

# Onetech Pty Ltd

Mineral Exploration Report

EL 8235

for the period 29/12/93 to 28/12/94

Confidential Report Lodged under section 33(d)  
of the Northern Territory Mining Act

CR 95 / 83 A

Tenements.....1:250 000 Map Ref

Tenement Holder

EL 8235

SD-52-7

Onetech Pty Ltd  
ACN 059 036 752  
Suite 1, 1 High Street  
Fremantle, WA, 6160

Report compiled by:

Mr J M Graindorge, Consultant

Report Date: December 1994

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**1 SUMMARY**

Onetech Pty Ltd, together with Cambridge Gulf Exploration NL, has completed a high resolution seismic survey over its Anson Bay Licence area. This survey was completed in March 1994 when 122 line kilometres of seismic and sidescan sonar were run in EL 8235.

The seismic survey was aimed at locating palaeo drainage channels and other features which may host potentially diamondiferous gravels. Interpretation of the seismic data is planned for the next phase of exploration.

**1.1 Expenditure Statement EL 8235**

In the twelve months to 28/12/94 the following expenditure was incurred for EL 8235

1.	Seismic Survey (122 line kilometres)	\$16,945
2.	Salaries and Wages	\$17,355
3.	Fuel (Seismic Survey)	\$ 1,152
6.	Company expenses related to EL 8235	\$ 3,000
	<b>TOTAL EXPENDITURE FOR THE YEAR</b>	<b>\$38,452</b>

## 2 INTRODUCTION

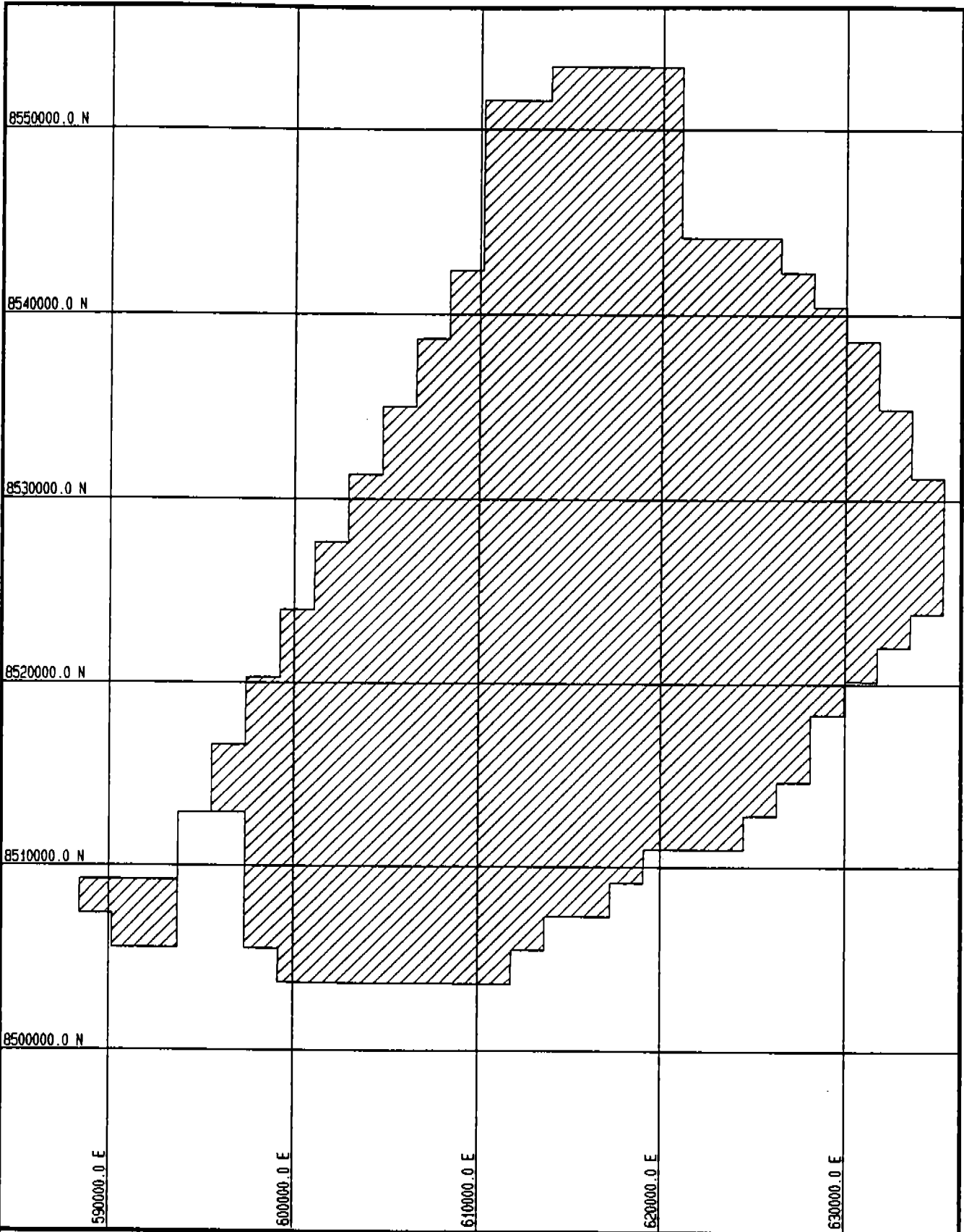
Exploration Licence EL 8235 covers part of the offshore palaeo drainage system of the Daly River. The Licence area falls within the three nautical mile limit administered by the Northern Territory. EL8235 is referred to as the Anson Bay Prospect.

## 3 TENEMENT SITUATION

Exploration Licence EL 8235 (Figure 3.1) was granted on the 29/12/93. The tenement comprises of 349 blocks (graticules).

EL8235 is 100% owned by :

Onetech Pty Ltd  
ACN 059 036 752  
Suite 1, 1 High Street  
Fremantle WA 6160



Snowden Associates Pty. Ltd.  
 P.O. Box 77  
 15 Outram Street  
 West Perth, WA 6005

DATE: 12/12/94 TIME: 10:01:33

SCALE (HOR) 1: 300000 SCALE (VERT) 1: 300000

**ONETECH PTY LTD**  
**ANSON BAY PROSPECT**  
 EL 8235 - TENEMENT LAYOUT

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## **4 HIGH RESOLUTION SEISMIC SURVEY**

### **4.1 Introduction**

A high resolution shallow seismic reflection survey was undertaken by Fugro Surveys Pty Ltd between 28 February and 19 March 1994, using the survey vessel "Miclyn Cove" chartered from Total Marine Services Pty Ltd. The survey was undertaken jointly with Cambridge Gulf Exploration NL.

A detailed description of the equipment used and procedures followed is given below. The general instrumentation layout on the survey vessel is shown in Figure 4.1 and instrumentation flowsheets are shown in Figures 4.2 and 4.3.

### **4.2 Equipment and Personnel**

#### **4.2.1 Positioning and Navigation**

##### **4.2.1.1 DGPS Navigation System**

The positioning systems used for the survey was the Oceanics MN8 Differential Global Positional System (DGPS) which provides real time differential GPS positioning using differential corrections received via the Inmarsat A/B channel. The MN8 system is based around a PC which incorporates a NovAtel GPS card capable of measuring pseudo ranges from up to 10 satellites simultaneously.

The differential corrections received at the Inmarsat dome are applied to the pseudo ranges measured at the vessel's GPS antenna, for common satellites, and a weighted least squares position solution is computed. The position solution is computed and displayed on the WGS 84 spheroid. The MN8 system provides a variety of QC parameters such as correction ages, individual range residuals, position standard deviations, and Dilution of Precision (DOP) values, which allow the user to monitor system performance.

The primary reference station used was Broome, with backup corrections available from Darwin and Dampier. The system computes DGPS positions based on each available reference station and continually displays delta East and North of these solutions compared to that of the primary station.

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The Saturn 3S dome used to receive differential corrections is approximately 1.5m in diameter and was mounted on a pedestal aft of the vessel's bridge. To obtain a reflection free path for the GPS signals the actual NovAtel GPS antenna was fixed to a short pole and clamped at the top of the vessel's mast.

#### **4.2.1.2 PCNav Navigation Computer System**

PCNav is a software package suite based on an IBM compatible personal computer with a minimum configuration of an 80386 processor with a maths coprocessor, VGA graphics and hard disk. The package is designed to collect hydrographic information for marine applications. Interfacing to various navigation systems is either directly via the PC serial card or through a Qubit Q2780 series interface box. Data from echo sounders and gyros can also be input via the interface box.

