BHP Petroleum

ERIC THE RED-1
VIC/P31
WELL COMPLETION REPORT
BASIC DATA (VOLUME 1)

1. WELL SUMMARY SHEET

Well:	Eric The Red-1
Permit:	VIC/P31
District:	Otway Basin
Well Path:	Vertical
Planned Location:	Lat. 39° 00' 45.40" South Long. 143° 10' 51.30" East
Actual Location:	Lat. 39° 00' 45.44" South Long. 143° 10' 51.45" East East: 688 829.7 North: 5 679 544.8 UTM 54, CM 141° East
Seismic Reference:	Line OH91-186, SP 1188
Elevation:	RT to MSL 25.3 m
Water Depth:	75.2 m (MSL to seabed)
Total Depth:	1875 mRT
Departed Last Location:	15 February 1993 15:30 hours
Spud Date:	17 February 1993 07:00 hours
Total Depth Date:	26 February 1993 06:00 hours
Days from Spud to TD:	8 days 23 hours
Rig Release Date:	06 March 1993 03:30 hours
Total Days on Well:	18 days 12.0 hours
Operator:	BHP Petroleum Pty Ltd
Permit Interests:	BHP Petroleum Pty Ltd 90.00% BHP Petroleum Plaza 120 Collins Street MELBOURNE VIC 3000

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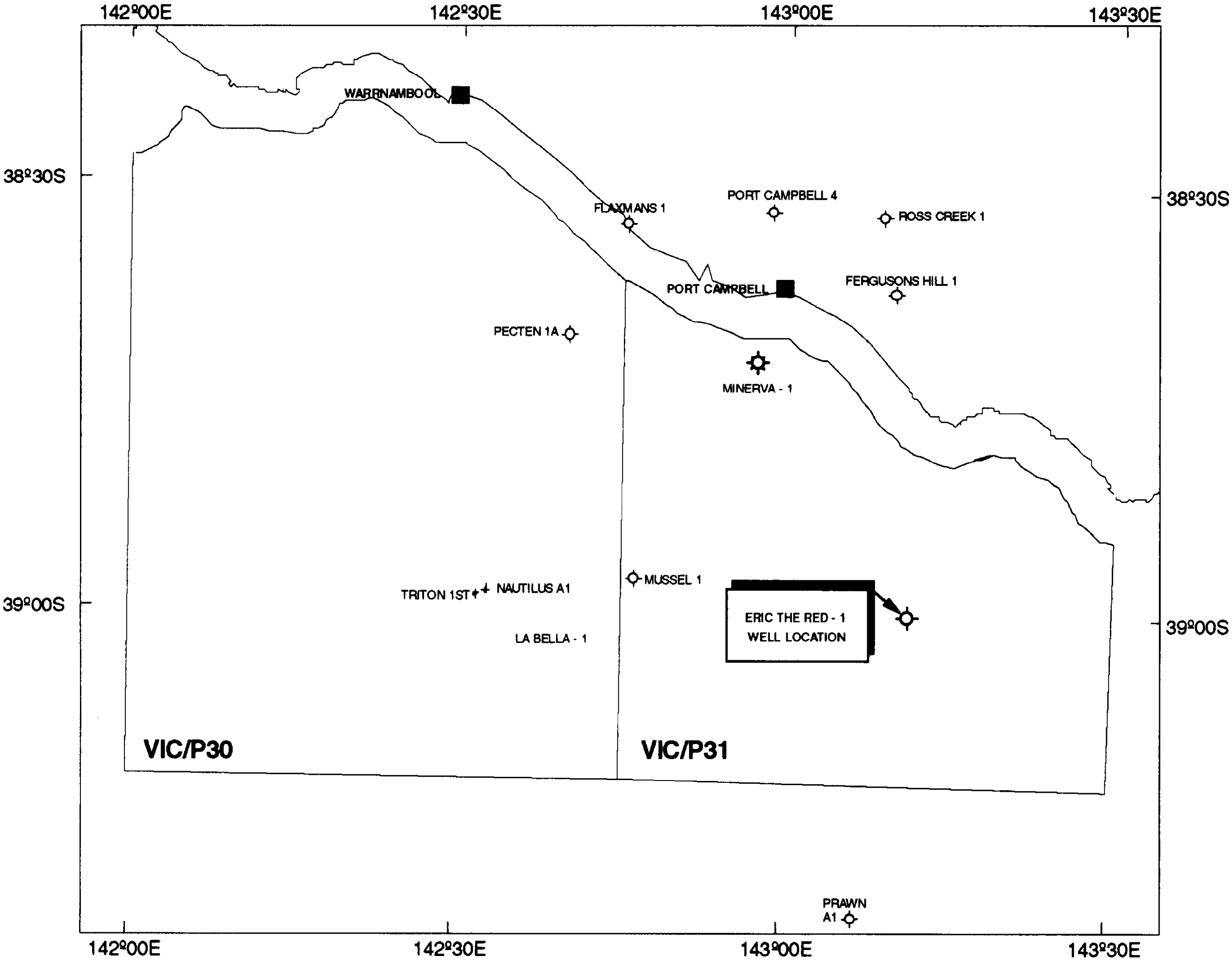

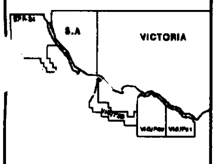

ERIC THE RED _1
LOCATION MAP

BHP Petroleum
OTWAY BASIN

ERIC THE RED_1
LOCATION MAP

AUTHOR:	DATE: 23/11/93
DRAWN BY: T.DELPHIN	DWG NO: 01_QS

1 WELL INDEX SHEET

COMPANY:	BHP Petroleum Pty Ltd	WELL:	Eric The Red - 1	TYPE:	W/cat
SPUDDED:	0700 hrs 17th Feb 1993	BASIN:	Otway		
COMPLETED:	0330 hrs 6th Mar 1993	TENEMENT:	VIC/P31		
TD:	1875 mRT	ELEV. W. D.:	100 mRT	K. B.:	25 m
LOCATION:	Lat. 39deg 00min 45.44sec South	Long.	143deg 10min 51.45sec East		
STATUS:	P & A	1st FLANGE:	30" @ 137 m		

FORMATION/ LITHOLOGIC SUMMARY/ MARKER	TOPS(m) DRILL	SUB SEA	SEISMIC TWT	REMARKS
No returns	100-364			
ertiary	100	75		Fossiliferous calcarenite with interbedded marl.
Nirranda Group	370	345		Sandstones with minor siltstones.
Wangerrip Group	413	388		Sandstones with minor claystone and siltstones.
Sherbrook Group	537	512	545	Interbedded siltstones, sandstones and claystones with calcite cement, pyrite nodules and trace glauconite.
·ipwreck Group				
∪pper	1043	1018	1000	Interbedded sandstones, siltstones and claystones with minor coal at base.
Lower	1436	1411	1080	Interbedded sandstones and claystones with minor coal. Conglomerate near the base.
Otway Group				
Eumeralla Formation	1747	1722	1310	Interbedded sandstones and claystones with minor siltstones.

LOGS:

<u>UITE 1</u>	<u>SUITE 2</u>
.L-MSFL-SDT-GR-SP-CAL-AMS	DLL-MSFL-SDT-GR-CAL-SP-AMS
VSP	FMS-LDL-CNL-GR-AMS
CST-GR (30)	VSP
	RFT
	CST-GR (60)

SWC: SHOT 90 REC 74 DITCH SAMPLES: 370 - 1875 m
STORED: Kestrel Management, Mt. Waverley, Vic.
CORES: No cores cut.

CASING/TUBING SIZE	30"	13.375"		9.625"
LANDED AT (m)	137	355	1007	
CEMENT (sacks)	456	500	254	

TEST RESULTS, FLUID ANALYSIS, LOST CIRCULATION (INTERVAL, CAUSES) PLUG TOPS, REMARKS
Plug No. 1 was set from 1100-900 m; 270 sacks cement
Plug No. 2 was set from 174-124 m; 120 sacks cement

	Bridge Oil Ltd 255 Elizabeth Street SYDNEY NSW 2000	10.00%
Drilling Contractor:	Dolphin Drilling	
Rig:	"Byford Dolphin" Semi Submersible	
Status:	Dry Hole - Plugged and abandoned	
Cost:	$ 3.73 M (from cost control)	

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2. FINAL DRILLING REPORT

FINAL DRILLING REPORT

BHP PETROLEUM PTY. LTD.

PERMIT: VIC/P31

ERIC THE RED-1

AUGUST 1993

BHP Petroleum

Exploration	2 copies (1 copy unbound for distribution to partners and government)
Drilling - Well File	1 copy Original
Exploration Information Centre	1 copy

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SECTION 1

Well	:	ERIC THE RED-1
Permit	:	VIC/P31
Designation	:	EXPLORATION
Operator	:	BHPP
Rig	:	BYFORD DOLPHIN
Type	:	SEMISUBMERSIBLE
Drilling Contractor	:	DOLPHIN DRILLING
Water Depth	:	75.2m
RT Elevation	:	25.3m
Total Depth	:	1875mMD
		1875mTVD
Final Surface Location	:	Lat S 039° 00' 45.440" Long E 143° 10' 51.450" Easting 688 829.7 Northing 5 679 544.8
Location Reference Datum	:	AGD84, AMG ZONE 54 C.M. 141°E
Commencement Date	:	1530 hrs, 15 February 1993
Rig on Location	:	2236 hrs, 15 February 1993
Well Spudded	:	0700 hrs, 17 February 1993
TD Date	:	0600 hrs, 26 February 1993
Drilling Days to TD	:	8 Days, 23 hours
Rig Released	:	0330 hrs, 6 March 1993
Total Well Duration	:	18 Days, 12 hours
Status	:	ABANDONED

