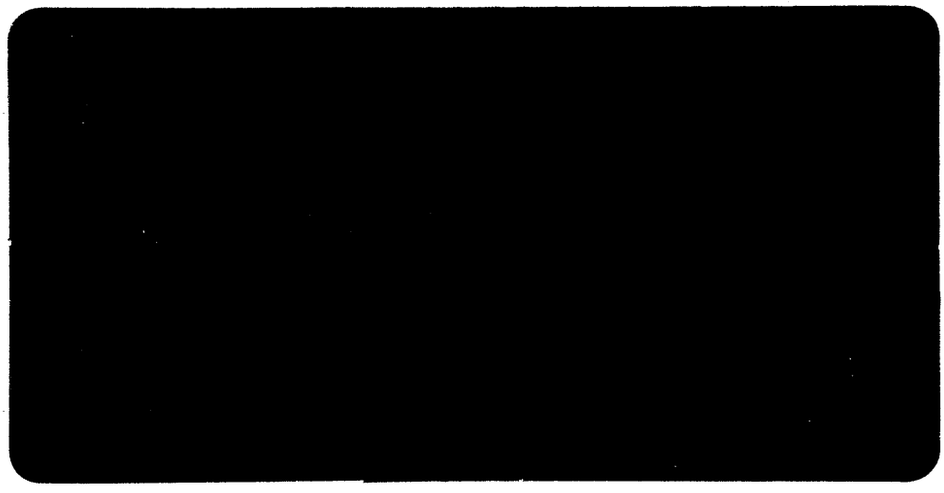


ATTACHMENT 2

WCR SPEKE-1

(W870)

W870

ATTACHMENT No. 2

RIG POSITIONING REPORT

FOR

SPEKE No. 1

Supervision Report on the Positioning of the Rig Diamond M. Epoch onto location Speke 1 for Australian Aquitaine Petroleum Pty Ltd 8th - 15th June 1984

Jack Schmitz
ECL Australia Pty Ltd
16 Altona Street
WEST PERTH W.A. 6005

CONTENTS

1.0 Project Summary

Client	:	Australian Aquitaine Petroleum Pty Ltd
Project	:	Positioning Rig Diamond M. Epoch
Wellsite	:	Speke-1
Location	:	038 30 34.20 S
		147 37 10.70 E ANS
		5737455 N
		554024 E AMG UTM Zone 55
Water Depth	:	51 metres
Equipment	:	Aqua Fix/2 Acoustic Positioning

Personnel

Captain	:	Dick Spencer
Mate	:	John Adams
Survey Operators	:	John Duncan
		Trevor Crawford
Survey Vessel	:	M/V Red Bluff
Port of Operations	:	Welshpool, Victoria
Duration	:	8th-15th June, 1984

2.0 Project Objectives

To locate the rig Diamond M. Epoch on wellsite Speke-1.

Method use for positioning:

1. Utilization of the OASIS Offshore Acoustic/Satellite Integrated System onboard the M/V Red Bluff to relocate and confirm the accuracy of a previously deployed transponder net.

2. Lay a buoy pattern as described overpage consisiting of Anchor, Location and Reference Buoys.

3. Move the rig onto location and establish the final position by a series of transit fixes around all rig legs.

3.0 Results

Final Marker Buoy Locations

Time	Buoy	Beacon	Calculated Ranges	Observed Ranges	Difference
1300	HDG	A	456	407	49
		B	1561	1502	59
		C	1931	1862	69
		D	1776	1709	67
		E	929	880	49
1320	2	A	209	200	9
		B	1080	1047	33
		C	1684	1647	37
		D	1758	1728	30
		E	1212	1201	11
1400	7	A	1653	1717	-64
		B	914	781	133
		C	240	290	-50
		D	998	1046	-48
		E	1717	1782	-65
1412	6	A	1832	1845	-13
		B	1679	1659	20
		C	771	735	36
		D	264	294	-30
		E	1300	1337	-37
1620	LOC	A	837	868	-31
		B	996	1002	-6
		C	846	829	17
		D	762	738	24
		E	761	768	-7
1645	3	A	816	846	-30
		B	1775	1787	-12
		C	1837	1822	15
		D	1471	1411	60
		E	458	420	38

Final Position of Marker Buoys

Buoy Centre Heading	Offset from Location
	30 metres NW
	240o achieved
2	50 metres NW
3	60 metres NW
6	10 metres NW
7	10 metres N

Progressive Position Fixes on Diamond M Epoch

Time	Fix Number	Offset to Location
1046	1	46 metres bearing 318°
1135	2	25 metres bearing 318°
1403	3	36 metres bearing 305°
1630	4	21 metres bearing 290°
2130	5	20 metres bearing 315°
2210	6	22 metres bearing 290°
2230	7	25 metres bearing 295°
2250	8	12 metres bearing 290°

Final Position Geographic Coordinates according to AquaFix/2 ignoring slant range and SVW corrections:

038 30 34.36 S

147 37 11.15 E ANS

4.0 Statistical Analysis of Project Time

Activity Summary of Available Project Time

Date	Time	Hours	Acitivity
8 June	0845 - 1500	6.25	Mobilisation
	1500 - 2400	9.00	Standby
9 June	0000 - 1000	10.00	Standby
	1000 - 1930	9.50	Mobilisation
	1930 - 2400	4.50	Standby
10 June	0000 - 1000	10.00	Standby
	1000 - 1500	5.00	Mobilisation
	1500 - 2400	9.00	Standby
11 June	0000 - 1100	11.00	Standby
	1100 - 1730	6.50	Transit
	1730 - 2230	5.00	Equipment Failure
	2230 - 2400	1.50	Standby
12 June	0000 - 0815	8.25	Standby
	0815 - 1945	11.50	Deploy Marker Buoy
	1945 - 2400	4.25	Standby
13 June	0000 - 0500	5.00	Standby
	0500 - 2300	18.00	Rig Positioning
	2300 - 2400	1.00	Standby
14 June	0000 - 0830	8.50	Standby
	0830 - 1600	7.50	Transit
		151.25	TOTAL

Activity	Total Hours	% of Project Time
Standby	82.00	54
Mobilisation	20.75	14
Deploy Marker Buoys	11.50	8
Rig Positioning	18.00	12
Equipment Failure	5.00	3
Transit	14.00	9

5.0 Survey Details

Spheroid	:	Australian National
Semi-Major Axis	:	6 378 160.00 metres
Semi-Minor Axis	:	1 356 774.72 metres
Ellipticity	:	1/298.25
Local to WGS-72	:	Delta X 122 metres
		Delta Y 41 metres
		Delta Z -146 metres
UTM Projection	:	Australian Map Grid
		Zone 55
Datum	:	Australian geographic 1966

Transponder Locations

Channel	Serial Number	Geographics	Grid
A	335	038 30 55.66 E	5736797 N
		147 36 49.52 E	553507 E
B	358	038 31 00.38 S	5736644 N
		147 37 34.83 E	554603 E
C	369	038 30 28.55 S	5737624 N
		147 37 44.87 E	554853 E
D	302	038 30 11.29 S	5738159 N
		147 37 22.54 E	554316 E
E	370	038 30 23.57 S	5737787 N
		147 36 42.32 E	553339 E

Marker Buoy Locations

Location Buoy	5737455 N
	554024 E
Heading Buoy	5736900 N
	553063 E
Anchor 2 Buoy	5736589 N
	553524 E
Anchor 3 Buoy	5737455 N
	553024 E
Anchor 6 Buoy	5738321 N
	554524 E
Anchor 7 Buoy	5737455 N
	555024 E

Diamond M. Epoch Location

Specified

038 30 34.20 S
147 37 10.70 E A.N.S.

5737455 N
554024 E U.T.M. Zone 55

AquaFix/2 final fix at 22.50 13th June 1984

038 30 34.36 S
147 37 11.15 E A.N.S.

5737450 N
554035 E U.T.M. Zone 55

Offset: 12 metres bearing 115° from intended

JMR-4 final fix after 29 satellite passes 19th June 1984

038 30 34.62 S
147 37 11.79 E

5737442.7 N
554050.8 E

Offset: 29 metres bearing 116° from intended.

AquaFix/2 final fix after SVW and slant range correctios have been applied upon processing results in Perth by Racal Surveys (26th June 1984).

Observed ranges

A 876

B 977

C 799

D 742

E 815

Corrected ranges (water depth 50 metres

SVW 1500 m/sec used

1506 m/sec actual)

A 870.6

B 971.7

C 794.5

D 737.3

E 810.5 RMS 2.3 m

FIX 5737459.0 N

554076.8 E

Apply offset tranducer to moonpool : 38m bearing 251°

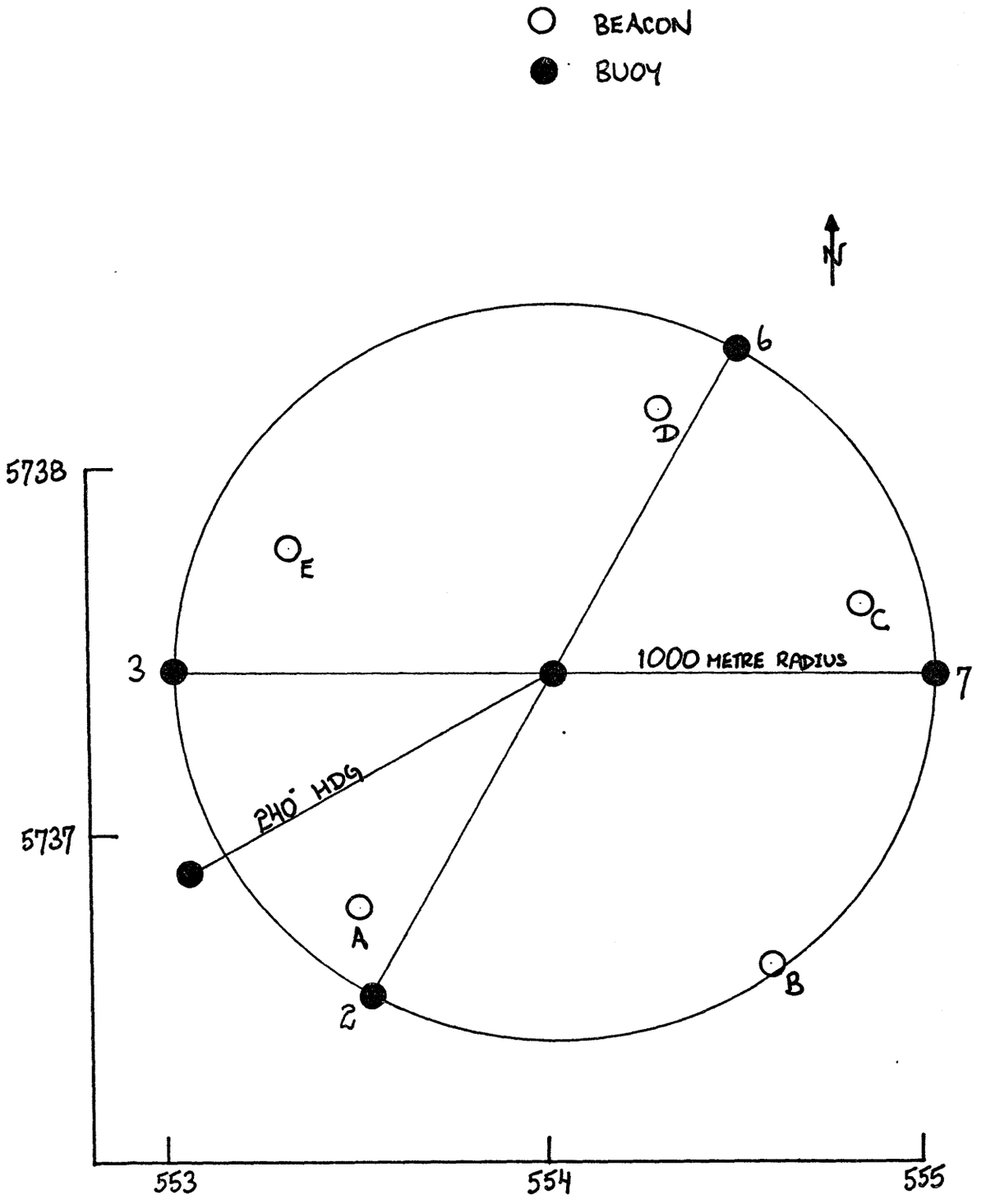
038 30 34.49 S

147 37 11.38 E A.N.S.