PCNav allows a maximum of 8 LOPs from a Range/Range system and will compute vessel position and quality of fix using the Variation of Coordinates Least Square calculation technique. The software will also accept 2 LOPs in the form of a range and bearing or coordinates from a GPS receiver. The calculated position is then displayed on a graphics screen relative to defined Runlines, Waypoints, Centreline files and Databases. Position and depth data can be output to a printer and are logged to the computer hard disk for subsequent processing. The key features of the system are:

- Realtime updates
- Simultaneous high resolution sounding at 10/sec
- Remote helmsman's Colour graphic display
- Colour graphic display
- Extensive offline calculation packages
- Uses centrelines, runlines, waypoints and databases
- Baseline crossings and insitu calibration routines
- Full logging of essential data or all raw data
- Individual weighting of LOP's



- 
- Fixed memory filter and acoustic range gate
  - Display of vessel shape
  - Mouse or keyboard driven
  - Input of runline, centreline and waypoint libraries
  - Display of databases, coastline and feature files
  - Online interface facility
  - Fast reboot system
  - Digital or graphic display for all navigation
  - Multiple navigation systems

The navigation computer system comprised:

- 2 x Fujitech 486 personal computers (one spare)
- 2 x NEC Multisync 3D Video Monitors, one for the helman's display (one spare)
- 2 x NEC Pinwriter 3200 printers (one spare)
- 2 x Digiboard serial interface (one spare) for interfacing the PCNav computer to the DGPS, echo sounder and fix box
- 2 x Video splatters (one spare) to separate the video signal to the helmman's monitor
- 1 x Fugro Fix Box for transmitting fix marks generated by the PCNav computer to the echo sounder, side scan sonar and EPC recorders

Cabling and power supplies as required.

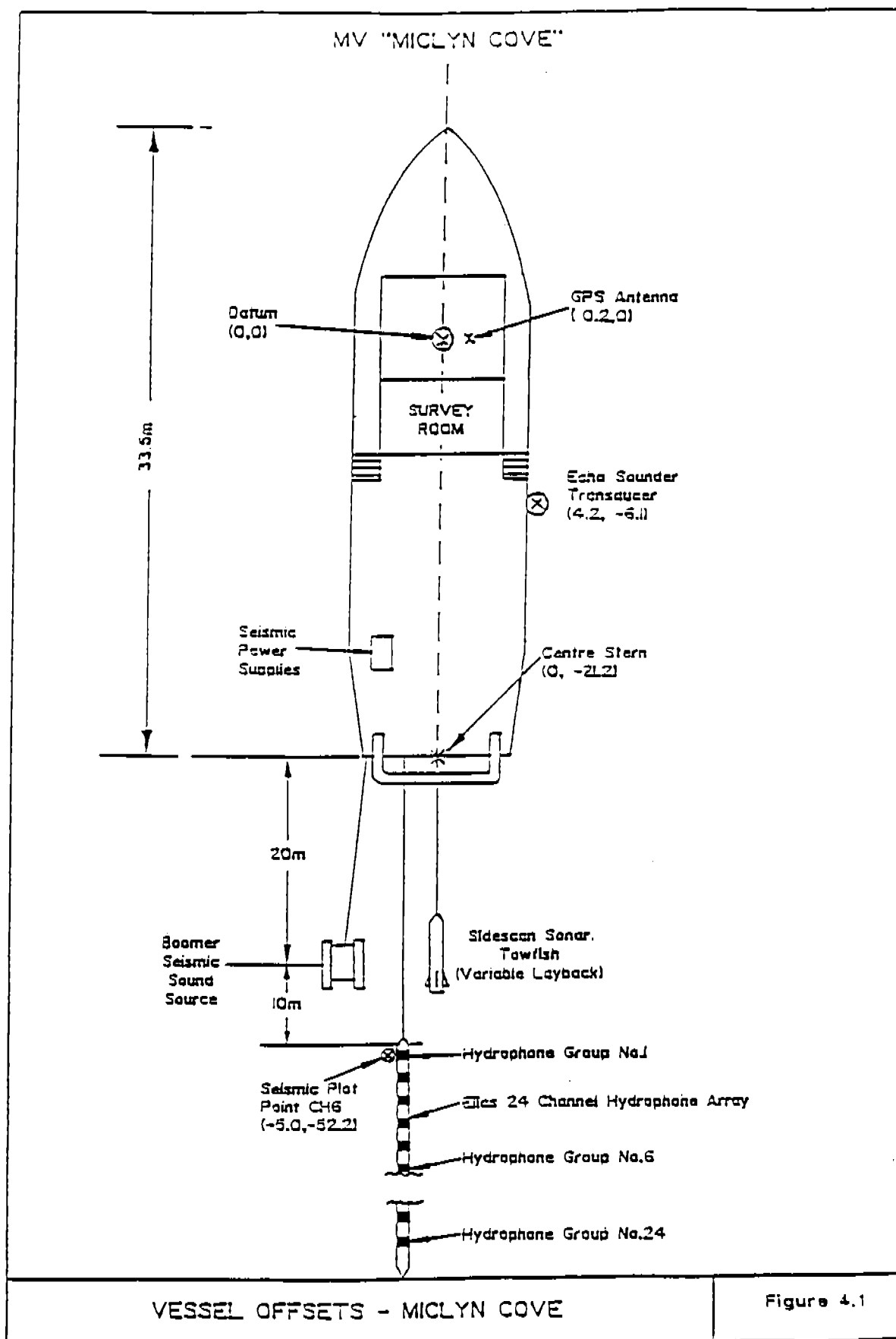
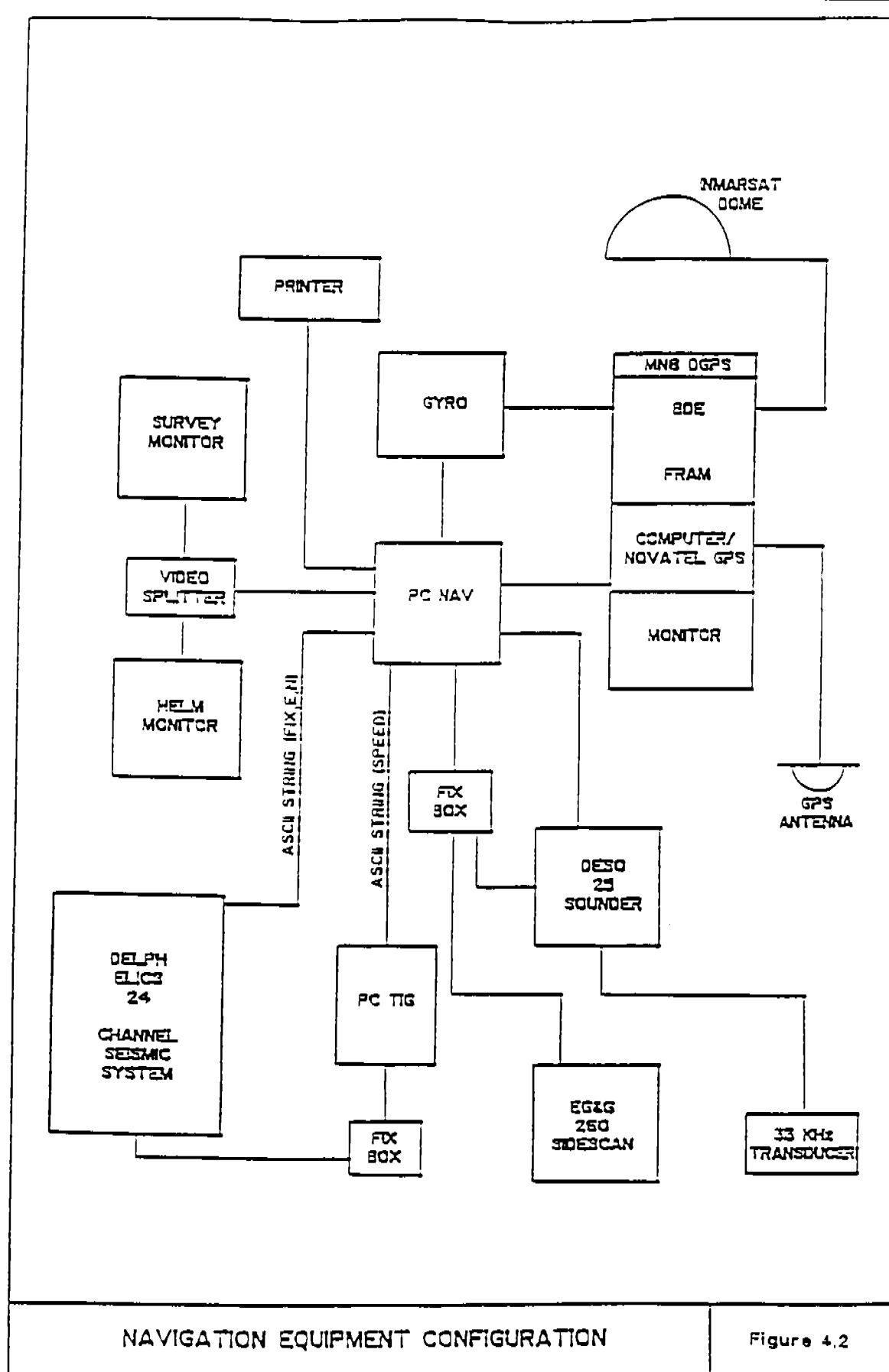
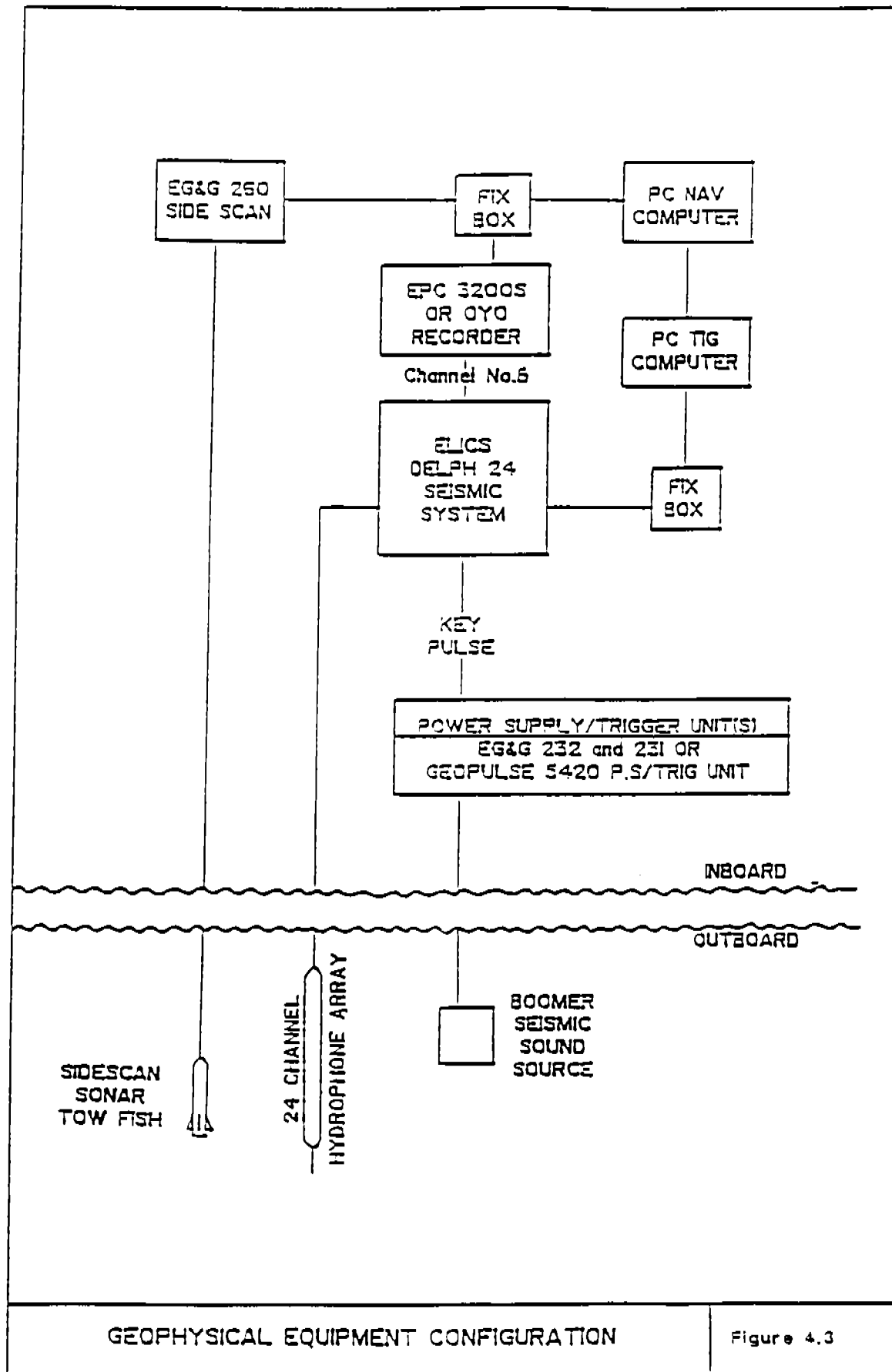


