

261001

SAGASCO RESOURCES LTD

**COPY 2**

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**RIG "OCEAN EPOCH"  
POSITIONING ONTO  
KING 1 LOCATION  
BASS STRAIT**

WOLLONGONG

OCTOBER 1992

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**SAGASCO RESOURCES LTD**

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**RIG "OCEAN EPOCH" POSITIONING**

**ONTO KING 1 LOCATION.**

**BASS STRAIT OCTOBER 1992**

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**Issue No: 1**  
**Doc No: LTDO125**  
**Date: November 1992**

**Prepared by:**  
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**P O Box 1794**  
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**Telex: 29176**

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**SAGASCO RESOURCES LTD**

**RIG "OCEAN EPOCH"  
POSITIONING  
ONTO KING 1 LOCATION.  
BASS STRAIT OCTOBER 1992**

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**November 1992**

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## 1.0 INTRODUCTION

As part of the Service Agreement between BHP ENGINEERING and Sagasco Resources Ltd, BHP Engineering were required to oversee the work carried out by the survey contractor, RACAL SURVEY (AUSTRALIA), during the moving of the semi-submersible drilling rig "Ocean Epoch" on to the King 1 location ,situated in concession area T18/P,in the Bass Strait.

In addition to the above work BHP Engineering are also required to confirm the final position of the rig by an independent navigation system, namely real time differentially corrected GPS satellite observations.

The project covered in this report began on the 26th October 1992, with the mobilization of Mr Rutherford to Devonport,and was completed on the 30th October 1992 when GPS data was recorded in order to confirm the final location of the rig.

All times mentioned in this report are Local Time unless otherwise stated. The Racal log sheets in Appendix I and the summary of events are referenced to local time.

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**SUMMARY OF RESULTS**

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**2.0 SUMMARY OF RESULTS.**

The coordinates of the King 1 location, as supplied by Sagasco were;

Latitude ; 39 degrees 35 minutes 24.44 seconds South.  
Longitude ; 145 degrees 31 minutes 08.80 seconds East.  
Eastings ; 372 836 m  
Northings ; 5 616 671 m

Proposed Rig Heading ; 250.0 degrees

Sagasco requested that the final position of the rig as determined by GPS observations be within a circle of radius of 30 metres centred on the proposed coordinates.

The rig, Ocean Epoch, was positioned on the above location on the 29th October, 1992, and the coordinates of the drillstem as determined by GPS observations between 23:30hrs 29.10.92 and 01:14hrs on 30.10.92 were;

Latitude ; 39 degrees 35 minutes 24.33 seconds South.  
Longitude ; 145 degrees 31 minutes 08.78 seconds East.  
Eastings ; 3 72 835.5 m  
Northings ; 5 616 674.3 m  
  
Rig Heading ; 257.0 degrees

The above position is a distance of 3.4 metres on a bearing of 352 degrees from the proposed location.

The above position was approved by the Sagasco Company Representative onboard the rig at 01:30 hrs on 30th October 1992, with Sagasco offices in Adelaide advised of the coordinates by fax.

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**GEODETTIC PARAMETERS**

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**3. GEODETTIC PARAMETERS**

The parameters listed below were used throughout this project and should be quoted when reference is made to coordinates shown in this report.

Reference Spheroid	; Australian National Spheroid
Semi-Major Axis	; 6,378,160m
Semi-Minor Axis	; 6,356,774.719m
Flattening 1/f	; 1/298.25
Eccentricity <sup>2</sup> (E <sup>2</sup> )	; 0.006694542
Reference Datum	; Australian Geodetic Datum 1984
Projection	; Transverse Mercator
False Eastings	; 500,000m
False Northings	; 10,000,000m
Latitude of Origin	; 0.0 degrees

Longitude of Central Meridian;	147 degrees
East Scale Factor on C.M.	; 0.999600
Units	; Metres

The GPS navigation system and the associated satellites work on the WGS 84 Spheroid, whose parameters are shown below, and conversion of coordinates between this Spheroid and the Spheroid mentioned above is performed using parameters shown at the end of this section.

Reference Spheroid	; World Geodetic Spheroid 1984
Semi-Major Axis	; 6,378,137m
Semi-Minor Axis	; 6,356,752.31m
Flattening 1/f	; 1/298.257223563
Eccentricity <sup>2</sup> (E <sup>2</sup> )	; 0.00669438

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**GEODETTIC PARAMETERS**

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In order to convert coordinates from WGS84 to AGD 84 the following seven parameters were used:

dx (metres)	=	116.000
dy (metres)	=	50.470
dz (metres)	=	-141.690
Rx (metres)	=	0.230
Ry (metres)	=	0.390
Rz (metres)	=	0.344
scale (ppm)	=	-0.0983

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**ACOUSTIC POSITIONING**


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**4. ACOUSTIC POSITIONING****4.1 Acoustic Calibration.**

Racal Survey deployed three Sonardyne Medium Frequency Acoustic Transponders centred on the proposed drilling location between 27th September 1992 and 2nd October 1992. See Racal Report.