5737446.6 N

554040.9 E UTM Zone 55

Offset: 18.8 metres bearing 116.4° from intended.



BUOY / BEACON CONFIGURATION

DIAMOND M. EPOCH JUNE '84

6.0 Description of Operations

AquaFix/2 provides a repeatable fix in terms of slant range measurment from points on the sea bed at which transponder units are located. All transponders are interrogated at a frequency of 13 KHz and each replies on a different frequency or channel allocated to it. Geodetic accuracy of the fix obtained is determined by the precision to which the positions of transponders are established from satellite information.

The AquaFix acoustic positioning system was intially calibrated and mobilised for the Speke-1 site survey in March 1984. The transponder net was located after 32 satellite passes yielding an RMS of final position solution within 36.6 metres. This is a significant improvment over the net used for the Wyralah-1 survey (128.8 metres after 29 passes), and should therefore exhibit more resolute fixes.

Further details with regards to the calibration and deployment of the Speke-1 transponder net is available in a separate ECL report by Frank Renton.

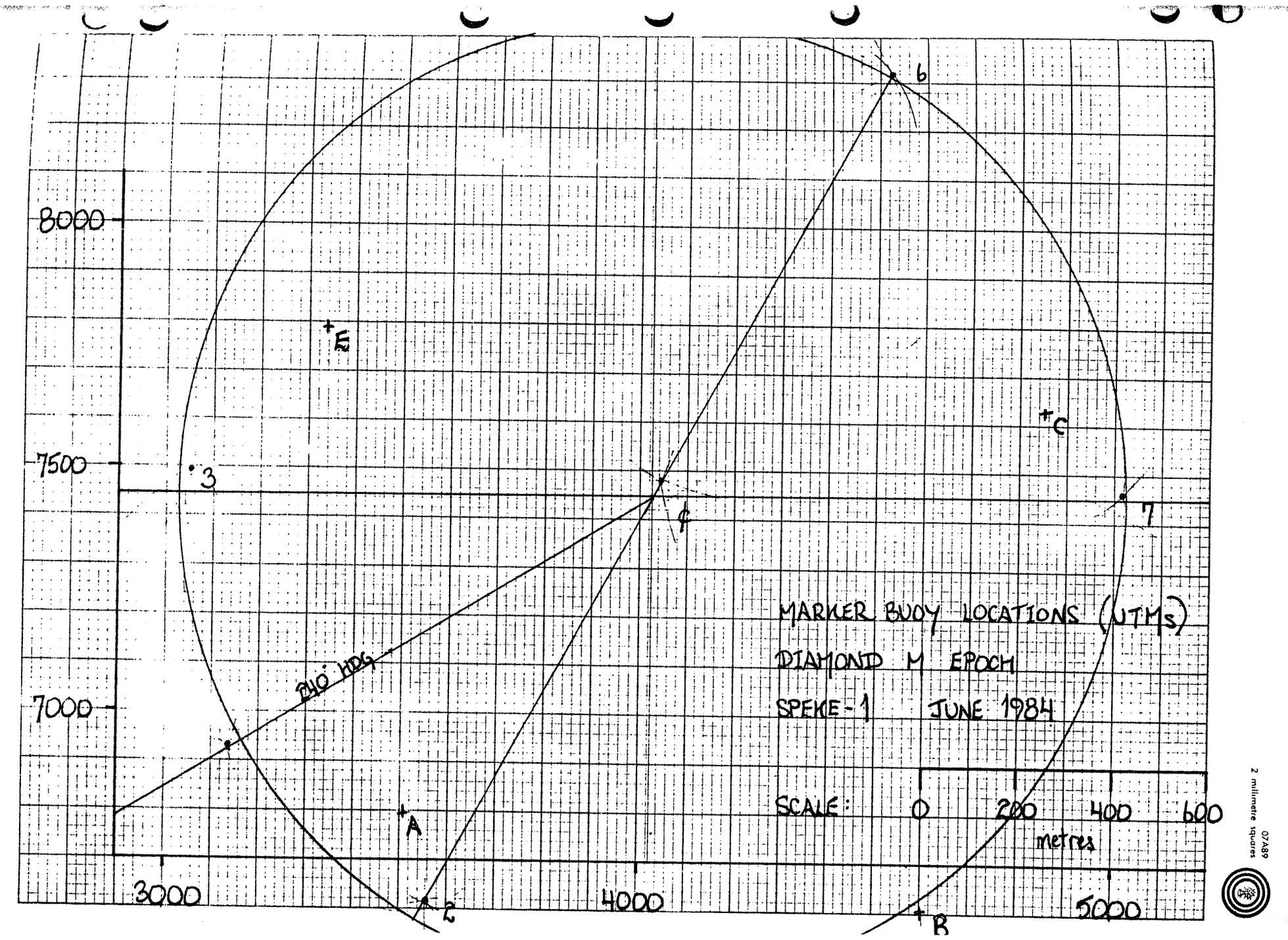
The initial task at hand concerned the confirmation of the accuracy and repeatability of the previously deployed Speke-1 transponder net. Repeated failures of the HP computer reduced the effectiveness of this procedure. Inadequate available software impeded the application of 3, 4 or 5-way fix routines upon the ranges to determine the positional accuracy of each fix. Quality control checks were limited to hand plotting all five ranges which generally resolved to within 20 metres.

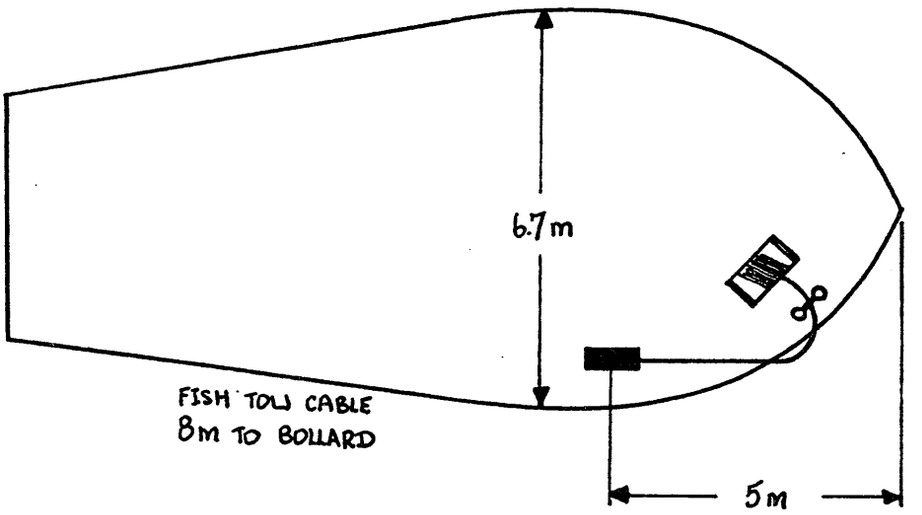
The range conversion from milliseconds to metres performed by the

AquaFix/2 assumes a velocity of sound in water of 1500 metres/second. Previous on-site calibrations during the Speke-1 site survey suggest 1505 metres/second closer to actual slant range corrections are not performed by the AquaFix/2 unit. Both these conversions are normally applied within the HP-21 computer before plotting onto the chart recorder. The loss of this range processing capability reduces the accuracy of the AquaFix/2 system. The Data Repetition Rate selected was 10 seconds, Sequence 13.

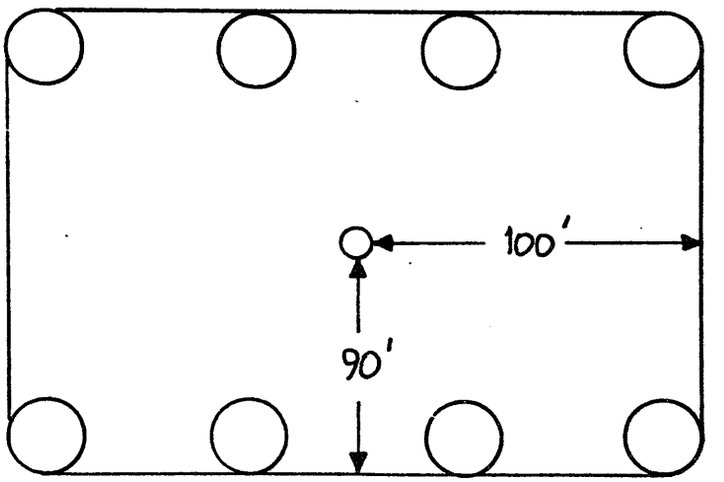
The 1 Kilometre grid buoy pattern rotated about 240° was set with little difficulty a full day prior to the Diamond M Epoch's arrival. All buoys were fabricated before arriving on-site, and consisted of 55 metre length rope attached to 500 1b weights. Lights were fitted. Each buoy was located within 60 metres over a period of 11.50 hours in fine weather conditions. All ranges were recorded manually and plotted on charts to determine relative positions.

The Diamond M Epoch was positioned on 13th June within 18 hours from arrival over Speke-1. Again, untypically fine weather conditions allowed for ease of operations. All rig fixes were performed manually and hand plotted on maneuvering boards. Offsets from transducer stem to moonpool were minimised by allowing the vessel to approach as near as permissible the bow and stern of the rig. The distance from bow/stern of the rig to moonpool was given as 100 feet.


8000
7500
7000
3000
4000
5000
E
C
A
B
b
3
7
2
240 HDG
MARKER BUOY LOCATIONS (UTMs)
DIAMOND M EPOCH
SPEKE-1 JUNE 1984
SCALE:
0
200
400
600
metres
2 millimetre squares
07A89



m/v RED BLUFF
AQUAFIX TRANSDUCER OFFSET



DIAMOND M. EPOCH
MOONPOOL LOCATION

7.0 Conclusions

The RMS of the final positional solution is 36.6 metres for the Speke-1 beacon net. This translates to a positional tolerance of 13 metres per transponder.

Racal advertise a fixing accuracy of +/- 10 metres with 2-3 metre repeatability for the OASIS equipment assuming absolute accuracy on each transponder. The AquaFix/2 system utilized for the current project is fundamentally the OASIS without HP computer/gyro/trackplotter and software capacities.