Figure 4.1



NAVIGATION EQUIPMENT CONFIGURATION

Figure 4.2



#### **4.2.2 Hydrography**

The echo sounder system comprised:

- 1x Atlas Deso 25 Survey Echo Sounder
- 1x Atlas Deso 20 Survey Echo Sounder
- 1x 33 kHz transducer

Spares, cabling and power supplies as required.

The 22 kHz transducer was mounted in a streamlined aluminium housing fixed to an over-the-side demountable bracket on the starboard side of the ship. The transducer pole was pivoted on this bracket allowing it to be lifted out of the water for steaming and during bad weather. Soundings are digitised by the Deso 25 and output to the PCNav computer via a serial interface.

#### **4.2.3 Side scan sonar**

An EG&G 260 Image Correcting Side Scan Sonar System was used for this survey. This incorporated a Model 260 Recorder, a dual frequency (100 and 500 kHz) Model 272T Tow fish and a 500 Kevlar armoured cable. A spare EG&G 260 and 272T Tow Fish were also carried on the survey. The 260 recorder corrects the records to remove the water column and corrects for slant range to produce a true scale record. The system corrects for vessel speed to produce a true scale record along line.

The tow fish cable was deployed from the centre of the vessel's stern through a pulley block attached to a chain across the stern of the ship and equipped with a counter with digital readout in the instrument room, so the layback of the tow fish behind the navigation antenna could be accurately monitored.

#### **4.2.4 Sub-bottom profiling system**

The sub-bottom profiling system comprised the following components.

- Power supplies and sound sources
  - 2 x EG&G Model 232 Power Supplies (1 spare)
  - 1 x EG&G Model 231 Triggered Capacitor Bank
  - 1 x EG&G Model 230 Uniboom Sound Source and Catamaran
  - 1 x Geopulse Power Supply/Capacitor Bank

- 
- 1 x Geopulse Boomer Sound Source plus spare boomer plate
  - 1 x Multielectrode Spark array
  - Signal processing units
    - 1 x Geopulse Receiver/Signal Processor
    - 1 x Krohnkite Bandpass Filter
    - 1 x TSS TVG Amplifier
    - 1 x TSS Swell Filter
  - Hydrophone arrays
    - 1 x Elics 24 Channel Hydrophone array with the following specifications:

No. of Channels	24
Phones/Group	3
Phone Spacing	0.3m
Group Spacing	2m
Amplifier	1 per channel 48 dB gain
    - 1 x Geopulse single channel array with 20 phones (backup unit)
    - 1 x EG&G Model 265 single channel array with 8 phones (backup unit)
  - Recording/processing system (24 Channel)
    - 1 x Elics Delph 24 seismic recording/processing system
    - 1 x IPC 610 Computer
    - 1 x 400 Mb hard disk
    - 1 x AU 32 mother board
    - 1 x MV 32 acquisition daughter boards
    - 1 x TIGA graphics board
    - 1 x Exabyte 8505 cartridge tape recorder
    - 1 x Delph 24 processor package, dongle and cables
    - 1 x Philips 17" high resolution monitor
    - 1 x OYO GS612 plotter with versetec driver board, cables and spares

- 
- PC TIG computer (NEC 386)  
To generate key pulses to trigger a fix box at regular distance intervals
  
  - PC TIG computer (NEC386)
    - 1 x EPC 3200S Graphic Recorder
    - 1 x EPC 4603 Graphic RecorderAlso OYO GS612 plotter used as single channel plotter
  
  - Off-Line processing system
    - 1 x Tang 486 computer c/w with:
    - 1 x 100 Mb hard disk
    - 1 x TIGA graphics board
    - 1 x AU32 board
    - 1 x MV 32 board
    - 1 x Dongle and software
    - 1 x High resolution monitor
    - 1 x Exabyte cartridge tape recorder with SCSI board
    - 1 x OYO GS612 plotter with driver board

Figure 4.3 shows the geophysical equipment configuration during acquisition of side scan sonar and 24 channel seismic data. Energy to trigger the boomer sound source is supplied either by the Geopulse Power Supply or the EG&G 232 Power supply and EG&G 231 Triggered Capacitor Bank. Key pulses from the PCTIG Computer are sent through a fix box at regular distance intervals (in this survey every 1 metre) to the Delph 24 system which sends pulses to discharge the high voltage (3500 volts DC) electrical energy in the power supply/trigger banks, to the boomer towed astern of the survey vessel. This causes the boomer plate to pulse and generate seismic energy, which is transmitted down into the seabed and underlying strata. Seismic signals reflected from the seabed and underlying sediment and consolidated rocklayers are detected by the 24 channel hydrographic array also towed astern of the survey vessel. These are transmitted to the Elics Delph 24 acquisition system where all 24 channels are recorded in unprocessed form. When recording in "control" mode on the Delph 24 system, the signals received by all 24 channels at each shot are displayed on the high resolution monitor to provide quality control of the data.

