54.0
* BASE LAT/LONG -31.20060 138.87040
* LOCAL TIME = GREENWICH MEAN TIME + 9.5

* STATION	EAST	NORTH	ELEV	GRAVITY	TERRAIN
* CORRECTED READINGS					
1119.	297100.00	6546200.00	400.000	9331.11	.00
1120.	297100.00	6546000.00	413.873	9328.52	.00
1121.	296600.00	6546100.00	340.872	9344.49	.00
1119.	297100.00	6546200.00	400.000	9331.11	.00
7102.	297100.00	6546200.00	400.000	9331.11	.00
7052.	297050.00	6546200.00	398.312	9331.35	.00
7002.	297000.00	6546200.00	397.725	9331.58	.00
6952.	296950.00	6546200.00	403.627	9330.49	.00
6902.	296900.00	6546200.00	397.544	9331.73	.00
6852.	296850.00	6546200.00	416.394	9327.28	.00
6802.	296800.00	6546200.00	419.180	9326.26	.00
6752.	296750.00	6546200.00	392.527	9332.25	.00
6702.	296700.00	6546200.00	364.752	9338.63	.00
6652.	296650.00	6546200.00	347.258	9342.63	.00
6602.	296600.00	6546200.00	349.517	9342.43	.00
1121.	296600.00	6546100.00	340.872	9344.49	.00
6601.	296600.00	6546100.00	340.872	9344.49	.00
6651.	296650.00	6546100.00	341.196	9344.23	.00
6701.	296700.00	6546100.00	349.394	9342.12	.00
6751.	296750.00	6546100.00	359.942	9339.80	.00
6801.	296800.00	6546100.00	379.018	9335.61	.00
6851.	296850.00	6546100.00	408.866	9329.26	.00
6901.	296900.00	6546100.00	407.719	9329.74	.00
6951.	296950.00	6546100.00	399.385	9331.56	.00
7001.	297000.00	6546100.00	394.532	9332.49	.00
7051.	297050.00	6546100.00	402.812	9330.57	.00
7101.	297100.00	6546100.00	403.487	9330.41	.00
7102.	297100.00	6546200.00	400.000	9331.11	.00
1119.	297100.00	6546200.00	400.000	9331.11	.00
7152.	297150.00	6546200.00	404.482	9330.05	.00
7202.	297200.00	6546200.00	406.048	9329.77	.00
7252.	297250.00	6546200.00	416.864	9327.51	.00
7302.	297300.00	6546200.00	426.389	9325.22	.00
7352.	297350.00	6546200.00	412.553	9328.28	.00
7402.	297400.00	6546200.00	392.335	9332.56	.00
7452.	297450.00	6546200.00	371.568	9337.01	.00
7502.	297500.00	6546200.00	357.172	9340.19	.00
7552.	297550.00	6546200.00	345.163	9342.72	.00
7602.	297600.00	6546200.00	343.022	9343.19	.00
7601.	297600.00	6546100.00	349.172	9341.68	.00
7551.	297550.00	6546100.00	367.446	9337.91	.00
7501.	297500.00	6546100.00	379.775	9335.23	.00
7451.	297450.00	6546100.00	390.185	9332.97	.00
7401.	297400.00	6546100.00	403.553	9330.13	.00
7351.	297350.00	6546100.00	420.450	9326.61	.00
7301.	297300.00	6546100.00	430.132	9324.56	.00
7251.	297250.00	6546100.00	424.798	9325.66	.00
7201.	297200.00	6546100.00	415.368	9327.82	.00
7151.	297150.00	6546100.00	405.234	9330.19	.00
1120.	297100.00	6546000.00	413.873	9328.52	.00
7100.	297100.00	6546000.00	413.873	9328.52	.00
7150.	297150.00	6546000.00	408.573	9329.67	.00
7200.	297200.00	6546000.00	407.972	9329.64	.00
7250.	297250.00	6546000.00	412.268	9328.65	.00

7300.	297300.00	6546000.00	421.326	9326.34	.00
7350.	297350.00	6546000.00	421.960	9325.99	.00
7400.	297400.00	6546000.00	413.053	9327.70	.00
7450.	297450.00	6546000.00	393.318	9332.26	.00
7500.	297500.00	6546000.00	374.257	9336.01	.00
7550.	297550.00	6546000.00	357.612	9340.21	.00
7600.	297600.00	6546000.00	340.460	9343.53	.00
7050.	297050.00	6546000.00	419.243	9327.48	.00
7000.	297000.00	6546000.00	409.940	9329.52	.00
6950.	296950.00	6546000.00	405.386	9330.48	.00
6900.	296900.00	6546000.00	413.385	9328.71	.00
6850.	296850.00	6546000.00	404.230	9330.45	.00
6800.	296800.00	6546000.00	377.463	9336.39	.00
6750.	296750.00	6546000.00	357.935	9340.47	.00
6700.	296700.00	6546000.00	347.664	9342.84	.00
6650.	296650.00	6546000.00	356.108	9341.58	.00
6600.	296600.00	6546000.00	369.717	9338.59	.00
1121.	296600.00	6546100.00	340.872	9344.49	.00

BOU. FILE

Surtec Geosurveys

* THIRD PLAIN, S.A.
* DENSITY USED WAS 2.20

LOCATION		RAW	<---CORRECTIONS--->			ELEVATION	LOCAL	ISOGAL84
		GRAVITY	FREE	BOUG-	TERR-		BOUGUER	BOUGUER CORR
EASTING	NORTHING		AIR	UER	AIN		GRAVITY	GRAVITY
297100.00	6546200.00	9331.11	.00	.00	.00	400.00	9331.11	-1.290
297100.00	6546000.00	9328.52	4.28	-1.28	.00	413.87	9331.52	-.881
296600.00	6546100.00	9344.49	-18.25	5.45	.00	340.87	9331.70	-.700
297100.00	6546200.00	9331.11	.00	.00	.00	400.00	9331.11	-1.290
297100.00	6546200.00	9331.11	.00	.00	.00	400.00	9331.11	-1.290
297050.00	6546200.00	9331.35	-.52	.16	.00	398.31	9330.98	-1.420
297000.00	6546200.00	9331.58	-.70	.21	.00	397.73	9331.09	-1.311
296950.00	6546200.00	9330.49	1.12	-.33	.00	403.63	9331.28	-1.120
296900.00	6546200.00	9331.73	-.76	.23	.00	397.54	9331.20	-1.200
296850.00	6546200.00	9327.28	5.06	-1.51	.00	416.39	9330.83	-1.570
296800.00	6546200.00	9326.26	5.92	-1.77	.00	419.18	9330.41	-1.990
296750.00	6546200.00	9332.25	-2.31	.69	.00	392.53	9330.63	-1.771
296700.00	6546200.00	9338.63	-10.88	3.25	.00	364.75	9331.00	-1.400
296650.00	6546200.00	9342.63	-16.28	4.86	.00	347.26	9331.22	-1.181
296600.00	6546200.00	9342.43	-15.58	4.65	.00	349.52	9331.50	-.900
296600.00	6546100.00	9344.49	-18.25	5.45	.00	340.87	9331.70	-.700
296600.00	6546100.00	9344.49	-18.25	5.45	.00	340.87	9331.70	-.700
296650.00	6546100.00	9344.23	-18.15	5.42	.00	341.20	9331.51	-.891
296700.00	6546100.00	9342.12	-15.62	4.67	.00	349.39	9331.17	-1.230
296750.00	6546100.00	9339.80	-12.36	3.69	.00	359.94	9331.13	-1.271
296800.00	6546100.00	9335.61	-6.48	1.93	.00	379.02	9331.07	-1.330
296850.00	6546100.00	9329.26	2.74	-.82	.00	408.87	9331.18	-1.221
296900.00	6546100.00	9329.74	2.38	-.71	.00	407.72	9331.41	-.990
296950.00	6546100.00	9331.56	-.19	.06	.00	399.39	9331.43	-.971
297000.00	6546100.00	9332.49	-1.69	.50	.00	394.53	9331.31	-1.091
297050.00	6546100.00	9330.57	.87	-.26	.00	402.81	9331.18	-1.221
297100.00	6546100.00	9330.41	1.08	-.32	.00	403.49	9331.17	-1.230
297100.00	6546200.00	9331.11	.00	.00	.00	400.00	9331.11	-1.290
297100.00	6546200.00	9331.11	.00	.00	.00	400.00	9331.11	-1.290
297150.00	6546200.00	9330.05	1.38	-.41	.00	404.48	9331.02	-1.381
297200.00	6546200.00	9329.77	1.87	-.56	.00	406.05	9331.08	-1.320
297250.00	6546200.00	9327.51	5.20	-1.55	.00	416.86	9331.16	-1.240
297300.00	6546200.00	9325.22	8.14	-2.43	.00	426.39	9330.93	-1.471
297350.00	6546200.00	9328.28	3.87	-1.16	.00	412.55	9331.00	-1.400
297400.00	6546200.00	9332.56	-2.37	.71	.00	392.33	9330.90	-1.500
297450.00	6546200.00	9337.01	-8.77	2.62	.00	371.57	9330.86	-1.540
297500.00	6546200.00	9340.19	-13.22	3.95	.00	357.17	9330.92	-1.480
297550.00	6546200.00	9342.72	-16.92	5.06	.00	345.16	9330.85	-1.551
297600.00	6546200.00	9343.19	-17.58	5.25	.00	343.02	9330.86	-1.540
297600.00	6546100.00	9341.68	-15.69	4.69	.00	349.17	9330.68	-1.721
297550.00	6546100.00	9337.91	-10.05	3.00	.00	367.45	9330.87	-1.530
297500.00	6546100.00	9335.23	-6.24	1.86	.00	379.77	9330.85	-1.551
297450.00	6546100.00	9332.97	-3.03	.90	.00	390.18	9330.85	-1.551
297400.00	6546100.00	9330.13	1.10	-.33	.00	403.55	9330.90	-1.500
297350.00	6546100.00	9326.61	6.31	-1.89	.00	420.45	9331.04	-1.360
297300.00	6546100.00	9324.56	9.30	-2.78	.00	430.13	9331.08	-1.320
297250.00	6546100.00	9325.66	7.65	-2.29	.00	424.80	9331.03	-1.370
297200.00	6546100.00	9327.82	4.74	-1.42	.00	415.37	9331.15	-1.250
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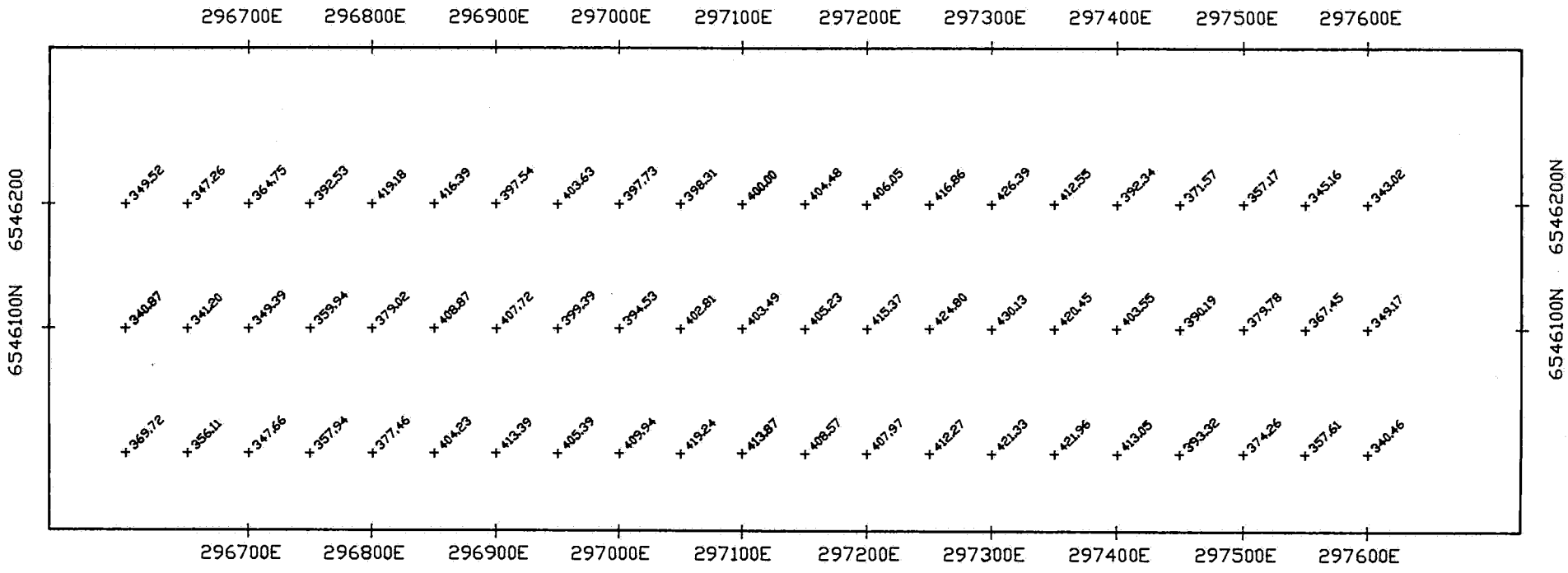
297100.00	6546000.00	9328.52	4.28	-1.28	.00	413.87	9331.52	-.881
297150.00	6546000.00	9329.67	2.65	-.79	.00	408.57	9331.53	-.870
297200.00	6546000.00	9329.64	2.46	-.74	.00	407.97	9331.37	-1.030