Slant range and sound velocity in water corrections normally applied by the OASIS are ignored by the AquaFix/2 system. Additional range errors introduced from reflections off the rig legs after ballasting operations and those involved with hand plotting on the maneuvering boards decrease the overall system accuracy beyond the positional tolerance quoted for the rig (10 metres).

None of the survey crew were informed of this rigid tolerance specification prior to the commencement of operations. The 10 metre positional requirement was radioed by the Bargemaster immediately prior to rig ballasting procedures.

The AquaFix/2 final positional fix at 22.50 on 13th June found the Diamond M Epoch 12 metres at a bearing 115° from the wellsite. The accuracy of this fix is estimated +/- 10 metres relative to the Speke-1 net. This positional error may be reduced after subsequent processing of the range data by Racal Surveys in Perth. Decca will ensure the availability of this data.

The absolute position for the Diamond M Epoch will be determined by the onboard JMR-4 satellite navigation system. This may vary from the AquaFix/2 result by some 20 metres as witnessed on Wyrallah-1 (Southern Cross).

Please note that equipment leasing invoices from Racal Surveys for this project should not include:

- JMR-1 satellite receiver
- HP 21 MX computer
- TI Silent 700 terminal
- SINTROM 8042 tape reader
- HP9862A trackplotter
- Gyrocompass

which were unuseable due to the CPU failure internal to the HP-21 MX.

The performance of the M/V Red Bluff and her crew was commendable.

Recommendations

1. Marker buoys to be fitted with improved lights and radar reflectors.
2. Racal Surveys ensures 100% redundancy in equipment. The loss of the HP computer at the commencemet of the survey proved inconvenient and laborious. Fixes plotted manually took 20-30 minutes to perform and transit fixes (more accurate) cumbersome. Had weather conditions not been as favourable, accuracy would have suffered.
3. Gyro/satellite receiver installed and used for offset bearings.
4. Software packages made available by Racal Surveys to determine the accuracy of the net and should include:
   - geographic/grid transformation
   - inverse geodetic calculations
   - three-way fix determinations

   All survey calculations were perfomed on my personal calculator and were limited to grid coordinates without applying slant range corrections. For a range of 500 metres this introduces an error of 3 metres.
5. A range finder on manual fixes would improve the accuracy of applying offsets from vessel position to the rig moonpool.
6. Printer for range outputs.
7. Racal Survey to provide adequate graph paper/maneuvering boards in the event manual fixing is required. These were generously provided by the vessel in this instance.

8.0 Daily Summary

Thursday, 7th June, 1984

2345 Depart Perth TN 15

Friday, 9th June, 1984

0515 Arrive Melbourne

0600 Depart Melbourne with Trevor Crewford and John Duncan Decca).

0845 Arrive Welshpool

0900 Meet with Alistair McCormick (AAP) at Welshpool.

Advised Diamond M Epoch currently in Portland undergoi testing. Estimated 2-day transit from Portland to Wel upon completion of tests.

Western Odyssey and Red Bluff in port. Racal equipment loaded aboard vessel. Alistair McCormick departs for Portland.

1000 Aquitaine Welshpool office.

Further mobile equipment enroute from Perth to be couri from Melbourne.

1030 Onboard Red Bluff.

Below deck hold area for instruments inspected. Weathe conditions poor : strong winds forecast.

1230 Awaiting courier equipment.

Check into Welshpool Hotel room 7.

1500 Advised by Alistair McCormick to standby.

Saturday, 9th June

0900 Notified of arrival of courier equipment from Melbourne.

1000 Equipment loaded onto Red Bluff.

Buoy fabrication commences.

1030 Aquitaine Welshpool Office

1300 Notified that Diamond M Epoch has departed Portland, under tow by Eastern Tide.

Buoy fabrication completed.

In the event that the CPU cannot be repaired, rig/buoy positioning will be conducted without the computer interface.

UTM grid coordinates of beacons to be sent via telex by Racal Decca Perth, required for manual positional plots.

The accuracy of the net is difficult to determine without adequate software. Spare CPU boards are currently in transit from Perth.

1500 AAP Office.

Mooring pattern described by Alistair McCormick. Buoys to be laid in a 1 Km radius with a heading buoy at 240°. An accuracy of 50 metres specified. Mention was made concerning the possibility of altering the rig heading at a later date due to crane problems.

Radio Channels 3 3776 Diamond M Epoch

2 Aquitaine Welshpool

Standby

Monday, 11th June 1984

0900 AAP Office

Weather forecast 0700 11/6/84

11/6/84 to 0700 12/6/84

W/NW 15/20 DEC W/NW 10/15 LATE AM

Outlook to 0700 13/6/84 FINE

0915 Secure intercom

0930 Onboard M/V Red Bluff ETD 11:00

1100 Depart Welshpool

Anticipated transit time to Speke-1 6 hours.

1145 Spare CPU board departs Perth.

Will return to collect if situation is warranted.

1200 Install intercom

Calculate ranges (UTM) from each beacon to buoy locations (slant ranges ignored).

1730 Deploy transducer fish - 9m tow 5m from bow.

Heading towards Speke-1 net.

1800 Ranges not received from any beacon.

1815 Tuner Box connected

1915 Fault isolated to tow cable.

1945 Tow cable re-insulated.

2145 All beacons responding

2210 Lay marker buoy to re-locate net.

2230 Transducer fish onboard.

Standby for daylight to lay buoy pattern.

Tuesday, 12th June 1984

0815 Deploy transducer fish under 8 metres tow.

0830 Heading to recover marker buoy.

0900 Marker buoy sighted

Ranges A 861

B 356

C 881

D 1266

E 1357

0940 Deploy heading buoy

0945 Circle heading buoy to obtain fix.

Ranges A 422

C 1929

D 1803

0957 Deploy # 3 buoy

1000 Fix # 3 buoy

Ranges A 846

B 1806

C 1857

D 1482

E 460

1040 Deploy # 6 buoy

1045 Fix # 6 buoy

Ranges A 1771

B 1578

C 669

D 247

E 1289

1100 Deploy # 7 buoy

1107 Fix # 7 buoy

Ranges A 1686

B 888

C 331

D 1087

E 1789

1130 Deploy # 2 buoy

1140 Fix # 2 buoy

Ranges A 246

B 1031

C 1659

D 1763

E 1246

1200 ETA Diamond M Epoch 0300 13th June

1300 Fix heading buoy

Ranges A 407

B 1502

C 1562

D 1709

E 880

1320	Fix # 2 buoy		
	Ranges	A 200	
		B 1047	
		C 1647	
		D 1728	
		E 1201	
1340	Net marker buoy retrieved		
1400	Fix # 7 buoy		
	Ranges	A 1717	
		B 781	
		C 290	
		D 1046	
		E 1728	
1412	Fix # 6 buoy		
	Ranges	A 1845	
		B 1659	
		C 735	
		D 294	
		E 1337	
1437	Fix # 3 buoy		
	Ranges	A 903	906
		B 1810	1814
		C 1800	1802
		D 1389	1392
		E 356	357
1445	Relocate # 3 buoy		
1500	Fix # 3 buoy		
	Ranges	A 801	
		B 1716	
		C 1743	
		D 1372	
		E 370	

1600 Drop centre location buoy

1620 Fix centre location buoy

Ranges A 868

B 1002

C 829

D 738

E 768

1645 Fix # 3 buoy

Ranges A 846

B 1787

C 1822

D 1411

E 420

1900 Determine operation of marker buoy lights.

1920 Replace # 6 buoy light.

1945 Replace # 3 buoy light.

Communications with Eastern Tide:

Rig to approach over # 7 buoy.

Red Bluff to mark centre location.

Grey Valiant to mark # 2 buoys.

Stand-by

Wednesday, 13th June, 1984

Weather : Fine

Visibility : + 15 Kms

Sea State : 0-1

Wind : N/NW 5-10 K

0455 Grey Valiant lays anchor 7

0500 Red Bluff to # 3 buoy

0600 Eastern Tide at heading buoy

0620 Grey Valiant lays anchor 3 (dropped short)

0625 Red Bluff standing by # 6 buoy.

0700 Grey Valiant departs for Welshpool

0715 Lady Sally lays anchor 6

0720 Red Bluff to # 3 buoy.

0730 Anchor buoy approx 400m short due to chain length.

0740 Red Bluff standing by # 2 buoy.

0800 Weather forecast

NE to NW 10-15 K

1033.1 mb falling

0805 Lady Sally lays anchor 2

0815 Rig gyro 240°

0930 Lady Sally re-lays anchor 3

0945 Position fix starboard side of rig.

Offset transducer to moonpool : 43 metres bearing 150°.

Ranges A 888

B 1026

C 841

D 740

E 754

1010 Position fix bow of rig.

Offset transducer to moonpool : 45 metres bearing 060°

Ranges A 774

B 944

C 877

D 839

E 792

1030 Fix on centre location buoy.

Ranges A 940

B 973

C -

D 855

E 758 (moved)

1046 Position fix number : 1

Offset transducer to moonpool : 45 metres bearing 060°.

Ranges A 792

B 964

C 868

D 819

E 783

Offset moonpool to location : 46 metres bearing 318°.

1130 Eastern Tide lays anchor 5

1135 Position fix number : 2

Offset transducer to moonpool: 38 metres bearing 240°.

Ranges A 872

B 966

C 793

D 752

E 820

Offset moonpool to location: 25 metres bearing 318°.

The distance between the fixes at the bow and stern of the rig is 220 feet, which is consistent ot the given length of same.

1221 Anchor 8 dropped by Lady Sally.

Sea state and weather conditions continue fine.

1245 Anchor 4 dropped by Eastern Tide.

1315 Rig heading 242°.

1320 Rig tensioning up on anchors.

1330 Released by Diamond to retrieve marker buoys.

1345 Buoy # 7 retrieved.

Heading to Diamond 7 for requested position update.

1400 Anchor 4 slipping.

1403 Position fix number : 3

Offset transducer to moonpool: 40 metres bearing 240°.

Ranges A 880

B 961

C 785

D 744

E 823

Offset moonpool to location : 36 metres bearing 305°

1420 Retensioning anchor 4 (Lady Sally)

1435 Retrieving marker buoys.

1540 Re-run anchor 4

1550 Anchor 4 down.

Final tensioning up on all anchors.

1600 Retrieving last of marker buoys.

All six buoys/ropes/weights recovered.

1620 Offload John Duncan (Racal Surveys) by basket to Epoch.

1630 Position fix number: 4

Offset transducer to moonpool: 41.5 metres bearing 240°.

Ranges A 884

B 974

C 789

D 736

E 823

Offset moonpool to location: 21 metres bearing 290°

1655 Transit fix number : 1

Ranges	Leg 1	Leg 2	Leg 3	Leg 4
A	909	852	789	856
B	1046	1051	936	889
C	816	874	-	642
D	692	744	850	804
E	756	720	853	886

Offset transducer to moonpool 20 metres bearing 260°.

The transit method fails due to a poor fix resolution on leg 3 (see graph).