SERVICE	CONTRACTOR
CEMENT SUPPLY	HALLIBURTON
CEMENTING SERVICES	HALLIBURTON
CORING SERVICES	DIAMANT BOART
DIRECTIONAL	SMITH
DIVING/ROV	DRILLSUPPORT
DRILLING FLUIDS	MILPARK
HELICOPTERS	LLOYD HELICOPTERS
LOGGING	SCHLUMBERGER
MUD LOGGING	EXLOG
MWD	EASTMAN TELECO
ROLLER REAMERS	GEARHART UNITED
SOLIDS CONTROL	OILTOOLS
STANDBY VESSEL	SWIRE: "MARLIN"
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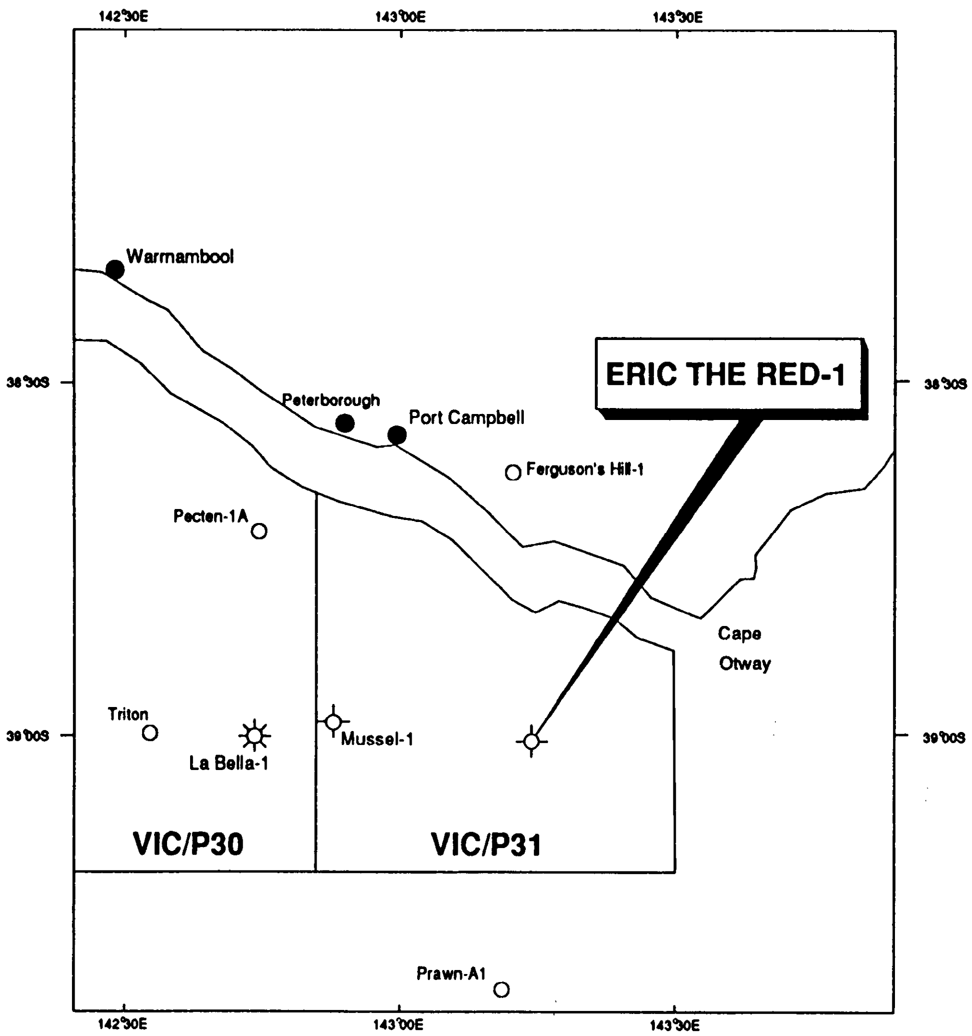
1.2 LOCATION MAP

WELL : ERIC THE RED-1



Permit No. : VIC/P31

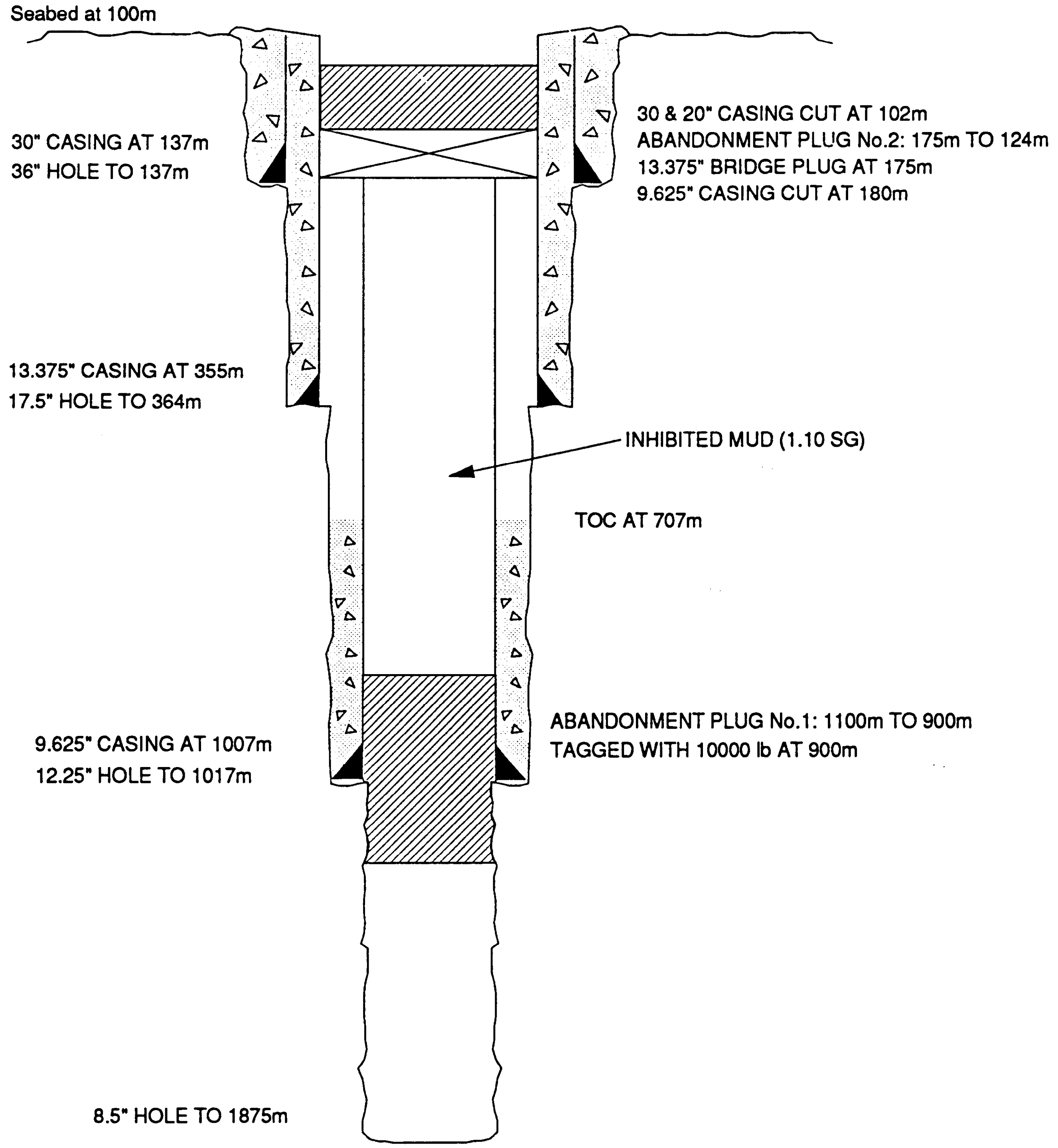
Rig : BYFORD DOLPHIN

Latitude : 39°0' 45.44" S

Longitude : 143°10' 51.45" E

File: BWM VND ER1_LOC1		Checked:	Date: 20 Aug 93

ALL DEPTHS RT BYFORD DOLPHIN

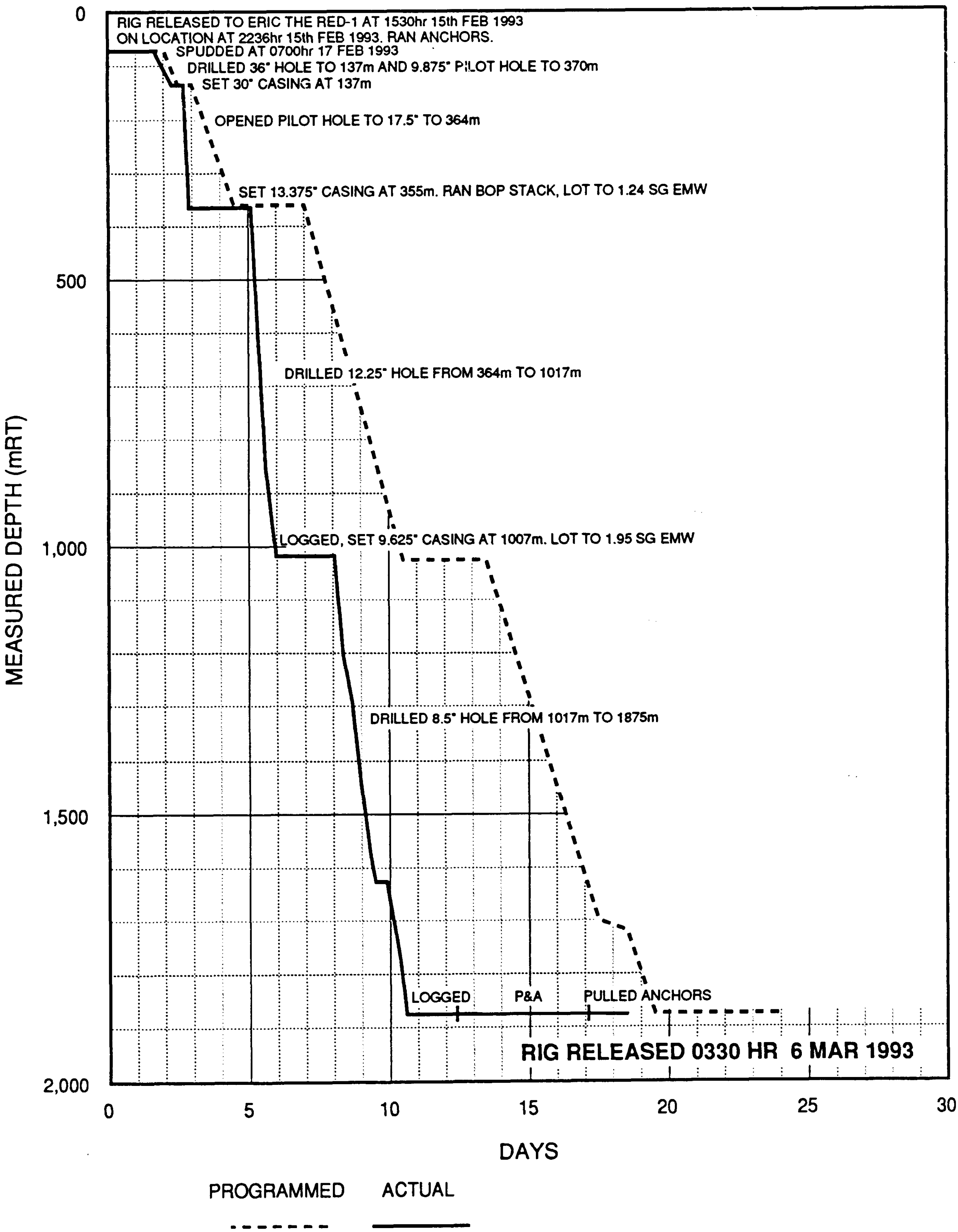


FINAL DRILLING REPORT

BHP Petroleum

1.4. TIME vs DEPTH CURVE

ERIC THE RED-1



File: DB VND ER1_TDC		Checked:	Date: 20-AUG-93

SECTION 2

The Byford Dolphin was released from LaBella-1 at 1530hrs, 15th February, 1993 and arrived at the Eric the Red-1 location at 2236hrs. Eight anchors were run and pretensioned to 170t.