297250.00	6546000.00	9328.65	3.79	-1.13	.00	412.27	9331.30	-1.101
297300.00	6546000.00	9326.34	6.58	-1.97	.00	421.33	9330.96	-1.440
297350.00	6546000.00	9325.99	6.78	-2.02	.00	421.96	9330.74	-1.660
297400.00	6546000.00	9327.70	4.03	-1.20	.00	413.05	9330.52	-1.881
297450.00	6546000.00	9332.26	-2.06	.62	.00	393.32	9330.81	-1.591
297500.00	6546000.00	9336.01	-7.94	2.37	.00	374.26	9330.44	-1.960
297550.00	6546000.00	9340.21	-13.08	3.91	.00	357.61	9331.04	-1.360
297600.00	6546000.00	9343.53	-18.37	5.49	.00	340.46	9330.65	-1.750
297050.00	6546000.00	9327.48	5.94	-1.77	.00	419.24	9331.64	-.761
297000.00	6546000.00	9329.52	3.07	-.92	.00	409.94	9331.67	-.730
296950.00	6546000.00	9330.48	1.66	-.50	.00	405.39	9331.65	-.750
296900.00	6546000.00	9328.71	4.13	-1.23	.00	413.39	9331.61	-.790
296850.00	6546000.00	9330.45	1.31	-.39	.00	404.23	9331.37	-1.030
296800.00	6546000.00	9336.39	-6.95	2.08	.00	377.46	9331.51	-.891
296750.00	6546000.00	9340.47	-12.98	3.88	.00	357.93	9331.37	-1.030
296700.00	6546000.00	9342.84	-16.15	4.83	.00	347.66	9331.51	-.891
296650.00	6546000.00	9341.58	-13.55	4.05	.00	356.11	9332.08	-.320
296600.00	6546000.00	9338.59	-9.35	2.79	.00	369.72	9332.04	-.360
296600.00	6546100.00	9344.49	-18.25	5.45	.00	340.87	9331.70	-.700

APPENDIX 3

PLOTS



PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Reduced Levels

SCALE 1 : 5000

THIRD PLAIN BOUGUER CORRECTED GRAVITY - 2.20g/cc.

SCALE= 5000.0 Surtec Geosurveys

6546100N 6546200N

296700E 296800E 296900E 297000E 297100E 297200E 297300E 297400E 297500E 297600E

+ +-1181 +-1400 +-1771 +-1990 +-1570 +-1200 +-1120 +-1311 +-1420 +-1290 +-1381 +-1320 +-1240 +-1471 +-1400 +-1500 +-1540 +-1480 +-1551 +-1540

+-700 +-891 +-1230 +-1271 +-1330 +-1221 +-990 +-971 +-1091 +-1221 +-1230 +-1080 +-1250 +-1370 +-1320 +-1360 +-1500 +-1551 +-1551 +-1530 +-1721

+-360 +-320 +-891 +-1030 +-891 +-1030 +-790 +-750 +-730 +-761 +-881 +-870 +-1030 +-1101 +-1440 +-1660 +-1881 +-1591 +-1960 +-1360 +-1750

296700E 296800E 296900E 297000E 297100E 297200E 297300E 297400E 297500E 297600E

6546100N 6546200N

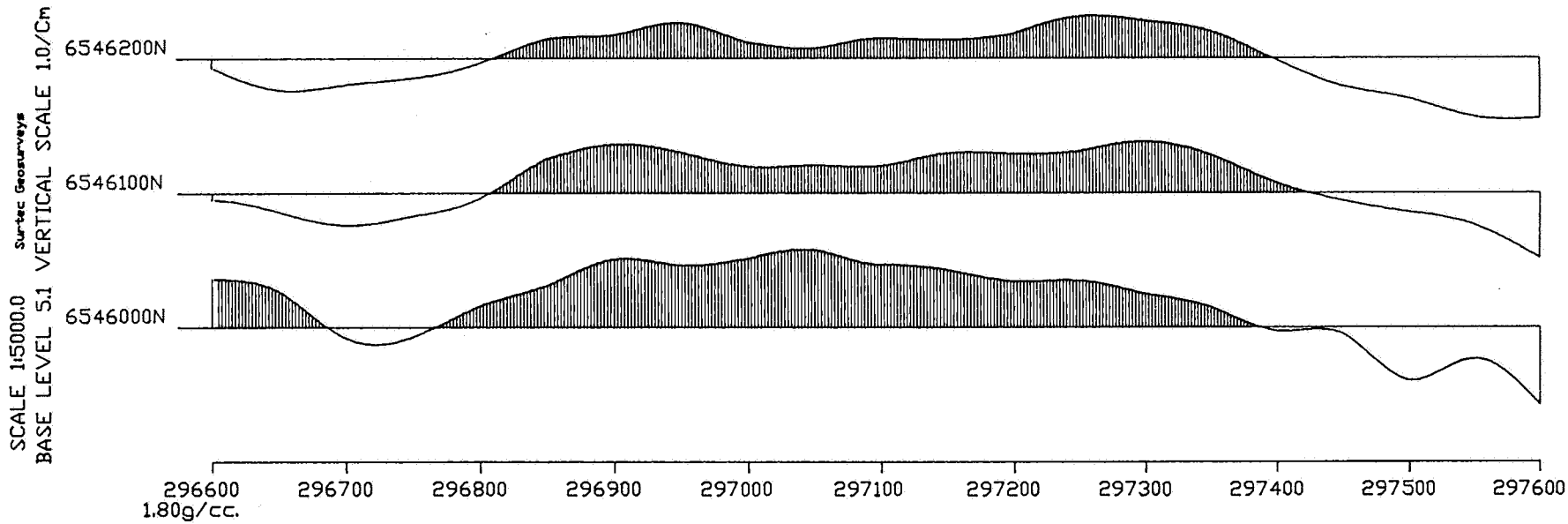
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Posted Bouguer Gravity

2.20g/cc

037



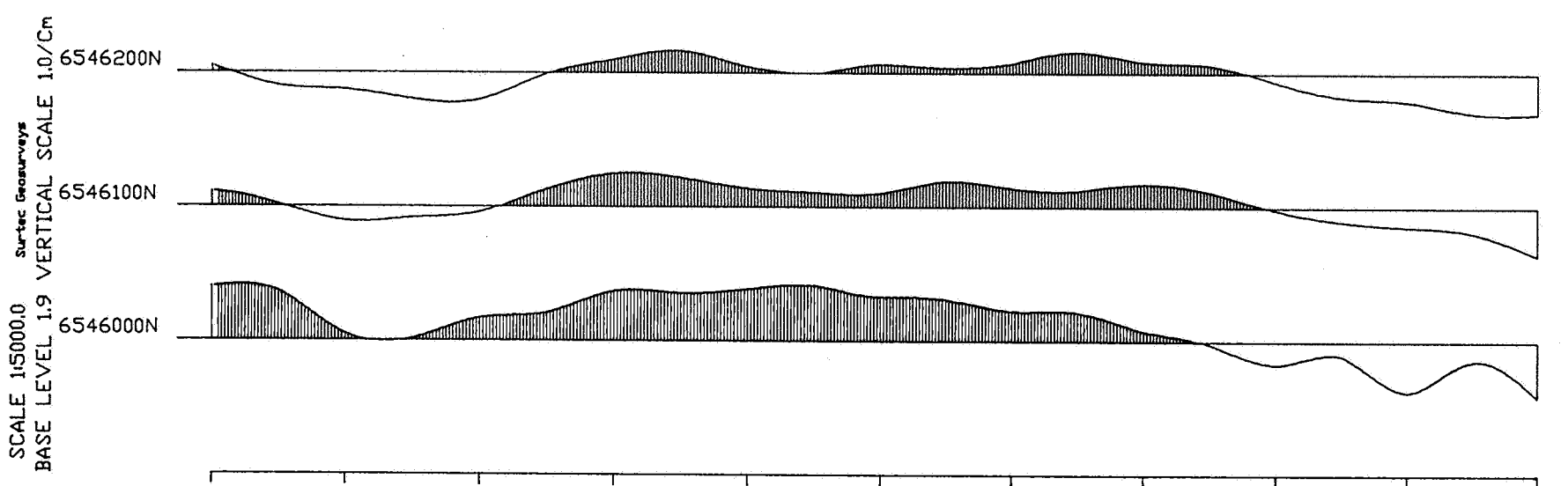
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