1700 Standing-by for Epoch to ballast to 50 ft before performing final fixes. (10 metre tolerance required).

2110 Transit fix number: 2

Ranges	Leg 1	Leg 2	Leg 3	Leg 4
A	928	887	759	848
B	1049	1131	888	892
C	171	162	131	141
D	673	711	684	825
E	766	741	860	-

Transit fix method fails due to poor resolution on each fix. These are attributed to erratic signals as a result of multipath reflections off the rig legs after ballasting operations.

2130 Red Bluff bow-in at front of rig for positional fix.

Position fix number: 5

Offset transducer to moonpool : 38 metres bearing 060°

Ranges A 798

B 978

C 874

D 832

E 766

Offset moonpool to location : 20 metres bearing 315°.

2210 Position fix number : 6

Offset transducer to moonpool : 38 metres bearing 240°.

Ranges A 879

B 972

C 794

D 741

E 840

Offset moonpool to location: 22 metres bearing 290°.

9.0 APPENDICES

2230 Position fix number : 7

Offset transducer to moonpool : 35 metres bearing 240°.

Ranges A 875

B 969

C 795

D 746

E 813

Offset moonpool to location : 25 metres bearing 295°.

2245 Rig gyro heading 251°.

2250 Position fix number : 8

Offset transducer to moonpool : 38 metres bearing 251°.

Ranges A 874

B 976

C 801

D 744

E 835

Offset moonpool to location : 12 metres bearing 290°.

The updated rig gyro heading 251° results ultimately in a 10 metre positional shift towards location after offsets are applied.

2330 Final (provisional) Diamond M Epoch coordinates:

5737450 N

554035 E UTM Zone 55

038 30 34.36 S

147 37 11.15 E ANG

These coordinates are provisional until onboard data gathered over successive fixes may be processed by Racal Services in Perth. Corrections based on slant ranges and sound velocity in water must be applied.

Standing by for release.

Thursday, 14th June, 1984

Weather : Fine

Visibility : Clear

Sea State : 0-1

0835 Released by Diamond M. Epoch

Transit to Port Welshpool.

ETA 1600

1610 Arrived dockside Welshpool.

1645 Debrief with Alistair McCormick (AAP)

1800 Demobilize vessel.

2100 Travel to Melbourne

2400 Check into Travelodge, Melbourne Airport.

Friday, 15th June 1984

0900 Depart Melbourne TN 04

1105 Arrive Perth.

1330 Debrief with John Law (ECL).

A. CONTRACTOR'S EQUIPMENT

OASIS Navigation System comprising:

Acoustic Positioning	:	AquaFix/2	
		CDU	S/N 001
		CDU	S/N 010 (Spare)
		Transponders	S/NS
			335 358 369
			302 370
Satellite Receiver	:	JMR-1	S/N
Computer	:	HP21-MXE Series	S/N 1649A00134
Terminal	:	TI Silent 700	S/N 17062
Tape Reader	:	PERIFILE SINTROM 8042	S/N 001

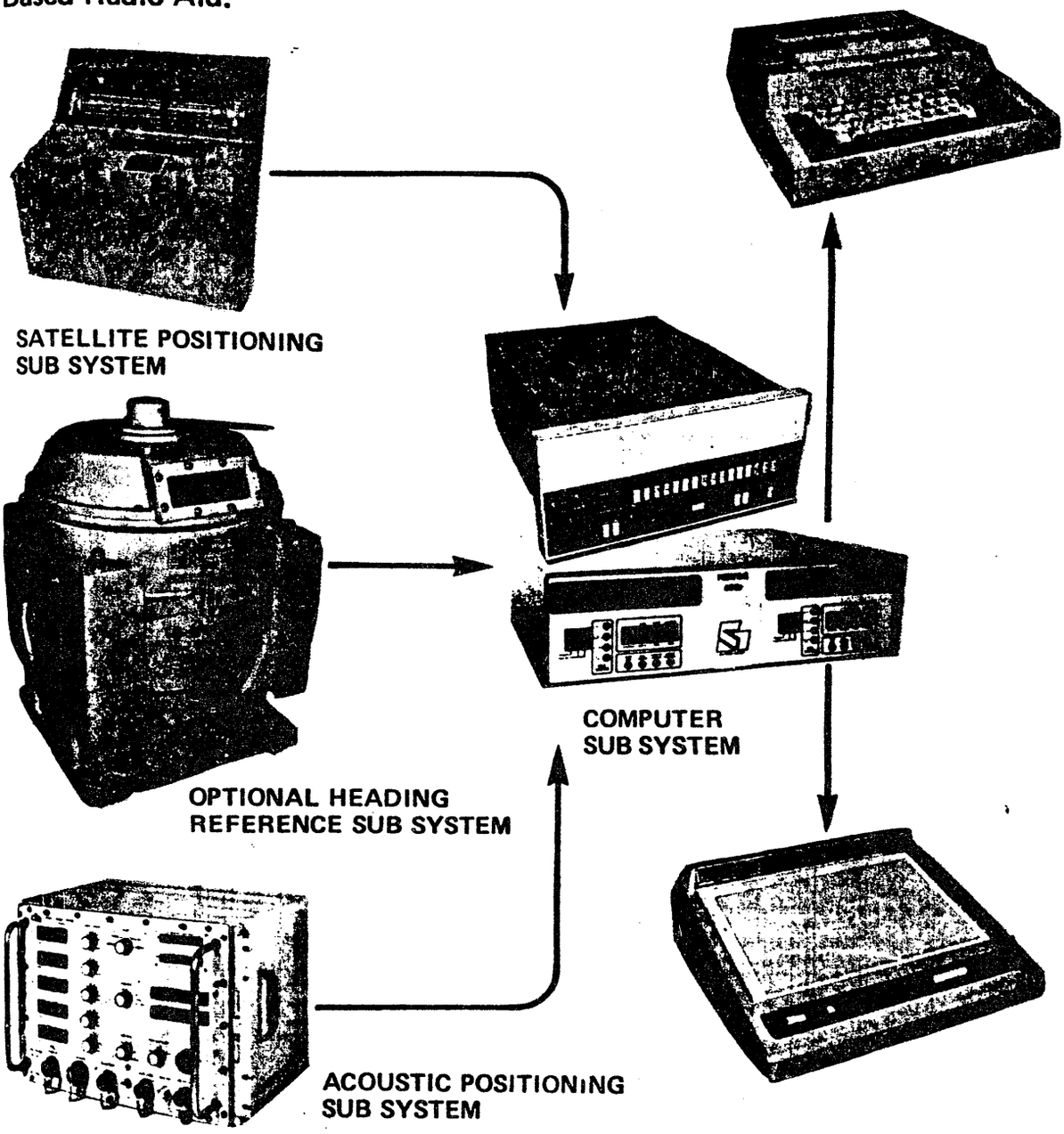
B. VESSEL EQUIPMENT

VHF	:	Sailor S/P Radio A3J A3A A3H
SSB	:	Codan 6801 MK2
Radar	:	Tokyo Keiki MR 70-14-9
Autopilot	:	Resco Tokyo Keiki
Mag Compass	:	Toky Keiki SM
Echo Sounder	:	Furuno FG-200 MK 3
Sat Nav	:	Walker 801
Intercom	:	Toa

UNDERWATER SYSTEMS

OASIS Offshore Acoustic/ Satellite Integrated System

Position Fixing on a Geodetic Datum Worldwide, entirely independent of any Shore Based Radio Aid.



FUNCTION

Oasis is a worldwide positioning service for offshore surveys, providing a fixing accuracy of ± 10 metres on a geodetic datum with a repeatability in the order of 2–3 metres entirely independent of any shore based radio aids. The package is built around a computer capable of processing data from two independent sensors, the Aqua-Fix/2 acoustic equipment and the JMR-1 satellite positioning receiver.

In operation, the system first establishes the geodetic positions of acoustic sea bed transponders using orbital satellite information. Used in this initial positioning role it makes possible the worldwide deployment of Aqua-Fix/2, and is therefore ideal for applications such as detailed site surveys, in areas where shore based radio aids are unavailable or are insufficiently accurate.

RACAL-DECCA SURVEY

RACAL

For further information please contact:

Oasis

EQUIPMENT OUTLINE

Oasis comprises three basic sub systems and an interface unit.

Aqua-Fix/2 provides a uniformly repeatable fix in terms of slant range measurements to points on the sea bed at which transponder units are located. All transponders are interrogated at a frequency of 13 kHz and each replies on the different frequency or channel allocated to it. Geodetic accuracy of the fix so obtained is determined by the precision to which the positions of transponders are established from satellite information.

The JMR-1 Sat-Fix receiver processes transmissions from the US Navy Navigational Satellite System (NNSS) to yield a position fix in a world geodetic datum every 1-2 hours. The ability to extract the highest possible accuracy from the doppler shift measurements effected on satellite transmissions received during successive passes, and also the ability to maintain this accuracy between passes, is provided by accurate 'ground velocity vector' inputs to the computer normally provided by Aqua-Fix/2.

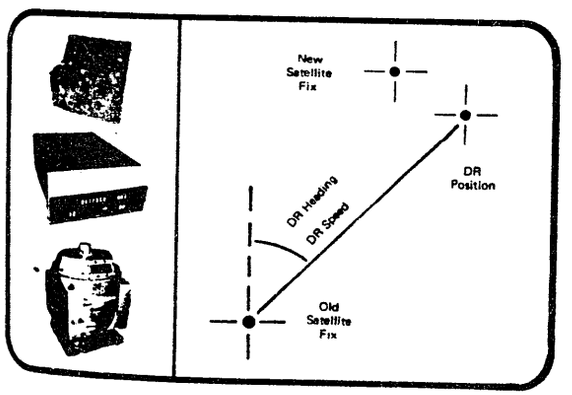
The computer sub system consists of a 2109MX Central Processor with associated Perifile Tape Memory. Data is presented to the operator on two peripherals: the 7210 Plotter and the 743 Keyboard Terminal. A facsimile of the operational situation is presented on the plotter to any desired scale or orientation, whilst the 743 Terminal forms additionally the operator's necessary control input/output interface. During operation, raw data may be recorded continuously for subsequent data processing offline.

A heading reference input is also required to establish an approximate orientation of the Aqua-Fix/2 transponder array during initial calibration. Ideally, this may be provided from the user ship's compass system, (any system which provides a stepper type output being suitable). If this is not practicable, an optional heading reference sub system may be added to the Oasis package. Alternatively, heading inputs may be keyed by the operator.

Speed inputs are also keyed by the operator when navigating to and from the survey location.

System Operation

TRACKING TO LOCATION



Oasis may be used to provide positional information whilst navigating to and from a survey location. In this mode, DR positions based on speed and heading inputs are plotted continuously. Speed is invariably an estimated figure keyed by the operator, but heading data may be derived from a compass input if available. The DR position is updated by each satellite fix, typical fix accuracies obtainable being from 0.1-0.5 nm based on a 0.2 nm/knot speed error. Corrections for speed and drift can then be assessed in terms of the error between satellite and DR positions.