Eric the Red-1 was spudded at 0700hrs 17th February, 1993. The 36" hole was drilled from 100 to 116m and the 9.875" shallow gas test hole was drilled from 116 to 370m during daylight hours. No shallow gas was encountered. The 9.875" pilot hole was then opened to 36" from 116 to 137m. The 30" casing was run and cemented to a depth of 137m.

The pilot hole was opened to 17.5" to a depth of 364m. The 13.375" casing with crossover to the 18.75" wellhead was run and cemented to a depth of 355m.

The 18.75" BOP stack was run and tested and although the lower (variable) pipe ram could not be closed fully, dispensation was received from the regulatory authorities and operations continued. The 12.25" hole was drilled to 367m and a LOT to 1.24 SG EMW was conducted. The 12.25" hole was drilled to 1017m at which point Suite No.1 logs were run. The 9.625" casing was run and cemented at 1007m.

The BOP stack was tested and 8.5" hole drilled to 1020m. A LOT to 1.95 SG EMW was conducted at this depth. Drilling in 8.5"hole continued to a total depth of 1875m. Minor tight hole problems were encountered during a bit trip at 1625m as well as on a wiper trip prior to logging. Suite No.2 logs were run, including RFT's which indicated formation pressures of 1.00 SG EMW.

Difficulties were encountered in recovering the PGB, 30" housing and 18.75" wellhead during plug and abandonment operations. Explosives were utilised to successfully sever the subject casing strings and the equipment recovered. The Byford Dolphin rig was released on 6th March, 1993 at 0330hrs.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
15/02/93	1	0	15:30	22:36	7.10	MOVED RIG TO LOCATION. #1 ON TOW BY FS. #12 ON TOW BY BV.
			22:36	00:00	1.40	#7 ANCHOR ON BOTTOM AT 2236HR. RIG MANOEUVERED TO LOCATION. FAR SWORD DISCONNECTED TOW WIRE AND INSTALLED ANCHOR.
16/02/93	2		00:00	16:34	16.57	RUN ANCHORS AS FOLLOWS: RIG: #7 DROP ANCHOR- ON BTM @ 2236HR FS: #1 ON BTM @ 0107HR BV: #12 ON BTM @ 1106HR FS: #6 ON BTM @ 0305HR FS: #11 ON BTM @ 0735HR FS: #4 ON BTM @ 1024HR FS: #3 ON BTM @ 1529HR FS: #9 ON BTM @ 1734HR
			16:34	18:15	1.68	ANCHOR HANDLING NON PRODUCTIVE TIME
			18:15	21:00	2.75	CROSS TENSIONED ANCHORS TO 170 TONNES.
			21:00	00:00	3.00	BALLASTED RIG DOWN.
17/02/93	3	1	00:00	03:30	3.50	COMPLETED BALLASTING
			03:30	07:00		PICKED UP 36" BHA AND RIH.
			07:00	09:15	2.25	TAGGED SEABED AT 100.5m AND DRILLED 36" HOLE FROM 100.5-116m. PUMPED 30bbl GUAR GUM/SINGLE
			09:15	10:00	0.75	POH AND RACKED 36" BHA IN DERRICK.
			10:00	12:00	2.00	PICKED UP 9 7/8" BHA ON HWDP AND RIH.
			12:00	18:00	6.00	DRILLED 9 7/8" HOLE FROM 116-370m. PUMPED 30 bbl GUAR GUM EVERY 1/2 STAND.
			18:00	18:15	0.25	SPOTTED 150 bbl KILL MUD ON BOTTOM.
			18:15	18:30		DROPPED SURVEY.
			18:30	19:30	1.00	POH AND RECOVERED SURVEY (1/2 DEG).
			19:30	20:15	0.75	RIH WITH 36" BHA.
			20:15	20:45	0.50	TAGGED AT 110m. WASHED AND REAMED TO BOTTOM.
			20:45	22:30	1.75	REAMED 9 7/8" HOLE TO 36" HOLE FROM 116-137m. PUMPED 30 bbl GUAR GUM EACH 1/2 SINGLE.
			22:30	22:45	0.25	PUMPED 150 bbl GUAR GUM AND SPOTTED 150 bbl KILL MUD ON BOTTOM.
			22:45	23:00	0.25	DROPPED SURVEY.
			23:00	00:00	1.00	POH AND RECOVERED SURVEY (1 DEG).
18/02/93	4	2	00:00	00:30	0.50	CONTINUED TO POH.MADE UP CIRCULATING HEAD AND 30" R/T ON STAND AND RACKED BACK.
			00:30	01:00	0.50	RIGGED UP TO RUN 30" CASING.
			01:00	03:15	2.25	RAN AND LANDED CASING AT 137m. PGB-0.5 DEG.
			03:15	03:30	0.25	RIGGED UP CEMENT LINE AND CIRCULATED 100 bbl SEAWATER.
			03:30	04:45	1.25	TESTED CEMENT LINE TO 1000 psi. MIXED AND PUMPED 456 SX 'G' CEMENT AT 1.9 SG WITH 2% CACL2. DISPLACED WITH 18 bbl SEAWATER.
			04:45	05:30	0.75	BACKED OUT 30" R/T AND POH.
			05:30	08:00	2.50	LAID OUT 36" BHA. MADE UP 17 1/2" BHA. RIH.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
18/02/93	4	2	08:00	08:30	0.50	TAGGED CEMENT AT 133.5m. DRILLED CEMENT/SHOE.
			08:30	12:30	4.00	REAMED AND OPENED HOLE FROM 9 7/8" TO 17 1/2" FROM 137-364m.PUMPED 30/50bbl GUAR GUM/CONN.
			12:30	13:00	0.50	SWEPT HOLE WITH 200 bbl HI-VIS AND SPOTTED 300 bbl KILL MUD.
			13:00	13:15	0.25	DROPPED SURVEY.
			13:15	14:15	1.00	POH.
			14:15	14:30	0.25	STABILISER UNABLE TO PASS 30" SHOE DUE TO BALLING. WORKED THROUGH.
			14:30	15:45	1.25	CONTINUED TO POH. RECOVERED SURVEY (1 DEG).
			15:45	16:45	1.00	MADE UP CEMENT HEAD TO STAND. RIGGED UP TO RUN 13 3/8" CASING.
			16:45	21:30	4.75	RAN 21 JOINTS 13 3/8" CASING PLUS X/O AND WELLHEAD. LANDED WELLHEAD AND MADE 50000LB O/P. SHOE AT 355m.
			21:30	22:15	0.75	CIRCULATED CASING WITH 200 bbl SEAWATER.
			22:15	00:00	1.75	SHEARED BOTTOM PLUG AT 800 psi. MIXED AND PUMPED CEMENT AS FOLLOWS: LEAD-300 SX 1.5 SG SLURRY WITH 0.55 GAL/SX ECONOLITE,TAIL-500 SX 1.9 SG SLURRY NEAT. NO SIGN OF TOP PLUG RELEASING. DISPLACED 118 bbl SEAWATER WITH HOWCO.
19/02/93	5	3	00:00	00:45	0.75	BACKED OUT W/H R/T AND WASHED WELLHEAD.
			00:45	01:45	1.00	POH AND LAID OUT R/T AND CEMENT HEAD.
			01:45	02:45		RIGGED UP TO RUN RISER.
			02:45	04:30	1.75	PICKED UP 2X50 ft RISER AND MADE UP.
			04:30	08:15	3.75	PICKED UP BOP,CHANGED OUT AX/VX RING GASKETS AND LOWER ONTO BEAMS.PICKED UP LMRP AND LATCHED ONTO BOP.INSTALLED GUIDELINES AND FUNCTION TESTED BOP'S.
			08:15	10:45	2.50	MADE UP 2X50 ft RISER ONTO BOP'S. RE-SPOOLED BLUE POD REEL TUGGER: WIRE LOOSE ON DRUM.
			10:45	11:45	1.00	TESTED CHOKE/KILL LINES TO 500/10000 psi.
			11:45	14:00	2.25	MADE UP 3RD JOINT RISER, PUP,SLIP JOINT AND LANDING JOINT.
			14:00	17:15	3.25	HOOKED UP CHOKE/KILL LINES ONTO SLIP JOINT.ATTACHED AND RELEASED TENSIONER RING. RE-ADJUSTED MRT LINES AS RING NOT SUPPORTED PROPERLY.
			17:15	19:15	2.00	MANOEUVRED RIG AND LANDED BOP. NO SIGN OF ROD INDICATOR MOVEMENT BUT TOOK CORRECT FLUID VOLUME. MADE 50kip OVERPULL ON WELLHEAD.
			19:15	21:45	2.50	STROKED OUT SLIP JOINT. LAID OUT LANDING JOINT. PICKED UP AND INSTALLED DIVERTER. RIGGED DOWN RISER RUNNING EQUIPMENT
			21:45	00:00	2.25	MADE UP AND RIH WITH TEST TOOL(4 STAND HWDP BELOW). TESTED BOP'S 500/3500 psi.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
20/02/93	6	4	00:00	02:15	2.25	CONTINUED TO TEST BOP'S 500/3500 psi. UNABLE TO GET TEST ON LOWER PIPE RAM(VBR).
			02:15	03:45	1.50	POH WITH TEST PLUG.PAINTED DP TO GET RAM IMPRESSION.RIH AND CLOSED LOWER PIPE RAM -STILL UNABLE TO TEST.POH-RAM NOT CLOSING
			03:45	04:00	0.25	TESTED SHEAR RAM/CASING TO 500/1500 psi.
			04:00	07:00	3.00	LAID OUT 17 1/2" BHA. PICKED UP 12 1/4" BHA.
			07:00	09:00	2.00	PREPARED TO PULL BOP'S DUE TO LOWER PIPE RAM PROBLEM. DECISION REVERSED.
			09:00	09:30	0.50	RIH AND SET BORE PROTECTOR.