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The signals from on channel of the hydrographic array were output for recording on a graphic recorder or an OYO plotter.

#### 4.2.5 Navigation and bathymetric data processing and plotting system

The offline PCMap plotting system comprising the following components was installed on the vessel for the survey:

- 1x TANG 486 computer
- 1x Monitor
- 1x HP Draft master plotter
- 2x Colorado tape backup units (250Mb)

#### 4.2.6 Survey vessel

The "Miclyn Cove" was supplied by Total Marine Services Pty Ltd. The vessel is a 900 BHP twin screw survey utility ship, with a overall length of 33.5 metres, a breath of 7.78 metres and maximum draft of 3.89 metres. Survey equipment was installed on a survey room aft of the bridge, with a clear view of the after deck.

The hydrographic array was towed suspended from a rope attached to the A frame, on the port side of the vessel with the boomer sound source also towed astern of the port quarter of the vessel. The seismic power supplies and capacitor banks were installed in a specially built container on the port side of the after deck. Figure 4.1 is an equipment offset diagram showing the position of the DGPS antenna and the geophysical equipment.

#### 4.2.7 Personnel

The following personnel were involved in the survey:

Mr John Ringis:	Party Chief/Geophysicist
Mr Paul Caswell:	Surveyor
Mr Nigel Smith:	Engineer
Mr David Khoo:	Geophysicist
Mr Trevor Brougham:	Surveyor
Mr Neville Laney:	Engineer
Mr Adrian Sarolea:	Data Processor
Mr Bruno Marsset:	Elics Engineer (up to 11.30 hrs on 4 March 1994)
Mr Christian Palud:	Elics Engineer (for full survey)

Onetech Pty Ltd was represented by Mr John Graindorge



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### **4.3 Calibration of the Equipment**

#### **4.3.1 DGPS positioning system**

To confirm the correct operation of the MN8 DGPS system a static calibration prior to the vessel sailing for site was carried out. The method used was to survey a position of the GPS antenna on the vessel along side at Wyndham using local survey points and compare the calculated position with that given by the onboard MN8 DGPS.

A co-ordinated point (BM A112) on Wyndham jetty was identified from a description supplied by the Department of Marine and Harbours. A theodolite and EDM device were set up over this point and backsight taken to a Department of Land and Administration survey station (WYN 14) located at Mt Albany behind Wyndham Port Town. An additional point on the jetty was surveyed to enable a range and bearing measurement to be made to prisms mounted at the base of the GPS antenna. A series of three measurements was made between 1750-1800 hrs on 27<sup>th</sup> February 1994 and MN8 DGPS positions were logged simultaneously. the DGPS observations were made using differential corrections from the reference station at Broome. The following mean difference between the calculated and observed position was derived:

C-0 Easting     -1.7m  
C-0 Northing    -1.5m

These results confirmed the positioning integrity for the MN8 DGPS to within the expected accuracy of +/- 3 to 5 metres. Station summary diagrams of the control points used for the calibration are included in Appendix 1.

#### **4.3.2 Gyro compass**

The SG Brown 1000A Gyro Compass was installed in the survey room and set up to agree with the vessel's gyro compass. A calibration was then carried out by comparing the observed reading with the known bearing of Wyndham jetty. The jetty bearing obtained from Department of Marine and Harbours information was 10<sup>o</sup>47' (grid) and this was confirmed with theodolite checks undertaken during calibration of the DGPS.

Offset measurements from the jetty to the centre of the vessel, forward and aft, were made to correct the observed gyro reading onboard for comparison with the known bearing. These observations were carried out at 1830 hours on the 27<sup>th</sup> February 1994 and the gyro compass found to be reading 0.6 degrees high. A correction value of -0.6 degrees was input to the navigation computer to provide a real time correction to the interfaced gyro compass reading.

#### 4.3.3 Echo sounder

Calibration of the Deso 25 Echo Sounder was by the bar check method. A round disc was suspended below the overside mounted transducer at known depths and the sounder calibrated for vessel draft and speed of sound in water. The results obtained were as follows:

- Victoria River and Anson Bay Areas

1720 hrs 7/3/94	Draft 2.90m	Speed of Sound in water: 1547 m/s
1000 hrs 11/3/94	Draft 2.80m	Speed of Sound in water: 1547 m/s
1125 hrs 16/3/94	Draft 2.70m	Speed of Sound in water: 1547 m/s
0540 hrs 18/3/94	Draft 2.70m	Speed of Sound in water: 1547 m/s

These calibrated values were set up on the Deso 25 so that calibrated depths were passed to the navigation computer.

#### 4.3.4 Side scan sonar

During mobilisation a series of standard in-built test for the EG&G 260 recorder were conducted to check printing and data processing functions, and to check that scale correction of the paper record accurately corresponded to the input survey vessel speed. The tow fish were also tested on the deck and "wet" tested to ensure correct noise free operation.

#### 4.3.5 Sub-bottom profiling system

During mobilisation the boomer sound sources, power supplies, triggered capacitor bank, Geopulse receiver/signal processor, single channel hydrographic arrays and graphic recorders were assembled and tested, both on the deck and in the water. This verified operation of all components and confirmed that the signature of the boomer pulse was sharp and free of reverberation.

Proper operation of the Delph 24 acquisition computer and software was confirmed through playback of previously recorded data prior to and during mobilisation. Proper operation of all 24 channels of the 24 channel hydrographic array was confirmed through a "tap set" on the deck during mobilisation. After deployment of the towed boomer sound source and the 24 channel hydrographic array, Delph 24 acquisition system was set to "Control" mode and gain settings on all 24 channel were individually set to optimum levels.

The key pulse from the PCTIG computer to the fix box and Delph 24 system was connected and it was confirmed that the system was triggering the boomer sound source at regular 1 metre intervals. The 24 channel data was recorded onto the computer hard disk which was downloaded at regular intervals to tape. During acquisition, the data recording was split into individual files for security reasons. Each file covered approximately 7.25km of seismic data. The process of closing a file and opening the next file resulted in the loss of 150m to 400m of data.

#### **4.4 Survey Operations**

##### **4.4.1 Navigation**

The position of the GPs antenna in EGS 84 co-ordinates computed by the Oceanics MN8 DGPS was passed to the PCNav computer once a second. This position was then transformed from the WGS 84 spheroid using the following geodetic parameters:

###### Datum Shifts EGS 84 - ANS

<b>DX</b> +116.00	<b>RX</b> 0.230"	<b>Scale</b> 0.0983ppm
<b>DY</b> +50.47	<b>RY</b> 0.390"	
<b>DZ</b> -141.69	<b>RZ</b> 0.344"	

<b>Spheroid:</b>	Australian National Spheroid
<b>Datum:</b>	AGD 84
<b>Projection:</b>	UTM
<b>Central Meridian:</b>	129 <sup>0</sup> East

A scaled outline of the Miclyn Cove was displayed on the navigation monitor. The position of the various sensors was tracked by computing offsets from the GPS antenna using the interfaced gyro heading. An additional monitor provided for the helmsman, allowed the vessel to be navigated relative to the required survey lines. During running of a survey line the display indicates distance along the line and offset port or starboard of the tracked offset. A snail trail provides a history of vessel movement along the line. The averaged speed and course are also displayed.

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On completion of the line, a set of a runline statistics are produced as a summary of navigation quality and off track distance during the line. Runline co-ordinates were entered to a runline library for easy selection within PCNav.

Position data was logged every 50m along the survey lines and every fifth fix was output to a printer. All fix data and intermediate echo sounder depths were recorded to the PCNav hard disc for later backup and processing. At every fix a contact closure was generated to enable the echo sounder, side scan and EPC recorders to be marked for subsequent correlation of the analogue records with position data.