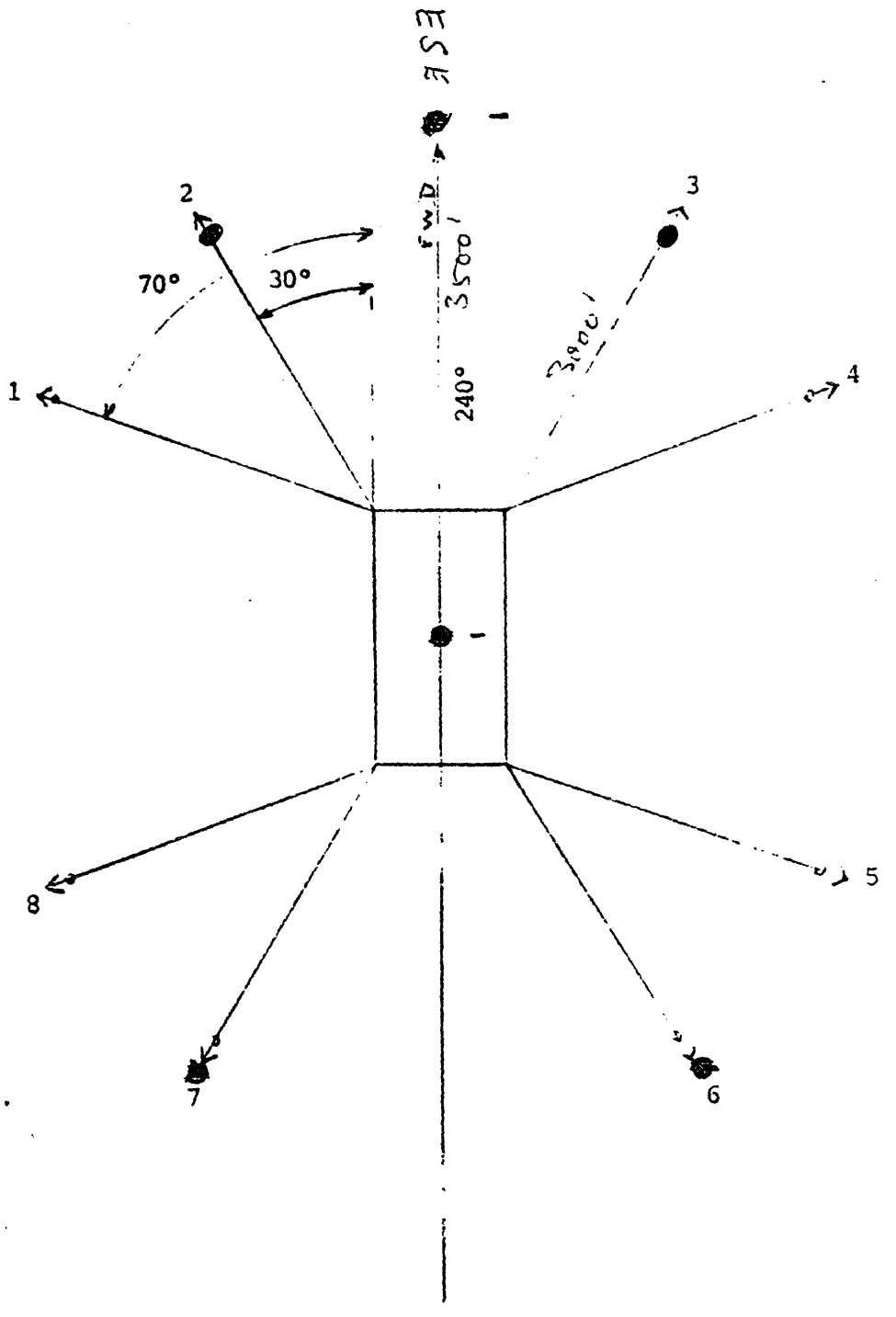
C. SURVEY VESSEL SPECIFICATIONS

Name	:	M/V Red Bluff
Classification	:	Dept. of Transportation Utility Vessel
Flag	:	Australian
Port of Registry	:	Darwin
Year Built	:	1976
Where Built	:	Fremantle, Western Australia.
Length	:	23.8 metres
Breadth	:	6.7 metres
Maximum Draft	:	3.0 metres
Gross Tonnage	:	149.6 tons
Nett Tonnage	:	93.5 tons
Fuel Capacity	:	47.5 tons
Fresh Water	:	8.9 tons
Fuel Consumption	:	1.7 tons/day
Speed	:	10 Knots
Accommodation	:	4 x 2 berths
Main Engine	:	Cat D343
		365 bhp at 1800 rpm
Propellor	:	one fixed blade
Generators	:	two 415 altinators driven by
		Cat 3304 diesels.
		240V, 120 KVA 50 Hz

D. BUOY PATTERN

MOORING PATTERN AND ANCHOR

DESIGNATION ON DIAMOND M EPOCH



● MARKER BUOY

3500 - 3800 FT. CHAIN OUT
2 3/4" CHAIN.

FIGURE 1

Barge Master John Law. Barge Engineer
John Law Pg Superintendent

AQUIT AA32445
AMOCO AA22516

...X NO. 3202
...TH JANUARY, 1984

...OM:
...ECCA NOEL SANDERSON
...ORT WELSHPOOL MICHEL RAMBE

...E: SPEKE NO. 1 LOCATION

WA4/1

...EOGRAPHICS:

...ATITUDE 38 DEG 30' 34.2" S
...NGITUDE: 147 DEG 47' 10.7" E

38° 40' 36.8"
147° 05' 04.9"

...TH: CANS 2045 SU

...RTHING 5737...
...STING 5540 -

WATER DEPTH.
106 ft min.