**4.2 Final Acoustic Drillstem Position**

The final position of the rig was taken on the 29th October 1992, after all anchors had been deployed, pre-tensioned, then set to their working tensions and the rig ballasted down to its drilling draught. The final acoustic position was derived from the mean of 34 position fixes taken over 20 minutes.

The coordinates of the acoustic transducer were computed using the following mean raw ranges;

<b>Transponder</b>	<b>Code</b>	<b>Range</b>
<b>1</b>	101	784.97
<b>2</b>	302	489.37
<b>3</b>	303	723.73

**Transducer Position**

Eastings ; 372 835.6 m

Northings ; 5 616 673.2 m

Using the offsets shown in Appendix C the position of the drillstem was computed as follows;

Latitude ; 39 degrees 35 minutes 24.35 seconds South.

Longitude ; 145 degrees 31 minutes 08.85 seconds East.

Eastings ; 372 837.3 m

Northings ; 5 616 673.6 m

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**ACOUSTIC POSITIONING**

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Rig Heading ; 257.0 degrees

The above position is a distance of 3.0 metres on a bearing of 24 degrees from the proposed location.

This position was approved by the Sagasco Company Representative onboard the rig at 2330 hrs on 29th October 1992.

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**GPS CONFIRMATION POSITION**


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**5. GPS CONFIRMATION POSITION**

The confirmation of the acoustic coordinates was carried out between 2330hrs on the 29th October and 0114hrs on the 30th October, 1992, using one GPS receiver set up onboard the rig and the Adelaide base station as the monitor station .

Selective availability has been installed on certain satellites within the GPS system so as to degrade the accuracy of the system available to the user. However by recording data at a know point ( monitor station ) from identical satellites as those being recorded by the mobile receiver, and simultaneously, the errors caused by selective availability are eliminated.

The following constellations were observed during this period both onboard the rig and by the GPS monitor situated at Adelaide;

Constellation No. Satellites Used

A	28,21,23,17,26
B	03,21,23,17,26
C	03,28,23,17,26
D	03,28,21,23,17
E	03,28,21,23,17,11
F	03,21,23,17,11

Data was recorded by both GPS receivers, and real time differential corrections passed direct to the rig via the "Skyfix" communication link. Using the real-time differentially corrected data a mean position of the antenna was computed as;

WGS 84 Spheroid.

Latitude ; 39 degrees 35 minutes 24.644 seconds South.

Longitude ; 145 degrees 31 minutes 07.006 seconds East.

Using the offsets as shown in appendix C the coordinates of the drillstem were computed as;

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**GPS CONFIRMATION POSITION**

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AGD 84 Spheroid. Central Meridian 147 degrees

Latitude ; 39 degrees 35 minutes 24.331 seconds South.

Longitude ; 145 degrees 31 minutes 08.780 seconds East.

Eastings ; 372 835.53m

Northings ; 5 616 674.27m

Rig Heading ; 257 degrees

The above position is a distance of 3.4 metres on a bearing of 351.8 degrees from the proposed location.

The above position was approved by the Sagasco Company Representative onboard the rig at 0130hrs on 30th October 1992, with Sagasco offices in Adelaide advised of the coordinates fax later that morning.

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**SUMMARY OF EVENTS**

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**6. SUMMARY OF EVENTS.**

26.10.92 Mobilise BNE-DPO

27.10.92 Fly to Rig.

Meet Racal, Sagasco and Rig personnel Check equipment settings and offsets Standing by for positioning

28.10.92 Commenced anchor deployment

Positioning provided for run into location and during anchor handling.

29.10.92 #8 anchor slipping.

"Terge Viking" at rest for 10 hours till noon

#8 recovered and redeployed

Rig positioned onto location Ballasting down to drilling draft

Final Acoustic fix between 2231 and 2330 Commenced final DGPS fix

30.10.92 Completed DGPS final fix

Packed equipment

JR to DPO-MEL-BNE

Racal recover transponders

**7. DISCUSSION**

The only slight problem encountered was with the operation of the Acoustic positioning system during the final fix. It did not appear to operate as it should have with data output at one second intervals instead of every six seconds. This was overcome by manually logging the acoustic data.

All Racal personnel performed their tasks efficiently and in a professional manner.