Additionally, an ASCII string containing fix number, seismic source Eastings and Northings was output at each fix to the Elics Delph 24 computer to be superimposed on the processed sub-bottom record. A second ASCII string, containing vessel speed only, was output from PCNav to an offline computer. This PC, running a program called PCTIG, was used to generate a time pulse for firing the seismic source at a distance interval of 1.0 metre. Runline logs were completed for each line. These detailed the line name, direction, start and end of line times, and fix numbers.

Throughout the survey, the performance of the MN8 DGPS was monitored using the QC facilities available to the operator. Differential corrections were received at average "age" of 6-8 seconds. On occasions where tracking on the satellite was lost, the dish was rotated to the correct azimuth and differential corrections quickly restored. A minimum of 5 satellites were available at all times for positioning and PDOP values of less than 3.0 were observed.

#### **4.4.2 Side scan sonar**

The side scan sonar fish was deployed from the centre stern of the vessel, through a pulley block attached to a chain across the stern. The pulley block was equipped with a counter with a digital readout in the instrument room, so that layback of the tow fish behind the stern could be monitored. The layback of the tow fish was varied as necessary due to changing water depth in order to optimise data quality. The EG&G side scan sonar recorder was set to provide true scale records of the seafloor to a range of 100 metres on both sides of the ship's track. The fix box provided fixes from the PCNav computer along the records and these were annotated manually. Start and end of the line details were also annotated and entered in the run log.

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#### 4.4.3 Sub-bottom profiling system

During recording of the 24 channel seismic reflection profiler data, the boomer sound source was towed 20m aft of the port quarter of the vessel and 10m ahead of the 24 channel hydrographic array. Boomer power output was varied from 200 to 300 joules during the survey, depending on the sub-bottom geological conditions and signal strengths observed on the single channel records as the survey was run. Power output was also reduced during periods when following currents caused the ship's speed to increase above 4 knots thereby increasing the boomer firing rate above a safe level for 300 joule operation. The boomer sound source was fired at 1 metre intervals by key pulses generate by the PCTIG computer and transmitted to the Delph 24 system via the fix box.

The Geopulse boomer was used as the seismic sound source from the beginning of the survey up to 19.15 hrs on 16th March 1994. Thereafter, until the end of the survey, the EG&G 230 boomer was used as the seismic sound source. The Geopulse power supply unit was used from the start of the survey to 08.11 hrs on 2 March 1994 and the EG&G 232 power supply/EG&G 231 triggered capacitor bank thereafter until the end of the survey.

Signals from channel No. 6 of the Elics 24 channel hydrographic array were recorded on either the EPC 3200S graphic recorder or the OYO GS 612 plotter to provide complete single channel sub-bottom profiler coverage along all survey lines. The Delph 24 channel acquisition system was operated in "control" mode which displays the output form all 24 channels of the hydrographic array for each boomer, "shot" on the high resolution monitor. This enabled continuous monitoring of data quality (signal to noise ratio) for all individual channels, as required.

The 24 channel data was recorded in Elics format directly to the hard disk of the Elics Delph 24 acquisition computer. When that disk was nearly full the recorded data was downloaded to Exabyte tape. The ship circled while this was done. A detailed list of the relevant recorded seismic data is given in Appendix 2.

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## 4.5 Data Reduction

### 4.5.1 Navigation

Position fixing and echo sounder data were recorded on 3.5" floppy disk to enable post processing, the majority of which was done on board the survey vessel during the survey. The package used was the Fugro PCMap software, which enables trackplots to be drawn for the required offset point for different towed systems. The geodetic parameters used for the trackplots were:

Spheroid:	Australian National Spheroid
Semi major Axis:	6 378 160m
Inverse Flattening:	298.25
Datum:	AGD 84
Projection:	Australian Map Grid
Central Meridian (cm)	129 <sup>0</sup> East
False Easting:	500 000
False Northing:	10 000 000
Scale Factor on CM:	0.9996
Latitude of Origin:	0 <sup>0</sup>

### 4.5.2 Echo sounding system

To reduce logged soundings for the effects of tide, the simplified harmonic method of tidal prediction was used to obtain a series of predicted tides for the selected tide stations. Harmonic constituents were abstracted from the Australian National Tide Tables Daily tidal files were produced which contained tidal height at 10 minute intervals. Predictions derived in time zone GMT + 0930 hrs were amended to be compatible with the data logged in Western Standard Time (WST). These files were used by PCMap to correct the measured depths and produce plots of corrected bathymetry along tracks. Tide stations used for reduction of data in the areas surveyed were:

- Anson Bay Area

Soundings were reduced to LAT at Daly River (Tidal Station 63190).

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#### **4.6 Geophysical data**

The seismic data was acquired in digital format and the sidescan data in analog format.

##### **4.6.1 Navigation data**

The navigation data relates to the hydrography, sidescan sonar and seismic reflection measurements. The following ASCII computer files on floppy disks is provided to the Department of Mines and Energy and forms part of this report:

- Hydrography: Fix No., Easting, Northing, Depth as Measured, Depth reduced to Chart Datum
- Sidescan sonar and seismic data: Fix No., Easting, Northing, time, Gyro, speed, depth, offset, date, and all navigation settings.

##### **4.6.2 Sidescan sonar data**

This was only recorded in analog format and therefore a hard copy only exists. At a meeting with the Department of Mines and Energy on 14 April 1994, it was agreed that a copy of the sidescan sonar traces should not be included with the report, but that the original trace should be included in surrender reports.

##### **4.6.3 Seismic reflection data**

This was recorded in digital format (24 channels) and analog format (1 channel). At the meeting with the Department of Mines and Energy on 15 April 1994, it was agreed that a copy of the analog data should not be included with the report, but that the original analog profiles should be included in surrender reports. A copy of the digital format (24 channel) data in Elics format on exabyte tapes is included with this report.

##### **4.6.4 Seismic survey location**

The trackplot of seismic channel 6 is shown in Figure 4.4 at a scale of 1:150 000. In Figure 4.4, every fifth fix is annotated and every 25th fix is numbered.

The trackplot of the sidescan sonar is shown in Figure 4.5, and the hydrography is shown in Figure 4.6 (where the depths have been reduced to chart datum as explained in chapter 4.5).

#### **4.7 Safety**

Safety meetings attended by all crew of the Miclyn Cove and all Fugro Survey personnel were held on 28 February 1994 and 16 March 1994. Specific hazards were discussed and steps to be taken to avoid problems were noted. The location of the ship's safety equipment was explained as well as procedures in case of any emergency. All Fugro personnel had attended HUET and sea survival courses and had been through Fugro's safety induction course.

A high level of safe work practices was maintained at all times and this is reflected in the complete absence of incidents or injury.



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## **5 PROPOSED ACTIVITIES AND ESTIMATE OF EXPENDITURE FOR THE TWELVE MONTHS TO 28/12/1995.**

### **5.1 Proposed Activities to 28/12/1995.**

The Company has recently finished an extensive high resolution seismic survey over the Licence area. During the next twelve months it proposes the following :

- (1) Interpretation of the seismic data will continue
- (2) The Company will carry out computer modelling of the interpreted seismic data to determine palaeo channel and palaeo river terrace facies. From this work the optimum sites for intersecting gravels can be identified for future drilling targets.
- (3) The Company may be seeking a Joint Venture partner to undertake sampling of targets identified by the seismic survey.