			09:30	12:45	3.25	CONTINUED TO PICK UP 12 1/4" BHA AND RIH.
			12:45	14:45	2.00	TAGGED FIRM CEMENT AT 319m.DRILLED CEMENT AND SHOETRACK TO 355m.
			14:45	15:15	0.50	PUMPED 100 bbl GUAR GUM,100 bbl SEAWATER AND DISPLACED HOLE TO MUD.
			15:15	15:30	0.25	REAMED RATHOLE TO 364m.
			15:30	16:00	0.50	DRILLED 12 1/4" HOLE FROM 364-367m.
			16:00	17:00	1.00	CIRCULATED HOLE CLEAN.
			17:00	17:45	0.75	PULLED BACK INTO SHOE AND RAN LOT:EMW OF 1.24SG AT 100 psi WITH 1.07 SG MUD.
			17:45	00:00	6.25	DRILLED 12 1/4" HOLE FROM 367-625m. HOLE CONDITION GOOD.
21/02/93	7	5	00:00	10:00	10.00	DRILLED 12 1/4"HOLE FROM 625-1017m.REAMED EACH CONNECTION. HOLE CONDITION GOOD.
			10:00	12:15	2.25	CIRCULATED HOLE CLEAN.
			12:15	14:15	2.00	POH.
			14:15	14:45	0.50	DUMPED MEMORY ON MWD.
			14:45	15:15		RIGGED UP FOR LOG SUITE #1.
			15:15	18:30	3.25	RUN #1 - DLL/MSFL/SDT/AMS/GR/CAL. TAGGED BOTTOM AT 1012.5m.
			18:30	00:00	5.50	RUN #2 - VSP.
22/02/93	8	6	00:00	04:00	4.00	CONTINUED RUN #2 - VSP.
			04:00	08:00		RUN #3 CST. FIRED 30 SHOTS. 27 RECOVERED,6 MISFIRED,3 LOST.
			08:00	09:00	1.00	WAIT ON DECISION TO RUN EXTRA CST.
			09:00	09:15	0.25	RIGGED DOWN SCHLUMBERGER.
			09:15	10:00	0.75	RECOVERED NOMINAL BORE PROTECTOR.
			10:00	11:15	1.25	MADE UP CEMENT HEAD ON DP STAND AND RACKED BACK.MADE UP 9 5/8" HANGER/PLUGS ON DP STAND AND RACKED BACK.
			11:15	12:00	0.75	RIGGED UP TO RUN CASING.
			12:00	17:00	5.00	RAN 76 JOINTS 9 5/8" 47# P110 PLUS HANGER. RUN STRING: 2 JTS DP,2 STANDS 8"DC,1 STAND DP. HUNG UP AT 6m OFF BOTOM.
			17:00	17:30	0.50	CIRCULATED CASING DOWN LAST 6m AND LANDED CASING AT 1007m.
			17:30	18:15	0.75	CIRCULATED CASING.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
22/02/93	8	6	18:15	18:30	0.25	TESTED LINES TO 3500 psi.
			18:30	19:30	1.00	PUMPED 10 bbl SEAWATER (BOTTOM PLUG SHEARED AT 1100 psi). MIXED AND PUMPED 254 SX 1.9SG NEAT SLURRY. SHEARED TOP PLUG AT 2500psi. DISPLACED CASING WITH 223bbl MUD (6bbl OVER). PLUG DID NOT BUMP.
			19:30	19:45	0.25	SET SEAL ASSEMBLY.
			19:45	20:15	0.50	TESTED SEAL ASSEMBLY TO 3500 psi.
			20:15	00:00	3.75	TESTED BOP'S: UPPER PIPE RAM 500/10000 psi. ALL OTHERS 500/3500 psi.
23/02/93	9	7	00:00	02:00	2.00	CONTINUED TO TEST BOP'S. LEAK IN BOTH ANNULARS-INCREASE CLOSING PRESURE TO 1800 psi TO GET TEST.
			02:00	02:45	0.75	MADE 60000 lb O/P AND RECOVERED R/T.
			02:45	03:15	0.50	TESTED SHEAR RAM TO 500/3500 psi.
			03:15	03:45		SET 9 5/8" WEAR BUSHING.
			03:45	04:15		RIGGED DOWN CEMENTING EQUIPMENT.
			04:15	08:00	3.75	LAID OUT 12 1/4" BHA. PICKED UP 8 1/2" BHA.
			08:00	08:30	0.50	DOWNLOADED MEMORY IN MWD AND TESTED.
			08:30	11:30	3.00	CONTINUED TO RIH WITH 8 1/2" BHA.
			11:30	11:45	0.25	TAGGED FIRM CEMENT AT 968m AND WASHED DOWN.
			11:45	15:00	3.25	TAGGED FLOAT AT 983m.DRILLED FIRM CEMENT. CLEANED OUT RATHOLE AND SURGED FOR JUNK.
			15:00	15:15	0.25	DRILLED 8 1/2" HOLE FROM 1017-1020m.
			15:15	15:30		CIRCULATED HOLE.
			15:30	16:45	1.25	PULLED INTO SHOE AND CARRIED OUT LOT TO 1.95SG EMW (1.08SG MUD,1257 psi PRESSURE)
			16:45	00:00	7.25	DRILLED 8 1/2" HOLE FROM 1020-1206m. HOLE CONDITION GOOD.
24/02/93	10	8	00:00	03:00	3.00	DRILLED 8 1/2" HOLE FROM 1206-1238m.
			03:00	03:15	0.25	PIT INCREASE- FLOW CHECK. HOLE STATIC.
			03:15	00:00	20.75	DRILLED 8 1/2" HOLE FROM 1238-1593m. INCREASE IN TORQUE WHILE DRILLING SANDS FROM 1380m.
25/02/93	11	9	00:00	03:00	3.00	DRILLED 8 1/2" HOLE FROM 1593-1625m.
			03:00	07:30	4.50	PUMPED SLUG AND POH. TIGHT HOLE FROM 1518-1430m, 1390-1370m AND 1170-1160m AT 30-40kip OVERPULL,1160-1110m AT 90kip OVERPULL. 1110-1080m:40kip; 1080-1050m:80kip OVERPULL.
			07:30	08:00	0.50	DUMPED MWD MEMORY AND SURFACE TESTED SAME.
			08:00	09:15	1.25	BROKE OUT BIT #6 AND MADE UP BIT #7 - ATM22.
			09:15	09:45	0.50	SERVICED TDS.
			09:45	11:00	1.25	CONTINUED RIH.
			11:00	11:30	0.50	FILLED PIPE AND REAMED FROM 1567-1595m.
			11:30	12:00		REPAIRED LEAK IN WATER COOLING LINE ON TDS.
			12:00	12:45	0.75	WASHED AND REAMED FROM 1596-1625m.
			12:45	00:00	11.25	DRILLED 8 1/2" HOLE FROM 1625-1771m.
26/02/93	12	10	00:00	06:00	6.00	DRILLED 8 1/2" HOLE FROM 1771-1875m.SURVEYED.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
26/02/93	12	10	06:00	07:00	1.00	CIRCULATED HOLE UNTIL SHAKERS CLEAN.
			07:00	09:30	2.50	PUMPED SLUG AND POH FOR 20 STAND WIPER TRIP. INTERMITTENT TIGHT HOLE FROM 1816-1352m. MAX OVERPULL 120kip AT 1643m, REMAINDER 60kip MAX
			09:30	10:15	0.75	CIRCULATED HOLE UNTIL SHAKERS CLEAN.
			10:15	13:45	3.50	PUMPED SLUG AND POH FOR LOGGING.
			13:45	14:15	0.50	RIGGED UP SCHLUMBERGER FOR SUITE #2 LOGS.
			14:15	18:00	3.75	RUN #1: DLL-MSFL-SDT-GR-SP-CAL-AMS.
			18:00	00:00	6.00	RUN #2 FMS-LDT-CNL-GR-AMS. TEMPORARILY STUCK AT 1867m. PULLED FREE WITH 5kip OVERPULL.
27/02/93	13	11	00:00	03:00	3.00	RUN#3-VSP. PROBLEM TRANSMITTING SIGNAL TO GUNS. POH.
			03:00	04:00	1.00	RIGGED DOWN VSP, RIGGED UP LOG #4-RFT.
			04:00	08:45	4.75	RUN #4-RFT'S. TOOK 6 PRETESTS.
			08:45	09:45	1.00	RIGGED DOWN RFT TOOL. RIGGED UP TO RERUN VSP.
			09:45	20:00	10.25	RE-RAN VSP.
			20:00	23:30	3.50	RUN #5-60 SHOT CST. 53 REC/4 LOST/3 MISSING
			23:30	00:00	0.50	RIGGED DOWN SCHLUMBERGER.
28/02/93	14	12	00:00	01:45	1.75	PICKED UP CEMENTING SUB. RIH TO 1100m.
			01:45	02:00	0.25	CIRCULATED HOLE CLEAN.
			02:00	02:30	0.50	SET ABANDONMENT PLUG #1 FROM 1100-900m WITH 55bbl, 1.9SG NEAT SLURRY. (270SX AND 32bbl MIXWATER). PUMPED 5bbl SPACER, 2bbl BEHIND.
			02:30	03:15	0.75	POH SLOWLY TO 800m.
			03:15	03:45	0.50	CIRCULATED BOTTOMS UP(ADD INHIBITOR TO MUD)
			03:45	08:00	4.25	LAID OUT EXCESS HWDP AND BHA.
			08:00	09:30	1.50	RIH.TAGGED PLUG #1 AT 900m WITH 10kip. POH.
			09:30	11:00		MADE UP WEAR BUSHING RUNNING TOOL AND RIH. RETRIEVED 9 5/8" WEAR BUSHING.
			11:00	12:30	1.50	PICKED UP AND MADE UP C-9 CASING CUTTER ASSEMBLY. RAN SURFACE TEST AND RIH. COULD NOT PASS WELLHEAD.
			12:30	13:45	1.25	POH. RESECURED C-9 KNIVES AND RIH TO 180m.
			13:45	14:30	0.75	CUT 9-5/8" CASING AT 180m WITH 800psi AND 100RPM. AUDIBLE SEPARATION AND INCREASE IN TORQUE.
			14:30	15:30	1.00	POH AND LAID OUT C-9 CASING CUTTER ASSEMBLY.
			15:30	16:30		MADE UP CASING SPEAR AND RIH. PICKED UP 9-5/8" CASING WITH 40kip OVERPULL AND POH.
			16:30	17:30	1.00	LAID OUT 9-5/8" HANGER, 6 JOINTS AND STUB.
			17:30	18:30		RIGGED UP SCHLUMBERGER. RIH AND SET 13-3/8" BRIDGE PLUG AT 175m. POOH AND RIGGED DOWN.
			18:30	19:30	1.00	MADE UP CEMENTING SUB AND RIH TO 175m. TAGGED PLUG WITH 5kip. PULLED BACK TO 174m AND SET ABANDONMENT PLUG #2 FROM 174-124m WITH 24.5 bbl OF 1.9 NEAT 'G' SLURRY(120SX,14.3bbl MIXWATER).10bbl SPACER AHEAD, 6bbl BEHIND.