**CLIENT:** SAGASCO RESOURCES LTD

**TITLE:** RIG "OCEAN EPOCH" POSITIONING  
ONTO KING 1 LOCATION.  
BASS STRAIT OCTOBER 1992

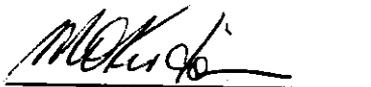
**REPORT NO:** LTDO121

**COPIES:** 4

**ISSUE DATE:** 25 November 1992

**PREPARED BY:** J RUTHERFORD

Date

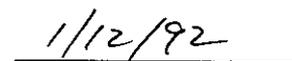




**APPROVED BY:** M POIDEVIN

Date





**BHP Engineering Reference No: R705/10**

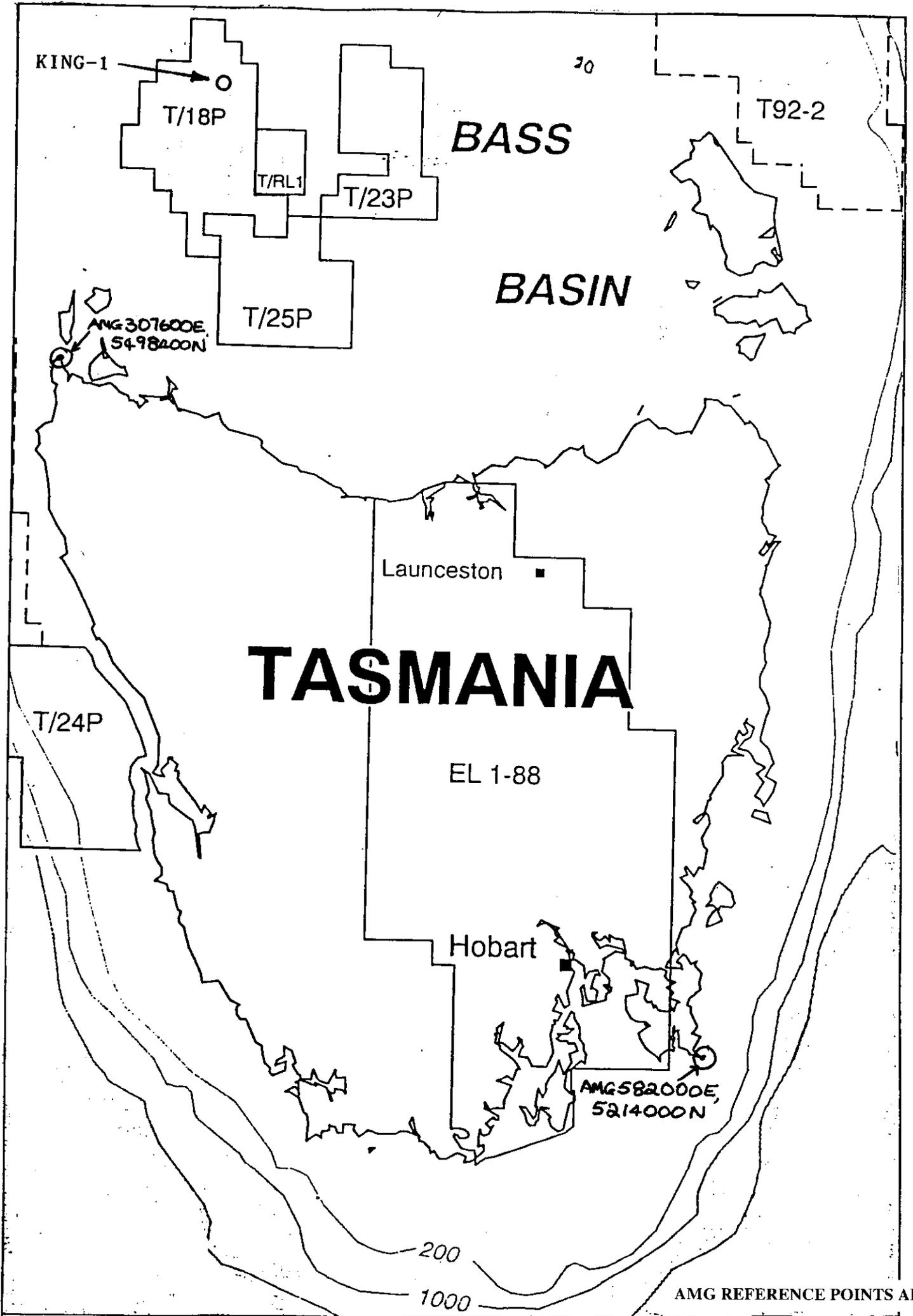
**APPENDIX A**

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**LOCATION MAP**

5 cm

261017



AMG REFERENCE POINTS ADDED

**APPENDIX B**

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CORRESPONDENCE  
SHOWING PROPOSED  
COORDINATES

## APPENDIX 1

## Item 1

## SERVICES

1.0 Location of Work

Positioning of the drilling rig "Ocean Epoch" in Permit T18/P, is to be performed at the King #1 location with Australian National Spheroid co-ordinates as follows:

Latitude	39 degrees 35 minutes 24.44 seconds South
Longitude	145 degrees 31 minutes 08.80 seconds East

Australian Geodetic Datum 1984 co-ordinates:

Easting	372,836 m
Northing	5,616,671 m

Zone 55  
Central Meridian 147 degrees East

Positioning of the drilling rig "Ocean Epoch" in permit T/25P is to be performed at the Flinders 1 location within Australian National Spheroid co-ordinates as follows:

Latitude	40 degrees 22 minutes 51.8 seconds South
Longitude	145 degrees 40 minutes 18.7 seconds East

Australian Geodetic Datum 1984 co-ordinates:

Easting	387,261 m
Northing	5,529,085 m

2.0 Works to be Performed

Rig Positioning Services are to be performed at the King 1 and Flinders 1 drilling locations as detailed below:

## Phase 1

- Perform King 1 Final rig positioning utilising Acoustic Net.
- Confirm rig position utilising real time DGPS survey methods.