### **5.2 Proposed expenditure to 28/12/1995.**

The Company intends to spend \$65,000 in the following manner during the next 12 months:

(1)	Completion of seismic interpretation	\$15,000
(2)	Computer modelling	\$10,000
(3)	Consultants, contractors and office overheads for tenement maintenance	\$40,000
	<b>TOTAL</b>	<b>\$65,000</b>

## APPENDIX 1

### Onetech Pty Ltd Summary of Control Stations



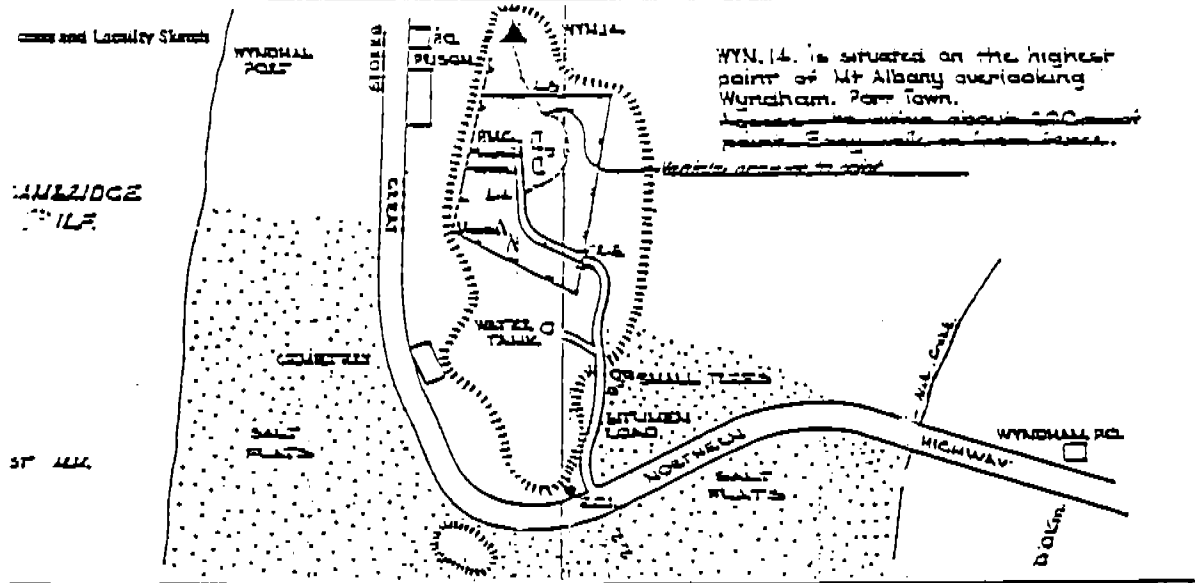
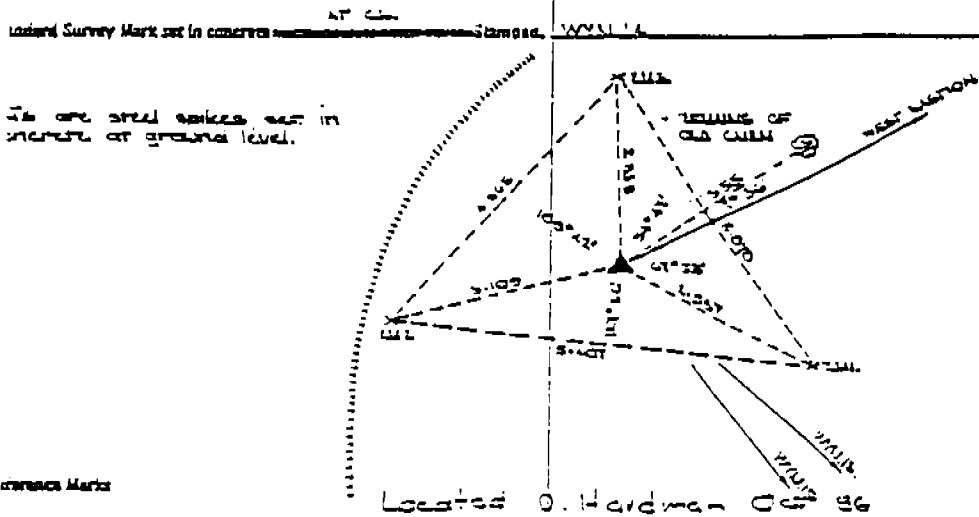
DEPARTMENT OF LANDS AND SURVEYS  
PERTH, WESTERN AUSTRALIA

STANDARD SURVEY MARKS ACT, 1924

# S.S.M. No. WYNDHAM 14

NUMERICAL VALUES ON THIS SUMMARY  
ARE NOT MAINTAINED.  
FOR CURRENT VALUES REFER TO  
GESMAR COMPUTED PRINTOUT.

## STANDARD SURVEY MARK SUMMARY



U.T.M. (MAGNETIC) = R.L. (E.R.M.) = ABOVE A.H.D. 1971 (M.S.L.) Level Reference: G.S. 57/72/2  
 Reference Book: G.S. 57/72/1      Cadastre Considered: G. 402474      Drawn: Y. GOSWAMI  
 Set out by: LANDS & SURVEYS DEPT      Date: 25/10/74      Surveyor: G. 402474  
 Certified free of transcription errors: *[Signature]*      Date: 5/5/77      Approved by:      Date:        
 AUSTRALIAN GEODETIC DATUM 1:10000 Map Sheet: WYNDHAM REGIONAL      Photo No. 5717      Run No. 1  
 SECTION WYNSEMS

PUBLIC WORKS DEPARTMENT  
PERMANENT SURVEY STATION SUMMARY

DATUM	Australian Height Datum Australian Geodetic Datum	STATION	R.L.
		Tidal BM A 112	5.942

RE = 10.136m per ISM.  
1:100000 = 1937, Cambridge Gulf Chart.

REF. MAP ~~2179~~ LOCALITY Wyndham Jetty

LEVELLING STANDARD 2nd Order ESTABLISHED FROM Admty BM, TG BM.

FIELD/LEVEL BOOKS 27166 CALC. BOOK \_\_\_\_\_

ESTABLISHED BY R.G. Parks DATE Jul 1973

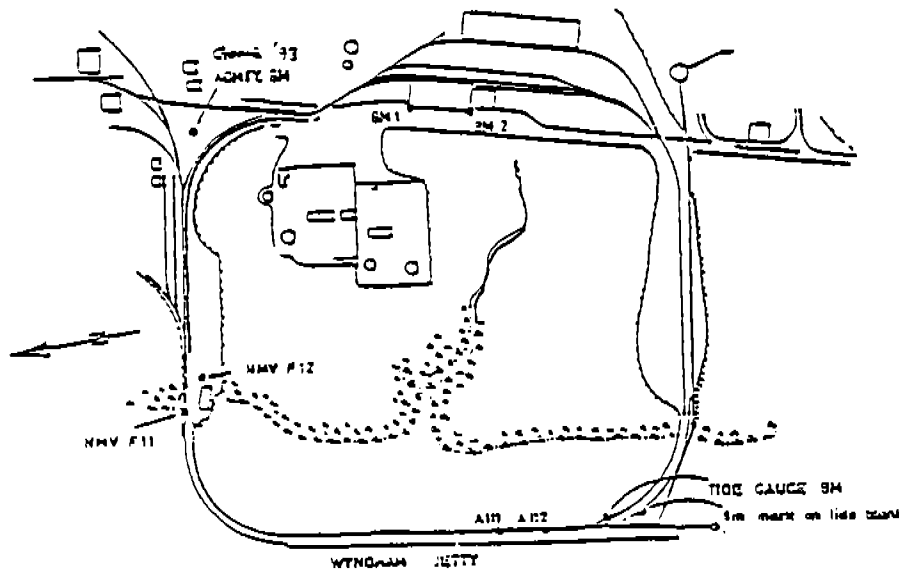
Rectangular Coordinates in Metres Australian Map Grid AGD 84

Latitude S	Longitude E	Zone	Order
15° 27' 15.45"	128° 05' 59.32"		
Easting	Northing	Convergence	
403426.588	8291218.237	0° 14' 23.61"	c.999715

Grid Bearing = Adj. Azimuth + Convergence

To	Adj. Azimuth	Adj. Length	Order
THE KNOLL	62° 21' 05.06"	1687.208	
WTN 14 (SSM)	165° 30' 28.88"	1197.197	
SEATH FACE	10° 47' <sup>GWD</sup> <sub>326.</sub>		

DESCRIPTION AND LOCATION OF STATION 3WD brass plaque set in concrete wharf - located above pier No. 62 approx 0.15m west of eastern edge of wharf - stamped A 112.



RECORDED INFORMATION EXAMINED BY *[Signature]* DATE 30.9.93  
24.  
7 Feb 75

## APPENDIX 2

Onetech Pty Ltd  
Summary of Delph 24 tape  
EL 8235

**ONETECH PTY LTD**  
**SUMMARY OF DELPH 24 TAPE**  
**RECORDED ON "MICLYN COVE"**  
**ANSON BAY PROSPECT**

Date Run	Line Number	Start Fix	End Fix	File Number	Tape Number
17 Mar 94	AB1	1	18	AB1-1	18
	AB1A	20	217	AB1A-1	18
	AB1B	221	388	AB1B-1	18
		392	566	AB1B-2	18
	AB1C	569	694	AB1C-1	18
	AB2	696	954	AB2-1	18
		958	1198	AB2-2	18
	AB5	1202	1241	AB5-1	18
		1244	1334	AB5-2	18
	AB3	1334	1525	AB3-1	18
		1529	1732	AB3-2	18
		1736	1858	AB3-3	18
		1862	1957	AB3-4	18
	AB4	1961	2118	AB4-1	18
		2121	2278	AB4-2	18
		2282	2455	AB4-3	18

Note: 1. File Number refers to file number as recorded on the survey vessel.