1.80g/cc

038



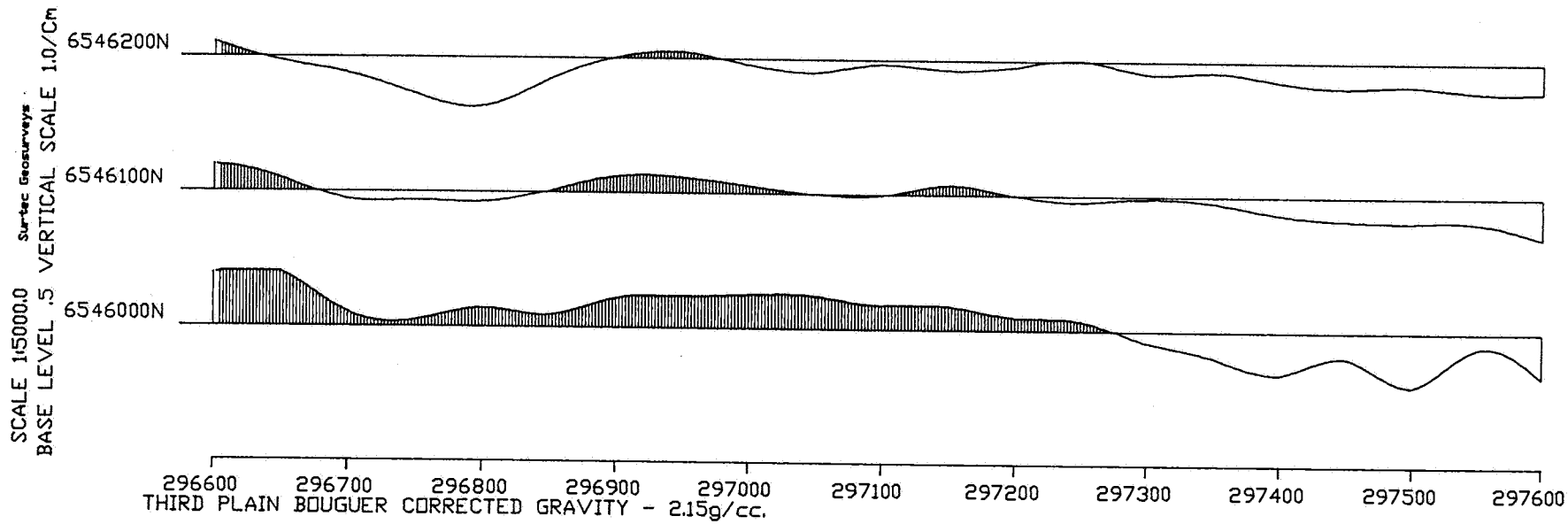
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.00g/cc

039



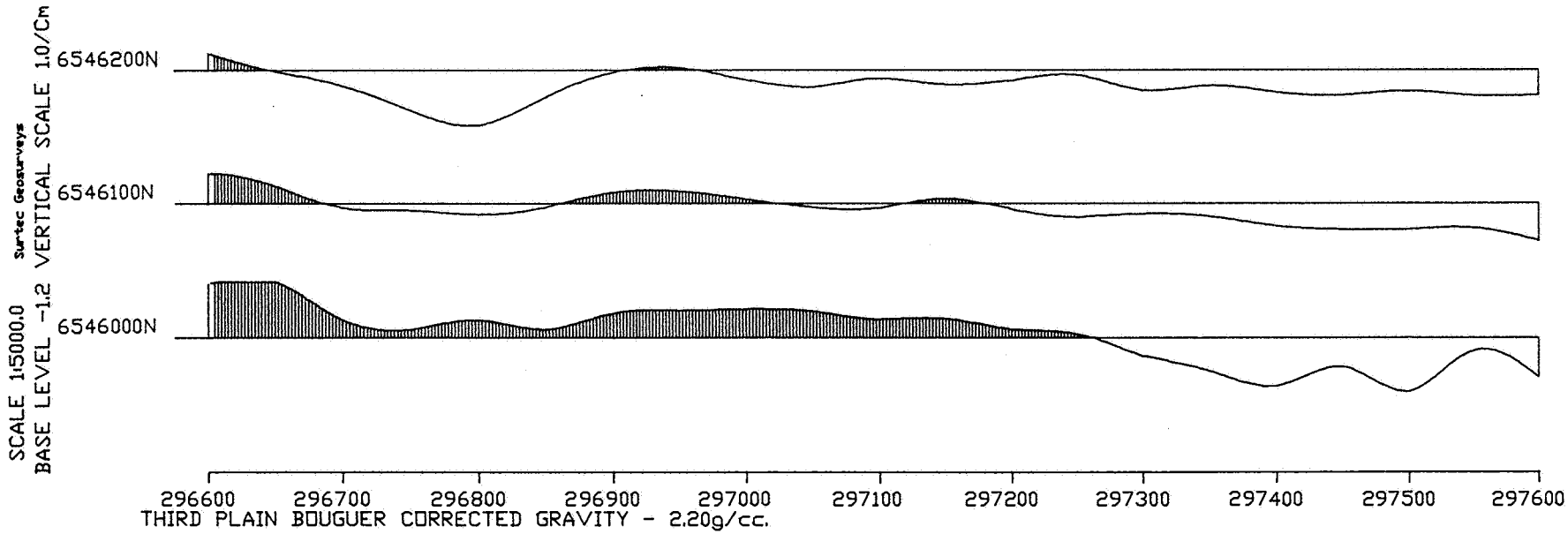
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.15g/cc

040



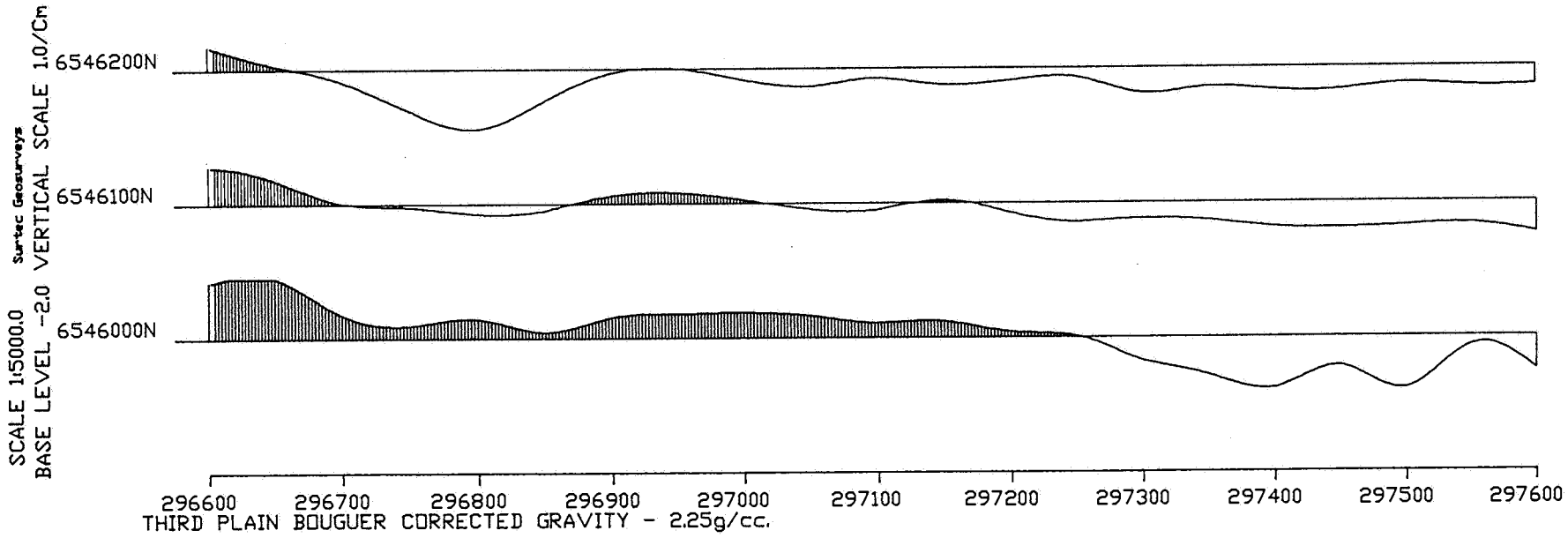
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.20g/cc