...ATER DEPTH 32 METRES

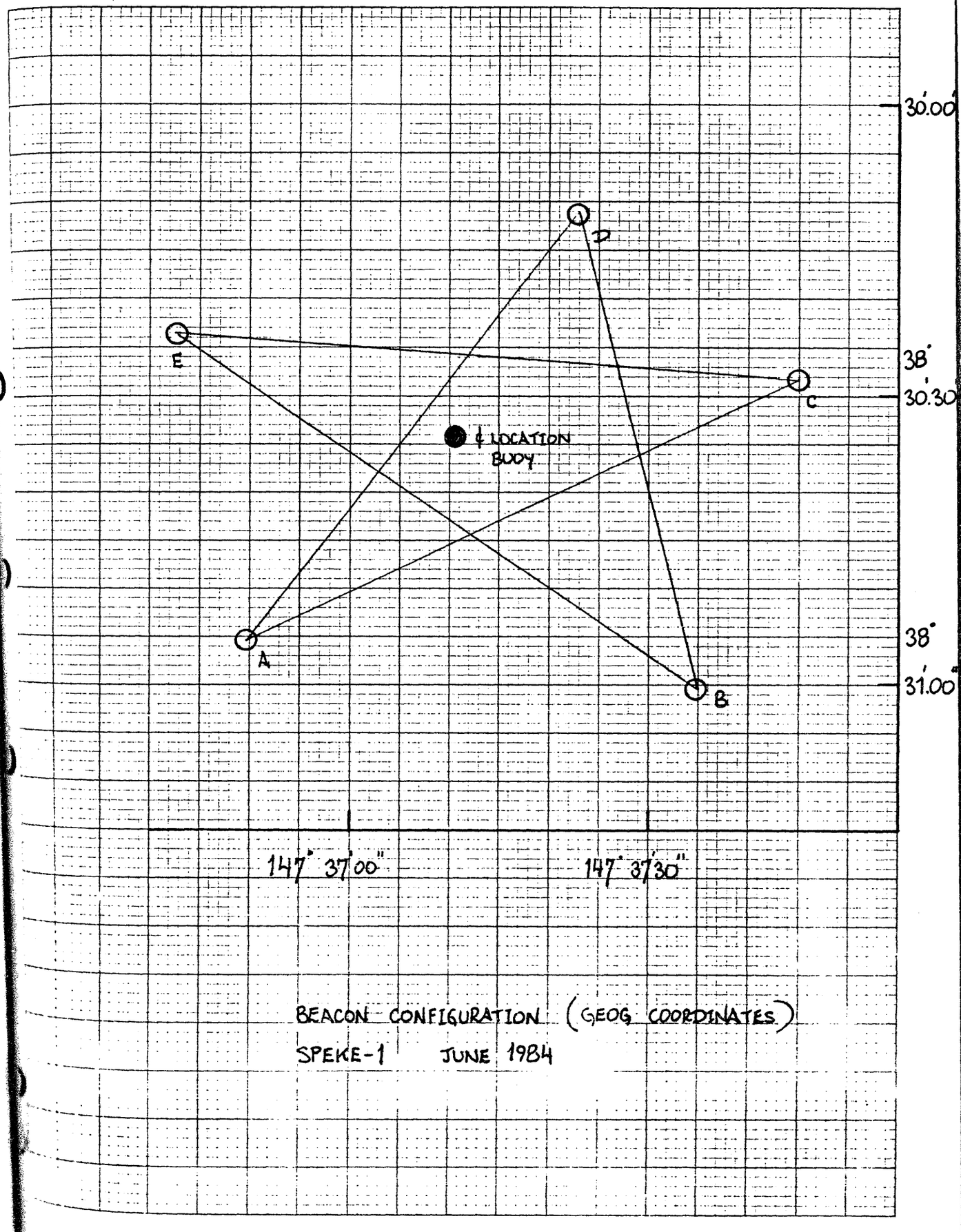
...OARDS
...SE
...DELAIDE
...SYDNEY

AQUIT AA32445
...OCA AA22516

DIAMOND M. EPOCH JUNE 1984

BUOY / BEACON CONFIGURATION

07A89
2 mill metre squares



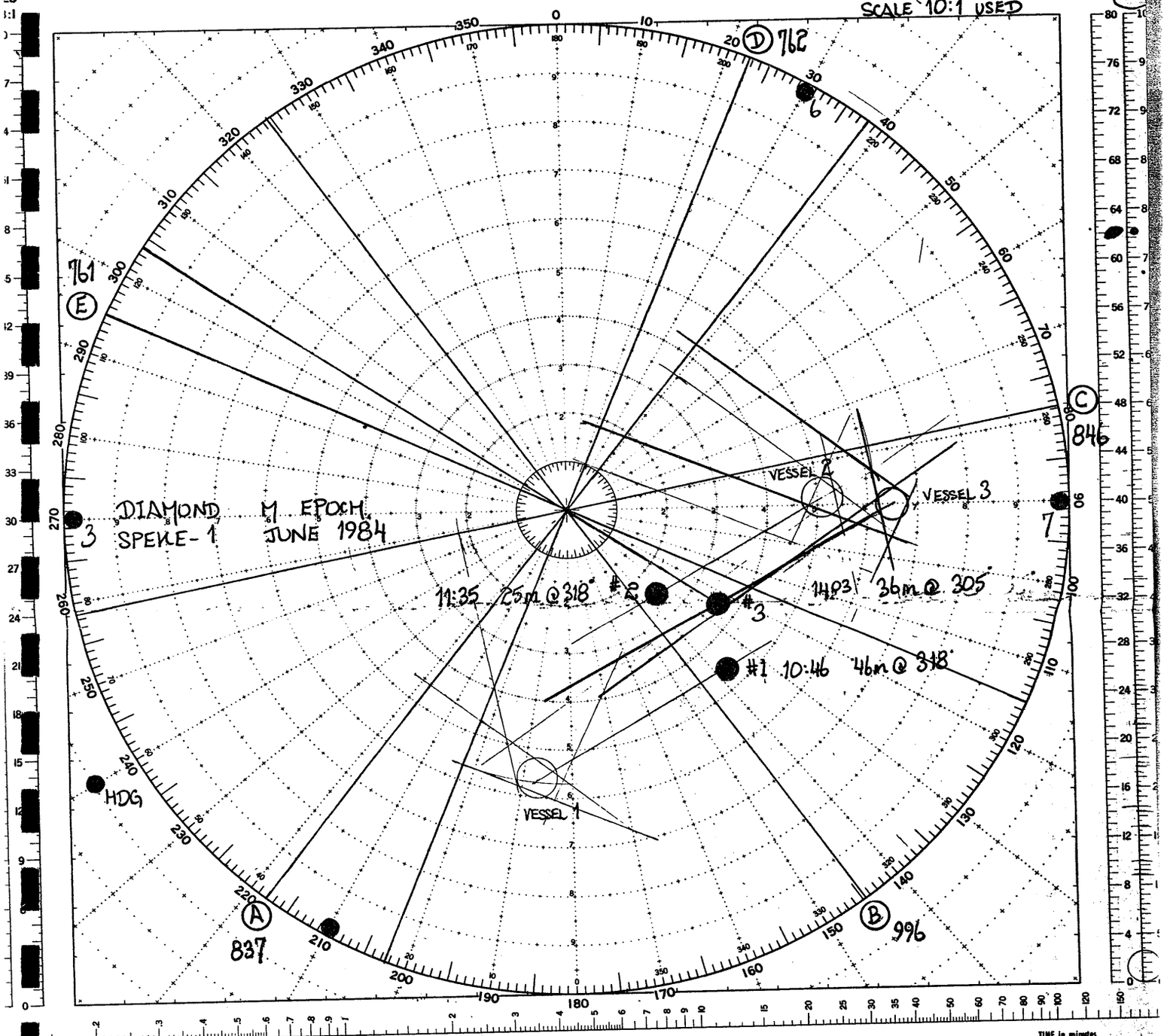
BEACON CONFIGURATION (GEOG COORDINATES)

SPEKE-1 JUNE 1984

E. MANEUVERING BOARDS

MANEUVERING BOARD PAGE 1

SCALE 10:1 USED



OGARITHMIC TIME, SPEED, AND DISTANCE SCALE

Use of miles with logarithmic time, speed, and distance scale

lace one point of dividers on elapsed point distance in miles. Without of d or right-left relationship irst p n 60; second point will then kno

TO FIND DISTANCE OR TIME, place one point of dividers on 60 and second point on speed in knots. Without changing spread of dividers or right-left relationship of points, place first point on time; second point will then indicate distance in miles. Or, place second point on distance in miles; first point will then indicate time.

Actual distance and speed units can be used in the same way as relative units.

DISTANCE in yards
Relative or actual
DISTANCE in miles

SPEED in knots
Relative or actual

1ST ED.,
65TH ED.,
10-inch d
Pad of 50 s

USE OF 3-SCALE NOMOGRAM

iven any two corresponding quantities, solve r third by laying rule through points on proper scales and read intersection on third scale.

Prepared and published by the
DEFENSE MAPPING AGENCY HYDROGRAPHIC CENTER
Washington, D.C. 20390

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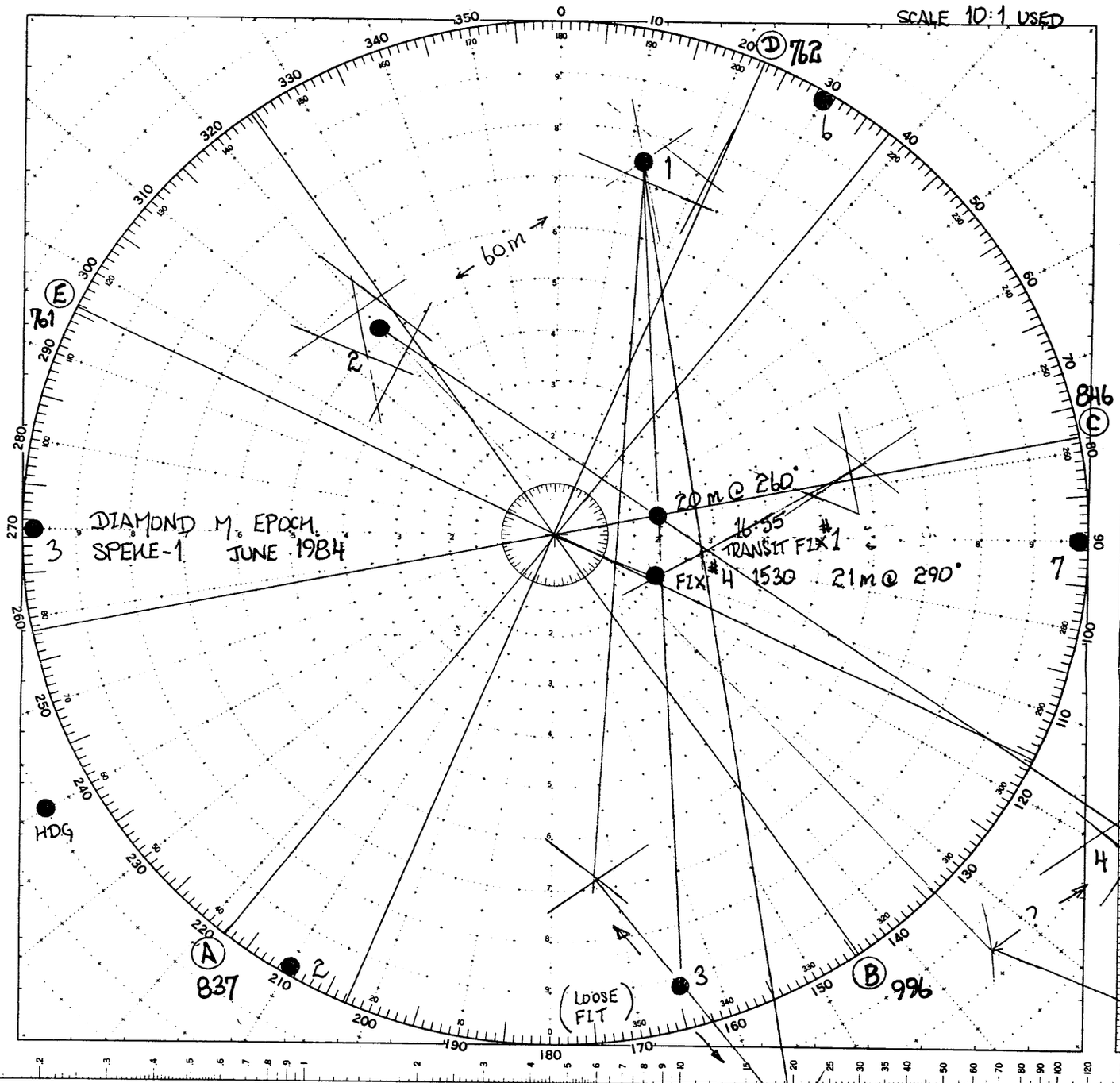
MANEUVERING BOARD PAGE 6

SCALE 10:1 USED



LOGARITHMIC TIME, SPEED, AND DISTANCE SCALE

...f miles with logarithmic time, speed, and distance scale

...oint of dividers on elapsed ...oint on distance in miles. Without ...f dividers or right-left relationship ...r point on 60; second point will then ...knots.

TO FIND DISTANCE OR TIME, place one point of dividers on 60 and second point on speed in knots. Without changing spread of dividers or right-left relationship of points place first point on time; second point will then indicate distance in miles. Or, place second point on distance in miles; first point will then indicate time.

...tance and speed units can be used in the same way as relative units.

TIME in minutes

DISTANCE in yards
Relative or actual
DISTANCE in miles

SPEED in knots
Relative or actual

USE OF 3-SCALE NOMOGRAM

Given any two corresponding quantities, solve ...r third by laying rule through points on proper ...ales and read intersection on third scale.

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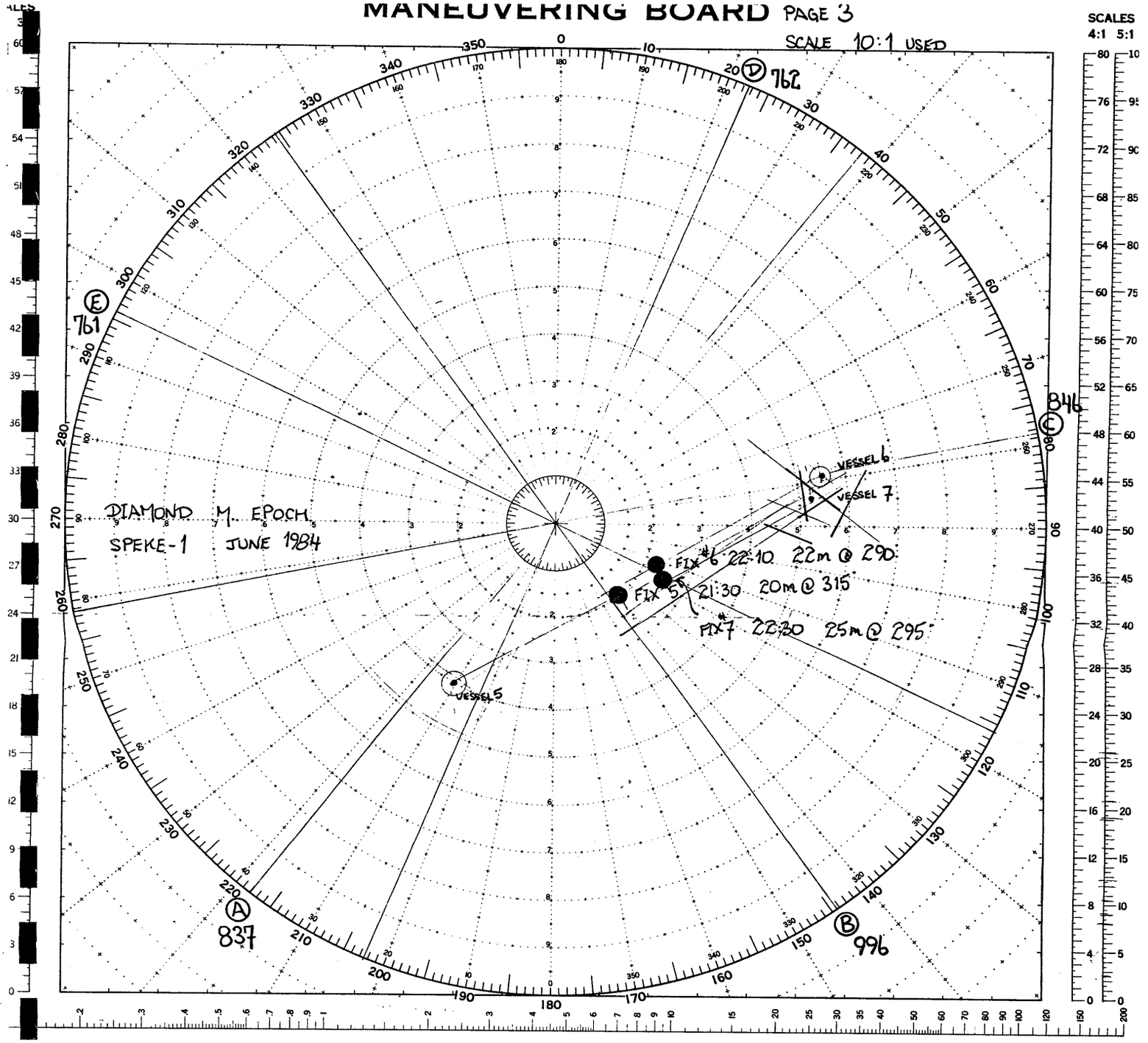
1ST ED., ...
6TH ED., ...
10-inch d...
Pad of 50 sh...

