

## **APPENDIX B**

# **RIG POSITIONING REPORT**



**SURVEY REPORT  
FOR THE  
OCEAN BOUNTY RIG MOVE TO  
THE NORTHRIGHT-1 LOCATION**

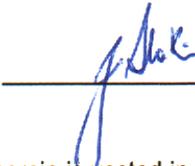
**HY16414**

Client : Eagle Bay Resources NL  
First Floor  
14 Outram Street  
WEST PERTH WA 6005

Date of Survey : 21<sup>st</sup> to 26<sup>th</sup> April 2001

Date of Report : 3<sup>rd</sup> May 2001

Checked : 

Authorised :   
\_\_\_\_\_

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## ABSTRACT

Between 21<sup>st</sup> and 26<sup>th</sup> April 2001, Fugro Survey provided equipment and personnel for the MODU OCEAN BOUNTY rig move to the NORTHRIGHT-1 location in exploration permit VIC/P41, Bass Strait.

Surface positioning was achieved utilising Fugro Survey's Multi-Reference Differential GPS and Starfix.Seis navigation software.

The final position for the drillstem derived from one hour of DGPS observations at the NORTHRIGHT-1 location was:

**Location Name:** NORTHRIGHT-1

**Easting:** 688 922.4 m

**Northing:** 5 799 457.1 m

**Latitude:** 37° 55' 57.754" S

**Longitude:** 149° 08' 58.942" E

**Rig Heading:** 255.8° True

This position is **8.0m** on a bearing of **137.5°** (G) from the proposed NORTHRIGHT-1 location.

All co-ordinates in this report are quoted in AGD84 datum and UTM CM 147°E (Zone 55) projection unless otherwise stated.

## 1.0 INTRODUCTION

Fugro Survey Pty Ltd (Fugro) was contracted by Eagle Bay Resources NL (Eagle Bay) to provide positioning services for the mobile offshore drilling unit (MODU) Ocean Bounty move to the NORTHRIGHT-1 location in exploration permit VIC/P41, Bass Strait. A general location diagram is shown overleaf as Figure 1.

This report details equipment used, survey parameters adopted, procedures employed and the results achieved. A section on safety is also included in Section 7.0 of this report.

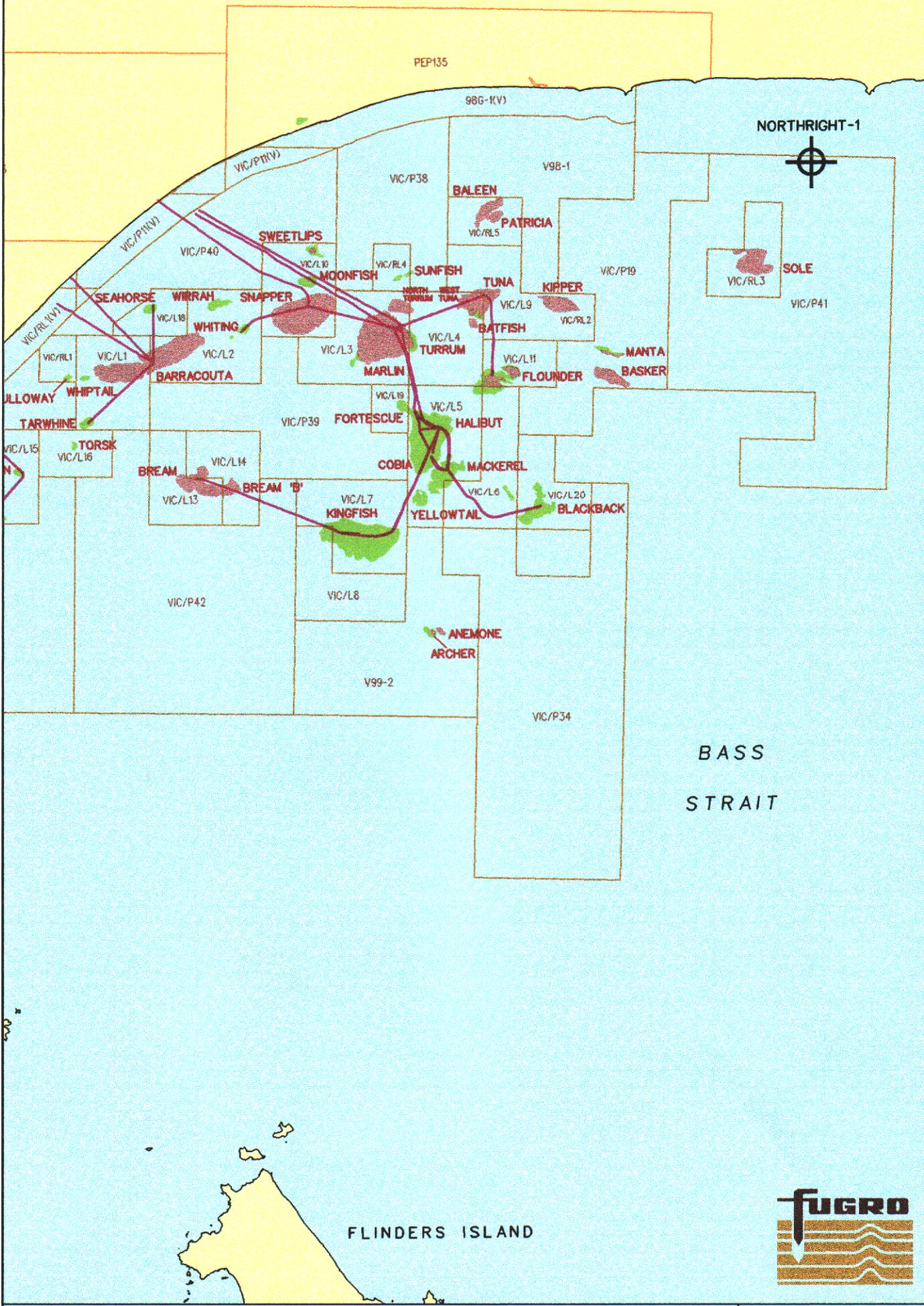
### 1.1 Scope of Work

Personnel and equipment were to be provided on a 24-hour per day basis for:

- Surface navigation for the Ocean Bounty using Fugro's Starfix-Spot Differential GPS (Optus and APSat satellites) and Multi Reference Differential Solution.
- Surface navigation for two AHV's and barge management system to send tow route and anchor locations from the survey computer to the AHV's.
- Final rig position calculation for the NORTHRIGHT-1 location using DGPS observations.

Eagle Bay provided co-ordinates for the proposed NORTHRIGHT-1 location and Diamond Offshore supplied the proposed anchor pattern. These co-ordinates are located in Appendix B.

VICTORIA



m:\hy\6414\figure1.dgn

GENERAL LOCATION DIAGRAM



FIGURE 1

## 1.2 Sequence of Events

- |                             |   |
|-----------------------------|---|
| 21 <sup>st</sup> April 2001 | L. Clark travels to Sydney.   |
| 22 <sup>nd</sup> April 2001 | L. Clark transfers to Ocean Bounty. Ocean Bounty under tow to Northright-1 location. Run up all navigation equipment on rig and both AHVs and confirm as operational. G. Moore travels to Melbourne.  |
| 23 <sup>rd</sup> April 2001 | Muster and safety drill on Ocean Bounty. G. Moore transfers to Ocean Bounty. Check setup for proposed location.   |
| 24 <sup>th</sup> April 2001 | Pre-anchor meeting and final run-in. First anchor (#6) deployed from fairlead at 12:26 hours. Continue tow to proposed well location. Pacific Conqueror deploys anchors #2 and #7. Pacific Conqueror commences deployment of anchor #3.   |
| 25 <sup>th</sup> April 2001 | Pacific Conqueror attempts to run anchor #3. Waiting on weather. Pacific Conqueror deploys anchors #4 and #1. Pacific Sentinel released from tow bridle. Carry out gyro compass calibration. Pacific Conqueror deploys anchors #8 and #5. Storm tensioning completed. Ballasting operations commence. |
| 26 <sup>th</sup> April 2001 | Ballasting operations completed. Record one hour of data for final position and heading. Personnel depart rig.  |

Full details of Fugro involvement in the rig move are presented in the Daily Operations Reports included in Appendix A.

## 2.0 SURVEY PARAMETERS

All co-ordinates supplied in this report are referenced to the Australian Geodetic Datum 1984 (AGD84). The GPS is in reference to the World Geodetic System 1984 (WGS84).

### 2.1 Geodetic Parameters

<b>Datum</b>	:	<b>WGS84</b>
Reference Spheroid	:	World Geodetic Spheroid 1984
Semi-major Axis	:	6 378 137 m
Inverse flattening (1/f)	:	298.257223563

The proposed drilling location and all project co-ordinates are in terms of:

<b>Datum</b>	:	<b>AGD 1984</b>
Reference Spheroid	:	Australian National Spheroid (ANS)
Semi-major Axis	:	6 378 160 m
Inverse flattening (1/f)	:	298.25

<b>Projection</b>	:	<b>UTM</b>
False Easting	:	500 000 m
False Northing	:	10 000 000 m
Latitude of Origin	:	0.0°
Central Meridian (CM)	:	147° East
UTM Zone	:	55
Scale Factor on CM	:	0.9996
Units	:	International Metres

#### Datum Transformation

The transformation parameters used for conversion from WGS 84 co-ordinates, generated by the Differential GPS system, to AGD 84 are listed below. Fugro follow the DMA convention for datum transformations:

X Shift (metres)	=	+116.0000	Rotation X (secs)	=	+0.2300
Y Shift (metres)	=	+50.4700	Rotation Y (secs)	=	+0.3900
Z Shift (metres)	=	-141.6900	Rotation Z (secs)	=	+0.3440
Scale (ppm)	=	-0.0983			

## 2.2 Differential GPS Reference Stations

The reference stations listed in the table below were used in the computation of the Multi Reference DGPS position.

Description	Site ID	Latitude (S)	Longitude (E)	Height (m)	Datum
Melbourne	385	38° 27' 53.375"	144° 54' 46.909"	144.90	WGS 84
Port Augusta	326	32° 29' 55.166"	137° 46' 31.459"	19.00	WGS84
Bathurst	336	33° 25' 46.902"	149° 34' 01.960"	756.80	WGS 84

## 2.3 Project Co-ordinates and Tolerances

Eagle Bay supplied the proposed target co-ordinates for the NORTHRIGHT-1 location.

NORTHRIGHT-1	Easting	Northing
Proposed Wellhead	688 917 m	5 799 463 m

The tolerance for the final drill rig position, as specified by Eagle Bay was to be within a 20-metre radius of the design location.

Diamond Offshore supplied the anchor pattern design which was based on the standard 30°/60° pattern.

Details of the client supplied data are enclosed in Appendix B.