041

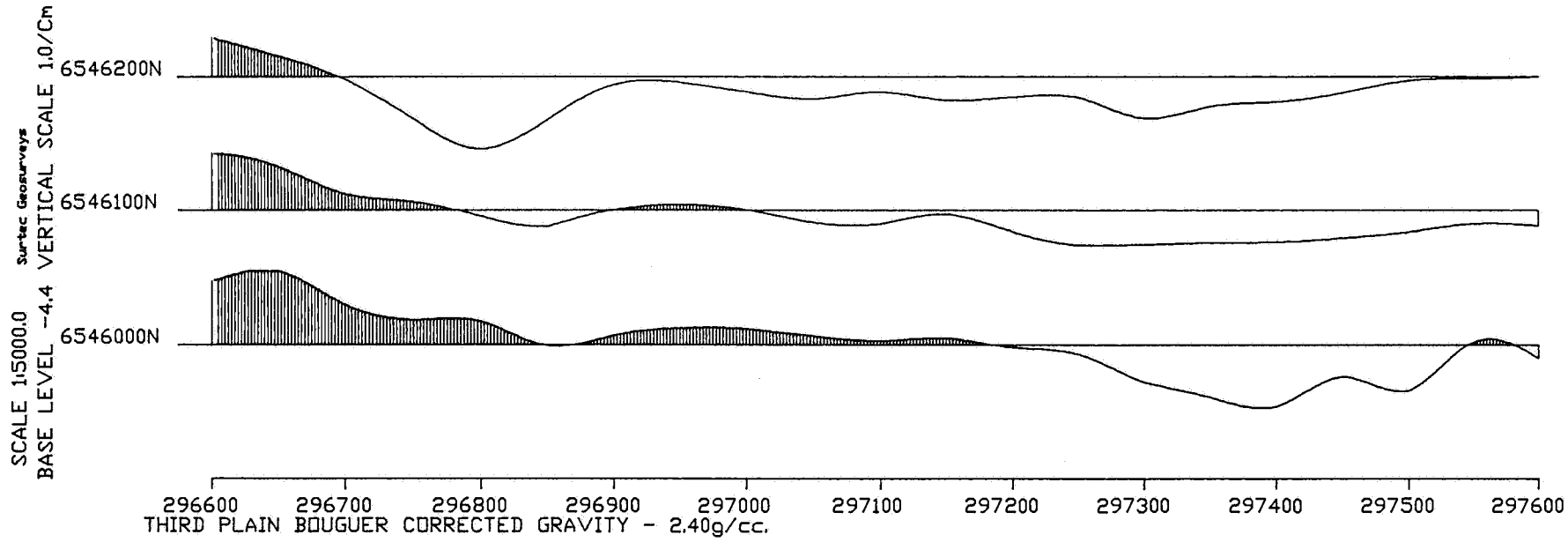


PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.25g/cc



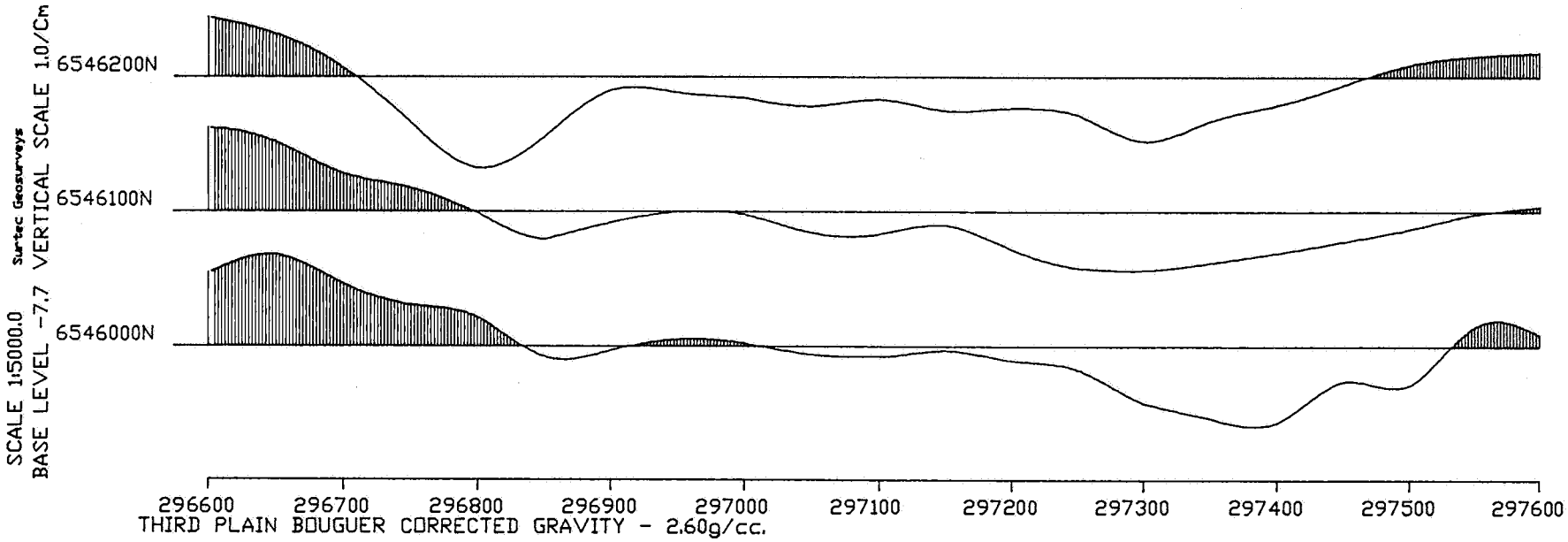
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.40g/cc

043



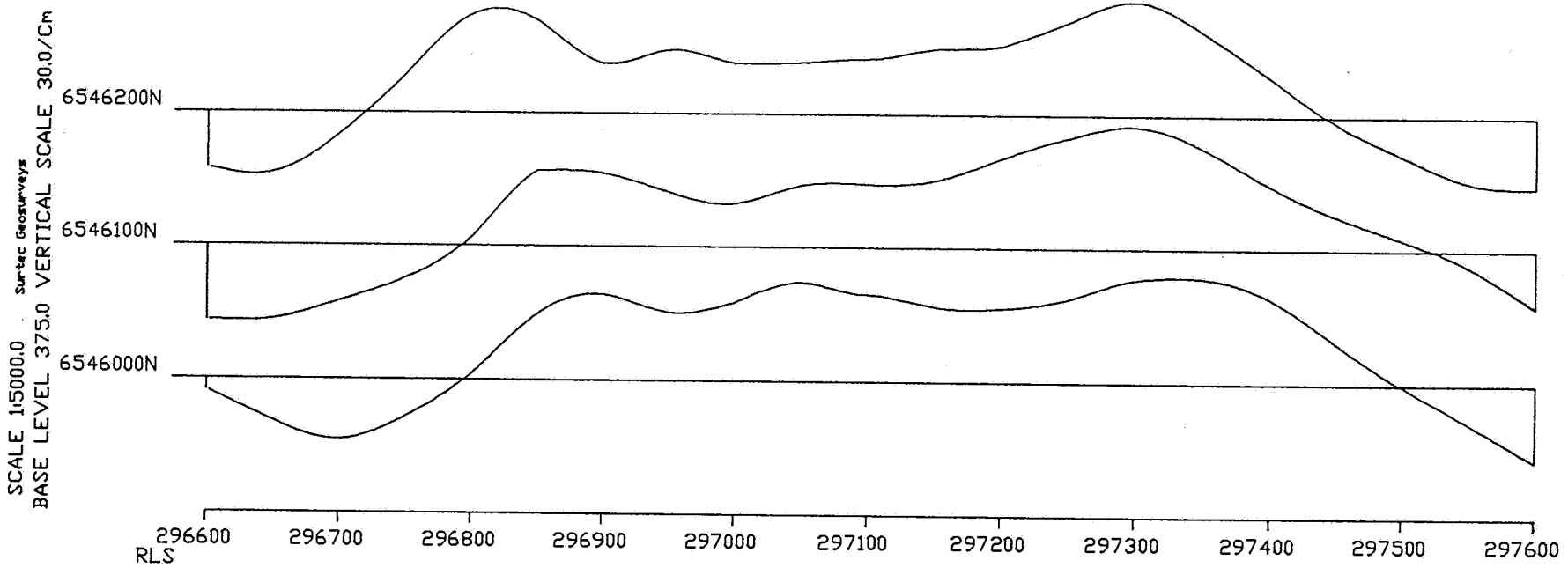
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

2.60g/cc

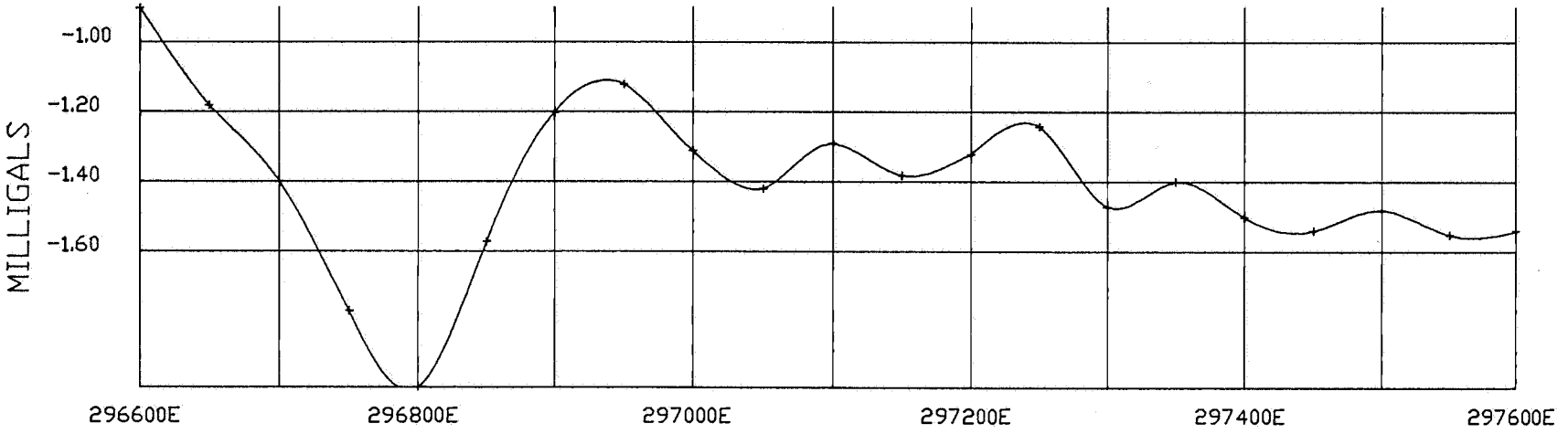
044



PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Reduced Levels



THIRD PLAIN BOUGUER CORRECTED GRAVITY - 2.20g/cc.

LINE 6546200N SCALE 1 : 5000

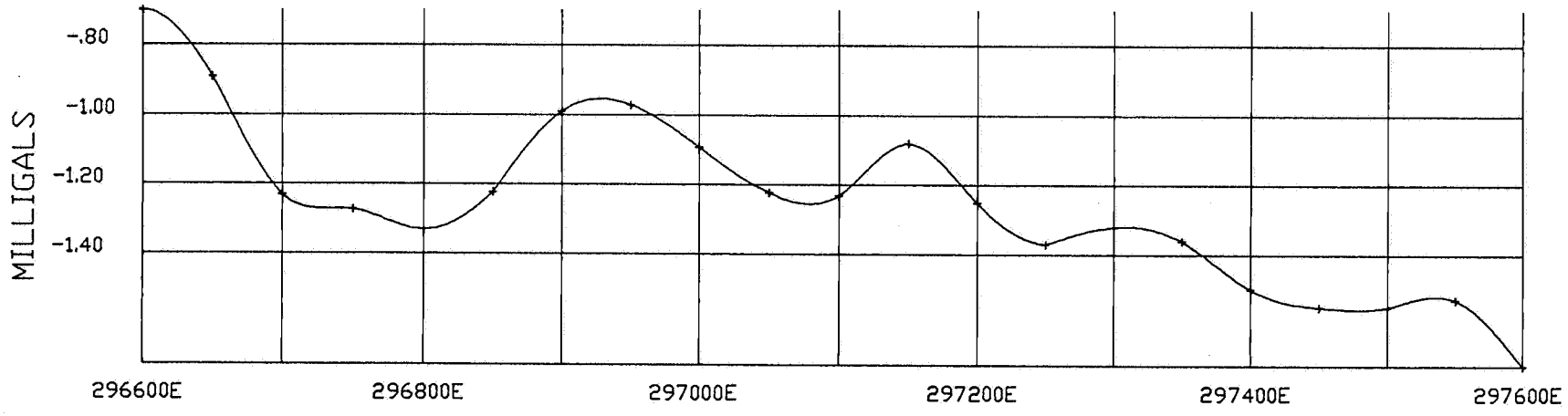
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

LINE 6546200N

2.20g/cc



THIRD PLAIN BOUGUER CORRECTED GRAVITY - 2.20g/cc.

LINE 6546100N SCALE 1 : 5000

PASMINCO EXPLORATION

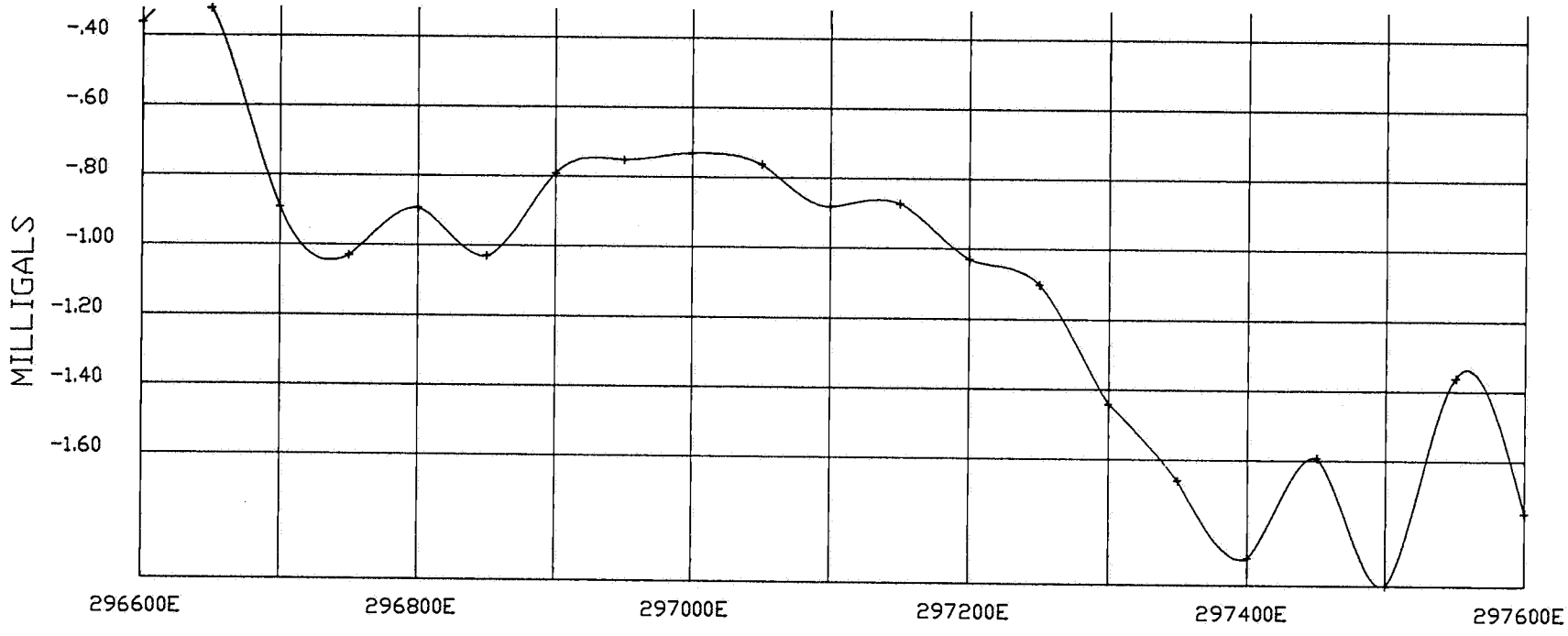
Third Plain Prospect EL 1710

Profiled Bouguer Gravity

LINE 6546100N

2.20g/cc

047



THIRD PLAIN BOUGUER CORRECTED GRAVITY - 2.20g/cc.