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
28/02/93	14	12	19:30	20:00	0.50	POH TO 120m,REVERSE CIRCULATED 2xDP VOL.,POH.
			20:00	20:15	0.25	RIH WITH JET SUB.
			20:15	21:00	0.75	FLUSHED/JETTED BOP AND CHOKE AND KILL LINES.
			21:00	21:15	0.25	POH WITH JET SUB AND LAID OUT SAME.
			21:15	23:00	1.75	RIGGED UP TO PULL BOP STACK.
			23:00	00:00	1.00	LAID OUT DIVERTER.
01/03/93	15	13	00:00	00:30	0.50	CONTINUED LAYING DOWN DIVERTER.
			00:30	11:30	11.00	MADE UP LANDING JOINT. CLOSED AND NIPPLED UP SLIP JOINT. DISCONNECTED BOP. RIGGED DOWN CHOKE AND KILL LINES. REALIGNED SUPPORT RING. LAID DOWN SLIP JOINT AND PULLED RISER. LANDED BOP'S ON MOONPOOL BEAMS.
			11:30	12:30	1.00	NIPPLED DOWN BOP'S.
			12:30	16:45	4.25	DISCONNECTED LMRP/BOP'S. SKIDDED ONTO STUMPS.
			16:45	17:45	1.00	LAID OUT 2 BY 50ft RISER JOINTS.
			17:45	19:15	1.50	RIGGED DOWN RISER HANDLING EQUIPMENT.
			19:15	21:15	2.00	MADE UP C-13 CUTTER ASSEMBLY WITH 36" KNIVES. RIH TO 102m.
			21:15	00:00	2.75	CUT 20"/30" CASING WITH 60RPM AND 600psi.
02/03/93	16	14	00:00	01:00	1.00	CONTINUED CUTTING 20"/30" CASING WITH 60RPM AND 600psi.
			01:00	01:15	0.25	ATTEMPTED TO PULL CASING.
			01:15	02:45	1.50	RECUT CASING AT 102m.
			02:45	03:15	0.50	ATTEMPTED TO PULL CASING.
			03:15	05:00	1.75	POH TO CHECK CUTTERS - FULL EXTENSION (35" MEASURED). MADE UP 52" KNIVES, RIH TO 102m.
			05:00	07:30	2.50	RIH TO 102m. RECUT WITH 60RPM AND 300psi MAX. TORQUE VARIABLE FROM 50-500AMPS.
			07:30	08:15	0.75	C-13 CASING CUTTER ASSEMBLY SHEARED AT MANDREL OF SWIVEL. POH. LENGTH OF FISH 5.08m. TOP OF FISH 1.74m INSIDE TOP OF WELLHEAD(99.24mRT).
			08:15	11:00	2.75	WAIT ON WEATHER. (UNABLE TO WORK ANCHORS) MADE UP 20" RUNNING TOOL AND RIH. RAN RIG S/S TV. VISIBILITY 0.5m - UNABLE TO STAB.
			11:00	13:30	2.50	WOW. JUMPED ROV INTO POSITION AND MONITORED VISIBILITY AND ATTEMPTED TO SEE WELLHEAD.
			13:30	14:45	1.25	WOW. BROKEN HYDRAULIC LINE ON ROV. PULLED TO SURFACE. CONTINUED TO MONITOR VISIBILITY WITH RIG S/S TV.
			14:45	21:00	6.25	WOW. STABBED WELLHEAD RUNNING TOOL INTO 18 3/4" WELLHEAD. APPLIED 450kip MAX. OVERPULL AND CIRCULATED AT 400psi.
			21:00	00:00	3.00	WOW. POH WITH 18-3/4" W/H RUNNING TOOL. MADE UP FISHING TOOL AND RIH. STABBED INTO WELLHEAD AND SET DOWN ON FISH WITH 10kip. POH WITH FISH (18-3/4" GRAPPLE).

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
03/03/93	17	15	00:00	01:30	1.50	DRESSED AND MADE UP 11-1/4" OVERSHOT AND 8-1/4" GRAPPLE. RIH.
			01:30	02:00	0.50	STABBED IN AND WORKED OVERSHOT. POH W/0 FISH.
			02:00	03:30	1.50	RIH WORKED OVERSHOT AND POH.
			03:30	04:15	0.75	MODIFIED MILL CONTROL. MADE UP SAME.
			04:15	04:45	0.50	RIH TO WELLHEAD.
			04:45	06:15	1.50	ROV LOST CLUMP WEIGHT. RAN RIG S/S TV AND STABBED IN. WORKED OVERSHOT AND POH. RETRIEVED MANDREL SLEEVE.
			06:15	06:45	0.50	LAID OUT 11-1/4" OVERSHOT. SERVICE BROKE AND LAID OUT 9-5/8" CASING SPEAR.
			06:45	08:00	1.25	LAID OUT 6 x 8" DRILL COLLARS AND MADE UP 8-1/8" OVERSHOT WITH 6-1/4" GRAPPLE.
			08:00	12:00	4.00	RIH TO WELLHEAD. STABBED IN WITH S/S TV AND RETRIEVED REMAINING FISH. (20"/30" CASING CUTTER-KNIVES OPENED TO 38")
			12:00	16:45	4.75	PREPARED AND RAN IN TO BLOW WELLHEAD. LANDED T-BAR IN WELLHEAD AND SECURED.
			16:45	21:15	4.50	DE-BALLASTED RIG.
			21:15	00:00	2.75	PREPARED AND MOVED RIG OFF LOCATION. 130m AFT - ALL STOP AT 2300HRS. CLAMPED #1 GUIDE LINE TO BLUE POD LINE (#1 GUIDE LINE TOO SHORT). PUT #2 AND #3 GUIDE LINES BACK ON SHEAVES.
04/03/93	18	16	00:00	00:45	0.75	CONTINUED MOVING RIG OFF LOCATION.
			00:45	01:45	1.00	REPAIRED OIL LEAK ON #7 ANCHOR WINCH.
			01:45	02:00	0.25	CONTINUED MOVING OFF LOCATION.
			02:00	03:30	1.50	SURFACE INSTRUMENT INDICATED SHOT FIRED. MOVED BACK ON LOCATION.
			03:30	04:00	0.50	RIGGED DOWN AND RECOVERED FIRING MECHANISM. DID NOT FIRE. BROKEN WIRE BETWEEN T-BAR AND CANISTERS.
			04:00	06:30	2.50	REPAIRED BROKEN WIRE.
			06:30	09:00		PREPARED AND RAN CANISTERS.
			09:00	12:15	3.25	MOVED OFF LOCATION.
			12:15	14:45	2.50	DETONATED CHARGE. GOOD SURFACE AND AUDIBLE INDICATION. MOVED BACK OVER LOCATION.
			14:45	15:00	0.25	LAID DOWN DETONATING CABLE AND PULLED T-BAR TO SURFACE.
			15:00	16:15	1.25	MADE UP 18-3/4" WELLHEAD RUNNING TOOL. RIH.
			16:15	18:15	2.00	LATCHED INTO WELLHEAD AND RETRIEVED 20"/30" CASING AND PGB WITH 15kip OVERPULL.
			18:15	00:00	5.75	PASSED #3 PENNANT TO FS AT 1944HRS ANCHOR RACKED 2220HRS. PENNANT SECURED 2233HRS. PASSED #4 PENNANT TO MB AT 2005HRS. ANCHOR RACKED 2310HRS. PENNANT SECURED 2320HR. ANCHORS #2 & #5 LOWERED TO SEABED.
05/03/93	19	17	00:00	23:11	23.18	WORKED ANCHORS AS FOLLOWS:

Date	Day No.	Days From Spud	From	To	Hours	Daily Operations
05/03/93	19	17	00:00	23:11		PAID OUT 250M ANCHORS #2 AND #5. SKIDDED RIG 200M TO PORT FROM 0044-0115HRS. BV - #8 PENNANT PASSED @ 0145HRS. ANCHOR ON DECK @ 0215HRS. ANCHOR CHANGED OUT TO 0357HRS. RACKED @ 0430HRS. PENNANT SECURED @ 0445HRS. - #9 PENNANT PASSED @ 0450HRS. ANCHOR RACKED @ 0628HRS. PENNANT SECURED @ 0645HRS. - #10 PENNANT PASSED @ 1314HRS. ANCHOR RACKED @ 1518HRS AFTER FITTING ANCHOR, SWIVEL AND PENNANT. PENNANT SECURED AT 1527HRS. - #11 PENNANT PASSED @ 1535HRS. ANCHOR RACKED @ 1658HRS. PENNANT SECURED @ 1712HRS. - #12 J-HOOKED @ 1833HRS. ANCHOR DETACHED FOR TOWING @ 2348HRS. FS - J-HOOKED #2. ON DECK @ 0247HRS. FITTED SWIVEL AND PENNANT. COMPLETED @ 0842HRS. ANCHOR RACKED @ 0954HRS. PENNANT SECURED @ 1002HRS. - J-HOOKED #5. ON DECK @ 1122HRS. FITTED SWIVEL AND PENNANT. COMPLETED @ 1552HRS. ANCHOR RACKED @ 1619HRS. PENNANT SECURED @ 1625HRS. - #6 PENNANT PASSED @ 1907HRS. ANCHOR RACKED @ 2223HRS. PENNANT SECURED @ 2231HRS. - #1 PENNANT PASSED @ 2245HRS.
			23:11	00:00	0.82	ANCHOR HANDLING NON PRODUCTIVE TIME
06/03/93	20	18	00:00	03:30	3.50	PULLED ANCHORS AS FOLLOWS: FS - #1 PENNANT PASSED 2245HRS. DETACHED ANCHOR FOR TOWING @ 0150HRS. RIG - #7 PULLED @ 0205HRS. ANCHOR RACKED @ 0342HRS. RIG RELEASED TO MINERVA-1 AT 0330HR.