## 3.0 EQUIPMENT AND PERSONNEL

### 3.1 Equipment Listing

#### OCEAN BOUNTY

- 2 x Starfix Seis navigation computers and monitors
- 1 x Starfix-Spot (Optus) DGPS System c/w antennae, cabling and interfaces
- 1 x Starfix-Spot (APSat) DGPS Systems c/w antennae, cabling and interfaces
- 2 x Trimble 4000 series GPS Receiver's c/w antennae, cabling and interfaces
- 2 x MRDGPS computers and monitors with interfaces
- 2 x Tokimec GM20/21 Gyro Compass
- 1 x PCTug computers and monitor (Spare)
- 2 x Remote Tug Tracking Telemetry Systems (radio/modem & antenna)
- 1 x Theodolite and tripod

#### Pacific Conqueror and Pacific Sentinel (Anchor Handling Vessels)

- 1 x PCTug navigation computer
- 1 x Monitor
- 1 x OmniSTAR<sup>plus</sup> Enhanced Differential System (EDS) unit c/w associated antenna, cabling and interfaces
- 1 x Remote Tug Tracking Telemetry System (radio/modem & antenna)
- 1 x Fluxgate Compass

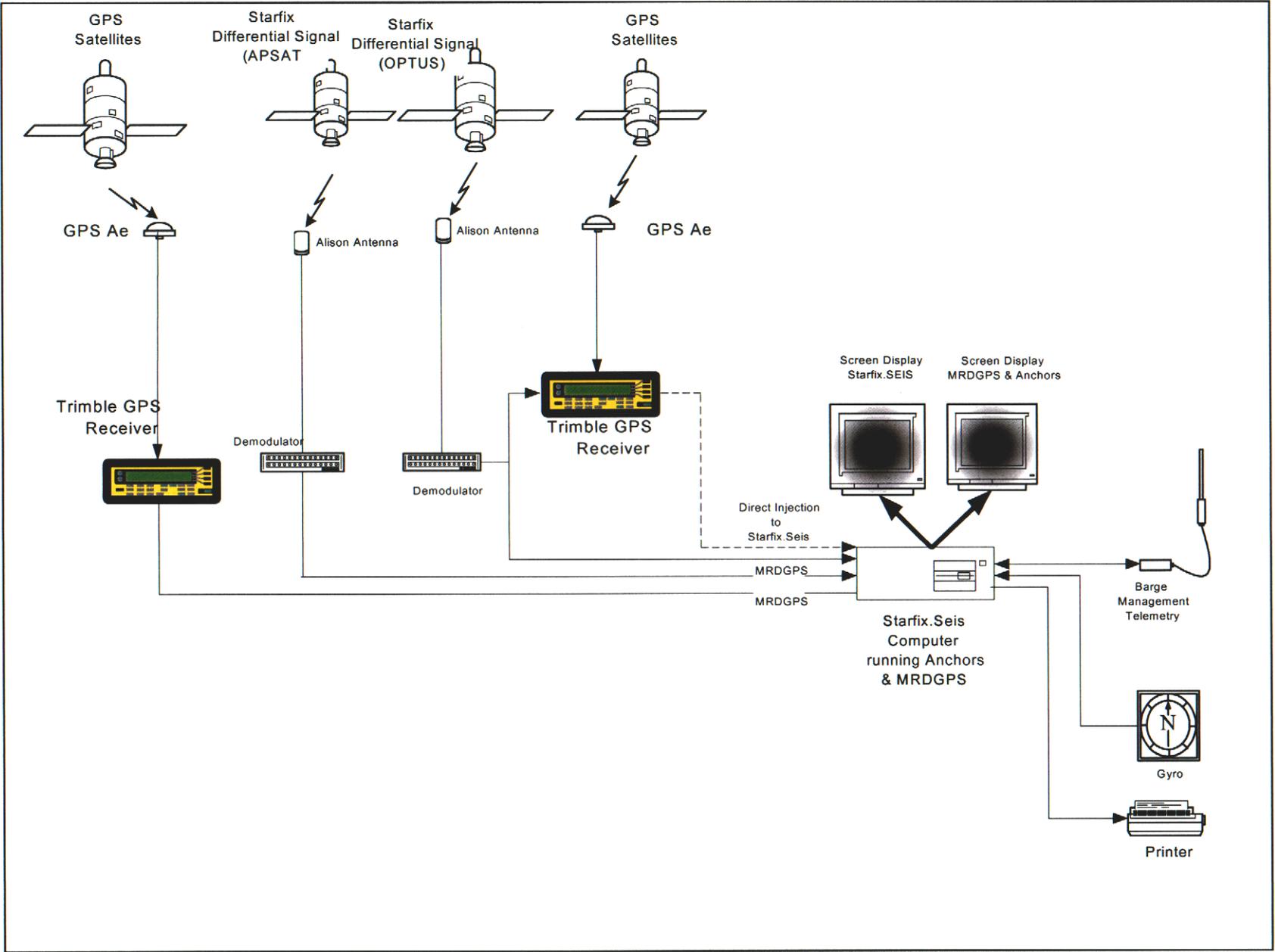
Please refer overleaf for equipment flow diagrams shown as Figures 2 and 3.

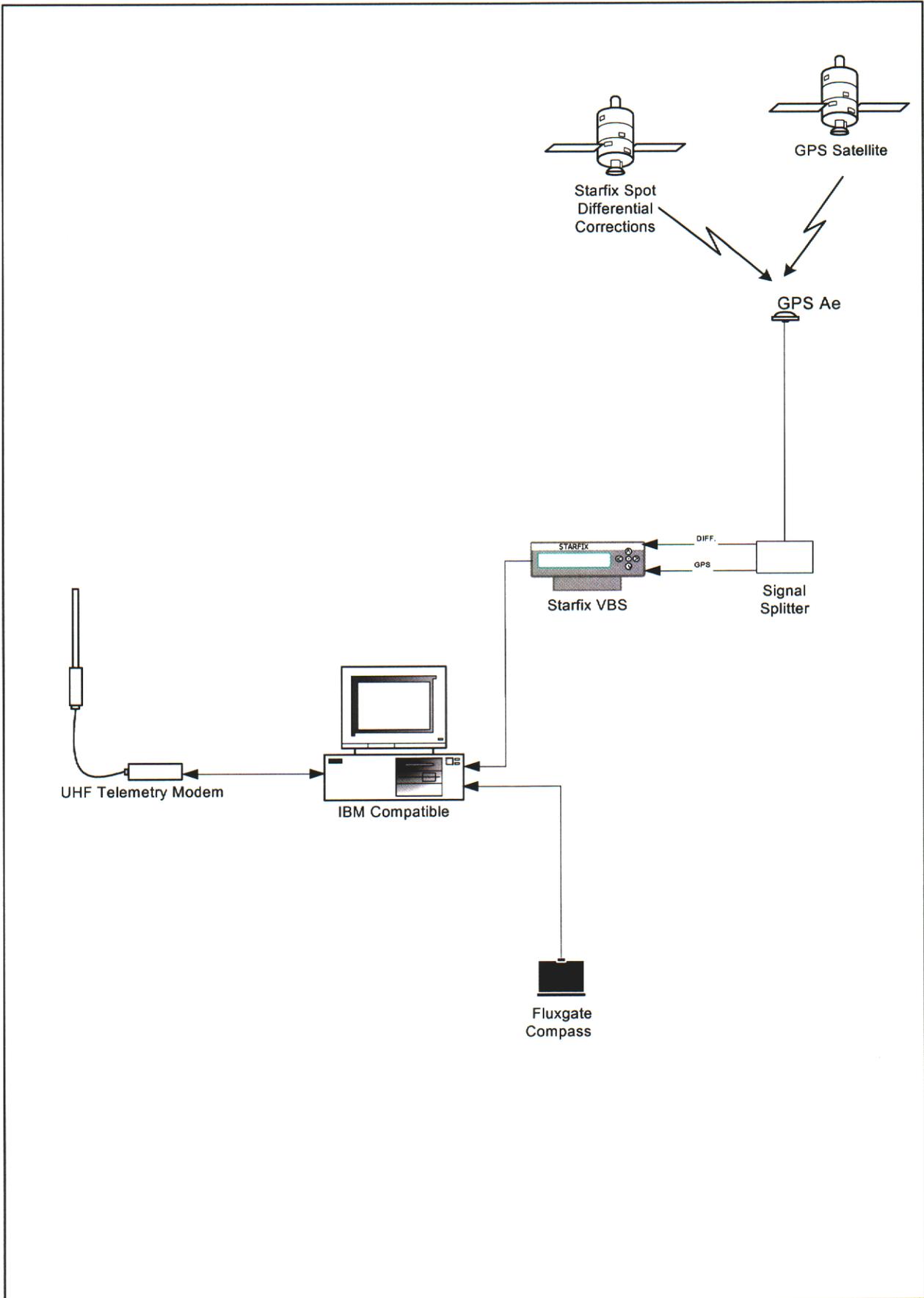
### 3.2 Vessels

The vessels used for anchor handling and towing of the Ocean Bounty were the Pacific Conqueror and Pacific Sentinel.

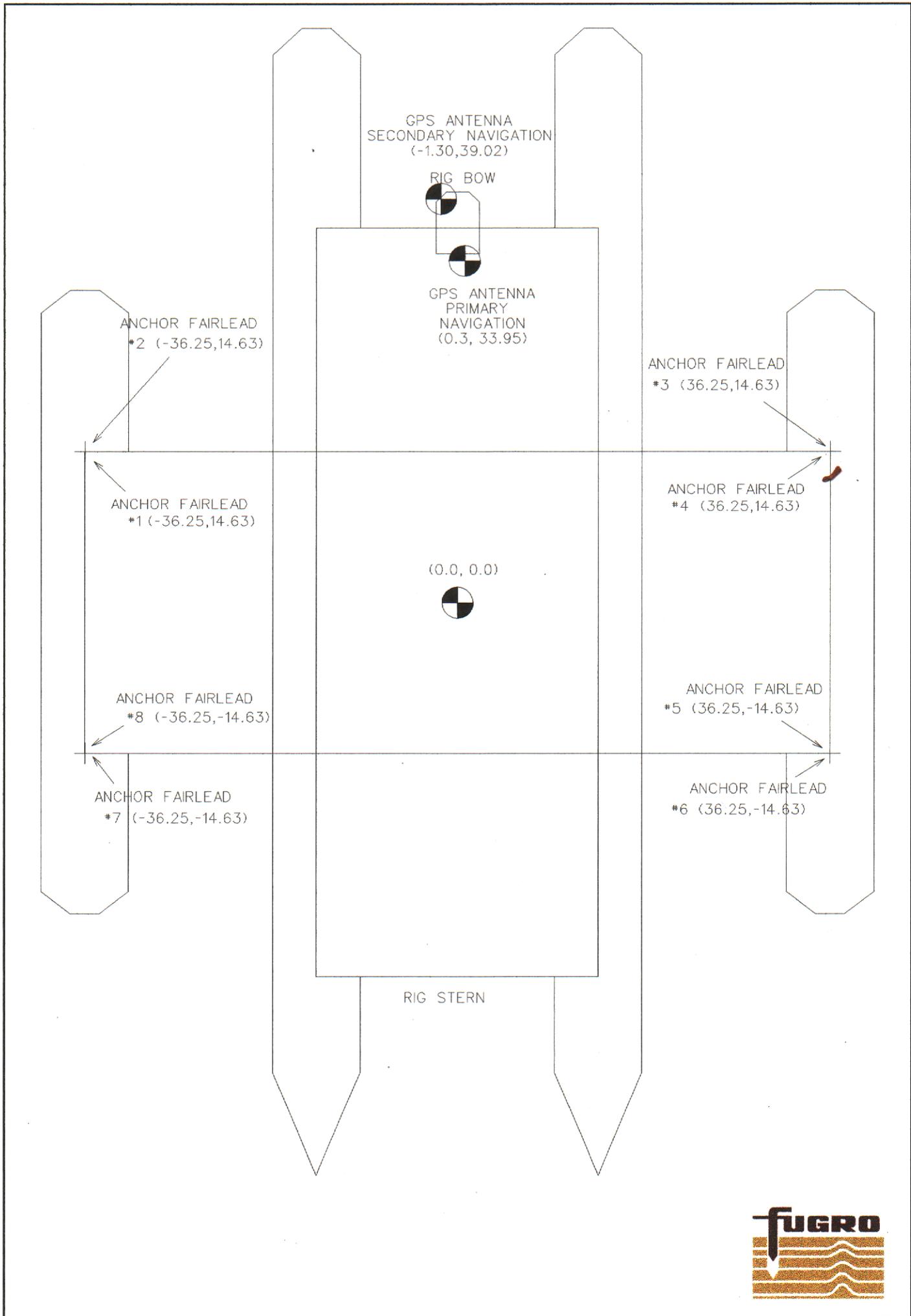
Refer to Figures 4, 5 and 6 overleaf for vessel offset diagrams.