## Phase 2

- Perform Flinders 1 Final rig positioning utilising Acoustic Net.
- Confirm Rig Position utilising real time DGPS survey methods.

**APPENDIX C**

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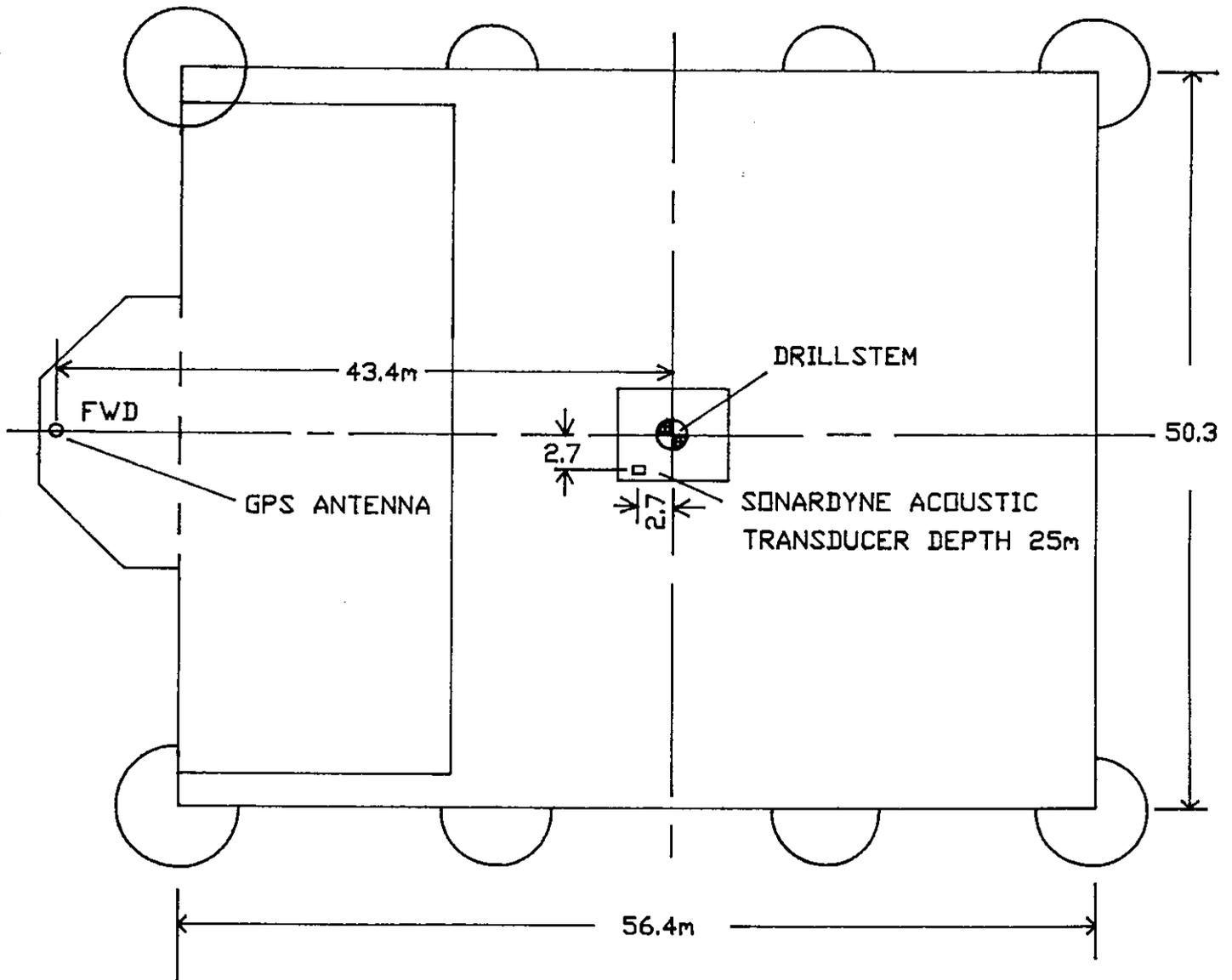
**OFFSET DIAGRAM OF  
OCEAN EPOCH RIG**

# OCEAN EPOCH LAYOUT DIAGRAM

(DIAGRAMATIC ONLY - NOT TO SCALE)

DIMENSIONS SHOWN IN METRES

RIG HEADING 257 DEGREES



GENERAL ARRANGEMENT MAIN / HELIDECK PLAN VIEW

LOCATION: KING-1	
DATD OCT 92	BEP Engineering
SCALE NTS	SKETCH No. REV.