SECTION 3

BHP Petroleum

FINAL DRILLING REPORT

3.0 MUD SUMMARY BY HOLE SECTION

ERIC THE RED-1

Hole Size (in)	Interval (mRT)	Type	Density (S.G.)		Viscosity (sec/L)		PV (cp)		YP (lbs/100ft2)		Gels				KCl (%)	Fluid Loss (cc)
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.0	Max.0	Min. 10	Max. 10		
36"	137.0	SEAWATER+HI-VIS	1.03	1.03	100	100										
17.5"	370.0	SEAWATER+HI-VIS	1.03	1.03	100	100										
12.25"	1017.0	KCL PHPA	1.08	1.10	53	58	15	18	18	22	3	3	4	4	6.4	7
8.5"	1875.0	KCL PHPA	1.08	1.10	50	58	15	19	18	24	3	4	4	6	7.4	7

BHP Petroleum

FINAL DRILLING REPORT

3.1 MUD PROPERTIES RECORD

ERIC THE RED-1

Date	Depth (m)	Temp. (degC)	Density (S.G.)	Viscosity (sec/l)	PV (Cp)	YP (lb/100 ft^2)	Gels 0	Gels 10	API W.L. (ml)	HTHP W.L. (ml)	Filter Cake (1/32 in)	MBT (lb/bbl)	pH	%Solid	%H2O	%Sand	MF	Ca+ (mg/L)	Cl- (mg/L)	K+ (mg/L)	%KCl
17/02/93	370		1.03	100									9.5								
18/02/93	370		1.02	100									9.5								
19/02/93	370		1.03	88	25	40	8	9	20		1		9.3	1.8	98.2		0.80	140	23000	20000	4.0
20/02/93	625	30	1.08	53	18	22	3	4	7		1	5.0	9.5	5.0	95	0.75	0.90	240	33000	33930	6.3
21/02/93	1017	33	1.1	53	15	22	3	4	6		1	6.0	9.3	6.1	93.9	1.75	0.60	145	38000	33300	6.4
22/02/93	1017		1.08	58	16	18	3	4	7		1	6.0	9.2	5.0	95	0.10	1.00	300	38000	33000	6.0
23/02/93	1206	32	1.08	50	15	20	3	4	7		1	5.0	10.2	5.0	95	0.50	0.80	110	37000	31600	6.0
24/02/93	1593	39	1.08	55	18	24	4	5	6		1	6.0	9.0	5.0	95	0.50	0.70	110	41000	36000	6.0
25/02/93	1625	38	1.09	55	15	18	3	4	5		1	6.0	9.0	5.8	94.2	0.50	0.60	240	40000	38000	7.2
25/02/93	1652	38	1.1	51	16	20	3	4	5		1	8.0	9.0	6.0	94	0.25	0.50	280	40000	38000	7.2
25/02/93	1781	41	1.09	52	16	22	4	5	5.2		1	8.0	9.3	6.0	94	0.10	0.50	280	39000	38400	7.3
26/02/93	1875	40	1.1	54	19	21	4	6	5.2		1	8.0	9.0	6.0	94	0.50	0.30	280	41000	39000	7.4
27/02/93	1875		1.1	58	18	21	4	6	5.2		1	8.0	9.0	6.0	94	0.01	0.30	200	41000	39000	7.4

File: ERI1_MUD		Checked:	Date: 20-Aug-93

PRODUCT	UNIT SIZE		QUANTITY
ALCOMER 120	25.00	KG	94
AMITEC	55.00	GAL	1
BIOLOSE	25.00	KG	40
CAUSTIC SODA	25.00	KG	9
CITRIC ACID	25.00	KG	2
KCL (bulk)	1.00	MT	41
LIME	25.00	KG	13
MILBAR BULK	100.00	LB	374
MILBIO	5.00	GAL	26
MILGEL	25.00	KG	2
MILGEL BULK	100.00	LB	392
MILGUAR	25.00	KG	108
MILGUAR-C	2.00	LB	34
MILPAC	25.00	KG	104
NOXYGEN	25.00	KG	46
POT HYDROXIDE	25.00	KG	23
SODA ASH	25.00	KG	14
SODIUM BICARB	25.00	KG	24
UNICAL	25.00	KG	2
WO DEFOAM	20.00	LT	4
XCD POLYMER	25.00	KG	35

36" HOLE

PRODUCT	UNIT SIZE		QUANTITY
CAUSTIC SODA	25.00	KG	2
MILBAR BULK	100.00	LB	265
MILBIO	5.00	GAL	3
MILGEL BULK	100.00	LB	243
MILGUAR	25.00	KG	78
MILGUAR-C	2.00	LB	24
SODA ASH	25.00	KG	4
UNICAL	25.00	KG	2
WO DEFOAM	20.00	LT	3

17.5" HOLE

PRODUCT	UNIT SIZE		QUANTITY
MILGEL BULK	100.00	LB	29
MILGUAR	25.00	KG	30
MILGUAR-C	2.00	LB	10
SODA ASH	25.00	KG	2

12.25" HOLE

PRODUCT	UNIT SIZE		QUANTITY
ALCOMER 120	25.00	KG	71
BIOLOSE	25.00	KG	40
CAUSTIC SODA	25.00	KG	2
KCL (bulk)	1.00	MT	33
MILBIO	5.00	GAL	23
MILGEL BULK	100.00	LB	60
MILPAC	25.00	KG	104
NOXYGEN	25.00	KG	16
POT HYDROXIDE	25.00	KG	23
SODA ASH	25.00	KG	5
SODIUM BICARB	25.00	KG	4
XCD POLYMER	25.00	KG	21

8.5" HOLE

PRODUCT	UNIT SIZE		QUANTITY
ALCOMER 120	25.00	KG	23
CAUSTIC SODA	25.00	KG	5
CITRIC ACID	25.00	KG	2
KCL (bulk)	1.00	MT	8
LIME	25.00	KG	13
MILBAR BULK	100.00	LB	109
MILGEL	25.00	KG	2
MILGEL BULK	100.00	LB	60
NOXYGEN	25.00	KG	25
SODA ASH	25.00	KG	3
SODIUM BICARB	25.00	KG	20
WO DEFOAM	20.00	LITRE	1
XCD POLYMER	25.00	KG	14

SECTION 4

4.0 BIT RECORD

ERIC THE RED-1

Bit No	Run No	Size / Make	Bit Type / Serial No.	Jets / TFA	Depth In / Out	Total Metres	Total Hours	ROP (m/hr)	WOB (Kips)	RPM	Pump gpm / psi	IADC Bit Grading / Comments
1	1	26 / SECURITY	S3SJ / 595343	24 24 24 - - - / 1.33	100 / 116	16.0	2.25	7.1	5.0 / 10.0	50 / 60	1000 / 300	1.1.NO.A.1.I.NO.TD
2	2	9.875 / SEC	S44GF / 530370	16 16 16 - - - / 0.59	116 / 370	254.0	6.00	42.3	10.0 / 15.0	120 / 120	1166 / 1150	1.1.NO.A.1.I.NO.TD
1RR	3	26 / SECURITY	S3SJ / 595343	24 24 24 - - - / 1.33	116 / 137	21.0	1.75	12.0	10.0 / 20.0	90 / 120	1060 / 1250	2.2.NO.A.E.I.NO.TD
3	4	17.5 / SECURITY	SS44G / 500510	18 18 18 - - - / 0.75	137 / 364	227.0	4.00	56.8	10.0 / 40.0	60 / 160	1060 / 2900	1.1.NO.A.1.I.NO.TD
4	5	12.25 / HUGHES	ATM11H / K18ES	18 16 13 - - - / 0.57	364 / 1017	653.0	16.75	39.0	5.0 / 25.0	120 / 140	670 / 1800	2.2.EC.G.E.1.FC.TD / 18,16 EXTENDED
5	6	8.5 / HUGHES	ATM22 / N25BD	10 10 14 - - - / 0.3	1017 / 1625	608.0	34.25	17.8	0.0 / 30.0	/ 115	400 / 2250	4.8.PB.A.F.13.CI.TQ
6	7	8.5 / HUGHES	ATM22 / B06EN	10 10 14 - - - / 0.3	1625 / 1875	250.0	17.25	14.5	30.0 / 30.0	/ 110	400 / 2150	4.8.BT.H.E.I.RG.LOG

4.1 BHA SUMMARY

ERIC THE RED-1

BHA Name: 1:36"BHA Depth In: 100 m. Depth Out: 116 m.

Purpose: DRILL 36" HOLE

Joints	BHA Item	O.D.	Length
1	BIT	26.000	0.56
1	HO HOLE OPENER	9.000	1.89
1	FS FLOAT SUB	9.000	3.93
3	DC95 DRILL COLLAR 9.5IN	9.500	27.49
1	XO CROSS OVER	8.000	0.79
6	DC8 DRILL COLLAR 8IN	8.000	54.95
1	XO CROSS OVER	6.500	0.58
		Total BHA Length :	**90.19**

BHA Name: 2:9.875"BHA Depth In: 116 m. Depth Out: 370 m.

Purpose: DRILL PILOT HOLE

Joints	BHA Item	O.D.	Length
1	BIT	9.875	0.26
1	FS FLOAT SUB	8.000	1.21
6	DC8 DRILL COLLAR 8IN	8.000	54.98
1	XO CROSS OVER	6.500	0.58
		Total BHA Length :	**57.03**

BHA Name: 3: 36" BHA Depth In: 116 m. Depth Out: 137 m.

Purpose: OPEN 9 7/8" TO 36"

Joints	BHA Item	O.D.	Length
1	BIT	26.000	0.56
1	HO HOLE OPENER	9.000	1.89
1	FS FLOAT SUB	9.000	3.93
3	DC95 DRILL COLLAR 9.5IN	9.500	27.49
1	XO CROSS OVER	8.000	0.79
6	DC8 DRILL COLLAR 8IN	8.000	54.95
1	XO CROSS OVER	6.500	0.58
		Total BHA Length :	**90.19**

BHA Name: 4: 17.5"BHA Depth In: 137 m. Depth Out: 364 m.

Purpose: REAM OUT 9 7/8"HOLE

Joints	BHA Item	O.D.	Length
1	BIT	17.500	0.44
1	FS FLOAT SUB	9.000	1.48
2	DC95 DRILL COLLAR 9.5IN	9.500	18.26
1	SS STRING STABILIZER	9.000	1.80
1	DC95 DRILL COLLAR 9.5IN	9.500	9.23
1	XO CROSS OVER	8.000	0.79
9	DC8 DRILL COLLAR 8IN	8.000	83.12
1	XO CROSS OVER	6.500	0.58
		Total BHA Length :	**115.70**

BHA Name: 5: 12.25"BHA Depth In: 364 m. Depth Out: 1017 m.

Purpose: DRILL 12.25"BHA

Joints	BHA Item	O.D.	Length

1	BIT	12.250	0.30
1	NBR NB ROLLER REAMER	8.000	2.46
1	ST SHOCK TOOL	8.000	3.85
1	SRR STRING ROLLER REAMR	8.000	2.36
1	XO CROSS OVER	8.000	0.50
1	MWD TOOL	8.750	12.38
1	SS STRING STABILIZER	8.000	1.41
9	DC8 DRILL COLLAR 8IN	8.000	83.12
1	PONY COLLAR	8.000	2.74
1	DJAR DRILLING JARS	8.063	5.61
2	DC8 DRILL COLLAR	7.875	18.42
1	XO CROSS OVER	8.125	0.58
1	HWDP HEVI-WATE DRL PIPE	5.000	8.84
1	DIDS DROP-IN DART SUB	6.438	0.69
11	HWDP HEVI-WATE DRL PIPE	5.000	125.12
		Total BHA Length :	**268.38**

BHA Name: 6:8.5" BHA Depth In: 1017 m. Depth Out: 1625 m.