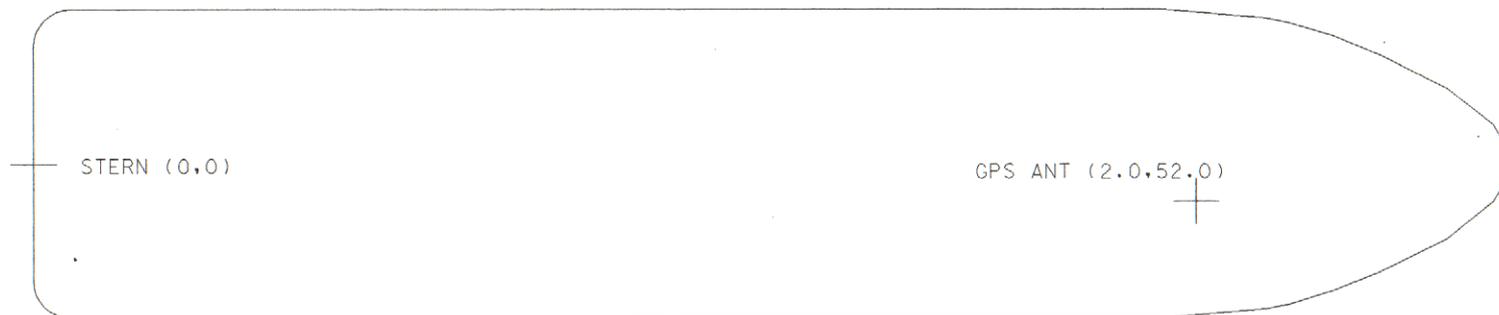
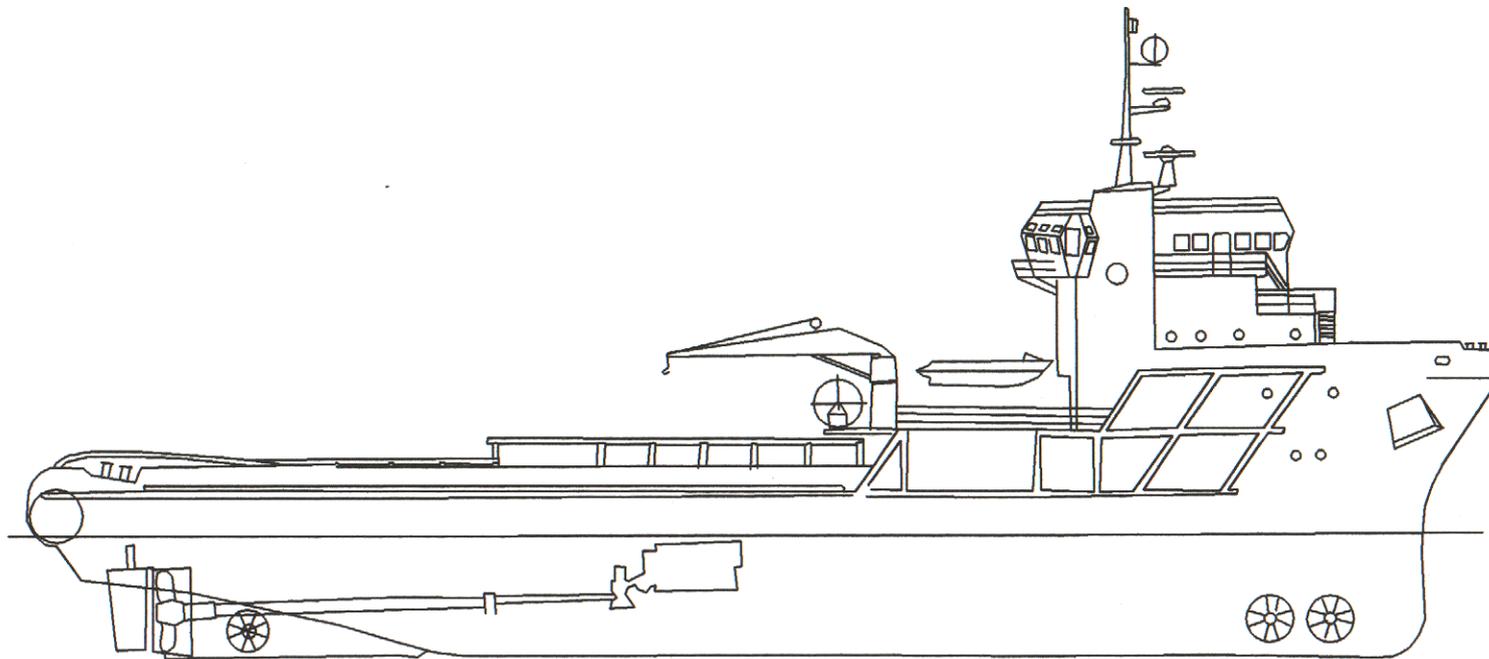
FIGURE 2 EQUIPMENT FLOW DIAGRAM – OCEAN BOUNTY





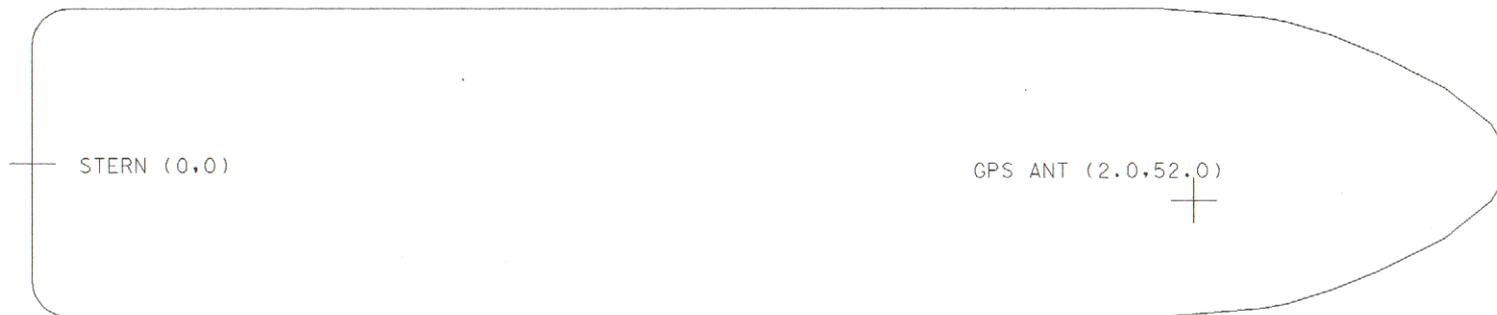
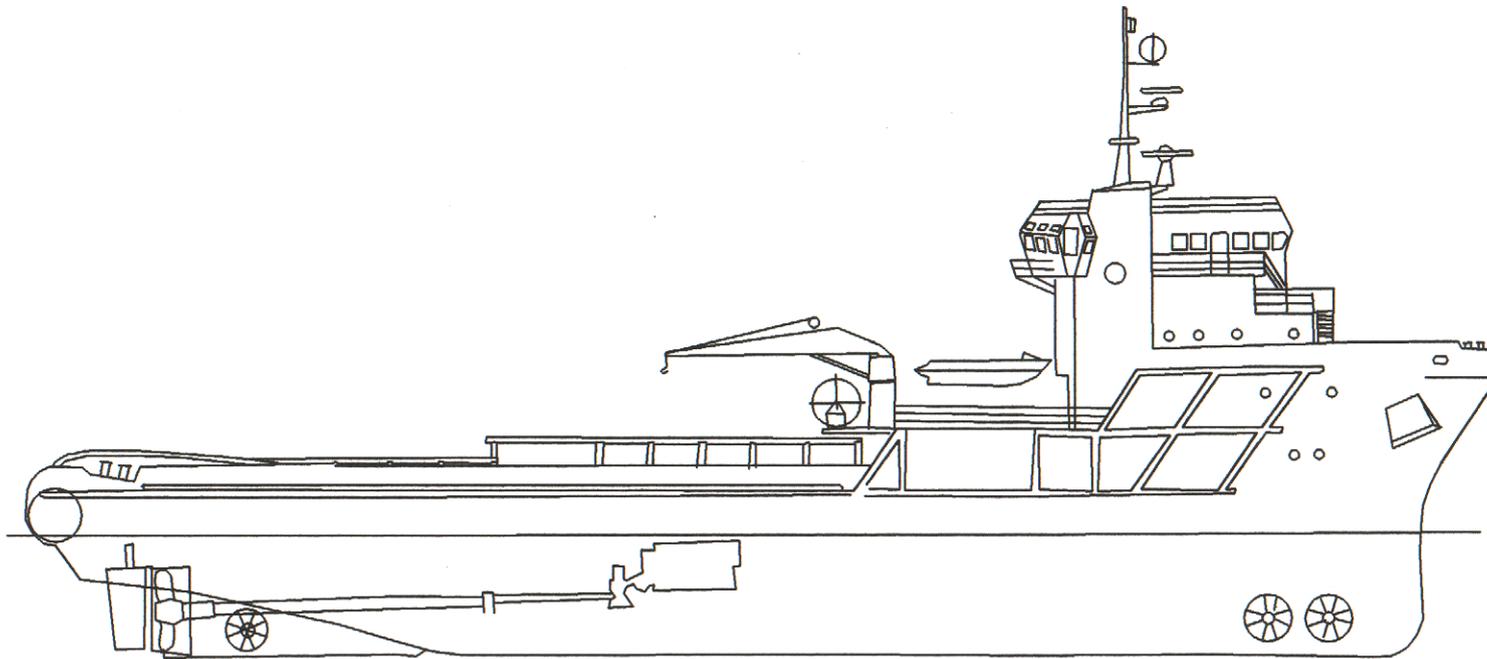
**FIGURE 3 EQUIPMENT FLOW DIAGRAM – AHV'S**





PACIFIC SENTINEL - VESSEL OFFSET DIAGRAM

FIGURE 5



PACIFIC CONQUEROR – VESSEL OFFSET DIAGRAM

FIGURE 6

## Personnel

Fugro personnel involved in this project were as follows:

G. Moore	Party Chief / Surveyor	21 <sup>st</sup> to 26 <sup>th</sup> April 2001
L. Clark	Survey Technician	22 <sup>nd</sup> to 26 <sup>th</sup> April 2001

Eagle Bay were represented during the rig move by:

G. Halls	QC Surveyor	23 <sup>rd</sup> to 26 <sup>th</sup> April 2001
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## 4.0 EQUIPMENT CALIBRATIONS

### 4.1 DGPS Navigation Integrity Check

The primary navigation system comprised a Trimble GPS receiver and the Fugro Survey Multi Reference Differential GPS (MRDGPS) utilising reference stations at Melbourne, Bathurst and Port Augusta. The secondary navigation system comprised of a Trimble GPS receiver with single base station direct-injection RTCM corrections, from the reference station at Melbourne.