LINE 6546000N SCALE 1 : 5000

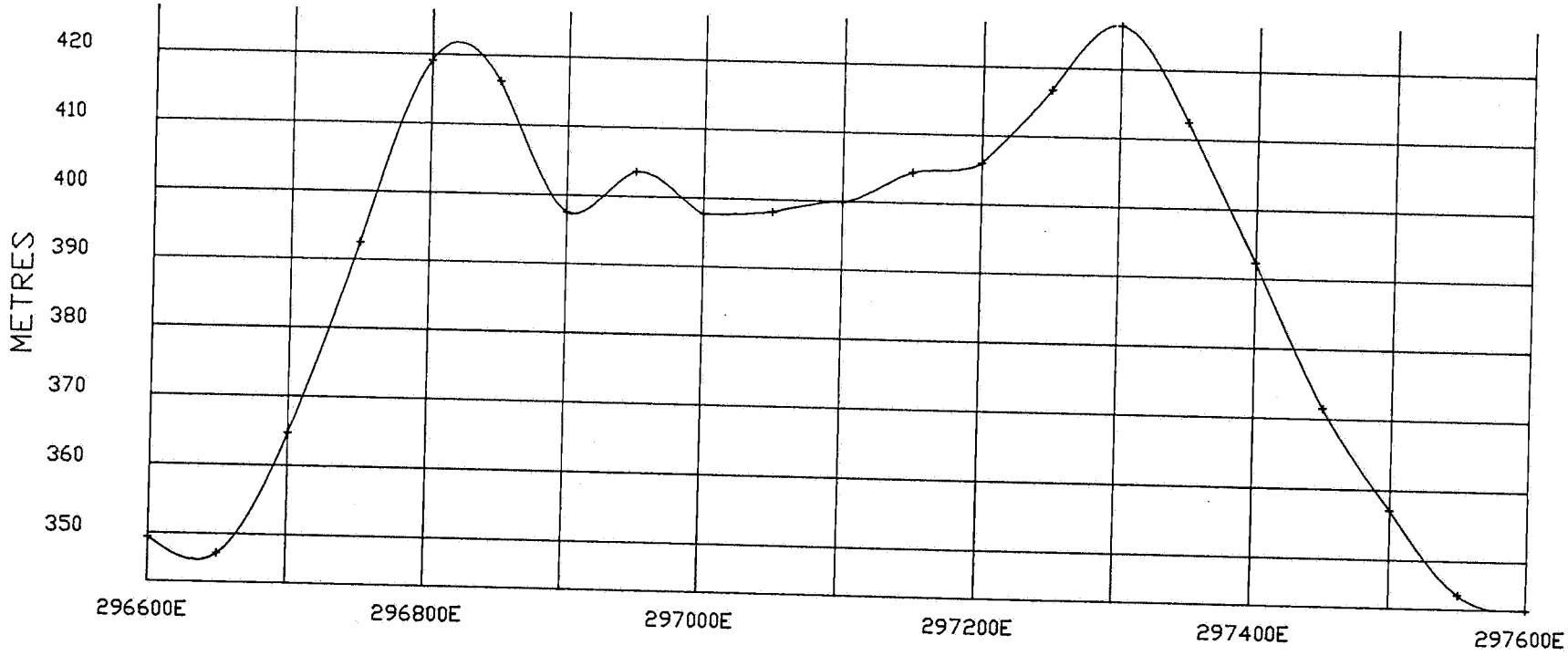
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Profiled Bouguer Gravity

LINE 6546000N

2.20g/cc



RLS

LINE 6546200N SCALE 1 : 5000

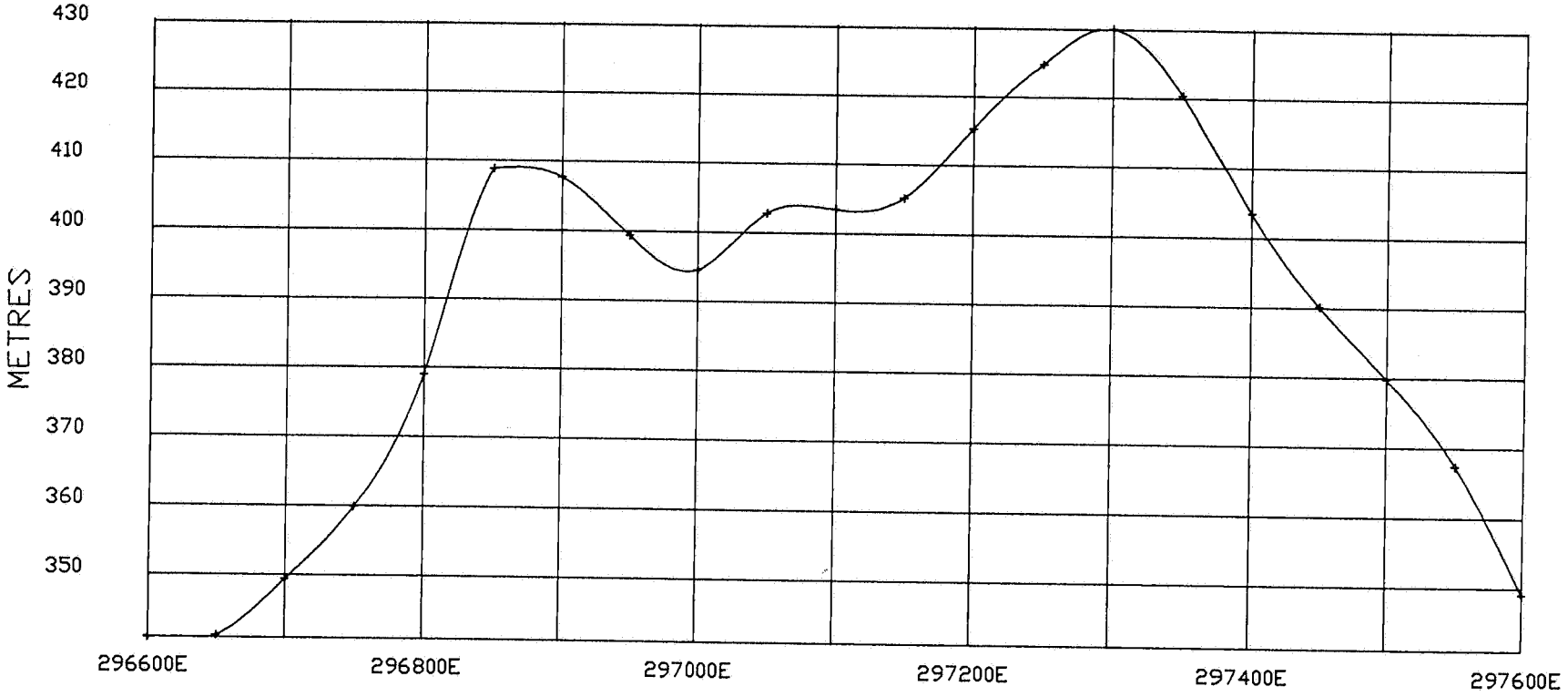
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Reduced Levels

LINE 6546200N

049



RLS

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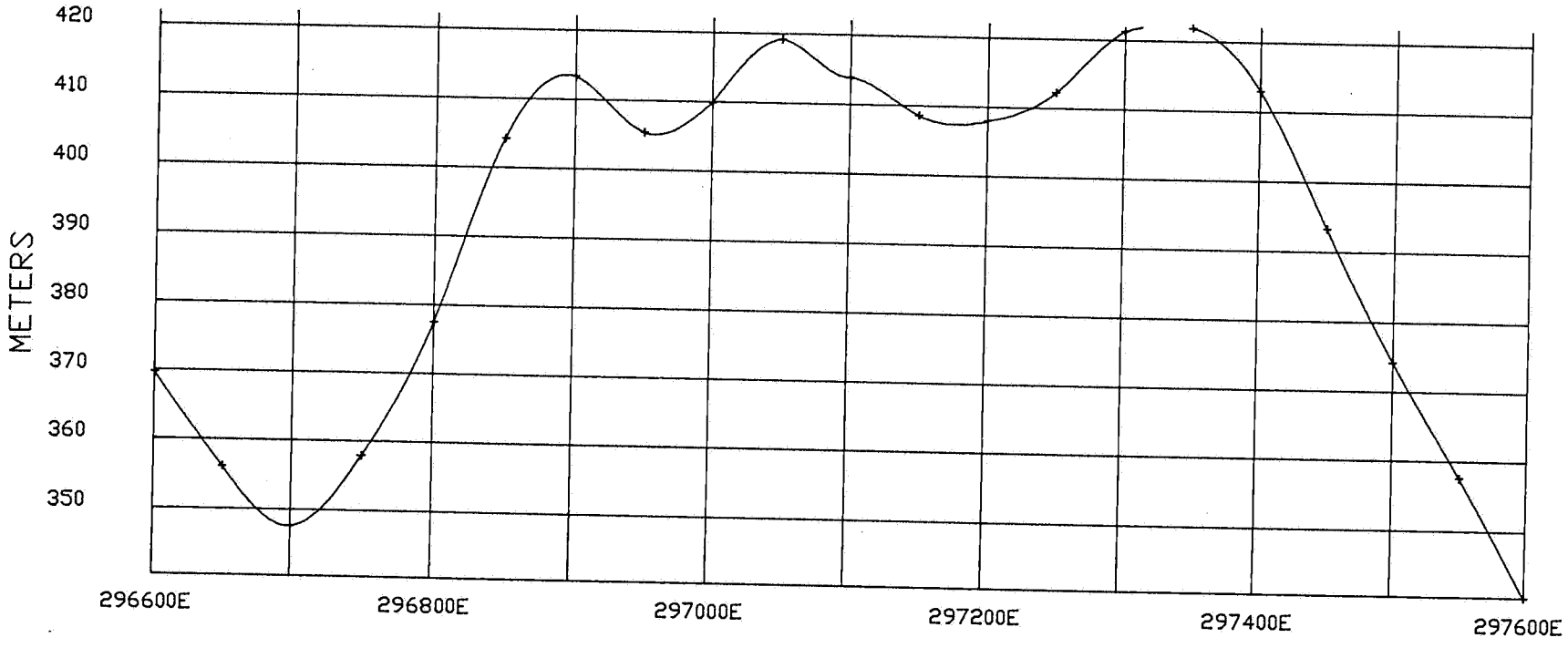
PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Reduced Levels

LINE 6546100N

050



RLS

LINE 6546000N SCALE 1 : 5000

PASMINCO EXPLORATION

Third Plain Prospect EL 1710

Reduced Levels

LINE 6546000N

051

PASMINCO EXPLORATION

FINAL REPORT ON EL 1710 THIRD PLAIN, SOUTH AUSTRALIA

AUTHOR: Terry C Lees

DATE: November 1991

Submitted to: Executive General Manager

Copies to: SA Department of Mines and Energy (1)
Pasminco Exploration - Melbourne (2)

Submitted by: BDS for TCL.