**APPENDIX D**

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FINAL GPS POSITION  
PRINTOUT

GPS WEIGHTING OPTION - CONSTELLATIONS WEIGHTED BY SAMPLE SIZE  
MEAN CORRECTED GYRO... 257.2 GYRO CORRECTION... +0.0  
MEAN GRID HEADING... 256.2 CONVERGENCE... +0.944

261023

SECONDARY COMPUTATION - Tau

CONSTELLATIONS USED

Const.	# Samples	S. U. s
A	168	28, 21, 23, 17, 26
B	8	03, 21, 23, 17, 26
C	129	03, 28, 23, 17, 26
D	13	03, 28, 21, 23, 17
E	1	03, 28, 21, 23, 17, 11
F	57	03, 21, 23, 17, 11

Total number of samples used = 376

COMPUTED FINAL ANTENNA POSITION

WGS 84 Spheroid

Latitude 39 DEG 35 MIN 19.247 SEC S (S.D. 1.09 Metres)  
Longitude 145 DEG 31 MIN 11.871 SEC E (S.D. .81 Metres)  
Height 17.89 Metres (S.D. 1.65 Metres)

AUSTRALIAN NAT 1984 Spheroid

Latitude 39 DEG 35 MIN 24.674 SEC S  
Longitude 145 DEG 31 MIN 07.006 SEC E  
Height 33.18 Metres  
UTM/TM  
Eastings 372793.38 Metres  
Northings 5616663.93 Metres

COMPUTED FINAL DATUM POSITION

AUSTRALIAN NAT 1984 Spheroid

Latitude 39 DEG 35 MIN 24.331 SEC S  
Longitude 145 DEG 31 MIN 08.780 SEC E  
UTM/TM  
Eastings 372835.32 Metres  
Northings 5616674.27 Metres

INTENDED FINAL DATUM LOCATION

AUSTRALIAN NAT 1984 Spheroid

Latitude 39 DEG 35 MIN 24.440 SEC S  
Longitude 145 DEG 31 MIN 08.800 SEC E  
UTM/TM  
Eastings 372836.07 Metres  
Northings 5616670.92 Metres

Final Datum Position is 3.39 Metres (spheroidal distance) bearing 351.83 T from the Intended Loc.

**APPENDIX E**

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COPIES OF TELEXES/  
FAXES RELATING TO  
FINAL COORDINATES

29th October 1992

TO: SAGASCO RESOURCES LTD

FROM: RON KING

C/- "OCEAN EPOCH"

NAME: J. RUTHERFORD

BHP ENGINEERING

SUBJECT: FINAL POSITION - KING 1 LOCATION.

ACOUSTIC POSITIONING AT KING 1 LOCATION INDICATES RIG  
"OCEAN EPOCH" IS AT FOLLOWING CO-ORDINATES

LATITUDE S 39° 35' 24".35

LONGITUDE E 145° 31' 08".85

AGD 84 ZONE 55

EASTING 372 837.3

NORTHING 5616 673.6

RIG HEADING 257°

PLACING DRILLSTEM 2.9 METRES ON A BEARING OF 24 DEGREES  
FROM INTENDED LOCATION FOR KING 1.

CONFIRMATION OF POSITION BY DGPS IS CONTINUING.

REGARDS



**APPENDIX F**

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**COPY OF RACAL DAILY  
LOG SHEETS**



# DAILY RECORD SHEET

0600			
1200			
1800			

Client :	SAGASCO		Job No : " 2009			Date : 23 OCT 92	Vessel : OCLAN EPOCH		Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered
SKYFIX			STD-12 / VELOCITY PROBE			J. AUSTIN	ITEM	USED	REMAIN	
SYLEDIS			ECHO SOUNDER (20/25)			C. HAKKENESS	SIDECAN PAPER			
MICROFIX			SIDECAN (595/531/PINGER)				E/SOUNDER PAPER			
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			
GNS			SPARKER (DELPH/EPC)				DISKS			
GYRO			CORING (GRAVITY/GRAB)				PRINTER CART.			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING			R. KING				
SONARDYNE COMPATTS										
SONARDYNE PAN										
SONARDYNE(Dunker/Winch/Fish)										

DIARY OF OPERATIONS: SUNDAY 25 OCT 92

1600. J. AUSTIN ARRIVED AT LAUNCESTON AIRPORT. (C. HAKKENESS HAD ARRIVED EARLIER AND WAS ENGAGED SELECTING AND PACKING EQUIP AT BILL BAY)

1730. J. AUSTIN ARRIVED AT SAGASCO BILL BAY. ALL WORK COMPLETED

1900. PARTS OF R. KING (SAGASCO) J. LAMBERT, J. AUSTIN, C. HAKKENESS ARRIVED DEVONPORT. OVERNIGHT IN SUNRISE MOTOR INN, DEVONPORT.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Transponders to be listed by type and serial numbers. Following codes to be used: L - Laid, R - Recovered, FR - Failed to Reply, FS - Failed to Surface.