As the rig was under tow when personnel joined, a position comparison with the previous well location could not be carried out. A navigation system comparison was undertaken on the 25<sup>th</sup> April. The calculated datum position from the primary and secondary positioning systems were logged for approximately 15 minutes then compared with each other. The two systems were found to be in good agreement. A summary of the comparison is listed below.

#### Primary/Secondary Comparison

Primary navigation	688 929.2	5 799 433.0
Secondary navigation	688 928.1	5 799 434.0
Differences	+1.1	-1.0

A positioning checklist was completed to ensure that correct antenna offsets, transformation parameters and UTM central meridian were being used in all calculations. The geodetic calculations with both the online Starfix Seis navigation program and the off line GEO geodetic calculations program were also carried out. Details for the DGPS checks are enclosed in Appendix C.

### 4.2 Gyro Compass Check

The heading information for the positioning was from a Tokimec GM20/21 gyro compass, installed in the pilot house and interfaced to the navigation computer. The calibration of the survey gyro compass was completed on 25<sup>th</sup> April 2001, while the rig was at the Northright – 1 location. Angles were observed from the sun and the Point Hicks lighthouse to the rig centreline using a theodolite setup on the

helideck. The calculated heading values were then compared to the observed gyro compass values logged in Starfix Seis and a mean C-O value of  $+4.6^\circ$  was determined. The correction applied within Starfix Seis was changed from  $+195.26^\circ$  to  $+199.86^\circ$ .

Details of the observations and gyro calibration reduction results are enclosed in Appendix C.

## 5.0 SURVEY PROCEDURES

### 5.1 Mobilisation

Fugro Survey personnel mobilised to the rig via Sydney on the 22<sup>nd</sup> April and via Melbourne on the 23<sup>rd</sup> April. The rig was under tow from the Timor Sea via the east coast at the time of personnel arriving.

Positioning equipment on the Ocean Bounty and both AHVs was already mobilised from a previous project. All equipment had been switched off for the tow except for the gyro compass which was left running at all times. All equipment was switched on and confirmed as operational on the 22<sup>nd</sup> April.

Antenna offset measurement checks, positioning checks and the gyro calibration were completed prior to final position fixes at the Northright-1 location.

### 5.2 General Survey Procedures

The rig approached the site on the morning of 24<sup>th</sup> April 2001 and the Pacific Sentinel was released from the tow bridle before reaching the start of the 3 mile run-in at 1110 hours. The Pacific Conqueror continued the tow along the 3 mile run-in until the #6 anchor was deployed from the Ocean Bounty's fairlead at 1226 hours. Due to problems with the vessel, the Sentinel was put back on the tow bridle and the Conqueror was used to run the remaining anchors.

Anchors #2 and #7 were deployed during the evening of the 24<sup>th</sup> April. The Conqueror then attempted to run anchor #3, however difficulties were encountered due to the weather and sea state and operations ceased between 0100 and 0700 hours on the 25<sup>th</sup>. Upon recommencing operations it was discovered that anchor #3 was lost. The design position of anchor #4 was altered to allow for the missing anchor and #4 was deployed before releasing the Sentinel from the tow bridle. The Conqueror then continued running anchors #8 and #5 which was completed at 1845 hours on the 25<sup>th</sup> April. Storm tensioning was carried out and was completed at 1920 hours on the 25<sup>th</sup>.

For each anchor, the AHV's was given a waypoint with corresponding runline through the PCTug system and would then run out the anchor chain along this line until the desired amount of chain, as determined by the winch's cable counter, had been paid out from the rig. The anchor chain was then stretched out and the anchor lowered to the seabed with the vessel then stripping the chain chaser back to the rig.

After deployment of the anchor spread, anchors were storm tensioned and the rig's moon pool location was positioned over the proposed Northright-1 location. To facilitate positioning operations, the rig's drill stem position relative to the required location was displayed on the navigation monitor, which displayed the bearing and distance from the intended location both graphically and numerically.

The Ocean Bounty was positioned over the Northright-1 location and all anchoring and pre-tensioning completed by 1920 hours on 25<sup>th</sup> April 2001. Following de-ballasting operations the final position data was logged between 0620 and 0720 hours on the 26<sup>th</sup> April. A field report was issued to the Eagle Bay company man and the Diamond Offshore OIM on the 26<sup>th</sup> April 2001.

### **5.3 Demobilisation**

Navigation systems onboard the Ocean Bounty, Pacific Sentinel and Pacific Conqueror were switched off and left mobilised ready for the next rig move. The gyro compass was left running.

Personnel departed the rig on 26 April 2001, returning to Perth later the same day.

## 6.0 RESULTS

### 6.1 Final Position

The final position of the Ocean Bounty drill-stem was established by calculating the mean position from one hour of differential GPS data between 0620 and 0720 hours on the 26<sup>th</sup> April 2001. During this period, calculated drill-stem co-ordinates from both the primary and secondary positioning systems were logged at ten second intervals in "Starfix Seis". Data from the primary positioning system was used for the final position calculation.

Differential corrections for the GPS positioning system were derived using a multi reference solution with base station data from Melbourne, Port Augusta and Bathurst.

AGD84 geographical positions for the Northright-1 location are as follows:

Position	Method	Latitude	Longitude
Drill Stem @ Surface	DGPS	37° 55' 57.754" S	149° 08' 58.942" E
Proposed Location		37° 55' 57.57" S	149° 08' 58.72" E

AGD84 grid co-ordinates (CM 147° E) for the Northright-1 location are as follows:

Position	Method	Easting	Northing	No. Of Obs	S.Dev
Drill Stem @ Surface	DGPS	688 922.4	5 799 457.1	363	0.3
Proposed Location		688 917	5 799 463		

This position is **8.0m** at a bearing of **137.5°** (Grid) from the proposed Northright-1 location.

The rig position field report and final position data are enclosed in Appendix D.

### 6.2 Rig Heading

The heading of the Ocean Bounty was established by calculating the average heading from one hour of gyro compass data between 0620 and 0720 hours on 26<sup>th</sup> April 2001. During this period gyro readings were logged at ten second intervals in Starfix Seis.

The Ocean Bounty rig heading is as follows:

Description	Method	True	Grid	No. Of Obs	S.Dev
Rig Heading	Gyro	255.8°	257.1°	363	0.0°
Proposed Heading		250.0°			

### 6.3 Anchor Positions

The approximate locations of the Ocean Bounty anchors are shown below. These positions are derived from a position fix on the stern of the AHV at the time of anchor deployment on the seabed. The bearing from the fairlead along each anchor leg to the AHV's stern position, was correlated with final chain lengths from each anchor winch to calculate catenary and corrected horizontal distances to each anchor buried in the seabed.

Anchor	Easting	Northing	Bearing(T)	Deployed by
1	688 688	5 798 207	190	Pacific Conqueror
2	688 087	5 798 527	222	Pacific Conqueror
3				
4	687 838	5 800 052	296	Pacific Conqueror
5	689 041	5 800 670	4	Pacific Conqueror
6	689 020	5 800 465	41	Pacific Conqueror
7	689 570	5 800 205	102	Ocean Bounty
8	689 880	5 799 205	128	Pacific Conqueror

## 7.0 SAFETY

All work undertaken by Fugro personnel during the project was conducted within the guidelines of Fugro Survey's Safety Policy as defined in Fugro Survey's Safety Manual (FSSM01) and Offshore Survey Safety Practices (FSSM06).

Fugro personnel worked within project safety guidelines and plans adopted by Diamond Offshore and Eagle Bay. Participation in the Diamond Offshore STOP programs was encouraged.

Personal safety equipment was worn throughout the project as required. No injuries involving Fugro personnel were reported during the project.

L. Clark participated in an emergency and abandon rig drill on 23<sup>rd</sup> April 2001.

## 8.0 CONCLUSIONS AND RECOMMENDATIONS

On reviewing the Rig Move operations undertaken by Fugro Survey for the Ocean Bounty, the following conclusions have been reached:

- The Ocean Bounty was successfully positioned on location within required tolerances.

**APPENDIX A**

**DAILY OPERATIONS REPORTS**













**APPENDIX B**

**PROJECT COORDINATE LISTINGS AND ANCHORING PROCEDURES**

**Stoker, John**

**From:** John Smith [jsmith@lpm.com.au]  
**Sent:** Thursday, April 05, 2001 10:47 AM  
**To:** Stoker, John  
**Subject:** RE: Rig Positioning Services - Hy16414

John,

Thanks for the response.

Well details as follows:

Well Name: NORTHRIGHT-1  
Permit: VIC/P41  
Lat/Long: 149° 08' 58.72" E  
37° 55' 57.57" S  
UTM Zone 55 688 917 E 917.112  
5 799 463 S 462.886  
Water depth: 105 metres  
QA/QC Hydrographic Surveys

WGS 84  
37 55 52.0035  
149 09 03.2761  
-5.608

689 031.622  
5799 646.506

$\delta = -1^{\circ}19'21.31''$

Current ETA for the Ocean Bounty at Northright-1 is April 23rd.  
Our plans are to fly your crew out at least one day prior to rig arrival.  
At this point in time most likely the first helicopter will depart from  
Essendon, although I will keep in touch with you on that.

Please also advise the following:

Names of crew ( when known)  
Confirm all equipment is onboard the Bounty and that your crew will not be  
carrying any freight.  
Minimum rig up time required

Please do not hesitate to call if you have any questions.

Thanks and regards,

John Smith  
Eagle Bay Resources N.L  
C/o Labrador Petro-Management Pty Ltd  
1st Floor, Hampden House  
174 Hampden Road  
NEDLANDS WA 6009  
Tel No: 08-9423 5609 (Direct)  
Fax No: 08-9386 6580  
Email: jsmith@lpm.com.au

-----Original Message-----

**From:** Stoker, John [SMTP:j.stoker@fugro.com.au]  
**Sent:** Thursday, 5 April 2001 8:47 AM  
**To:** John Smith  
**Subject:** Rig Positioning Services - Hy16414

John,

Please find attached the reviewed Draft Agreement. I have made some  
suggestions and requests for certain clauses (These are highlighted  
in blue).