Accepted by: K C Haydon

Melbourne File No: HW69

Hawthorn
November 1991

1. Introduction

EL 1710 Third Plain (figure 1) was granted to Pasminco Australia Limited on 16th April 1991 for a period of one year.

This is the final report, summarising exploration carried out during the period 16th April 1991, to 15th November 1991, as the area is being relinquished by the accompanying letter.

2. Exploration December 1990 - June 1991

In August 1991, a gravity survey was conducted along three lines 100m apart and 1000m long, centred on the Third Plain willemite deposit to test whether there is an associated response.

The report of the survey, by Surtec Geophysics Pty Ltd was included as an appendix in Lees and Smith, 1991: Second progress report on EL 1710 Third Plain SA, for the three month period ending October 15th, 1991.

The gravity data was reviewed by Leaman Geophysics, who concluded that the willemite occurrence is a small exposure of little interest to Pasminco, therefore no further work is warranted. The report by Leaman Geophysics is included as an appendix to this report.

3. Expenditure

Expenditure for the period 16th October to 15th November 1991, was as follows:

	$
Salaries	175
Consultants	90
Management fee	26
Total Expenditure	291

Expenditure for the duration of tenure of EL 1710 was:

16.04.91 - 15.07.91	4,228.60
16.07.91 - 15.10.91	6,185.57
16.10.91 - 15.11.91	291.00
Total Expenditure	10,705.17

4. Keywords and Locality

Gravity, Adelaide Geosyncline, Parachilna SH 54-13, Third Plain.

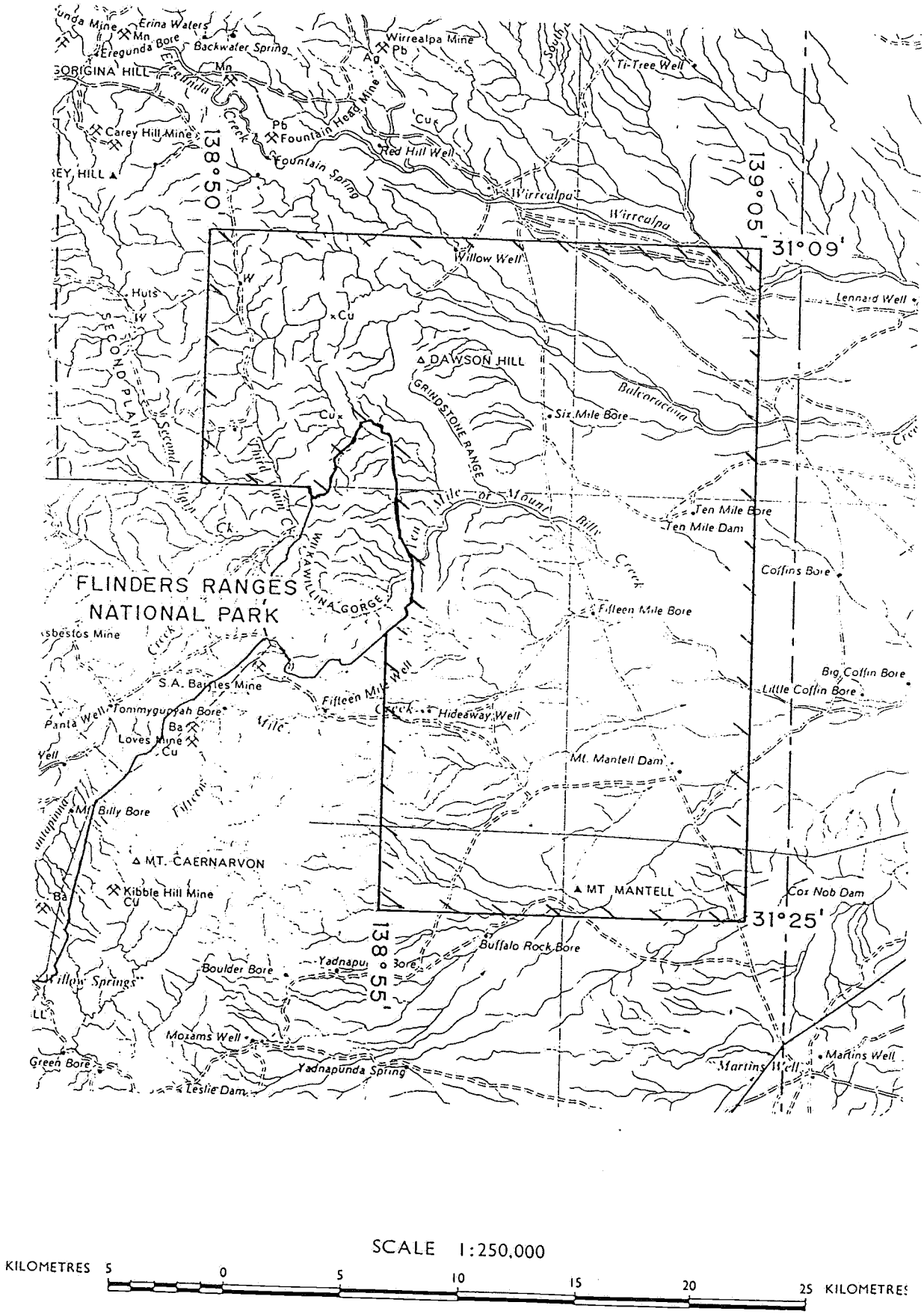
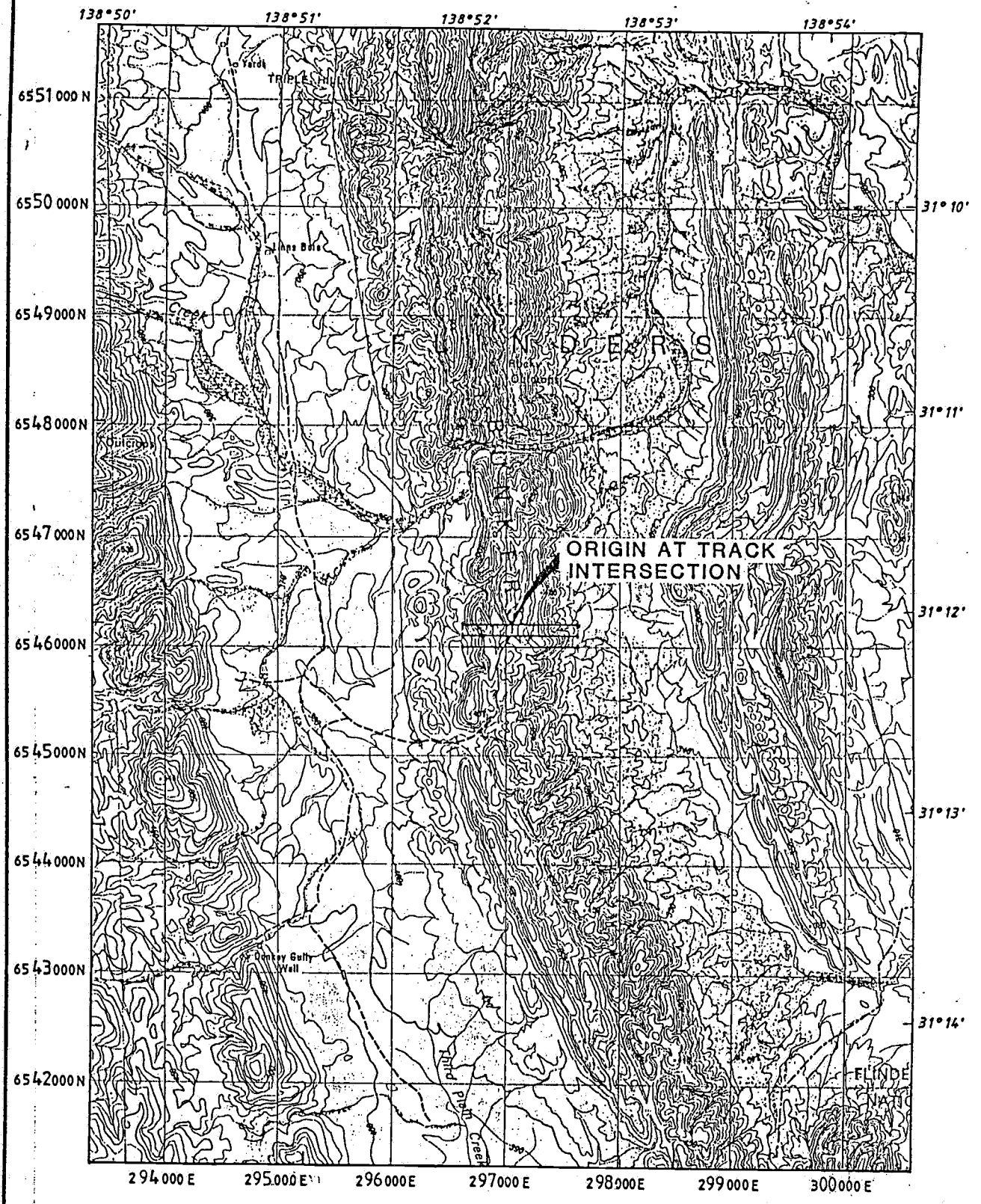


Fig 1. Location EL 1710 (hatchured boundary)



SURTEC GEOSURVEYS PTY LTD

PASMINCO EXPLORATION

THIRD PLAIN PROSPECT GRID LOCATION

Author: R.COURT	Scale : 1:50 000
Drawn : A. BRAUN	
Date : OCT. 1991	

FIGURE 1

Appendix 1

Dr DE Leaman for Pasminco Exploration

Correction and Review Third Plain, Flinders Ranges Gravity Survey

LEAMAN GEOPHYSICS
Survey Review, Specification, Reduction, Interpretation
Gravity, Magnetic and Seismic Methods
Structure and Prospect Evaluation

Registered office:
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Fax: (002) 44 6674

CORRECTION AND REVIEW
THIRD PLAIN, FLINDERS RANGES
GRAVITY SURVEY

for
PASMINCO EXPLORATION
by
Dr. D.E. Leaman

November 1991

INTRODUCTION

A limited gravity survey across the ridge known as The Bunkers in the Flinders Ranges was completed by Surtec Geosurveys Pty Ltd in October 1991 (Court, 1991).