Purpose: DRILL 8.5" HOLE

Joints	BHA Item	O.D.	Length
1	BIT	8.500	0.24
1	JS JUNK SUB	6.500	0.79
1	NBR NB ROLLER REAMER	6.500	1.84
1	XO CROSS OVER	6.500	0.35
1	MWD TOOL	6.750	12.83
1	SS STRING STABILIZER	6.500	1.77
15	DC65 DRILL COLLAR 6.5IN	6.500	138.07
1	PONY COLLAR	8.000	3.07
1	DJAR DRILLING JARS	6.563	5.40
2	DC65 DRILL COLLAR 6.5IN	6.500	18.35
1	HWDP HEVI-WATE DRL PIPE	5.000	8.84
1	DIDS DROP-IN DART SUB	6.438	0.69
14	HWDP HEVI-WATE DRL PIPE	5.000	125.12
		Total BHA Length :	**317.36**

BHA Name: 7. 8.5" BHA Depth In: 1625 m. Depth Out: 1875 m.

Purpose: DRILL 8.5" HOLE

Joints	BHA Item	O.D.	Length
1	BIT	8.500	0.24
1	JS JUNK SUB	6.500	0.79
1	NBR NB ROLLER REAMER	6.500	1.84
1	XO CROSS OVER	6.750	0.35
1	MWD TOOL	6.500	12.83
1	SS STRING STABILIZER	6.500	1.77
15	DC65 DRILL COLLAR 6.5IN	6.500	138.07
1	PONY COLLAR	5.000	3.07
1	DJAR DRILLING JAR	6.563	5.40
2	DC65 DRILL COLLAR 6.5IN	6.500	18.35
1	HWDP HEVI-WATE DRL PIPE	5.000	8.84
1	DIDS DROP-IN DART SUB	6.438	0.69
14	HWDP HEVI-WATE DRL PIPE	5.000	125.12
		Total BHA Length :	**317.36**

4.2 DEVIATION SURVEYS

ERIC THE RED-1

Depth	Angle	Azimuth	Method	Missrun	
137	1	0	Totco Punch		
364	1	0	Totco Punch		
370	0.5	0	Totco Punch		
397	1.1	309	MWD		
542	1.3	273	MWD		
718	0.8	302	MWD		
891	0.4	210	MWD		
1001	0.4	221.2	MWD		
1150	0.1	115.4	MWD		
1292	0.3	110.2	MWD		
1439	0.4	355.2	MWD		
1584	0.7	145	MWD		
1728	0.4	203	MWD		
1867	1.1	229.7	MWD		

SECTION 5

Hole Size	:	36	in	Total Depth	:	137	m	Casing Flange / Wellhead			
Weight in Slips	:	39000	lbs	Time Landed	:	03:15	hrs	Type	:	W/H	
R.T. to Wellhead	:	98.55	m	Casing Shoe at	:	137	m	Manufacturer	:	DRILQUIP	
R.T. to Mudline	:	100.5	m	Top of Casing	:	98.55	m	Model	:	SS10	
Water Depth	:	75.1	m	Casing Cut-Off	:	0	m	Size	:	18.75	in
Air Gap	:	25.4	m	Liner Overlap	:	0	m	Rating	:	10000	psi

PIPE INFORMATION

Description	Manufacturer	Size	Weight	Grade	Cnd	Threads	Joints	Length	Interval
CASING SHOE	DRILQUIP	30	310	B	1	SF60	1	12.96	137 _ 124.04
CASING JOINT	DRILQUIP	30	310	B	1	SF60	1	12.58	124.04 _ 111.46
HOUSING	DRILQUIP	30	450	B	1	SF60	1	12.91	111.46 _ 98.55

Mud Type	:	SEAWATER+HI-VIS	Avg. Make Up Torque	:	0	ft.lbs.	Avg. Drag	:	0	kips
Density	:	1.03 S.G.	Movement	:			Max. Drag	:	0	kips
Viscosity	:	100	RPM	:	0		Fluid Lost	:	No	
PV / YP	:	0 / 90	Avg. Torque Rot.	:	0	ft.lbs.	Percent Lost	:	0	%.
API W.L	:	0	Max. Torque Rot.	:	0	ft.lbs.	Volume Lost	:	0	bbl
Filled Each	:	3 jts	Moved until Bumped	:	No					
Cementer	:	D.WINN								
Remarks	:	RAN 2 JT DP STINGER BELOW R/T.								

BHP Petroleum

5.0 CASING REPORT - 13.375" CASING

ERIC THE RED-1

Hole Size	:	17.5	in	Total Depth	:	364	m	Casing Flange / Wellhead			
Weight in Slips	:	51000	lbs	Time Landed	:	21:30	hrs	Type	:	W/H	
R.T. to Wellhead	:	97.68	m	Casing Shoe at	:	355.37	m	Manufacturer	:	DRILQUIP	
R.T. to Mudline	:	100.5	m	Top of Casing	:	97.68	m	Model	:	SS10	
Water Depth	:	75.1	m	Casing Cut-Off	:	0	m	Size	:	18.75	in
Air Gap	:	25.4	m	Liner Overlap	:	0	m	Rating	:	10000	psi

PIPE INFORMATION

Description	Manufacturer	Size	Weight	Grade	Cnd	Threads	Joints	Length	Interval
CASING SHOE	SUMITOMO	13.375	68	N-80	111	BTC	1	12.3	355.37 - 343.07
BAKERLOK	SUMITOMO	13.375	68	N-80	1	BTC	1	11.7	343.07 - 331.34
FLOAT	SUMITOMO	13.375	68	N-80	1	BTC	1	12.15	331.34 - 319.19
BAKERLOK	SUMITOMO	13.375	68	N-80	1	BTC	2	23.6	319.19 - 295.59
CASING JOINT	SUMITOMO	13.375	68	N-80	1	BTC	16	190.88	295.59 - 104.71
CASING CROSS OVER	DRILQUIP	13.375	68	X-56	1	BTCHD90	1	0.56	104.71 - 104.15
HOUSING	DRILQUIP	18.75	130	X-56	1	HD90	1	6.47	104.15 - 97.68

ACCESSORIES INFORMATION

Item	Type	Manufacturer	Number	Spacing	Interval
CENTRALIZER	BOWSPRING CENT.	HOWCO	3	6	355.37 - 337

Mud Type	:	SEAWATER+HI-VIS		Avg. Make Up Torque	:	9000	ft.lbs.	Avg. Drag	:	0	kips
Density	:	1.02	S.G.	Movement	:			Max. Drag	:	0	kips
Viscosity	:	100		RPM	:	0		Fluid Lost	:	No	
PV / YP	:	0 / 90		Avg. Torque Rot.	:	0	ft.lbs.	Percent Lost	:	0	%.
API W.L	:	0		Max. Torque Rot.	:	0	ft.lbs.	Volume Lost	:	0	bbl
Filled Each	:	5	jts	Moved until Bumped	:	No					
Cementer	:	D. WINN									

Remarks : NON-ROTATING FLOAT COLLAR USED.PLUG DID NOT BUMP.
NO SIGN OF TOP PLUG SHEARING-DART DISPLACED AT 3.6 BBL/MIN.
POSSIBILITY THAT THIS RATE IS HIGH.

File: ERI1_CSG		Checked:	Date: 20-Aug-93

BHP Petroleum

5.0 CASING REPORT - 9.625" CASING — ERIC THE RED-1

Hole Size	:	12.25 in	Total Depth	:	1017	m	Casing Flange / Wellhead			
Weight in Slips	:	120000 lbs	Time Landed	:	17:30	hrs	Type	:	W/H	
R.T. to Wellhead	:	97.68 m	Casing Shoe at	:	1007.2	m	Manufacturer	:	DRILQUIP	
R.T. to Mudline	:	100.5 m	Top of Casing	:	98.28	m	Model	:	SS10	
Water Depth	:	75.1 m	Casing Cut-Off	:	0	m	Size	:	18.75	in
Air Gap	:	25.4 m	Liner Overlap	:	0	m	Rating	:	10000	psi

PIPE INFORMATION

Description	Manufacturer	Size	Weight	Grade	Cnd	Threads	Joints	Length	Interval
SHOE	SUMITOMO	9.625	47	N-80	1	NEW VAM	1	12.45	1007.2 - 994.75
BAKERLOK	SUMITOMO	9.625	47	N-80	1	NEW VAM	1	11.94	994.75 - 982.81
FLOAT	SUMITOMO	9.625	47	N-80	1	NEW VAM	1	12.2	982.81 - 970.61
BAKERLOK	SUMITOMO	9.625	47	N-80	1	NEW VAM	1	11.98	970.61 - 958.63
BAKERLOK	SUMITOMO	9.625	47	N-80	1	NEW VAM	1	11.99	958.63 - 946.64
CASING JOINT	SUMITOMO	9.625	47	N-80	1	NEW VAM	71	843.53	946.64 - 103.11
CASING HANGER	DRILQUIP	9.625	53.5	N-80	1	NEW VAM	1	4.83	103.11 - 98.28

ACCESSORIES INFORMATION

Item	Type	Manufacturer	Number	Spacing	Interval
CENTRALIZER	BOWSPRING CENT.	HOWCO	6	12	1007 - 935

Mud Type	:	KCL PHPA	Avg. Make Up Torque	:	15000	ft.lbs.	Avg. Drag	:	0	kips
Density	:	1.1 S.G.	Movement	:			Max. Drag	:	0	kips
Viscosity	:	53	RPM	:	0		Fluid Lost	:	Yes	
PV / YP	:	15 / 22	Avg. Torque Rot.	:	0	ft.lbs.	Percent Lost	:	0	%.
API W.L	:	6	Max. Torque Rot.	:	0	ft.lbs.	Volume Lost	:	25	bbl
Filled Each	:	10 jts	Moved until Bumped	:	No					
Cementer	:	D. WINN								

Remarks : TOP PLUG SHEARED AT 1100 PSI.BOTTOM PLUG SHEARED AT 2500 PSI.
PLUG DID NOT BUMP. OVERDISPLACED BY SHOETRACK AMOUNT.
RUN STRING:R/T,2 JTS DP,2 STANDS 8"DC,1 STAND DP.