The changes reflect the Terms and Conditions held with Woodside.

Could you please forward well location information, etc etc so as I  
can begin preparing the Survey Procedures etc etc for submission to LPM  
for their review and acceptance.

<<Eagle Bay TPC General Agreement.doc>>

Regards

John Stoker  
18 Prowse Street, West Perth WA 6005, Australia  
Tel: +61 8 9322 4955  
Fax: +61 8 9322 1775  
Email: j.stoker@fugro.com.au

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<< File: Eagle Bay TPC General Agreement.doc >>



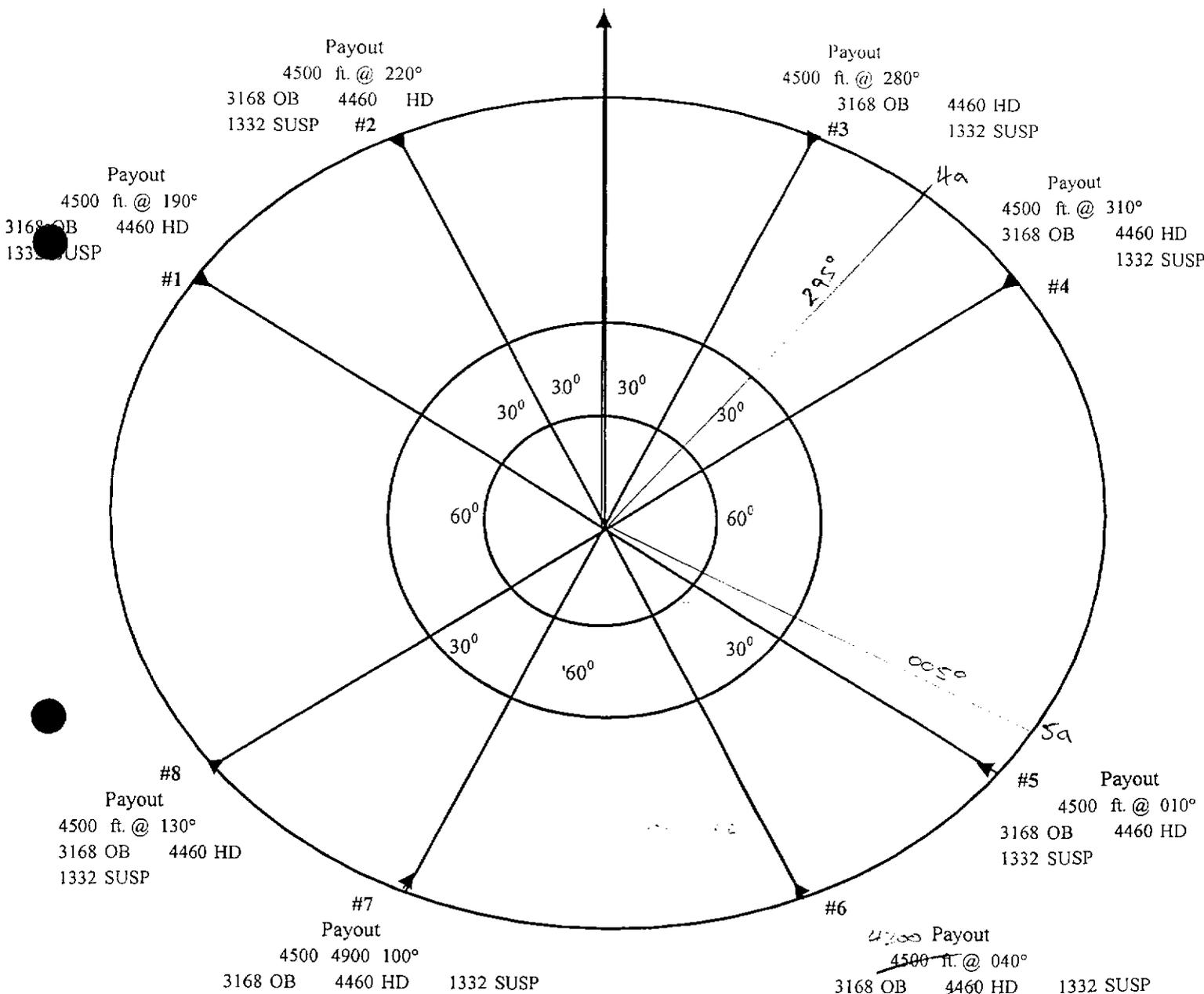
D I A M O N D  
O F F S H O R E

Drilling Unit: Ocean Bounty  
Drilling Location: Northright 1  
Operator: Eagle Bay  
Bow Heading: 250°

Date: 23-Apr-01

Completed By: David Deron  
Engineered By: None  
Water Depth: 295 Feet  
Anchor Tension: 300000 lbs

Bow Heading  
250°



Latitude: 37° 55' 57.57" S  
Longitude: 149° 08' 58.72" E  
X: 0  
Y: 0

Notes  
OB=On Bottom chain  
HD=Horizontal Distance  
SUSP=Suspended Chain

Block Calls: FNL 0000'  
FWL 0000'  
Distance From Proposed Location: 0  
Bearing From Proposed Location: 0

# RIG MOVE PROCEDURES – Timor Sea To Northright 1.

Friday, 6 April 2001

## 1.0 Introduction

- 1.1 The following procedures are the minimum DOGC requirements. Variations to the procedures due to weather and current will only be allowed if the variation is safe and does not present an increased hazard to the personnel or equipment.
- 1.2 The Company Representative and OIM shall discuss any variation prior to operations commencing.
- 1.3 The first anchor to be deployed from the rig will be the No.6 anchor, if weather and currents conditions are not favourable for this line of approach the No.7 anchor may be deployed from the rig as the first anchor.
- 1.4 All tidal and current data shall be considered prior to and during any rig move operation.
- 1.5 During rig move operations the rig will be towed from the tow bridle at transit draft, the tow vessel will not be released from the tow bridle until the four primary anchors have been deployed at Northright 1.
- 1.6 JSA's will be held prior to commencing anchor handling and pennant handling operations.
- 1.7 During anchor deployment operations the amount of chain payed out shall be called out by the winch operator at 500 feet intervals and checked with the indicated chain deployed from the navigation system in the pilot-house. The navigation screen shall always display the distance from the anchor fairlead to the stern of the vessel during anchor running.

## 2.0 Preparations

- 2.1 All winches to be checked and secondary pump running on rig anchor winch cooling system prior to any anchor operation.
- 2.2 Thoroughly inspect the towing bridle before connection to tow vessel.
- 2.3 Pre-anchoring meeting to be held by radio conference prior to the arrival at the Northright 1 location.
- 2.4 The meeting shall be attended by:
- 2.5 Company Representatives Rig OIM      Rig Supt      Barge Master / CIR Vessel Masters  
Company Survey Rep      Fugro Surveyor      Crane Operators
- 2.6 During the meeting the rig move procedures, charts, tow route, site survey reports, tidal height predictions, near surface current predictions, navigational hazards, radio channels and weather predictions shall be discussed.
- 2.7 Ensure that sufficient spare mooring equipment is provided to cope with any potential problem.
- 2.8 Inspect all pennants and handling slings at rig end.
- 2.9 Boats to be supplied with spare equipment, pennants and shackles as required by vessel masters.
- 2.10 The new winch monitoring equipment on the Ocean Bounty should be familiar to all winch drivers.
- 2.11 *This might not be necessary as offloading could have taken place in Gladstone. Prior to arrival at location at a position to be decided the tow will be stopped. #6 anchor deployed and the first tow boat offloaded (drill pipe on deck). This boat will be then moved onto the main bridle, to allow for good approach control during run in to location. With the rig held steady by the main bridle the second boat will be offloaded (drill pipe on deck) and made ready for the anchor handling.*
- 2.12 **Caution:** In shallow water the #6 permanent chaser tends to ride on the anchor chain. The rig will have to be pulled into the prevailing weather to allow for slack in the chain during anchor retrieval thus allowing the PCC to slip down the chain. It is not advisable to use the crane to assist during this activity.

### 3.0 Anchor deployment at Northright 1

- 3.1 The following mooring plan shall apply for the Northright 1 location.  
Rig Heading = 250° True. The heading will allow Telstra communication Dome reception from the aft Dome site on the rig.  
Water depth at location = 90m (295ft.)  
Anchor chain length 4500 ft.

Anchor #	Bearing	Anchor #	Bearing	Anchor #	Bearing
1	190°	2	220°	3	280°
4	310° <del>340°</del>	5	010°	6	040°
7	100°			8	130°

- Mooring pattern is the standard 30/60 pattern.
- 3.2 The tow vessel shall slow down and shorten the tow prior to turning onto the final run in line.
- 3.3 During the deployment of the primary anchors the OIM or his deputy shall be present in the pilot-house to coordinate operations.
- 3.4 Prior to the reaching location the OIM shall conduct a radio conference between the rig and vessel masters. Rig personnel to attend shall be the Rig Superintendent, the Rig Barge Master, Company Representative, Survey Representative and the Furgro surveyor. Any variation required to the rig move procedure shall be discussed at this time.
- 3.5 The rig is to be towed to a position 3nm at 040° from the No.6 intended anchor drop location where it will be lined up on a bearing of 220° for the run in to the No6 drop location.
- 3.6 Pay out No.6 anchor until the anchor is hanging 50ft off the bottom. Minimum water depth during run in is expected to be 90m. (295 ft)
- 3.7 Deploy the No.6 as the rig passes over the drop location. Continue to tow the rig towards the location, as chain is payed out. Maximum approach speed 2 knots once No.6 has been deployed.  
The pilot house and winch operator shall check the chain payed out and tensions of the
- 3.8 No.6 anchor as the rig is towed towards the well location.  
The rig is stopped when reaching the proposed well location.
- 3.9 Whilst the rig is held near the location by the Tow AHV pass the No.2 pennant to the second AHV and run the No.2 anchor. Preferred maximum speed to be 4 kts.
- 3.10 Run the No.7 or No.3 anchor depending on the rig position over the location.
- 3.11 Run the remaining primary anchor. (3 or 7)
- 3.12 Release the Tow vessel from the tow bridle.
- 3.13 Run anchors secondary anchors as conditions / rig position dictates.
- 3.14 Position rig and pretension all rig anchors to 410 kips for 10 minutes.
- 3.15 Ballast rig to drilling draft. (Tension to be held at 300 kips until stack has been landed.)

#### Addendum to Procedures.

- The following allows the drilling activities (mixing mud / Picking up drill pipe ) to commence whilst anchor handling.
- If agreed by all parties, taking into account the rig would be at deep draft.
- Rig to run 4 primary anchors. Anchor running operation to cease.
- Rig to be ballasted to 56.5' draft. Drilling operations to commence within rig safety stability envelope.
- Secondary anchors to be run at deep draft.
- Pretension to 350 Kips drop back to 300 Kips until stack landed.