2. Tape Number refers to Elics tape number as stored on the survey vessel.

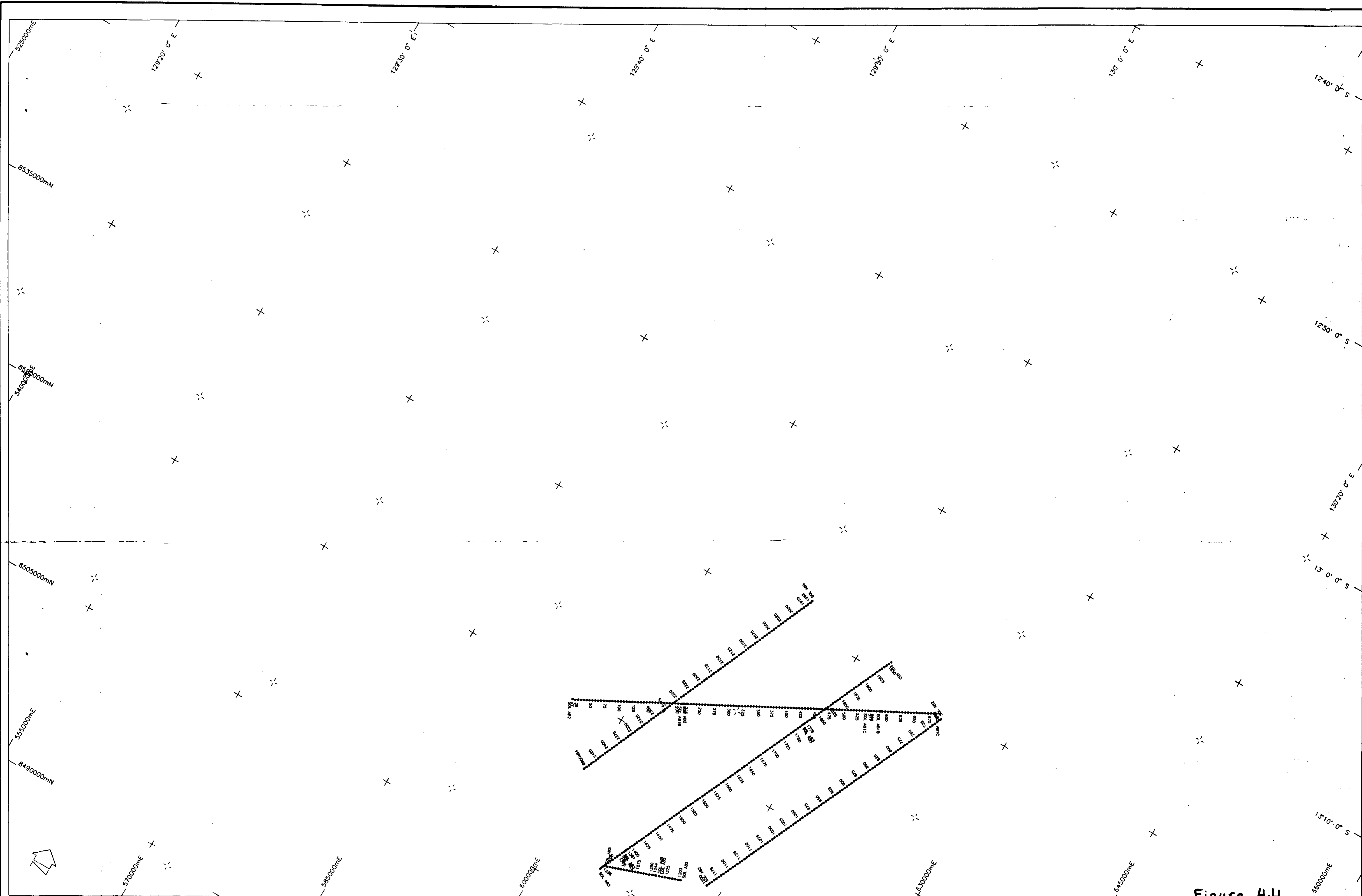


Figure 4.4

E:\1322\F71\27 15 13-95 44 1954

Revision	Chkd	By


HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1984  
 SPHEROID : AUSTRALIAN NATIONAL SPHEROID  
 PROJECTION : AUSTRALIAN MAP GRID  
 CENTRAL MERIDIAN : 129° EAST

REMARK: Seismic plot position is halfway between sound source and group 6 of the Delph 24 channel array.

VICTORIA AREA AND ANSON BAY  
 SEISMIC TRACKPLOT CHANNEL 6  
 DELPH 24 CHANNEL  
 HYDROPHONE ARRAY

CAMBRIDGE GULF EXPLORATION NL  
 QV 1 BUILDING  
 ST GEORGES TERRACE  
 PERTH W.A. 6000

Vessel	MICLYN COVE
Surveyed	PAC/TRB
Checked	

	<b>FUGRO SURVEY PTY LTD</b> <small>18 Prose Street, West Perth WA 6005, Australia</small>	Tel: +61-8-322 4955
		Fax: +61-8-322 1775
<small>This document may only be used for the purpose for which it was commissioned and in accordance with the terms of engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.</small>		Date: MARCH 1994 Scale: 1:150 000 Drawn: A.L.S. Ref No: 11h 9599 Plot No: 9599-22 Rev:

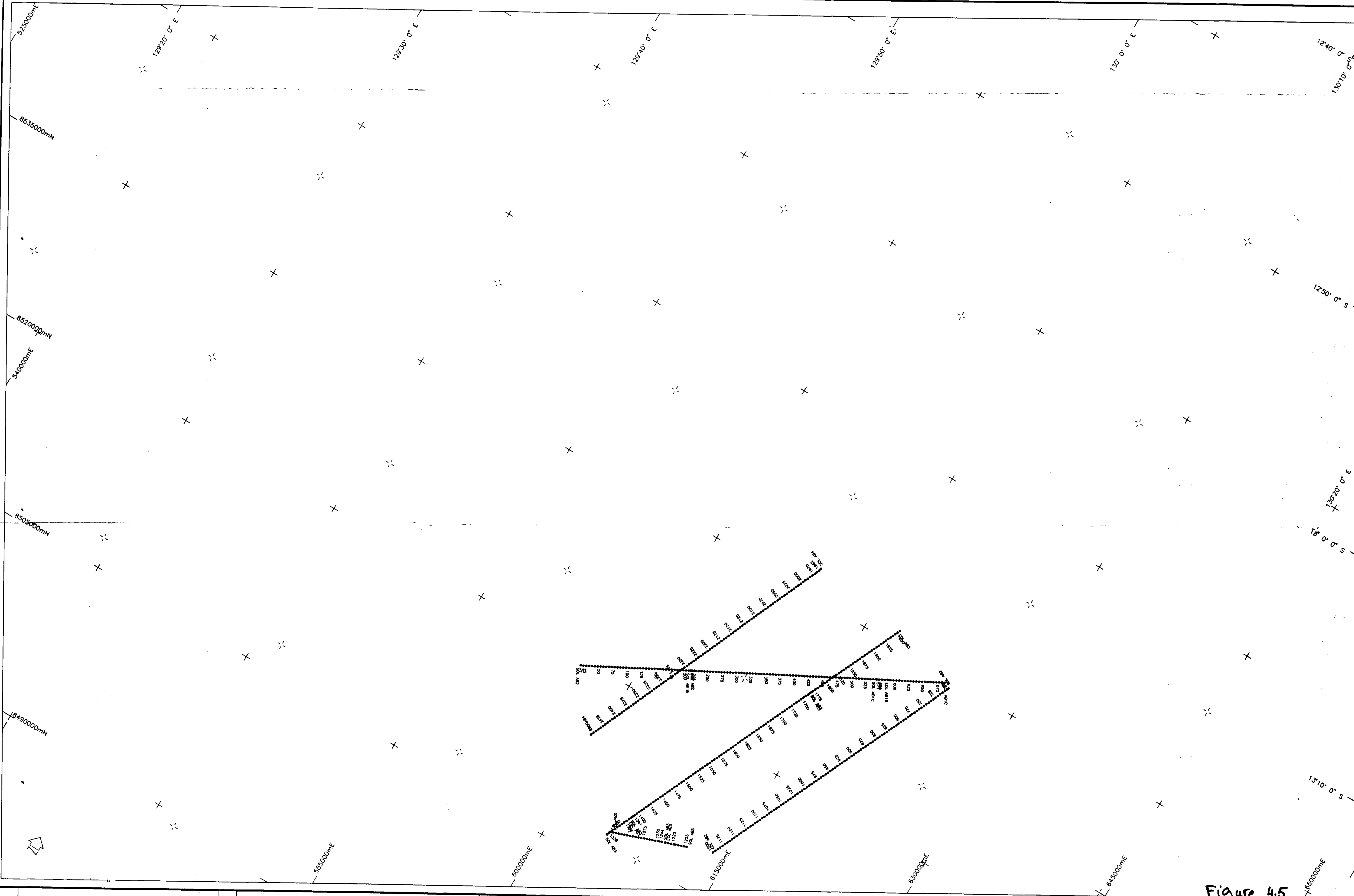


Figure 4.5

1:50,000 Scale. PAC/ANZ. Mon. Apr. 18 12:48:40 1994

Revision Chkd By		HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1984 SPHEROID : AUSTRALIAN NATIONAL SPHEROID PROJECTION : AUSTRALIAN MAP GRID CENTRAL MERIDIAN : 129° EAST	VICTORIA AREA AND ANSON BAY SIDE SCAN SONAR TRACKPLOT	CAMBRIDGE GULF EXPLORATION NL QV 1 BUILDING ST GEORGES TERRACE PERTH W.A. 6000	<table border="1"> <tr> <td>Vessel</td> <td>MICLYN COVE</td> </tr> <tr> <td>Surveyed</td> <td>PAC/TRB</td> </tr> <tr> <td>Checked</td> <td></td> </tr> </table>	Vessel	MICLYN COVE	Surveyed	PAC/TRB	Checked		<table border="1"> <tr> <td colspan="2"> </td> </tr> <tr> <td colspan="2"> <b>FUGRO SURVEY PTY LTD</b> </td> </tr> <tr> <td colspan="2"> <small>18 Prowse Street, West Perth WA 6005, Australia</small> </td> </tr> <tr> <td> <small>Tel: +61-8-322 4955</small>  <small>Fax: +61-9-322 1775</small> </td> <td> <small>Date: MARCH 1994</small>  <small>Scale: 1:150 000</small>  <small>Drawn: A.L.S.</small>  <small>Ref No: HY 9599</small>  <small>Plan No: 9599-25</small>  <small>Rev.</small> </td> </tr> </table>			<b>FUGRO SURVEY PTY LTD</b>		<small>18 Prowse Street, West Perth WA 6005, Australia</small>		<small>Tel: +61-8-322 4955</small> <small>Fax: +61-9-322 1775</small>	<small>Date: MARCH 1994</small> <small>Scale: 1:150 000</small> <small>Drawn: A.L.S.</small> <small>Ref No: HY 9599</small> <small>Plan No: 9599-25</small> <small>Rev.</small>
Vessel	MICLYN COVE																			
Surveyed	PAC/TRB																			
Checked																				
<b>FUGRO SURVEY PTY LTD</b>																				
<small>18 Prowse Street, West Perth WA 6005, Australia</small>																				
<small>Tel: +61-8-322 4955</small> <small>Fax: +61-9-322 1775</small>	<small>Date: MARCH 1994</small> <small>Scale: 1:150 000</small> <small>Drawn: A.L.S.</small> <small>Ref No: HY 9599</small> <small>Plan No: 9599-25</small> <small>Rev.</small>																			
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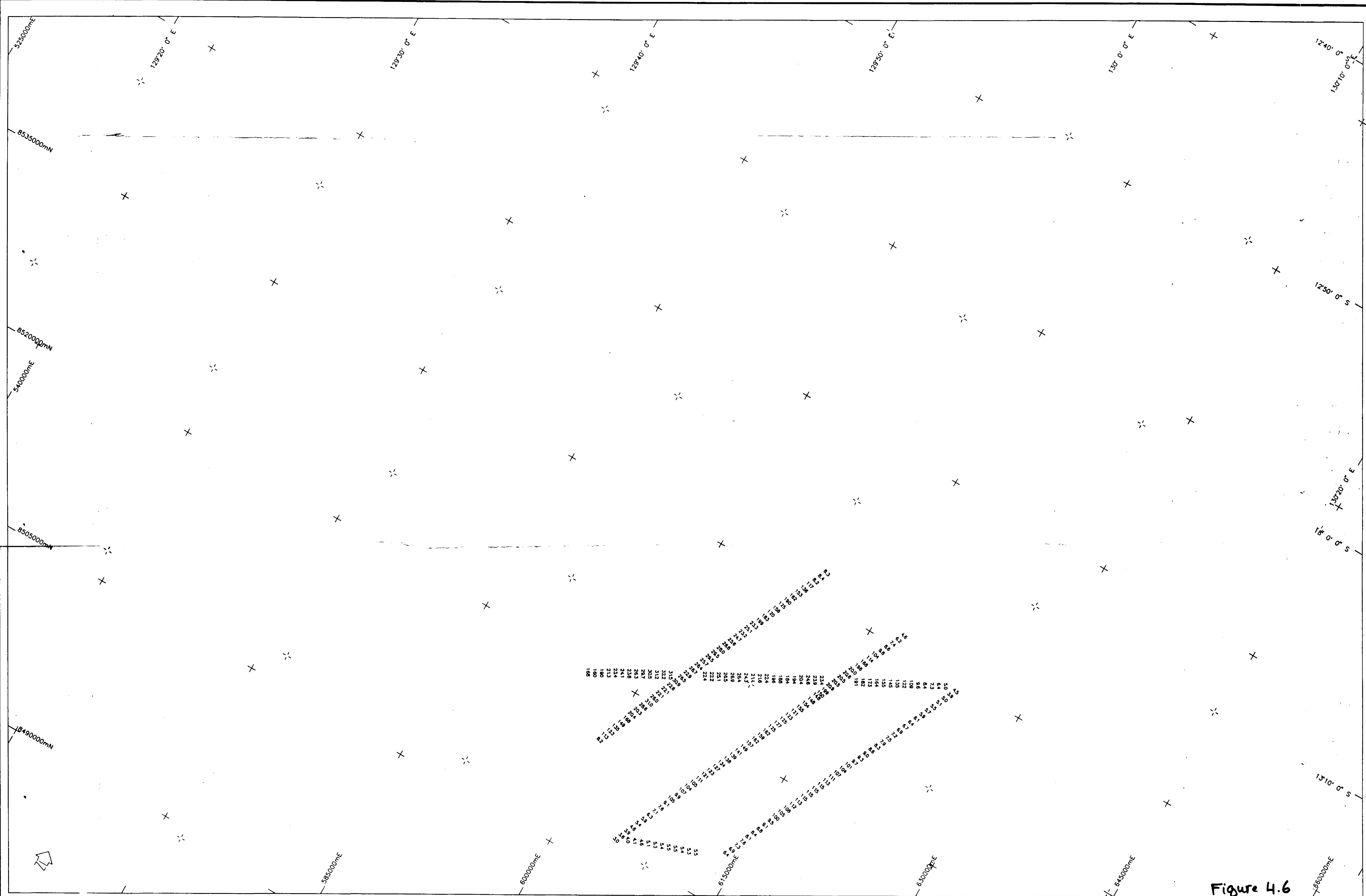


Figure 4.6

PL 55/24 V 47 18 15 12 21 1984

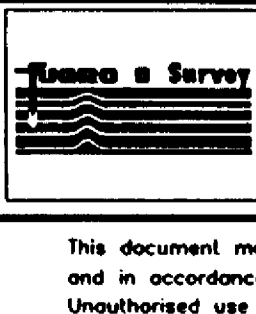
Date	Revision	Chkd	By

HORIZONTAL DATUM : AUSTRALIAN GEODETIC DATUM 1984  
 SPHEROID : AUSTRALIAN NATIONAL SPHEROID  
 PROJECTION : AUSTRALIAN MAP GRID  
 CENTRAL MERIDIAN : 129° EAST  
 VERTICAL DATUM : SOUNDINGS ARE REDUCED TO L.A.T. AT DALY RIVER (UNCHECKED PREDICTIONS ONLY)

VICTORIA AREA  
 BATHYMETRY

CAMBRIDGE GULF EXPLORATION NL  
 QV 1 BUILDING  
 ST GEORGES TERRACE  
 PERTH W.A. 6000

Vessel MICLYN COVE  
 Surveyed PAC/TRB



**FUGRO SURVEY PTY LTD**  
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 Fax: +61-8-322 1775

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Date	MARCH 1994
Scale	1:150 000
Drawn	A.L.S.
Print No	HY 9599
Item No.	9599-21
Rev.	