The survey was undertaken in order to appraise any abnormal mass (based on willemite) in the region of 297050 mE. 6546100 mN. The location of the grid is shown in Figure 1.

Due to the unnecessarily complicated processing and reduction sequence and absence of terrain corrections - which are clearly relevant across an abrupt ridge - the data set has been reviewed and corrected as fully as available control information allows.

This brief report describes the processing undertaken on the data set and the possible exploration implications.

NOTES ON ACQUISITION AND ORIGINAL PROCESSING

Court (1991) has reported details of data acquisition and levelling. Base ties and principal tie links within the grid appear to have been adequately done. Use of these links, BMR Isogal values and basic drift/tide corrections has provided reasonable estimates of observed gravity. The Surtec report does not quote the actual observed values of intermediate and ultimate ties or the calibration parameters of the meter.

Elevations were determined by optical levelling and are said to be referred to an arbitrary height estimate of 400 m AHD at 297100 mE, 6546200 mN. This is an error; the reference height should be 450 m (approx). Such an error should not be allowed to persist in case the data are ever merged with other surveys.

Court (1991) has corrected and reduced the survey as though it were an isolated entity. Thus the latitude and other corrections are taken piecemeal and as related increments. Then, after all the minor adjustments have been made, the reduced values were reconstituted as absolute Bouguer anomalies referred to Isogal84.
None of this was necessary since the survey had been linked directly to the national grid and all data are most easily treated as though part of the national data base.
It was also assumed that there was no latitude correction along each line. This is not true as shown below.

No terrain correction was undertaken and no notes on near station effects were made or provided.
Excluding the terrain correction the nominal RMS error was about 0.04 mGal. (Detection of small latitude errors suggest that this was in fact at least 0.05 mGal - see below).

The reduced results were plotted for a series of Bouguer densities and it was suggested that a density of about 2.2 gm/cc was appropriate for the rocks of the ridge. This has to be considered suspect on three grounds; a) these are old rocks and likely to exceed 2.6 gm/cc, b) the correlation method can be fooled by variations in the lithologies in the topographic feature and their effect on the gravity field, and c) the absence of terrain corrections - which are obviously essential - and which may themselves correlate with the terrain.

The reduced data, for density 2.6 gm/cc, is shown in Figure 2 (from Court, 1991).

FURTHER CORRECTION OF THE DATA SET

The elevations stated in the Surtec report have been raised by 50 m to fit the topographic control.

The regional topographic map was enlarged and the stations located on it with reference to both their stated grid position and their implied elevation. An extended manual correction method based on the Hammer graticule procedure was used to calculate terrain corrections.
The corrections range from 0.5 to about 2.4 mGal and clearly swamp all other effects. These estimates are considered either reasonable or minima in the absence of detailed descriptions near the stations. Such descriptions are essential near any substantial change in landform - as near the ridge cap or shoulder. Some assumptions have been made about landforms and it is presumed that the sites are located with fair accuracy.

Table 1 presents the reduced values calculated directly from station position, drift-corrected observed gravity (Surtec, Appendix 1), and the 1967 ellipsoid (Isogal84 datum). The density used was 2.67 gm/cc.

Inspection of Table 1 and Figure 3 will show that each profile has a "U" shape and is consistent across the grid. The table shows that a fixed latitude correction is not valid. Some stations appear to retain some terrain effect deficiency (marked by asterisk) due to lack of local descriptions. Each such station is located on an

abrupt shoulder on the ridge. Other more reliable sites and calculations suggest what the form of the profile and magnitude of correction might well be.

Figure 3 should be contrasted with Figure 2. The moral is obvious.

DISCUSSION

The survey was undertaken to appraise mineralisation near the centre of the grid.
The profiles, given due allowance for any implied problems in the corrections, are reasonably smooth and systematic. There is no suggestion of any marked or anomalous mass mid profile on any line.

Line 6546100 mN was further reviewed to see if the regional geology could be used to explain the observations.
The Parachilna geological map sheet (1966 edition) was used for this purpose. Regional dips are of the order of 30 degrees. It was presumed, sight unseen, that the west side of the ridge is composed of Pound Quartzite and the western slopes were Wonoka Formation. Hawker Group rocks were assumed to outcrop across the ridge top and on the eastern shoulder with the Billy Creek Formation on the lower eastern slopes.

Figure 4 suggests that it is possible to explain the gravity field using reasonable assumptions of formation density (in the range 2.6-2.74 gm/cc) and regional dips with some shallow surface weathering.

Note that the observed profile used in the model is a continued version of the actual data in order to provide a reference level of 500 m AHD and proper consideration of the ridge. The obvious terrain correction problems were adjusted by extrapolation prior to continuation (see Table 1 for stations involved).
Clearly use of actual densities (from core samples at moderate depth) would be required to confirm this interpretation but there is no suggestion of any anomalous or local mass related to the possible ore minerals.

Conclusion:

The small exposure of willemite is just that, a small exposure. It may be associated with a transverse fracture or small fault.

REFERENCES

Court, R.J., 1991. Third Plain Gravity Survey. For Pasminco Exploration. EL 1710, S. Aus. Report by Surtec Geosurveys Pty Ltd, October 11.