**APPENDIX C**

**DGPS AND GYRO CHECKS**

### NAV 1/NAV 2 Comparison

Vessel :- Ocean Bounty                      Date :- 25/04/01

Location :- Northright-1, VIC/P41, Bass Strait

Fix	UTC	Nav 1 Datum		Nav 2 Datum		Diff	Diff
	Time	Easting	Northing	Easting	Northing	East	North
2364	21:29:09	688933.83	5799430.02	688932.52	5799430.21	1.31	-0.19
2365	21:29:19	688933.93	5799429.75	688932.64	5799430.01	1.29	-0.26
2366	21:29:29	688933.72	5799429.18	688932.42	5799429.51	1.30	-0.33
2367	21:29:39	688933.29	5799428.94	688931.94	5799429.26	1.35	-0.32
2368	21:29:49	688932.91	5799428.61	688931.54	5799429.08	1.37	-0.47
2369	21:29:59	688932.70	5799428.36	688930.86	5799429.10	1.84	-0.74
2370	21:30:09	688932.91	5799428.89	688931.13	5799429.54	1.78	-0.65
2371	21:30:19	688932.87	5799429.25	688931.16	5799429.87	1.71	-0.62
2372	21:30:29	688932.55	5799429.68	688930.34	5799430.71	2.21	-1.03
2373	21:30:39	688931.82	5799430.47	688927.59	5799433.18	4.23	-2.71
2374	21:30:49	688930.96	5799431.35	688926.39	5799434.38	4.57	-3.03
2375	21:30:59	688930.28	5799431.68	688926.11	5799434.38	4.17	-2.70
2376	21:31:09	688929.43	5799432.25	688925.54	5799434.77	3.89	-2.52
2377	21:31:19	688928.67	5799432.72	688925.02	5799435.15	3.65	-2.43
2378	21:31:29	688928.28	5799433.32	688924.42	5799435.90	3.86	-2.58
2379	21:31:39	688928.00	5799433.85	688923.93	5799436.62	4.07	-2.77
2380	21:31:49	688927.77	5799434.32	688923.89	5799436.96	3.88	-2.64
2381	21:31:59	688927.55	5799434.72	688923.80	5799437.30	3.75	-2.58
2382	21:32:09	688927.32	5799434.82	688923.77	5799437.27	3.55	-2.45
2383	21:32:19	688927.38	5799434.79	688923.80	5799437.18	3.58	-2.39
2384	21:32:29	688927.68	5799434.59	688924.10	5799437.04	3.58	-2.45
2385	21:32:39	688928.36	5799434.75	688924.84	5799437.14	3.52	-2.39
2386	21:32:49	688928.62	5799434.80	688925.09	5799437.27	3.53	-2.47
2387	21:32:59	688928.87	5799434.83	688925.49	5799437.25	3.38	-2.42
2388	21:33:09	688928.77	5799434.93	688925.34	5799437.38	3.43	-2.45
2389	21:33:19	688928.23	5799434.45	688924.69	5799437.01	3.54	-2.56
2390	21:33:29	688927.69	5799434.31	688924.18	5799436.74	3.51	-2.43
2391	21:33:39	688927.22	5799434.22	688923.75	5799436.57	3.47	-2.35
2392	21:33:49	688927.40	5799433.75	688923.83	5799436.15	3.57	-2.40
2393	21:33:59	688927.50	5799433.51	688924.03	5799435.81	3.47	-2.30
2394	21:34:09	688927.58	5799433.55	688923.91	5799435.85	3.67	-2.30
2395	21:34:19	688927.70	5799433.33	688923.83	5799435.82	3.87	-2.49
2396	21:34:29	688927.47	5799433.47	688923.58	5799436.12	3.89	-2.65
2397	21:34:39	688927.34	5799433.53	688924.75	5799435.24	2.59	-1.71
2398	21:34:49	688927.58	5799433.53	688926.53	5799434.11	1.05	-0.58
2399	21:34:59	688927.95	5799433.62	688936.00	5799427.72	-8.05	5.90
2400	21:35:09	688928.27	5799433.55	688946.24	5799419.66	-17.97	13.89
2401	21:35:19	688928.96	5799433.40	688945.83	5799420.16	-16.87	13.24
2402	21:35:29	688929.46	5799433.04	688929.10	5799433.37	0.36	-0.33
2403	21:35:39	688929.85	5799432.93	688924.75	5799437.44	5.10	-4.51
2404	21:35:49	688930.22	5799432.53	688924.42	5799437.29	5.80	-4.76
2405	21:35:59	688930.40	5799432.00	688925.93	5799435.40	4.47	-3.40
2406	21:36:09	688930.49	5799431.82	688927.45	5799434.18	3.04	-2.36
2407	21:36:19	688930.07	5799431.70	688929.39	5799433.31	0.68	-1.61
2408	21:36:29	688929.80	5799431.49	688928.23	5799433.31	1.57	-1.82
2409	21:36:39	688929.73	5799431.46	688927.59	5799433.17	2.14	-1.71
2410	21:36:49	688929.55	5799431.49	688927.93	5799432.67	1.62	-1.18
2411	21:36:59	688929.57	5799431.78	688928.42	5799432.57	1.15	-0.79
2412	21:37:09	688929.65	5799432.15	688928.80	5799432.87	0.85	-0.72
2413	21:37:19	688930.07	5799432.36	688929.34	5799433.09	0.73	-0.73
2414	21:37:29	688930.38	5799432.74	688929.62	5799433.45	0.76	-0.71
2415	21:37:39	688930.44	5799433.04	688929.52	5799433.90	0.92	-0.86
2416	21:37:49	688930.45	5799432.99	688929.53	5799433.85	0.92	-0.86
2417	21:37:59	688929.60	5799433.21	688929.14	5799433.75	0.46	-0.54

### NAV 1/NAV 2 Comparison

Vessel :- Ocean Bounty                      Date :- 25/04/01

Location :- Northright-1, VIC/P41, Bass Strait

Fix	UTC	Nav 1 Datum		Nav 2 Datum		Diff	
	Time	Easting	Northing	Easting	Northing	East	North
2418	21:38:09	688929.78	5799432.96	688929.30	5799433.36	0.48	-0.40
2419	21:38:19	688930.10	5799433.36	688929.56	5799433.68	0.54	-0.32
2420	21:38:29	688930.31	5799433.30	688929.97	5799433.90	0.34	-0.60
2421	21:38:39	688930.27	5799433.16	688931.88	5799431.05	-1.61	2.11
2422	21:38:49	688929.90	5799433.06	688931.22	5799432.16	-1.32	0.90
2423	21:38:59	688930.20	5799432.53	688930.76	5799432.26	-0.56	0.27
2424	21:39:09	688930.25	5799432.28	688929.69	5799432.77	0.56	-0.49
2425	21:39:19	688930.25	5799432.19	688928.18	5799433.65	2.07	-1.46
2426	21:39:29	688930.07	5799432.03	688927.87	5799433.52	2.20	-1.49
2427	21:39:39	688929.55	5799432.30	688927.73	5799433.52	1.82	-1.22
2428	21:39:49	688929.14	5799431.99	688928.76	5799432.73	0.38	-0.74
2429	21:39:59	688928.85	5799432.14	688928.48	5799432.79	0.37	-0.65
2430	21:40:09	688928.60	5799432.29	688927.89	5799433.14	0.71	-0.85
2431	21:40:19	688928.80	5799432.63	688927.90	5799433.50	0.90	-0.87
2432	21:40:29	688929.47	5799433.05	688928.02	5799433.96	1.45	-0.91
2433	21:40:39	688929.66	5799433.58	688928.61	5799434.40	1.05	-0.82
2434	21:40:49	688929.41	5799434.08	688928.66	5799435.01	0.75	-0.93
2435	21:40:59	688928.65	5799434.26	688927.89	5799435.21	0.76	-0.95
2436	21:41:09	688928.11	5799434.73	688928.58	5799433.15	-0.47	1.58
2437	21:41:19	688927.20	5799434.76	688927.40	5799434.75	-0.20	0.01
2438	21:41:29	688926.62	5799434.90	688926.59	5799435.33	0.03	-0.43
2439	21:41:39	688926.55	5799435.17	688927.22	5799443.48	-0.67	-8.31
2440	21:41:49	688926.58	5799435.23	688927.40	5799444.79	-0.82	-9.56
2441	21:41:59	688927.01	5799435.41	688927.07	5799437.76	-0.06	-2.35
2442	21:42:09	688927.10	5799435.60	688927.07	5799435.23	0.03	0.37
2443	21:42:19	688927.02	5799435.37	688926.70	5799434.71	0.32	0.66
2444	21:42:29	688927.22	5799435.44	688926.70	5799435.23	0.52	0.21
2445	21:42:39	688927.57	5799435.16	688927.36	5799435.08	0.21	0.08
2446	21:42:49	688928.18	5799434.33	688928.17	5799434.60	0.01	-0.27
2447	21:42:59	688928.91	5799434.19	688928.94	5799434.62	-0.03	-0.43
2448	21:43:09	688928.79	5799433.90	688929.08	5799434.53	-0.29	-0.63
2449	21:43:19	688928.79	5799434.05	688929.10	5799434.57	-0.31	-0.52
2450	21:43:29	688928.40	5799434.02	688928.79	5799434.54	-0.39	-0.52
2451	21:43:39	688928.34	5799433.92	688928.55	5799434.32	-0.21	-0.40
2452	21:43:49	688928.51	5799433.80	688928.58	5799434.19	-0.07	-0.39
2453	21:43:59	688928.68	5799433.53	688928.72	5799434.00	-0.04	-0.47
2454	21:44:09	688929.22	5799433.95	688929.24	5799434.35	-0.02	-0.40
<b>Mean</b>		<b>688929.24</b>	<b>5799433.02</b>	<b>688928.11</b>	<b>5799434.03</b>	<b>1.14</b>	<b>-1.02</b>
<b>St. Dev</b>		<b>1.75</b>	<b>1.70</b>	<b>3.73</b>	<b>3.40</b>	<b>3.42</b>	<b>2.85</b>

# RIG POSITIONING

## GEODESY AND COORDINATE CHECK LIST



CLIENT : EAGLE BAY RESOURCES ✓ JOB NOS. : HY 16414  
 RIG : OCEAN BOUNTY ✓ DATE : 24/4/01 ✓  
 PROJECT : NORTHRIGHT-1 ✓

### 1. CONFIRMATION OF PROPOSED RIG COORDINATES and HEADING.

Well Name	<u>NORTHRIGHT-1</u>	Ensure agreement with Client onsite prior to any positioning
Well Location - Latitude	<u>37° 55' 57.57" S</u>	Operations. OK (?) <input checked="" type="checkbox"/> N.
Well Location - Longitude	<u>149° 08' 58.72" E</u>	<u>AGD 84</u>
Rig Heading (True)	<u>250° T</u>	✓

### 2. GEODETIC PARAMETERS (WGS84 to LOCAL DATUM)

DATUM:	Dx	<u>116.00 m</u>	Ensure agreement with Client onsite prior to any positioning Operations.
(WGS84 to	Dy	<u>50.47 m</u>	OK (?) <input checked="" type="checkbox"/> N.
Local Datum)	Dz	<u>-141.69 m</u>	
	Rx	<u>0.2300"</u>	
Projection:	Ry	<u>0.3700"</u>	
	Rz	<u>0.3440"</u>	
	Ds	<u>-0.0983 ppm</u>	
UTM Zone		<u>55</u>	
Central Meridian		<u>147° E</u>	