Signature

J. Austin  
SURVEYOR/ENGINEER

WHITE : Commercial Office  
 BLUE : Operations  
 YELLOW : Clients Representative

Signature

CLIENTS REPRESENTATIVE

261027



0600	3	1m	15
1200	3	1m	15
1800			

Client: SAGASCO		Job No: 2009		Date: 28 OCT 92		Vessel: OCEAN EPOCH		Anchors / Tides		
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered
SKYFIX	2		<del>STP 12</del> / VELOCITY PROBE	1		J. AUSTIN	ITEM	USED	REMAIN	5
SYLEDIS			ECHO SOUNDER (20/25)			C. HAKRENNES	SIDESCAN PAPER			
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER			
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			
GNS	2		SPARKER (DELPH/EPC)				DISKS		4	
GYRO	1		CORING (GRAVITY/GRAB)				PRINTER CART.		2	
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING			J. RUTHERFORD	RAM PAPER		1	
SONARDYNE COMPATTS	3									
SONARDYNE PAN	2									
SONARDYNE (Dunker/Winch/Fish)	2/0/0									

DIARY OF OPERATIONS: WEDNESDAY 28 OCTOBER 1992.

0620 - NO GYRO CHECK POSSIBLE - SUN OBSCURED. RIG 5 MILES FROM START OF RUN-IN.

0809 - 2600 m TO RUN. 60(s) FIXING COMMENCED ON GNS SYSTEM.

0834 - ANC-7 DROPPED, APPROX 125m FROM INTENDED LOCATION.

0846 - RIG STOPPED, CLOSE TO LOCATION. NO.3 ANCHOR BEING PREPARED FOR RUNNING. GNS FIXING STOPPED.

0930 - FOG, VISIBILITY 1 MILE.

1128 - RAGNA VIKING COMMENCED RUNNING ANC-3

1148 - ANC-3 ON BOTTOM.

1400 - SITREP - RAGNA VIKING STANDING BY TO TAKE ANC-6.

TERSE VIKING ON BRIDLE - STATIC TOW.

RIG HAS TWO ANCHORS DOWN AND IS 30M FROM LOCATION.

FOG CONDITIONS - CLING 150m, VISIBILITY PATCHY, 1-4 MILES.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Transponders to be listed by type and serial numbers. Following codes to be used: L - Laid, R - Recovered, FR - Failed to Reply, FS - Failed to Surface.

Signature J. Austin  
SURVEYOR/ENGINEER

WHITE : Commercial Office  
BLUE : Operations  
YELLOW : Clients Representative

Signature [Signature]  
CLIENTS REPRESENTATIVE

261029



0600		
1200		
1800		

Client : SAGASCO		Job No : 2009		Date : 28 OCT 92		Vessel : OCLAN EPOCH.		Anchors / Tpdrs			
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered	
SKYFIX			STD I2 / VELOCITY PROBE				ITEM	USED	REMAIN		
SYLEDIS			ECHO SOUNDER (20/25)				SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER				
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER				
GNS			SPARKER (DELPH/EPC)				DISKS				
GYRO			CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING								
SONARDYNE COMPATTS											
SONARDYNE PAN											
SONARDYNE (Dunker/Winch/Fish)											

DIARY OF OPERATIONS: WEDNESDAY 28 OCTOBER 1992 CONTINUED.

1620 RAGNAR VIKING RUNNING NO. 6 ANCHOR

1648. ANC-6 ON THE BOTTOM. 3750' OF CABLE PAID OUT.

2022 ANC-5 OTB BENC ~~224~~ 015°

2028 ANC-2 OTB BENC 224°

2355 RAGNA VIKING RUNNING ANC-8; NOTED TO BE ON A COMPASS BEARING OF 145° FROM THE RIG. RAGNA VIKING ADVISED THAT SHE WAS UNABLE TO BEAR UP TO PORT UNDER THE PREVAILING CONDITIONS.

7

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Transponders to be listed by type and serial numbers. Following codes to be used: L - Laid, R - Recovered, FR - Failed to Reply, FS - Failed to Surface.

Signature

[Signature]  
SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations
YELLOW	: Clients Representative

Signature

[Signature]  
CLIENTS REPRESENTATIVE

261030







DAILY RECORD SHEET - PAGE THREE.