Report submitted on behalf of Leaman Geophysics

by

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Date: 6/11/91

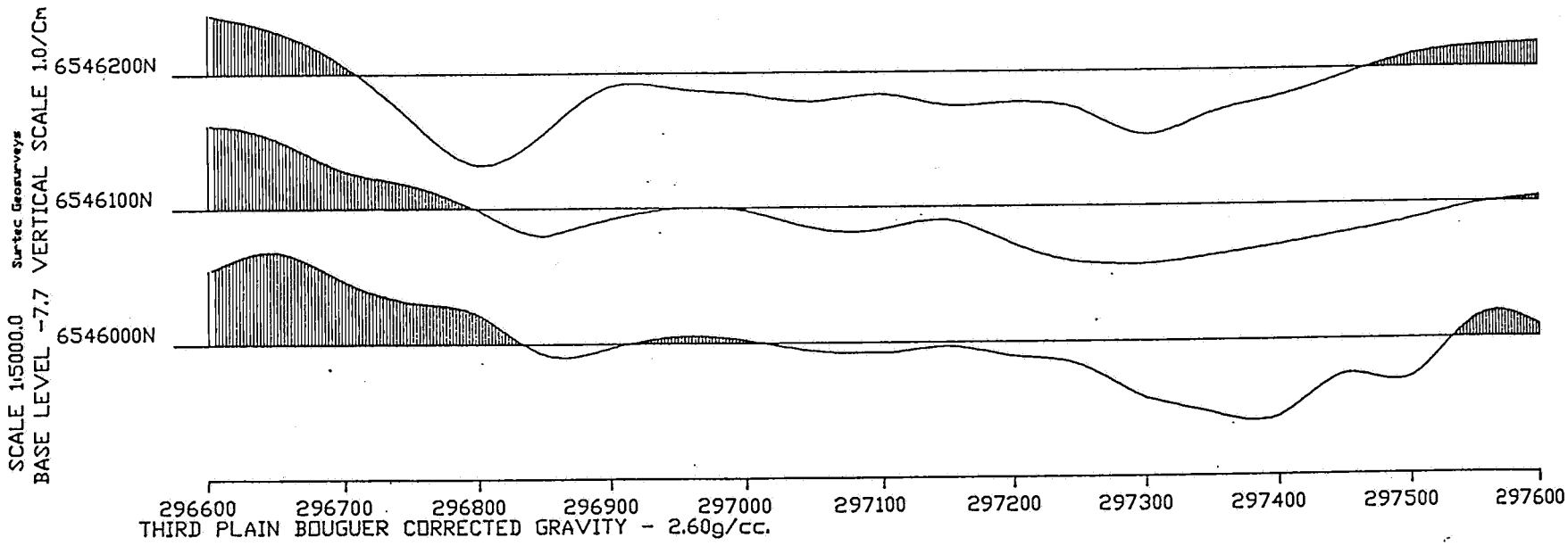


FIGURE 2

PASMINCO EXPLORATION

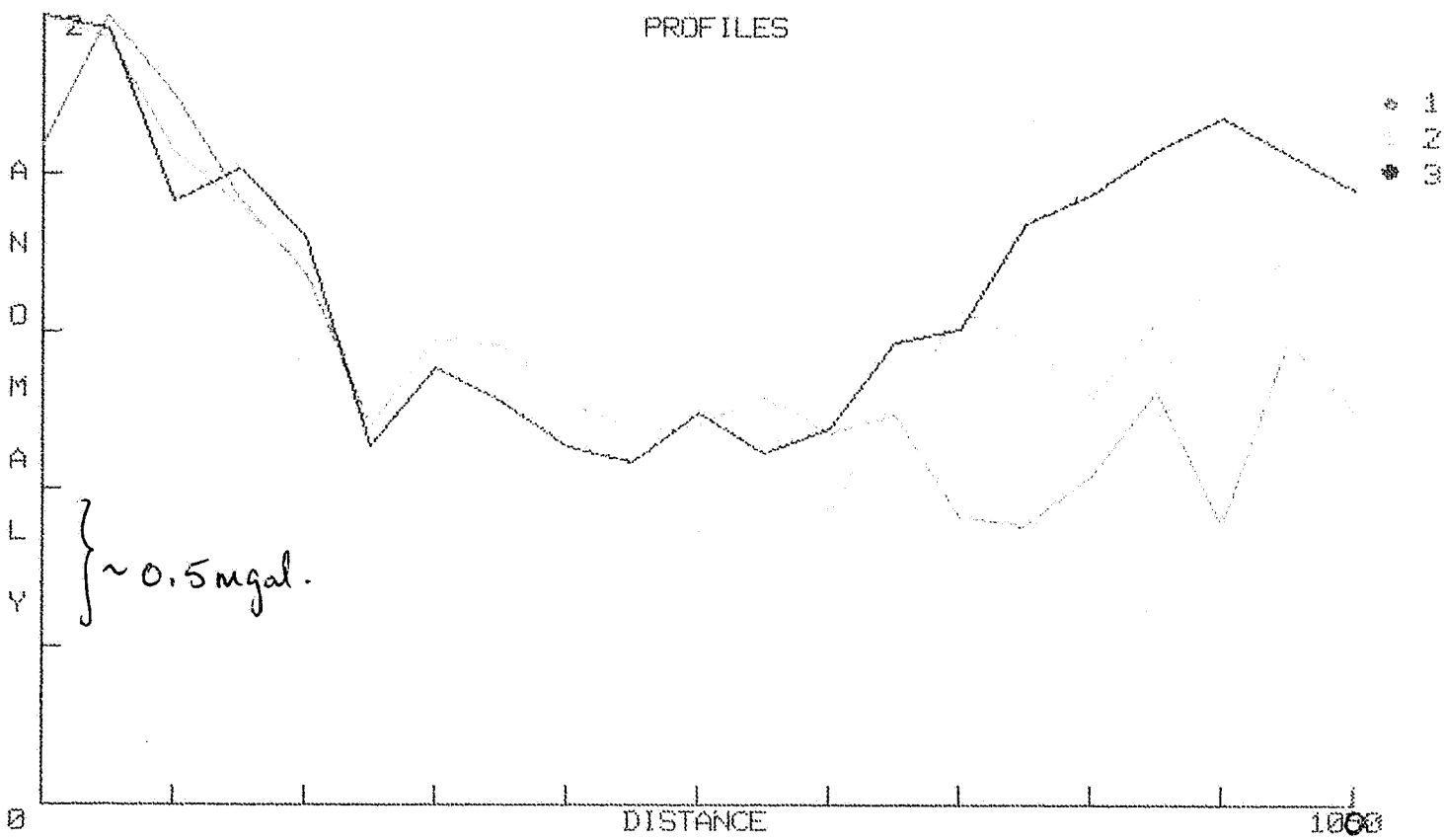
Third Plain Prospect EL 1710

Profiled Bouguer Gravity

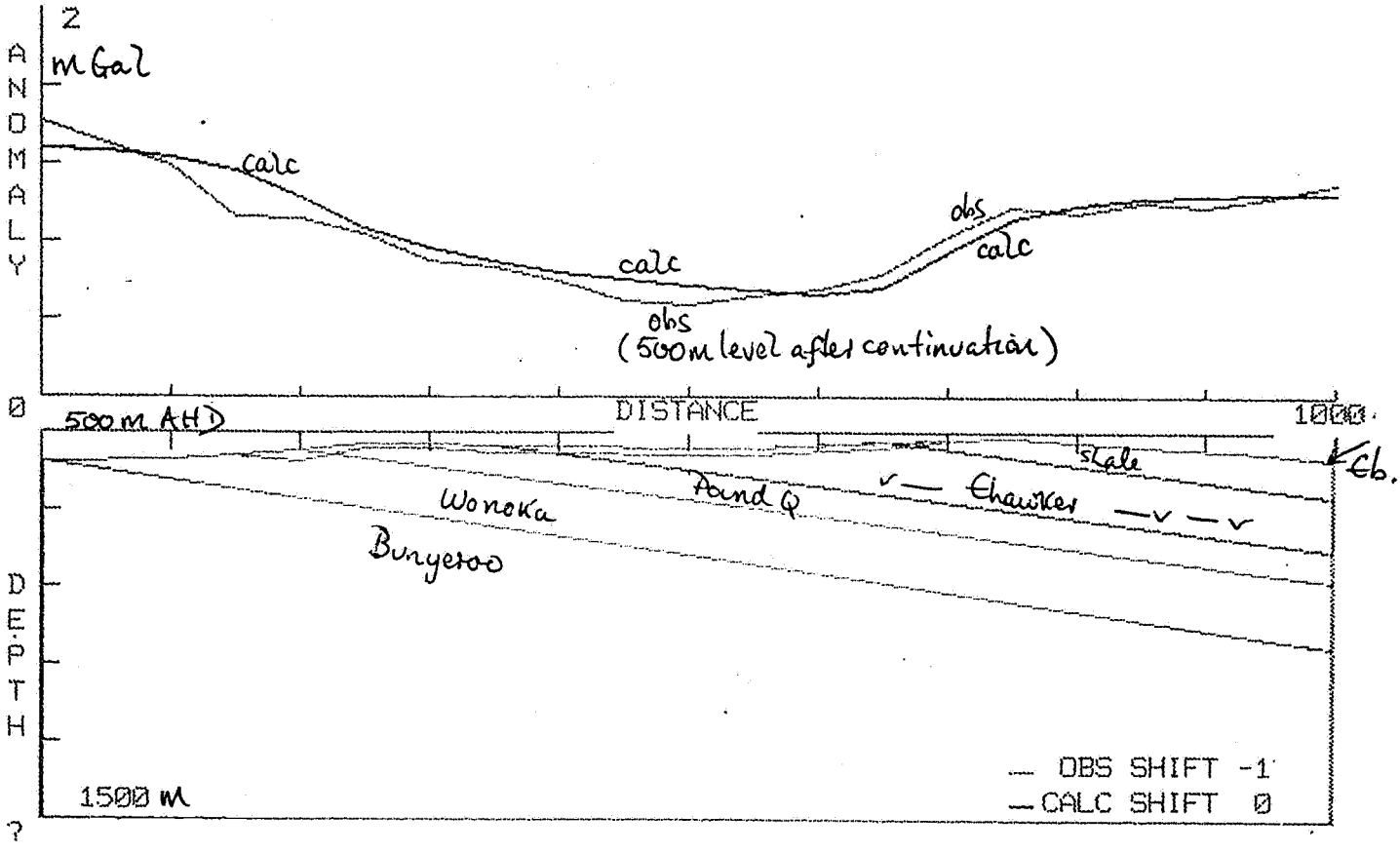
2.60g/cc

Note:
Profiles autoscaled & not on proportional line to line
Amplification stresses any noise or anomalies

1	B:FLIN000	1.15	2.82	THIRD PLAIN 6546000
2	B:FLIN100	1.18	2.72	THIRD PLAIN 6546100
3	B:FLIN200	1.31	2.31	THIRD PLAIN 6546200



REDUCED GRAVITY PROFILES: THIRD PLAIN SURVEY FIGURE 3



THE BUNKERS: AN INTERPRETATION(6546100 mN) FIGURE 4

9101.6600	296600.0	6546000.0	419.70	979338.46	979419.10	0.59	2.50
9101.6650	296650.0	6546000.0	406.10	979341.45	979419.10	0.74	2.97
9101.6700	296700.0	6546000.0	397.70	979342.70	979419.11	0.87	2.69
9101.6750	296750.0	6546000.0	407.90	979340.33	979419.11	0.86	2.32
9101.6800	296800.0	6546000.0	427.50	979336.25	979419.11	0.82	2.05
9101.6850	296850.0	6546000.0	454.20	979330.31	979419.11	0.96	*1.50
9101.6900	296900.0	6546000.0	463.40	979328.60	979419.11	1.18	1.82
9101.6950	296950.0	6546000.0	455.40	979330.34	979419.11	0.98	1.79
9101.7000	297000.0	6546000.0	459.90	979329.37	979419.11	0.89	1.61
9101.7050	297050.0	6546000.0	469.20	979327.34	979419.11	0.95	1.47
9101.7100	297100.0	6546000.0	463.90	979328.40	979419.11	0.97	1.51
9101.7150	297150.0	6546000.0	458.60	979329.52	979419.11	0.99	1.61
9101.7200	297200.0	6546000.0	458.00	979329.50	979419.11	1.00	1.48
9101.7250	297250.0	6546000.0	462.30	979328.50	979419.11	1.22	1.54
9101.7300	297300.0	6546000.0	471.30	979326.19	979419.11	1.40	*1.18
9101.7350	297350.0	6546000.0	472.00	979325.84	979419.11	1.58	*1.15
9101.7400	297400.0	6546000.0	463.00	979327.56	979419.12	1.81	1.33
9101.7450	297450.0	6546000.0	443.30	979332.12	979419.12	1.43	1.63
9101.7500	297500.0	6546000.0	424.30	979335.86	979419.12	0.95	*1.15
9101.7550	297550.0	6546000.0	407.60	979340.06	979419.12	0.69	1.81
9101.7600	297600.0	6546000.0	390.50	979343.38	979419.12	0.49	*1.56
9101.6601	296600.0	6546100.0	390.90	979344.42	979419.03	0.62	2.90
9101.6651	296650.0	6546100.0	391.20	979344.16	979419.03	0.74	2.82
9101.6701	296700.0	6546100.0	399.40	979342.05	979419.03	0.85	2.43
9101.6751	296750.0	6546100.0	409.90	979339.73	979419.03	0.93	2.25
9101.6801	296800.0	6546100.0	429.00	979335.54	979419.03	1.15	2.04
9101.6851	296850.0	6546100.0	458.90	979329.20	979419.04	1.07	*1.50
9101.6901	296900.0	6546100.0	457.70	979329.67	979419.04	0.90	1.56
9101.6951	296950.0	6546100.0	449.40	979331.50	979419.04	0.83	1.69
9101.7001	297000.0	6546100.0	444.50	979332.42	979419.04	0.79	1.61
9101.7051	297050.0	6546100.0	452.80	979330.50	979419.04	0.82	1.35
9101.7101	297100.0	6546100.0	453.50	979330.33	979419.04	0.84	1.33
9101.7151	297150.0	6546100.0	455.20	979330.12	979419.04	0.88	1.50
9101.7201	297200.0	6546100.0	465.40	979327.75	979419.04	0.93	*1.18
9101.7251	297250.0	6546100.0	474.80	979325.58	979419.04	1.62	1.55
9101.7301	297300.0	6546100.0	480.10	979324.48	979419.04	2.01	1.88
9101.7351	297350.0	6546100.0	470.40	979326.53	979419.04	1.77	1.79
9101.7401	297400.0	6546100.0	453.60	979330.05	979419.04	1.35	1.58
9101.7451	297450.0	6546100.0	440.20	979332.89	979419.04	1.42	1.85
9101.7501	297500.0	6546100.0	429.80	979335.15	979419.04	1.31	1.96
9101.7551	297550.0	6546100.0	417.40	979337.83	979419.04	1.16	2.05
9101.7601	297600.0	6546100.0	399.20	979341.61	979419.05	0.87	1.96
9101.6602	296600.0	6546200.0	399.50	979342.44	979418.96	0.56	2.62
9101.6652	296650.0	6546200.0	397.30	979342.63	979418.96	0.76	2.58
9101.6702	296700.0	6546200.0	414.70	979338.64	979418.96	0.83	2.08
9101.6752	296750.0	6546200.0	442.50	979332.25	979418.96	1.84	2.17
9101.6802	296800.0	6546200.0	469.20	979326.27	979418.96	2.37	1.97
9101.6852	296850.0	6546200.0	466.40	979327.29	979418.96	1.29	*1.36
9101.6902	296900.0	6546200.0	447.50	979331.74	979418.96	0.79	1.59
9101.6952	296950.0	6546200.0	453.60	979330.50	979418.96	0.73	1.49
9101.7002	297000.0	6546200.0	447.70	979331.58	979418.96	0.68	1.36
9101.7052	297050.0	6546200.0	448.30	979331.35	979418.97	0.74	1.31
9101.7102	297100.0	6546200.0	450.00	979331.11	979418.97	0.80	1.46
9101.7152	297150.0	6546200.0	454.50	979330.05	979418.97	0.86	1.34
9101.7202	297200.0	6546200.0	456.10	979329.77	979418.97	0.89	1.41
9101.7252	297250.0	6546200.0	466.90	979327.51	979418.97	1.28	1.66
9101.7302	297300.0	6546200.0	476.40	979325.21	979418.97	1.75	1.70
9101.7352	297350.0	6546200.0	462.60	979328.27	979418.97	1.72	2.01
9101.7402	297400.0	6546200.0	442.30	979332.56	979418.97	1.51	2.10
9101.7452	297450.0	6546200.0	421.60	979337.01	979418.97	1.26	2.23
9101.7502	297500.0	6546200.0	407.20	979340.19	979418.97	1.01	2.32
9101.7552	297550.0	6546200.0	395.20	979342.71	979418.97	0.75	2.22
9101.7602	297600.0	6546200.0	393.00	979343.18	979418.97	0.60	2.11