### 3. CHECK TRANSFORMATION OF SITE COORDINATES.

Well Location - Easting	<u>688 917</u>	Ensure agreement with PCNav / Starfix.Seis. OK (?) Y / N
Well Location - Northing	<u>5799 463</u>	If not, CHECK and RECALC.
Convergence at Location	<u>1° 19' 18.665"</u>	
Rig Heading (Grid)	<u>251.3°</u>	✓

### 4. MEAS. ANT. OFFSETS from ANT. TO D/STEM (Rel. to Datum)

	NAV #1 SYSTEM		NAV #2 SYSTEM	
( Measure two (2) separate directions, verifying closure.)	(1 <sup>st</sup> Way)	(2 <sup>nd</sup> Way)	(1 <sup>st</sup> Way)	(2 <sup>nd</sup> Way)
Delta X	<u>0.30</u>	<u>10.3</u>	<u>-1.30</u>	<u>-1.3</u>
Delta Y	<u>33.95</u>	<u>33.8</u>	<u>39.02</u>	<u>39.04</u>
Angle between Rig Centreline and Antenna(s) (Grid)	<u>0.51°</u>	✓	<u>-1.91°</u>	✓
Distance between Drill Stem and Antenna(s)	<u>33.95</u>	✓	<u>39.04</u>	✓

### 5. MANUAL COORDINATE VERIFICATION FOR ANTENNAS

	Nav System #1		Nav System #2	
Proposed Drill Stem Position	Easting	<u>688 917</u>		
	Northing	<u>5799 463</u>		
Drill Stem to Antenna	Proposed Hdg (G)	<u>251.3° (G)</u>		
	Brg (G) = Prop. Hdg. + Angle btwn centreline and antenna	<u>251.81°</u> ✓	<u>249.39°</u> ✓	
	Distance (m)	<u>33.95</u>	<u>39.02</u>	
Calculated Antenna Coordinates (Local)	Easting	<u>688 884.7</u>	<u>688 880.5</u>	
	Northing	<u>5799 452.4</u>	<u>5797 449.3</u>	
	Latitude	<u>37° 55' 57.9345"</u>	<u>37° 55' 58.03815"</u>	
	Longitude	<u>149° 08' 57.40506"</u>	<u>149° 08' 57.23405"</u>	
Calculated Proposed Antenna Coords (WGS 84)	Latitude	<u>37° 55' 52.36797"</u> ✓	<u>37° 55' 52.47163"</u> ✓	
	Longitude	<u>149° 09' 01.95914"</u>	<u>149° 09' 01.79014"</u>	

Surveyor : Greg Moore Client Rep : [Signature] Date : 25/04/01

### 6. POST RIG MOVE - OBSERVED ANTENNA / DRILL STEM COORD NAV.SYS #1 NAV.SYS #2

WGS84 / LOCAL	ANTENNA / DRILL STEM	Latitude	Longitude

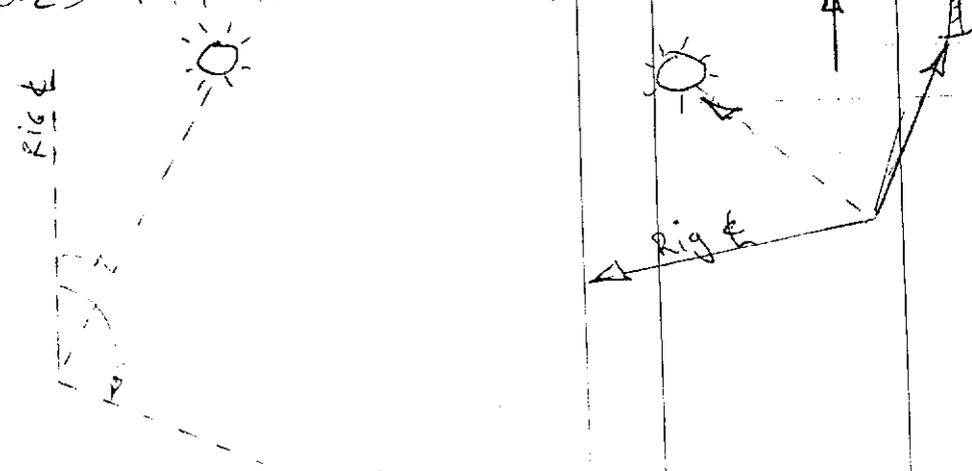
Ensure agreement between calculated and observed coordinates. If NO, check calcs., antenna offsets, Gyro. OK (?) Y / N

Surveyor : \_\_\_\_\_ Client Rep : \_\_\_\_\_ Date : \_\_\_\_\_

TIME	HA	SUN'S AZIMUTH	GYRO	C-O
	0° 0' 20"			
15:46:10	44° 40' 40"	302° 23' 38"	257.73°	253.5
15:47:50	44° 02' 00"	302° 05' 10"	258.06°	253.3
15:49:10	43° 59' 00"	301° 50' 27"	257.87°	253.4
15:50:15	43° 43' 40"	301° 38' 32"	257.93°	253.4
15:51:15	43° 14' 00"	301° 27' 33"	258.24°	253.4
15:52:10	43° 11' 50"	301° 17' 31"	258.11°	253.2
15:54:10	43° 28' 10"	300° 55' 42"	257.47	253.1
15:54:55	43° 27' 20"	300° 47' 33"	257.35	253.1
	0° 01' 00"	ANGLES TO Pt Hicks LIGHTHOUSE		<u>4.5</u>
15:58:40	140° 31' 10"	37° 26' 42"	256.9	252.3
15:59:20	140° 31' 20"	"	256.9	252.5
15:59:55	140° 33' 40"	"	256.9	252.2
16:00:30	140° 38' 40"	"	256.8	252.4
16:01:15	140° 17' 00"	"	257.2	252.3
16:01:55	140° 35' 40"	"	256.9	252.1
16:02:20	140° 25' 40"	"	257.0	252.4
16:03:15	140° 06' 20"	"	257.3	252.5
16:03:45	139° 49' 20"	"	257.6	253.1
16:04:15	140° 04' 20"	"	257.4	252.5
	0° 0' 40"			<u>4.7</u>
				SD 0.2

THEODOLITE POSITION 688 932 - E 5799 415 m N  
 37° 55' 59.113" S 149° 09' 59.375" E AGD 84  
 37° 55' 53.545" S 149° 09' 03.931" E WGS-84

Pt Hicks Light (Abandoned)  
 37° 48.2' S 149° 16.5' E



**APPENDIX D**

**FINAL POSITIONING DATA**

# RIG POSITION - FIELD REPORT



## OCEAN BOUNTY RIG MOVE to the NORTHRIGHT-1 LOCATION

**CLIENT:** EAGLE BAY RESOURCES NL

**JOB NO.:** HY16414

**RIG:** MODU 'OCEAN BOUNTY'

**DATE:** April 26<sup>th</sup> 2001

**PROJECT:** Position Rig at Northright-1 Location, Permit VIC/P41  
Bass Strait, Australia.

**ATTN.:** M. Jackson (Eagle Bay Resources – COMPANY MAN) →

**CC.:** D. Derron (OIM – OCEAN BOUNTY)

The final location of the drill stem on the Ocean Bounty was derived from one hour's observation of the Primary Differential GPS data, on completion of all pre-tensioning and ballasting. The results of the observations are as follows:

Geographical Coordinates		Grid Coordinates	
Latitude	37° 55' 57.754" S	Easting	688 922.4 m
Longitude	149° 08' 58.942" E	Northing	5 799 457.1 m

The drill stem position is 8.0 m at a bearing of 137.5° (Grid) from the design location.

The Client supplied design location for Northright-1:

Geographical Coordinates		Grid Coordinates	
Latitude	37° 55' 57.57" S	Easting	688 917 m
Longitude	149° 08' 58.72" E	Northing	5 799 463 m

The Ocean Bounty rig heading, derived from the mean of one hour's observation of the gyro heading is:

**255.8° True (257.1° Grid)**

All coordinates in this Field report are quoted in the following coordinate system:

Datum : AGD84 Projection : UTM  
Spheroid : ANS Zone (Central Meridian) : 55 (147° E)

The approximate positions of the rig anchors are recorded as follows:

Anchor	Easting	Northing	Bearing(°)
1	688688	5798207	190
2	688087	5798527	222
3	-	-	-
4	687838	5800052	296
5	689041	5800670	4
6	689020	5800465	41
7	689570	5800205	102
8	689880	5799205	128

Party Chief: Greg Moore  
Fugro Survey Pty Ltd

Client Representative: [Signature]  
CLIENT SURVEY REPRESENTATIVE

FINAL POSITION DATA NORTHRIGHT-1 LOCATION 26<sup>th</sup> APRIL 2001

25/04/2001 00:00:01 UTC

\*\*\* FUGRO SURVEY STARFIX.SEIS \*\*\*

Header : Location : BASS STRAIT  
 Project Number : HY16414  
 Client : EAGLE BAY RESOURCES NL.  
 Client Representative :  
 Client Reference Number :  
 Project Description : RIG MOVE TO NORTHRIGHT-1  
 Geophysical Contractor : Fugro  
 Positioning Contractor : Fugro  
 Positioning Processing Contractor: Fugro  
 Setup By : GREG MOORE LEIGH CLARK  
 On : 24/04/2001 23:11:13 UTC  
 Time Source :  
 Time Offset : 10:00 (Using UTC)  
 Vessel : OCEAN BOUNTY

Files Runline : C:\Fugro\_Projects\bounty1.srn  
 Centreline : (None)  
 Database : (None)  
 CAD : (None)

Waypoint : C:\Fugro\_Projects\Manual.SWY

Logging: Directory : C:\Fugro\_Projects\Log\  
 Fix Only : No  
 Depths : All Depths  
 C/Ts : 0 1 2 3 4 5 6 7 8  
 Nav. 1 : Yes (Raw and position)  
 Nav. 2 : Yes (Raw and position)  
 Nav. 3 : No  
 Nav. 4 : No  
 Nav. 5 : No  
 Nav. 6 : No  
 Nav. 7 : No

Fixing : Mode : Time  
 Fix Interval : 10.000s  
 Reset at SOL : No  
 Next Fix No. : 2455  
 Fix Increment : 1  
 Start FFID : 2455  
 Start Man. Fix: 10  
 Early Start : 60s  
 Logging Start : 30s

Datum 1: Datum : AGD84 (Australia-Higgins)  
 Spheroid : Australian National  
 SemiMajor Axis: 6378160.000  
 1/Flattening : 298.250000000  
 Eccentricity^2: 0.0066945419  
 Projection : Universal Transverse Mercator  
 Grid Name :  
 Lat. Origin : 0d00'00.0000"N  
 Lon. Origin : 147d00'00.0000"E  
 False East : 500000.000m  
 False North : 10000000.000m  
 Scale Factor : 0.9996  
 Convergence : Australia/New Zealand

Datum 2: Datum : WGS 84  
 Spheroid : WGS 84  
 SemiMajor Axis: 6378137.000  
 1/Flattening : 298.257223563  
 Eccentricity^2: 0.0066943800