0600			
1200			
1800			

Client : SAGASCO	Job No : 2009	Date : 29 OCT 92	Vessel : OCEAN EPOCH	Anchors / Tpdrs						
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered
SKYFIX			STD I2 / VELOCITY PROBE				ITEM	USED	REMAIN	
SYLEDIS			ECHO SOUNDER (20/25)				SIDESCAN PAPER			
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER			
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			
GNS			SPARKER (DELPH/EPC)				DISKS			
GYRO			CORING (GRAVITY/GRAB)				PRINTER CART.			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING							
SONARDYNE COMPATTS										
SONARDYNE PAN										
SONARDYNE(Dunker/Winch/Fish)										

DIARY OF OPERATIONS: THURSDAY 29 OCTOBER 1992 CONTINUED

TRANSPONDER "302

489.0	489.0	489.6	489.8	488.9	488.9	489.5	
489.1	489.0	489.6	489.3	490.1	489.1	488.9	$\bar{X} = 489.37_m$
489.5	489.8	489.7	489.2	489.2	489.7	489.7	
488.9	489.2	489.8	489.6	489.5	489.2	489.3	
489.2	489.0	489.7	489.6	489.7	489.5		

TRANSPONDER "303

723.9	723.7	723.8	723.7	724.0	723.7	724.5	
723.9	724.0	723.6	723.7	723.4	723.6	723.3	$\bar{X} = 723.73$
723.8	723.6	723.8	723.5	723.8	723.1	723.6	
723.8	723.3	723.6	723.2	723.9	723.8		
723.7	724.0	723.9	723.9	724.4	723.6		

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Transponders to be listed by type and serial numbers. Following codes to be used: L - Laid, R - Recovered, FR - Failed to Reply, FS - Failed to Surface.

Signature

SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations
YELLOW	: Clients Representative

Signature

CLIENTS REPRESENTATIVE

261033

0600		
1200		
1800		

Client : SAGASCO		Job No : 2009		Date : 29 OCT 92		Vessel : OCEAN EPOCH		Anchors / Tpdrs		
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered
SKYFIX			STD 12 / VELOCITY PROBE				ITEM	USED	REMAIN	
SYLEDIS			ECHO SOUNDER (20/25)				SIDECAN PAPER			
MICROFIX			SIDECAN (595/531/PINGER)				E/SOUNDER PAPER			
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			
GNS			SPARKER (DELPH/EPC)				DISKS			
GYRO			CORING (GRAVITY/GRAB)				PRINTER CART.			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING							
SONARDYNE COMPATTS										
SONARDYNE PAN										
SONARDYNE (Dunker/Winch/Fish)										

DIARY OF OPERATIONS: THURSDAY 29 OCTOBER 1992 CONTINUED

ACOUSTIC FIX: E 372835.645  
(OF TRANSPONDER) N 5616673.226

THE TRANSPONDER WAS ON THE CENTRELINE, 1.7m FWD OF THE DATUM.  
SHIPS HEAD 257°; THEREFORE BEARING TO DATUM WAS 077°.

DATUM CO-ORDS E 372837.3 ZONE 55 Ø 39° 35' 24".35 ANS.  
N 5616673.6 λ 145° 31' 08".85

WHICH IS 2.9m ON A BEARING OF 024°T FROM THE INTENDED LOCATION  
2336 COMMENCED GPS FINAL FIX.  
7

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Transponders to be listed by type and serial numbers. Following codes to be used: L - Laid, R - Recovered, FR - Failed to Reply, FS - Failed to Surface.

Signature   
SURVEYOR/ENGINEER

WHITE : Commercial Office  
BLUE : Operations  
YELLOW : Clients Representative

Signature   
CLIENTS REPRESENTATIVE

261034

0002/004  
BHP WOLL  
RSA LTD  
8783  
11:07  
13/11 '92

**RACAL**

FACIAL SURVEY NAUTICAL LOG SHEET

DAILY RECORD SHEET

VX	Qty	Unit	Wind
0000	2	1	LS
0600	2	1	ES
1200	2	1	LA
1800	2	1	WS

Client: SAGASCO		Job No: 2009		Date: 30 Oct 92	Vessel: CLEAN EPOCH		Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	
SKYFIX	2		STRIK/ VELOCITY PROBE	1		J. AUSTIN	ITEM	USED
SYLEDIS			ECHO SOUNDER (20/25)			C. HARKENNES	SIDESCAN PAPER	REMAIN
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER	
AR60			BOOMER (DELPH /EPC)				ELICS PAPER	
GNS	2		SPARKER (DELPH/EPC)				DISKS	1 3
	1		CORING (GRAVITY/GRAB)				PRINTER CART	1 1
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS	
TELEMETRY			UNDERWATER TRACKING			J. RUTHERFORD	RIAM PAPER	1
SONARDYNE COMPATTS								
SONARDYNE PAN	2							
SONARDYNE (Dunter/Winch/Fish)	2/0							

DIARY OF OPERATIONS: FRIDAY 30 OCTOBER 1992

0001 CONTINUING GPS FINAL FIX

0113 COMPLETED GPS FINAL FIX - 376 SAMPLES, 6 CONSTELLATIONS

FINAL DATUM POSITION E 372 835.53 m  $\phi$  39° 35' 24.331 S

N 56166.74.27  $\lambda$  145° 31' 08.780 E

WHICH IS 3.89 m BEARING 351.8 (T) FROM THE INTENDED LOCATION.

0137 HEIGHT OF GPS ANTENNA - 18.55 m ABOVE INSTANTANEOUS WATER LEVEL

0.3m ABOVE THE HELIDECK.