MANEUVERING BOARD PAGE 3



ARITHMIC TIME, SPEED, AND DISTANCE SCALE

se of miles with logarithmic time, speed, and distance scale

ne p... of dividers on elapsed on ... in miles. Without ide... right-left relationship ...f o... second point will then

TO FIND DISTANCE OR TIME, place one point of dividers on 60 and second point on speed in knots. Without changing spread of dividers or right-left relationship of points, place first point on time; second point will then indicate distance in miles. Or, place second point on distance in miles; first point will then indicate time.

distance and speed units can be used in the same way as relative units.

TIME in minutes

DISTANCE in yards
Relative or actual
DISTANCE in miles

SPEED in knots
Relative or actual

USE OF 3-SCALE NOMOGRAM

Gi... any two corresponding quantities, solve for third by laying rule through points on proper scales and read intersection on third scale.

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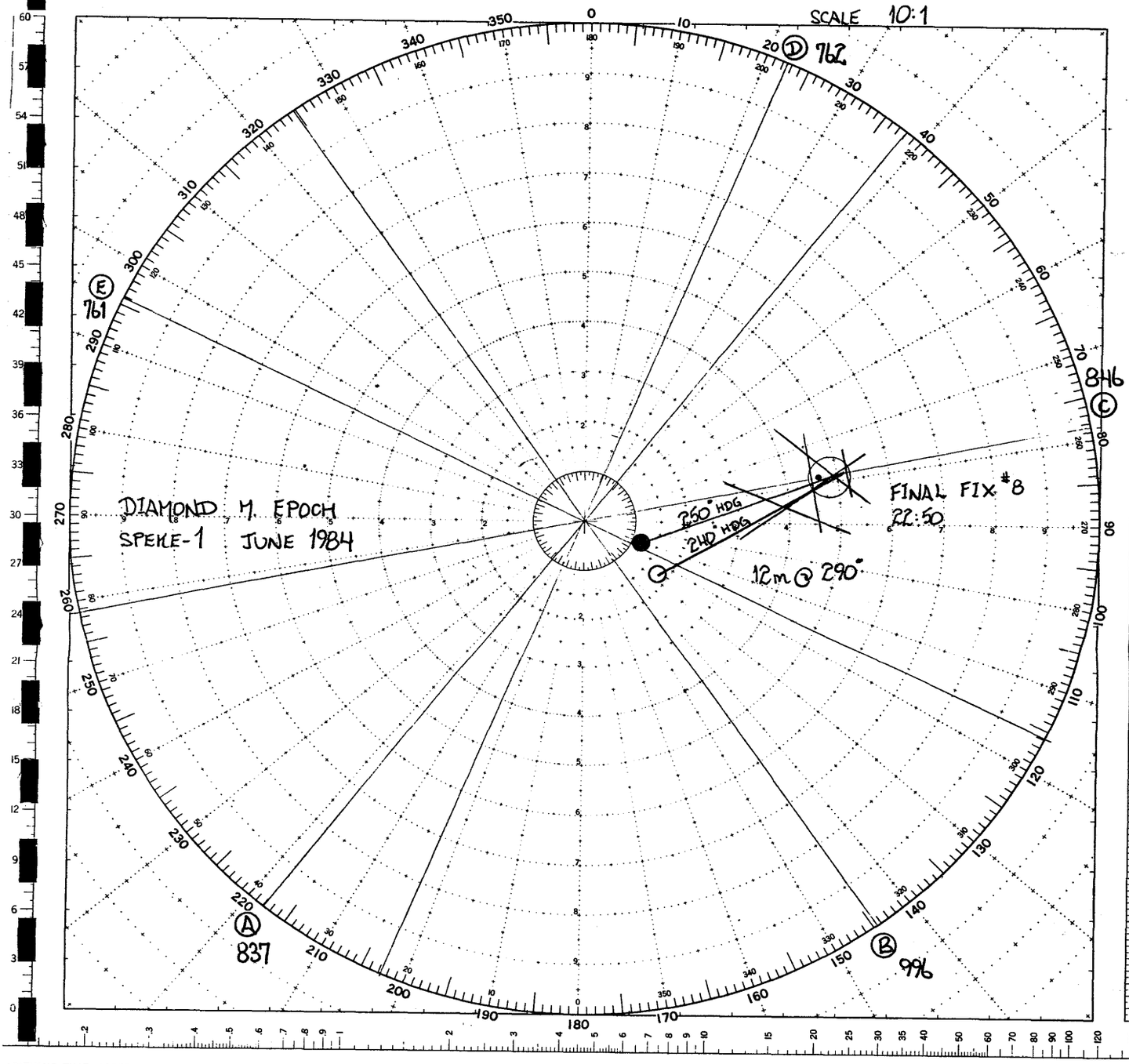
6TH ED., JAN.

10-inch diamet...
Pad of 50 sheets

MANEUVERING BOARD PAGE 4

SCALE 10:1

SCALES
4:1 5:1



ARITHMIC TIME, SPEED, AND DISTANCE SCALE

Use [illegible] miles with logarithmic time, speed, and distance scale

[illegible] of dividers on elapsed [illegible]ce in miles. Without [illegible] right-left relationship [illegible]oint on 60; second point will then

TO FIND DISTANCE OR TIME, place one point of dividers on 60 and second point on speed in knots. Without changing spread of dividers or right-left relationship of points, place first point on time; second point will then indicate distance in miles. Or, place second point on distance in miles; first point will then indicate time.

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TIME in minutes

DISTANCE in yards
Relative or actual
DISTANCE in miles

SPEED in knots
Relative or actual

USE OF 3-SCALE NOMOGRAM

Given any two corresponding quantities, solve for third by laying rule through points on proper scales and read intersection on third scale.

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6TH ED., JAN

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F. DAILY LOGS

DAILY TIME LOG

DATE 7 JUNE 1984

ACTIVITY	FROM – TO	HOURS
COMMUNICATIONS WITH JOHN LAU (ECL) DETAILING RIG MOVE PARAMETERS AND FLIGHT DETAILS	1030	
DEPART PERTH TN 15	2345	

TOTALS

TRAVEL 24.00

P. Chief .....

Q.C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 8 JUNE 1984

ACTIVITY	FROM – TO	HOURS
ARRIVE MELBOURNE	0515	
TRAVEL TO WELSHPOOL WITH TREVOR CRAWFORD JOHN DUNCAN (RACAL SURVEYS)	0600 - 0845	
MEET WITH ALISTER McCORMICK (AAP WELSHPOOL)	0845 - 1030	
DIAMOND M EPOCH CURRENTLY IN PORTLAND UNDERGOING BOP TESTING		
ONBOARD RED BLUFF	1030	
RACAL EQUIPMENT PRE-LOADED		
WEATHER CONDITIONS POOR		
CHECK-INTO WELSHPOOL HOTEL	1230	
ADVISED TO STANDBY	1500	

TOTALS

TRAVEL	8.75
MOBILIZATION	6.25
STANDBY	9.00

P. Chief .....

Q. C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 9 JUNE 1984

ACTIVITY	FROM – TO	HOURS
DELAYED EQUIPMENT SHIPMENT LOADED ONBOARD RED BLUFF	1000	
MARKER BUOY FABRICATION COMMENCES		
EQUIPMENT INVENTORY	1100	
EQUIPMENT INSTALLATION	1630 - 1930	

TOTALS

STANDBY 14.70
MOBILIZATION 9.30

P. Chief .....

Q. C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 10 JUNE 1984

ACTIVITY	FROM – TO	HOURS
REPEATED CPU FAILURES WITH OASIS EQUIPMENT REQUIRE INVESTIGATION	1000	
NOTIFIED THAT DIAMOND M EPOCH HAS DEPARTED PORTLAND	1300	
MEET WITH ALISTAIR McCORMICK TO DISCUSS MOORING PATTERN - TOW VESSEL m/v EASTERN TIDE	1500	

TOTALS

MOBILIZATION 5.00
STANDBY 19.00

P. Chief .....

Q.C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 11 JUNE 1984

ACTIVITY	FROM – TO	HOURS
AAP WELSHPOOL	0900	
WEATHER FORECAST INDICATES DEC WINDS 10/15 W/NW TUESDAY		
m/v RED BLUFF DEPARTS WELSHPOOL	1100	
SPARE CPU BOARD DEPARTS PERTH.	1145	
DEPLOY TRANSDUCER FISH	1730	
RANGES NOT RECEIVED FROM ANY BEACON		
FAULT ISOLATED TO TOW CABLE	1915	
TOW CABLE RE-INSULATED	1945	
ALL BEACONS RESPONDING	2145	
LAY MARKER BUOY TO RELOCATE NET	2210	
FISH ONBOARD	2230	
STANDBY UNTIL DAYLIGHT TO DEPLOY BUOY PATTERN		

TOTALS

STANDBY	12.50
TRANSIT	6.50
EQUIPMENT FAILURE	5.00

P. Chief .....

Q. C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 12 JUNE 1984

ACTIVITY		FROM – TO	HOURS
DEPLOY TRANSDUCER FISH		0815	
DROP HDG BUOY		0940	
FIX HDG BUOY		0945	
DROP #3 BUOY		0957	
FIX #3 BUOY		1000	
DROP #6 BUOY		1040	
FIX #6 BUOY		1045	
DROP #7 BUOY		1100	
FIX #7 BUOY		1107	
DROP #2 BUOY		1130	
FIX #2 BUOY		1140	
FIX HDG BUOY	240° DIR OK	1300	
FIX #2 BUOY	50 M NW	1320	
RETRIEVE NET MARKER BUOY		1340	
FIX #7 BUOY	10 M N	1400	
FIX #6 BUOY	10 M NW	1412	
RELOCATE #3 BUOY		1445	
FIX #3 BUOY	60 M NW	1503	
DROP LOCATION BUOY		1600	
FIX ¢ LOCATION BUOY	30 M NW	1620	
REPLACE LIGHT #6 BUOY		1920	
REPLACE LIGHT #3 BUOY		1945	
STANBY			

TOTALS

STANDBY	12.50
DEPLOY MARKER BUOY NET	11.50

P. Chief .....

Q.C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 13 JUNE 1984

ACTIVITY	FROM – TO	HOURS
GREY VALIANT LAYS ANCHOR 7	0455	
GREY VALIANT LAYS ANCHOR 3	0620	
APPROX 400 M SHORT		
GREY VALIANT DEPARTS TO WELSHPOOL	0700	
LADY SALLY LAYS ANCHOR 6	0715	
LADY SALLY LAYS ANCHOR 2	0805	
RIG GYRO 240°		
LADY SALLY RELAYS ANCHOR 3	0930	
FIX # 1 46 M @ 318°	1046	
EASTERN TIDE LAYS ANCHOR 5	1130	
FIX # 2 25 M @ 318°	1135	
LADY SALLY LAYS ANCHOR 8	1221	
EASTERN TIDE LAYS ANCHOR 4	1245	
FIX # 3 36 M @ 305°	1403	
ANCHOR 4 SLIPPING		
ANCHOR 4 DOWN – RETENSIONING	1550	
ALL SIX MARKER BUOYS RECOVERED	1615	
OFFLOAD JOHN DUNCAN TO EPOCH	1620	
FIX # 4 21 M @ 290°	1630	
TRANSIT FIX # 1 20 M @ 260°	1655	
STANDBY FOR EPOCH TO BALLAST	1700	
TO 50 FT.		