Datum2>1: Parameters : From WGS84 to AGD84 (Australia-Higgins)  
 DX : 116.0000m RX : 0.2300"  
 DY : 50.4700m RY : 0.3900"  
 DZ : -141.6900m RZ : 0.3440"

FINAL POSITION DATA NORTHRIGHT-1 LOCATION 26<sup>th</sup> APRIL 2001

D Scale : -0.0983ppm Rot Convention: +RZ=-RLongitude  
Sundry : Vertical Datum:  
Ell. Sep. : 0.0000m  
Distances : Spheroidal  
Bearings : True  
Units : metres  
Conversion : 1.0000000000  
Main Vessel : OCEAN BOUNTY  
: C:\Fugro\_Projects\OCEAN BOUNTY.SVS  
Nav. 1 : System : MRDGPS (In Use)  
Type : Lat - Long  
Priority : 1  
Time-out : 5.0s  
X Offset : 0.30m  
Y Offset : 33.95m  
Ant. Height : 0.00m  
Nav. 2 : System : DIRINJN2  
Type : Lat - Long  
Priority : 2  
Time-out : 5.0s  
X Offset : -1.30m  
Y Offset : 39.02m  
Ant. Height : 0.00m  
Dead Reckoning: No Timeout: 30.0s  
Gyro 1 : System : NMEA Gyro.HDT (In Use)  
Priority : 1  
Time-out : 3.0s  
Correction : 199.86 Degrees  
Gyro 2 : System : CMG from filter  
Priority : 2  
Time-out : 3.0s  
Correction : 0.00 Degrees  
Offsets: Name X Y  
#1 -42.50 12.50  
#2 -42.50 16.50  
#3 42.50 16.50  
#4 42.50 12.50  
#5 42.50 -12.50  
#6 42.50 -16.50  
#7 -42.50 -16.50  
#8 -42.50 -12.50  
NAV1 ANT 0.30 33.95  
Nav2 ant -1.30 39.02  
THEODOLITE -46.00 0.00  
NewOffset1 0.00 0.00  
Fairlead:Name X Y  
#1 -42.50 12.50  
#2 -42.50 16.50  
#3 42.50 16.50  
#4 42.50 12.50  
#5 42.50 -12.50  
#6 42.50 -16.50  
#7 -42.50 -16.50  
#8 -42.50 -12.50  
Printing:  
Fix mark rate : 1  
Weather Device : (None)  
Weather Interval: 60 minutes  
Weather Enabled : No  
Config Changes : No  
System Timeouts : No  
Software:Seis Ver 2.05.0001  
SeisEngine Ver 2.05.0001  
Display Ver 2.07.0001

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Anchors Ver 2.04.0004  
Print Ver 2.03.0003

25/04/2001 20:17:13 UTC

\*\*\* FUGRO SURVEY STARFIX.SEIS \*\*\*

O/Ts : Steered Point: O/T 0  
Shot : O/T 0

O/T 0	PR LG CRP	Pos Sys: Vessel 01	:Datum In-Use
O/T 1	PR LG Datum2	Pos Sys: Ves. 01 Nav 02	:DIRINJN2 Datum
O/T 2	PR LG PRIM GPSAnt	Pos Sys: Ves. 01 Nav 01	:MRDGPS Antenna
O/T 3	PR LG Antenna2	Pos Sys: Ves. 01 Nav 02	:DIRINJN2 Antenn
O/T 4	Conq	Pos Sys: Vessel 02	:Datum In-Use
O/T 5	C-Stern	Fxd Off: Pacific Conquero:	STERN
O/T 6	SENT	Pos Sys: Vessel 03	:Datum In-Use
O/T 7	S-STERN	Pos Sys: Ves. 03 Nav 01	:Tug02 Datum

O/T Legend: PR=Print LG=Log SN=Snap to line

Time 20:22:55.8 UTC 25/04/2001

Waypoint : NORTHRIGHT-1

Position : 37d55'57.5662"S 149d08'58.7153"E 0.0m  
688917.0mE 5799463.0mN 0.0m

First Fix/FFID: 2674/ 2674 Time 20:22:57.0 UTC 25/04/2001

Nav. 1 MRDGPS 37°55'57.7536"S 149°08'58.9348"E 5.61m (datum - local)  
688922.22m 5799457.11m

(In Use) 37°55'52.4485"S 149°09'02.1403"E 0.00m (antenna-WGS84) PDOP: 1.6

Nav. 2 DIRINJN2 37°55'57.7623"S 149°08'58.9175"E 5.61m (datum - local)  
688921.80m 5799456.86m

37°55'52.5479"S 149°09'01.9380"E 0.00m (antenna-WGS84) PDOP: 2.1

!Heading 255.8T COG 235.0G SOG 0.0 kt

#Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.8T	688922.29m	5799457.03m	0.00m	7.99m	317.23T
!1 Datum2	255.8T	688922.07m	5799457.19m	0.00m	7.72m	317.63T
!2 PRIM GPSAnt	255.8T	688889.13m	5799449.73m	0.00m	30.87m	63.19T
!3 Antenna2	255.8T	688884.33m	5799447.20m	0.00m	36.30m	62.85T

Fix/FFID: 2675/ 2675 Time 20:23:07.0 UTC 25/04/2001

Nav. 1 MRDGPS 37°55'57.7530"S 149°08'58.9378"E 5.61m (datum - local)  
688922.30m 5799457.13m

(In Use) 37°55'52.4479"S 149°09'02.1434"E 0.00m (antenna-WGS84) PDOP: 1.6

Nav. 2 DIRINJN2 37°55'57.7563"S 149°08'58.9235"E 5.61m (datum - local)  
688921.95m 5799457.04m

37°55'52.5419"S 149°09'01.9440"E 0.00m (antenna-WGS84) PDOP: 1.5

!Heading 255.8T COG 268.8G SOG 0.0 kt

# Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.8T	688922.22m	5799457.09m	0.00m	7.89m	317.31T
!1 Datum2	255.8T	688921.90m	5799456.91m	0.00m	7.83m	319.96T
!2 PRIM GPSAnt	255.8T	688889.06m	5799449.79m	0.00m	30.91m	63.36T
!3 Antenna2	255.8T	688884.15m	5799446.92m	0.00m	36.58m	62.57T

Fix/FFID: 2676/ 2676 Time 20:23:17.0 UTC 25/04/2001

Nav. 1 MRDGPS 37°55'57.7589"S 149°08'58.9388"E 5.61m (datum - local)  
688922.32m 5799456.95m

(In Use) 37°55'52.4538"S 149°09'02.1444"E 0.00m (antenna-WGS84) PDOP: 1.6

Nav. 2 DIRINJN2 37°55'57.7623"S 149°08'58.9295"E 5.61m (datum - local)  
688922.09m 5799456.85m

37°55'52.5479"S 149°09'01.9500"E 0.00m (antenna-WGS84) PDOP: 1.5

!Heading 255.8T COG 259.5G SOG 0.0 kt

# Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.8T	688922.21m	5799457.09m	0.00m	7.88m	317.35T
!1 Datum2	255.8T	688921.93m	5799457.02m	0.00m	7.77m	319.23T
!2 PRIM GPSAnt	255.8T	688889.05m	5799449.80m	0.00m	30.92m	63.37T
!3 Antenna2	255.8T	688884.19m	5799447.03m	0.00m	36.49m	62.70T

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 Fix/FFID: 3034/ 3034 Time 21:22:57.0 UTC 25/04/2001  
 Nav. 1 MRDGPS 37°55'57.7719"S 149°08'58.9756"E 5.61m (datum - local)  
 688923.21m 5799456.53m  
 (In Use) 37°55'52.4649"S 149°09'02.1806"E 0.00m (antenna-WGS84) PDOP: 3.6  
 Nav. 2 DIRINJN2 37°55'57.7824"S 149°08'58.9603"E 5.61m (datum - local)  
 688922.83m 5799456.21m  
 37°55'52.5659"S 149°09'01.9800"E 0.00m (antenna-WGS84) PDOP: 3.6

!Heading 255.9T COG 130.8G SOG 0.0 kt  

# Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.9T	688923.18m	5799456.45m	0.00m	9.02m	315.40T
!1 Datum2	255.9T	688922.69m	5799456.23m	0.00m	8.86m	318.66T
!2 PRIM GPSAnt	255.9T	688890.01m	5799449.21m	0.00m	30.31m	61.59T
!3 Antenna2	255.9T	688884.94m	5799446.31m	0.00m	36.15m	61.16T

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 Fix/FFID: 3035/ 3035 Time 21:23:07.0 UTC 25/04/2001  
 Nav. 1 MRDGPS 37°55'57.7673"S 149°08'58.9703"E 5.61m (datum - local)  
 688923.08m 5799456.67m  
 (In Use) 37°55'52.4603"S 149°09'02.1754"E 0.00m (antenna-WGS84) PDOP: 3.6  
 Nav. 2 DIRINJN2 37°55'57.7764"S 149°08'58.9603"E 5.61m (datum - local)  
 688922.83m 5799456.40m  
 37°55'52.5599"S 149°09'01.9800"E 0.00m (antenna-WGS84) PDOP: 3.6

!Heading 255.9T COG 37.7G SOG 0.0 kt  

# Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.9T	688923.22m	5799456.61m	0.00m	8.93m	314.54T
!1 Datum2	255.9T	688922.78m	5799456.28m	0.00m	8.88m	318.02T
!2 PRIM GPSAnt	255.9T	688890.05m	5799449.37m	0.00m	30.21m	61.82T
!3 Antenna2	255.9T	688885.02m	5799446.36m	0.00m	36.05m	61.16T

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 Last Fix/FFID: 3036/ 3036 Time 21:23:17.0 UTC 25/04/2001  
 Nav.1-MRDGPS 37°55'57.7638"S 149°08'58.9619"E 5.61m (datum-local) 688922.88m  
 5799456.78m  
 (In Use) 37°55'52.4568"S 149°09'02.1670"E 0.00m (antenna - WGS84) PDOP: 3.6  
 Nav.2 DIRINJN2 37d55'57.7764"S 149d08'58.9483"E 5.61m (datum - local)  
 688922.54m 5799456.40m  
 37°55'52.5599"S 149°09'01.9680"E 0.00m (antenna - WGS84) PDOP: 3.6

!Heading 255.9T COG 329.8G SOG 0.0 kt  

# Name	Hdg	Easting	Northing	Height	Range	Bearing
!0 CRP	255.9T	688923.04m	5799456.82m	0.00m	8.65m	314.44T
!1 Datum2	255.9T	688922.73m	5799456.40m	0.00m	8.75m	317.80T
!2 PRIM GPSAnt	255.9T	688889.87m	5799449.58m	0.00m	30.28m	62.33T
!3 Antenna2	255.9T	688884.97m	5799446.47m	0.00m	36.05m	61.37T

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 Total Fixes 363  
 Steer Point C/T CRP  

Easting	Mean	688922.36
	SD	0.26
Northing	Mean	5799457.13
	SD	0.06
Range to target		7.96
Bearing to target		317.64
Gyro (T)	Mean	255.84
	SD	0.04

NOTE: Distances are in m.  
 Angles are in degrees.