1030 J. AUSTIN TRANSFERRED TO RAGNA VIKING, - TRANSponder 'POPPING'

DELAYED BY FOG INDUCED POOR VISIBILITY.

1045 J. RUTHERFORD DEPARTED BY HELO. FURTHER HELO'S CANCELLED - FOG.

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WHITE  
Coastguard Office

Signature  
CLIENTS REPRESENTATIVE

261035

0000	£	Sw	Dir
0600			
1200			
1800			

**RACAL**

DAILY RECORD SHEET PAGE TWO

Client: SAGASIO		Job No: 2009		Date: 30 OCT 92		Vessel: OCEAN EPOCH		Anchors / Tpdrs		
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Lost	Recovered
SKYFIX	2		<del>SKYFIX</del> VELOCITY PROBE	1		J. AUSTIN	ITEM	USED	REMAIN	101
SYLEDIS			ECHO SOUNDER (20/25)			C. HARKENNES	SIDESCAN PAPER			302
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER			303
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			
GNS	2		SPARKER (DELPH/EPC)				DISKS			
GYRO	1		CORING (GRAVITY/GRAB)				PRINTER CART			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING			J. RUTHERFORD				
SONARDYNE COMPATTS										
SONARDYNE PAN	2									
SONARDYNE (Dinner/Winch/Fish)	2									

DIARY OF OPERATIONS:

1414 FOG NOW CLEARED. POPPED TRANSPONDER #101 B.C. 219 VOLTS 30.1

1427 POPPED TRANSPONDER 302 B.C. 214 VOLTS 30.6

1443 POPPED TRANSPONDER 303 B.C. 212 VOLTS 30.2

1500 J. AUSTIN AND COMPATTS TRANSFERRED BACK TO OCEAN EPOCH

1530 HELO ON DECK. ALL RACAL 'SKYFIX' EQUIPMENT LOADED

1545 FLIGHT DELAYED - HELO DEFECT

1704 HELO DEPARTED OCEAN EPOCH WITH RACAL PERSONNEL

1800 HELO ARRIVED AT DEVONPORT. BOTH RACAL PERSONNEL TRAVEL TO SUNRISE MOTEL OVERNIGHT. DUE TO MISSED FLIGHT CONNECTIONS.

7

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Signature [Signature]  
SURVEYOR/ENGINEER

WHITE - Commercial Office  
 BLUE - Operations  
 YELLOW - Clients Representative

Signature \_\_\_\_\_  
 CLIENTS REPRESENTATIVE

003/004  
 BHP WOLL  
 RSA LTD  
 09 344 8783  
 13/11 '92 11:08

261036

004/004

BHP WOLL

RSA LTD

800 344 8783

13/11 '92 11:09

**RACAL**

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET 31 OCT 92

Time	Status	Swb	Dir
0000			
0600			
1200			
1800			

Client : SAGASCO		Job No : 2009		Date : 31 OCT 92		Vessel : OCEAN EPOCH		Anchors / Tdprs		
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables		Laid	Recovered
SKYFIX			<del>STIP2</del> VELOCITY PROBE	1		J. AUSTIN	ITEM	USED	REMAIN	
SYLEDIS			ECHO SOUNDER (20/25)			C. HAKKENNES	SIDESCAN PAPER			
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER			
AR60			BOOMER (DELPH/EPC)				ELICS PAPER			
6NS	2		SPARKER (DELPH/EPC)				DISKS			
GYRO	1		CORING (GRAVITY/GRAB)				PRINTER CART.			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			
TELEMETRY			UNDERWATER TRACKING							
SONARDYNE COMPATTS										
SONARDYNE PAN	2									
SONARDYNE (Dunker/Wloch/Fish)	200									

DIARY OF OPERATIONS: SATURDAY 31 OCTOBER 1992

0700 J. AUSTIN DEPARTED HOTEL FOR DEVONPORT AIRPORT IN HIRE CAR TO ARRANGE FREIGHTING OF SKYFIX EQPT AND TO COLLECT THREE TRANSPONDERS

1015 C. HAKKENNES FLEW FROM DEVONPORT TO MELBOURNE.

1020 J. AUSTIN ARRIVED AT SAGASCO'S BELL BAY TERMINAL. DISMANTLED TRANSPONDERS AND PACKED PALLETS READY FOR SHIPMENT BY ROAD TRANSPORT. COLLECTED SKYFIX A.C.U. UNITS.

1115 J. AUSTIN DEPARTED BELL BAY FOR LAUNCESTON AIR FREIGHT

1205 A.C.U. UNITS DELIVERED FOR ONFREIGHTING.

1320 J. AUSTIN FLEW FROM LAUNCESTON TO CAIRNS.

7

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Signature

  
 SURVEYOR/ENGINEER

WHITE	Commercial Office
BLUE	Operations
YELLOW	Clients Representative

Signature

 CLIENTS REPRESENTATIVE  


261037