TOTALS

STANDBY	6.00
RIG POSITIONING	18.00

P. Chief .....

Q. C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 13 JUNE 1984 (CONT...)

ACTIVITY	FROM – TO	HOURS
TRANSIT FIX #2 UNSUCCESSFUL DUE TO BEACON REFLECTIONS FROM RIG PONTOONS	2110	
FIX #5 20 M @ 315°	2130	
FIX #6 22 M @ 290°	2210	
FIX #7 25 M @ 295°	2230	
RIG HEADING 251°		
FIX #8 12 M @ 290°	2250	
FINAL POSITION OF RIG		
5737450 N		
554035 E		
UTM ZONE 55		
038 30 34.36 S		
147 37 11.15 E		
AMG		
SUBJECT TO PROCESSING		

TOTALS

P. Chief .....

Q.C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 14 JUNE 1984

ACTIVITY	FROM – TO	HOURS
WEATHER CLEAR		
SEA STATE 0-1		
RELEASED BY DIAMOND M EPOCH	0835	
TRANSIT TO WELSHPOOL		
ARRIVE DOCKSIDE WELSHPOOL	1610	
MEET WITH ALISTAIR McCORMICK	1645	
TRAVEL TO MELBOURNE	2100	
OVERNIGHT TRAVELODGE -MELBOURNE AIRPORT		

TOTALS

STANDBY	8.50
TRANSIT	7.50
TRAVEL	8.00

P. Chief .....

Q.C. .....

Exploration Consultants Limited

DAILY TIME LOG

DATE 15 JUNE 1984

ACTIVITY	FROM – TO	HOURS
MELBOURNE IN OH	0900	
PERTH		

TOTALS

TRAVEL 24.00

P. Chief .....

Q. C. .....

Exploration Consultants Limited

RACAL-SURVEY
DAILY LOG

4551

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aust Aquitaine.

DATE 8, 9, 10 June. 84

PROJECT Rig Move Speke No 1

TIME ZONE Local (GMT+10)

SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
8-6-84.		
0500	Arrived Tollamarine Airport.	
0900	Arrived Aquitaine Yard. Informed That Rig Will	
	Come Under Tow Sunday, ETA Speke Location	
	Late Tuesday Early Wednesday.	
9-6-84.	Equipment Set Up on Red Bluff & Tested.	
	Setting Up Buoy Ropes & Weights. Rig ETA Unchanged.	
10-6-84	Testing Equipment on Board. Computer Locked Up	
	All Registers. Cleared Memory But Cannot Clear	
	Registers. Suspect CPU Fault. Informed Aquitaine	
	Rep of Problem, Also That Rig Move Will Not Be	
	Delayed As We Can Still Hand Plot And Compute For	
	Laying Buoy Pattern And Giving Rig Location.	
	Rig Under Tow 800, ETA Speke Still Late Tuesday	
	Early Wednesday. ETD Red Bluff Approx 1030 Monday	
11-6-84.	Obtained. Transponder Locations In UTM.	
	Plotted Chart With Transponder & Buoy Locations.	
	Rig Heading To Be 240°	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY

DAILY LOG

4552

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aust Aquitaine

DATE 11-6-84

PROJECT Rig Move Spirit I

TIME ZONE Local (GMT+10)

SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
1000	To AAP Offices. Received Weather Forecast +	
	Rig Timing Update. Rig Still Due Wednesday Morning.	
1100.	Red Bluff Departed Wagstaff.	
1630	Arrived Near Location. Fish Deployed. Not Receiving	
	Ranges.	
1915	Fault Isolated To Tow Cable.	
1950	Tow Cable Arrangement Set Up. Receiving Ranges From	
	All 5 Transponders. Post Steady With Vessel Heading.	
2007.	Marker Buoy Deployed	
2030	Fish Retrieved, Standing By For Daylight.	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY
DAILY LOG

4553

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aust Aquitaine

DATE 12-6-84

PROJECT Rig Move Speke 1

TIME ZONE Local (GMT+10)

SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
0800	Vessel Hdg towards location.	
0900	Arrive within transponder net - check fixes.	
	Take five way fix : Range A - 861 m	
	" B - 356 m	
	" C - 801 m	
	" D - 1266 m	
	" E - 1357 m	
0940	Laid Heading Buoy	
0945	Checked Buoy. - Laying 50m SE of Intended.	
	Ranges A. 422	
	C 1929	
	D 1503	
1000	Laid No 3 Anchor Buoy	
1005.	Checked Buoy Laying 20m NW of Intended	
	Ranges: A 946	
	B 1806	
	C 1857	
	D 1482	
	E 460	
1040.	Laid No 6 Anchor Buoy	
1045	Checked Buoy. Laying 60m SE of Intended.	
	Ranges. A 1771	
	B 1578	
	C 669	
	D 247	
REMARKS	E 1289.	

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY

DAILY LOG

4554

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aost Aquitaine

DATE 12-6-84 (Contd.)

PROJECT Rig Move Spere 1

TIME ZONE Local (GMT+10)

SYSTEM OASIS.

TIME	NARRATIVE	INITIAL
1105.	No 7 Anchor Buoy Laid.	
1010.	Checked No 7 Buoy. Approx 40m From Intended.	
	Ranges. A 1686	
	B 788	
	C 331	
	D 1057	
	E 1789	
1130.	No 2 Anchor Buoy Laid.	
1135.	Checked No 2 Buoy Approx 40m From Intended.	
	Ranges A 1246.	
	B 1031	
	C 1659	
	D 1763	
	E 1246.	
1250	Heading To Buoy Pattern To Check All Buoys.	
1430.	All Buoys Checked No 3 Anchor Buoy To Be	
	Shifted, Remainder OK.	
1610.	Dropped Centre Location Buoy.	
1620	Checked Centre Location Buoy. 20m NE From Intended.	
	Ranges. A 811.	
	B 1005	
	C 829	
	D 738	
	E 768.	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY
DAILY LOG

4555

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aust Aquitaine

DATE 12-6-84 (Cont'd)

PROJECT Rig Move Speke 1

TIME ZONE Local (GMT+10)

SYSTEM Cais.

TIME	NARRATIVE	INITIAL
1645.	Relocating No3 Anchor Buoy.	
	Ranges. A 546	
	B 1757	
	C 1922	
	D 1411	
	E. 1420	
1900.	Checked All Buoy Lights. - All OK.	
1930.	Comms With Eastern Tide. Rig Coming over No7 Buoy. Red Bluff To Mark Centre Location, Grey Valiant To Mark No7.	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY

DAILY LOG

VESSEL Red Bluff — 4556

PROJECT LEADER _____ — CLIENT Aust. Aquitaine.

DATE 13-6-84 — PROJECT Rig Move Speke 1.

TIME ZONE Local (GMT+10) — SYSTEM OASIS.

TIME	NARRATIVE	INITIAL
0455	Nº 7 Anchor run + set.	
0620	Nº 3 Anchor run + set.	
0715	Nº 6 Anchor run & set.	
0805	Nº 2 Anchor run & set.	
0930	Nº 3 Anchor re-run & set.	
1010	Fix taken of rig position	
	Ranges: A - 774m, B - 944 m, C - 877, D - 839m, E - 792 m.	
	OASIS to Moonpool offset = 48m brg 060°.	
	Rig lying 52m at 143° from location.	
1045.	Fix taken of rig position.	
	Ranges: A - 789m, B - 970m, C - 890m, D - 822m, E - 782m.	
	OASIS to Moonpool offset = 48m brg 060°	
	Rig lying 51m at 142° from location.	
1135.	Fix taken of rig position.	
	Ranges: A - 892m, B - 966m, C - 793m, D - 752m, E - 820m.	
	OASIS to Moonpool offset = 40m brg 240°	
	Rig lying 36m at 337° from location.	
~~1220~~	~~Other Ranges not Received~~	
1221	#8 anchor run & set	
1251	#5 anchor run & set	
1540	#4 anchor run & set - commencing final tensioning of anchors.	
1630	J Duncan Transferred To Diamond M Epoch.	
1650	Commenced Transit Fix on Rig.	
1710.	Transit Fix Puts Rig 20m Off Intended Direction of Tow 295°	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY
DAILY LOG

VESSEL Red Bluff 4557

PROJECT LEADER _____ CLIENT Aust Aquitaine

DATE 13-6-84 (Cont'd) PROJECT Rig Move Spekel.

TIME ZONE Local (GMT+10) SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
1730	Rig Ballasting Down	
2100.	Commencing Second Transit Fix	
2107	Aborted Transit Fix, Excessive Reflection From Rig.	
2120.	Fix On Stern — Ranges. A 879	
	B 972	
	Offset. Fish-Moonpool C 794	
	33m. D 741	
	Rig Heading 240° E. 840.	
	Offset Moonpool - Intended. 22m At 290°	
2220	Fix on Stern. Ranges. 876.	
	970.	
	Offset Fish - Moonpool 795	
	35m. 745	
	Rig Heading 240° 813	
	Offset Moonpool - Intended 24m At 292°	
	Aquitaine Rep on Rig Requires Rig Within 10m of	
	Intended.	
2260.	Fix On Stern Ranges A 876.	
	B 977	
	Offset Fish - Moonpool C 799	
	38m D 742	
	E 815.	
	Offset Moonpool - Intended. 10.5m At 295°	
2310.	Results Passed To Rig Accepted As Final Fix.	
2315.	Heading To No 3 Anchor Buoy on Request From Rig.	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE

RACAL-SURVEY

DAILY LOG

4558

VESSEL Red Bluff

PROJECT LEADER

CLIENT Aust Aquitaine.

DATE 14-6-84 (Local)

PROJECT Rig Move Spere 1

TIME ZONE Local (GMT+10)

SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
0001	Standing By Rig. No Decision Can Be Made on Rig	
	As To Whether We Are To Stay or Be Released.	
0830	Cleared From Rig. Heading For Weipool.	
1615.	Arrived Port Weipool.	
1930.	Departed Weipool For Melbourne.	

REMARKS

SIGNED PROJECT LEADER

SIGNED CLIENT REPRESENTATIVE

RACAL-SURVEY
DAILY LOG

VESSEL Red Bluff 4559

PROJECT LEADER _____ CLIENT Aust Aquitaine

DATE 15-6-84 PROJECT Rig Move Sperre I.

TIME ZONE Local (GMT+10) SYSTEM Oasis.

TIME	NARRATIVE	INITIAL
0900.	Departed Melbourne.	

REMARKS

SIGNED _____ PROJECT LEADER

SIGNED _____ CLIENT REPRESENTATIVE