File: ERI1_CSG		Checked:	Date: 20-Aug-93

BHP Petroleum

5.1 CEMENTING REPORT - 30" CASING — ERIC THE RED-1

Job Type	: 30" CASING	Started	: 04:05 Hrs, 18/02/93	Completed	: 04:30 Hrs, 18/02/93
Cementer	: DAVID WINN	CBL Log	: No	Returns	: Yes
		CET Run	: No	Total No. of Stages	: 01
Cemented Interval	: 100 - 137 m.	BHT Log	: No	Time WOC	: 0hrs, 0

HOLE DESCRIPTION

FROM	TO	SIZE	% OVER	DISP. EFF.
100	137	36	10	

LEAK OFF INFORMATION

Casing Test	: 0 psi.	For	: 0 min.
Drilled	: 0 m.	of New	: 0 in. hole
Leak Off Test	: 0 psi.	with	: 0 S.G. mud
at a depth of	: 0 m.	Equivalent Fluid Density	: 0 S.G.
		Pressure at Test Depth	: 0 psi.

STAGE INFORMATION

Stage Number : 001 of 01 Stage Type : 30" CASING Planned Interval : 100 to 137 m.

Drill String Depth : 137 m. Tool Depth : m. Drill String Pressure Initial : psi. Final : psi.
Annular Pressure Initial : psi. Final : psi.

Started Mixing	: 04:05 Hrs.	Completed	: 04:30 Hrs.	Mixing Rate	: 210 gpm.	Mixing Pressure	: 270 psi.
Break Pressure	: psi.	Time Circ. at Btm.	: 0 Hrs.	Circulat. Rate	: 510 gpm.	CirculatingPressure	: 150 psi.
Displaced with	: 18 bbls of SEAWATER	Fluid Wt.	: 1.03 S.G.	Top Plug	: No	Bottom Plug	: No
Plug Down	: 04:30 Hrs, 18/02/93	Bumped	: No	Bled Off to	: psi.		
Disp Rate Initial	: 227	Final	: 227	Min	:	Max	: gpm
Disp Press Initial	: 110	Final	: 110	Min	:	Max	: psi.

Lost Cir. : No % Lost : 0 Volume : 0 bbl. Foam Cmt : No N2 : 0 Start : 0 End : 0 scfn/bt Tot : 0 scf

Fluid Vol. Total : 211 Fluid Vol. Returned : Slurry Vol. Total : 93.4 Slurry Vol. Returned :

First Preflush Used : 100 bbls of SEAWATER Fluid Wt. : 1.03 S.G. Additives :

Second Preflush Used : bbls of Fluid Wt. : S.G. Additives :

Time stage Started : Time stage Completed : Hours Before Open : Circ. Btwn Stages :

Time Broke Cir. : Time Pipe Move Start : Time Pipe Move End : Time Release Plug :

COMMENTS

ADDED 2% BWOC CALCIUM CHLORIDE

BHP Petroleum

5.1	CEMENTING REPORT - 30" CASING	ERIC THE RED-1

Stage Number	001
Fluid Number	001
Fluid Description	TAIL SLURRY
Fluid Type	LOW WATER LOSS
Fluid Class	CLASS G
Amount (sacks)	456
Volume (bbl)	93.4
Yield (ft3/sx)	1.15
Excess (%)	100
Caliper / Open Hole	O
From / To (m)	100 / 137
Designed Top (m)	100
Density	1.9
Thickening Time (hrs)	
Water Req'd (bbl)	54
Water Used (gal/sack)	5
Water Source	SEAWATER
Total Vol. Mixed (bbl)	93.4
Volume Pumped (bbl)	93.4
Volume in Well (bbl)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
Comp. Strength (lbs)	0
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	
Outside Temp (°C)	
Additives	0 of 2 % CALCIUM CHLOR.

File: ERI1_SLR		Checked:	Date: 23-Aug-93

BHP Petroleum

5.1 CEMENTING REPORT - 13-3/8" CASING — ERIC THE RED-1

Job Type :	13-3/8" CASING	Started :	22:38 Hrs, 18/02/93	Completed :	23:15 Hrs, 18/02/93
Cementer :	D. WINN	CBL Log :	No	Returns :	Yes
		CET Run :	No	Total No. of Stages :	01
Cemented Interval :	100 - 355 m.	BHT Log :	No	Time WOC :	0hrs, 0

HOLE DESCRIPTION

FROM	TO	SIZE	% OVER	DISP. EFF.
100	355	17.5	50	

LEAK OFF INFORMATION

Casing Test :	500 psi.	For :	10 min.
Drilled :	3 m.	of New :	12.25 in. hole
Leak Off Test :	92 psi.	with :	1.06 S.G. mud
at a depth of :	355 m.	Equivalent Fluid Density :	1.24 S.G.
		Pressure at Test Depth :	622 psi.

STAGE INFORMATION

Stage Number : 001 of 01 Stage Type : 13.375" TAIL Planned Interval : 100 to 355 m.

Drill String Depth : 364 m. Tool Depth : m. Drill String Pressure Initial : psi. Final : psi.
Annular Pressure Initial : psi. Final : psi.

Started Mixing :	22:58 Hrs.	Completed :	23:15 Hrs.	Mixing Rate :	300 gpm.	Mixing Pressure :	500 psi.
Break Pressure :	psi.	Time Circ. at Btm. :	.5 Hrs.	Circulat. Rate :	370 gpm.	CirculatingPressure :	400 psi.
Displaced with :	118 bbls of SEAWATER	Fluid Wt. :	1.03 S.G.	Top Plug :	Yes	Bottom Plug :	Yes
Plug Down :	00:00 Hrs, 18/02/93	Bumped :	No	Bled Off to :	psi.		
Disp Rate Initial :	300	Final :		Min :		Max :	gpm
Disp Press Initial :	700	Final :		Min :		Max :	psi.

Lost Cir. : No % Lost : 0 Volume : 0 bbl. Foam Cmt : No N2 : 0 Start : 0 End : 0 scfn/bt Tot : 0 scf

Fluid Vol. Total : 333 Fluid Vol. Returned : Slurry Vol. Total : 102 Slurry Vol. Returned :

First Preflush Used : 113 bbls of LEAD SLURRY Fluid Wt. : 1.5 S.G. Additives : 0.55gal/sx ECONOLI

Second Preflush Used : bbls of Fluid Wt. : S.G. Additives :

Time stage Started : Time stage Completed : Hours Before Open : Circ. Btwn Stages :

Time Broke Cir. : Time Pipe Move Start : Time Pipe Move End : Time Release Plug :

COMMENTS

50% EXCESS ON TAIL SLURRY VOLUME

Stage Number	001
Fluid Number	001
Fluid Description	TAIL SLURRY
Fluid Type	LOW WATER LOSS
Fluid Class	CLASS G
Amount (sacks)	500
Volume (bbl)	102
Yield (ft3/sx)	1.15
Excess (%)	50
Caliper / Open Hole	O
From / To (m)	100 / 355
Designed Top (m)	100
Density	1.9
Thickening Time (hrs)	
Water Req'd (bbl)	59.5
Water Used (gal/sack)	5
Water Source	SEAWATER
Total Vol. Mixed (bbl)	102
Volume Pumped (bbl)	102
Volume in Well (bbl)	102
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	
Outside Temp (°C)	
Additives	of

BHP Petroleum

5.1 CEMENTING REPORT - 9-5/8" CASING — ERIC THE RED-1

Job Type :	9-5/8" CASING	Started :	18:38 Hrs, 22/02/93	Completed :	18:50 Hrs, 22/02/93
Cementer :	D. WINN	CBL Log :	No	Returns :	Yes
		CET Run :	No	Total No. of Stages :	01
Cemented Interval :	807 - 1007 m	BHT Log :	No	Time WOC :	0hrs, 0

HOLE DESCRIPTION

FROM	TO	SIZE	% OVER	DISP. EFF.
807	1007	12.25	20	

LEAK OFF INFORMATION

Casing Test :	3500 psi.	For :	5 min.
Drilled :	3 m.	of New :	8.5 in. hole
Leak Off Test :	1257 psi.	with :	1.08 S.G. mud
at a depth of :	1007 m.	Equivalent Fluid Density :	1.95 S.G.
		Pressure at Test Depth :	2789 psi.

STAGE INFORMATION

Stage Number : 001 of 01 Stage Type : 9 5/8" CASING Planned Interval : 807 to 1007 m.

Drill String Depth :	m.	Tool Depth :	m.	Drill String Pressure Initial :	psi.	Final :	psi.
				Annular Pressure Initial :	psi.	Final :	psi.

Started Mixing :	18:38 Hrs.	Completed :	18:50 Hrs.	Mixing Rate :	250 gpm.	Mixing Pressure :	400 psi.
Break Pressure :	psi.	Time Circ. at Btm. :	.5 Hrs.	Circulat. Rate :	380 gpm.	CirculatingPressure :	400 psi.
Displaced with :	223 bbls of MUD	Fluid Wt. :	1.07 S.G.	Top Plug :	Yes	Bottom Plug :	Yes
Plug Down :	19:30 Hrs, 22/02/93	Bumped :	No	Bled Off to :	psi.		
Disp Rate Initial :	336	Final :		Min :		Max :	gpm
Disp Press Initial :	270	Final :		Min :		Max :	psi.

Lost Cir. : No % Lost : 0 Volume : 0 bbl. Foam Cmt : No N2 : 0 Start : 0 End : 0 scfn/bt Tot : 0 scf

Fluid Vol. Total : 285 Fluid Vol. Returned : 285 Slurry Vol. Total : 52 Slurry Vol. Returned :

First Preflush Used :	10 bbls of seawater	Fluid Wt. :	1.03 S.G.	Additives :	
Second Preflush Used :	bbls of	Fluid Wt. :	S.G.	Additives :	

Time stage Started :	Time stage Completed :	Hours Before Open :	Circ. Btwn Stages :
Time Broke Cir. :	Time Pipe Move Start :	Time Pipe Move End :	Time Release Plug :

File: ERI1_CSG		Checked:	Date: 20-Aug-93

Stage Number	001
Fluid Number	001
Fluid Description	TAIL SLURRY
Fluid Type	NEAT
Fluid Class	CLASS G
Amount (sacks)	254
Volume (bbl)	52
Yield (ft3/sx)	1.15
Excess (%)	20
Caliper / Open Hole	C
From / To (m)	807 / 1007
Designed Top (m)	807
Density	1.9
Thickening Time (hrs)	3
Water Req'd (bbl)	30
Water Used (gal/sack)	30
Water Source	SEAWATER
Total Vol. Mixed (bbl)	52
Volume Pumped (bbl)	52
Volume in Well (bbl)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	
Outside Temp (°C)	

Additives	of

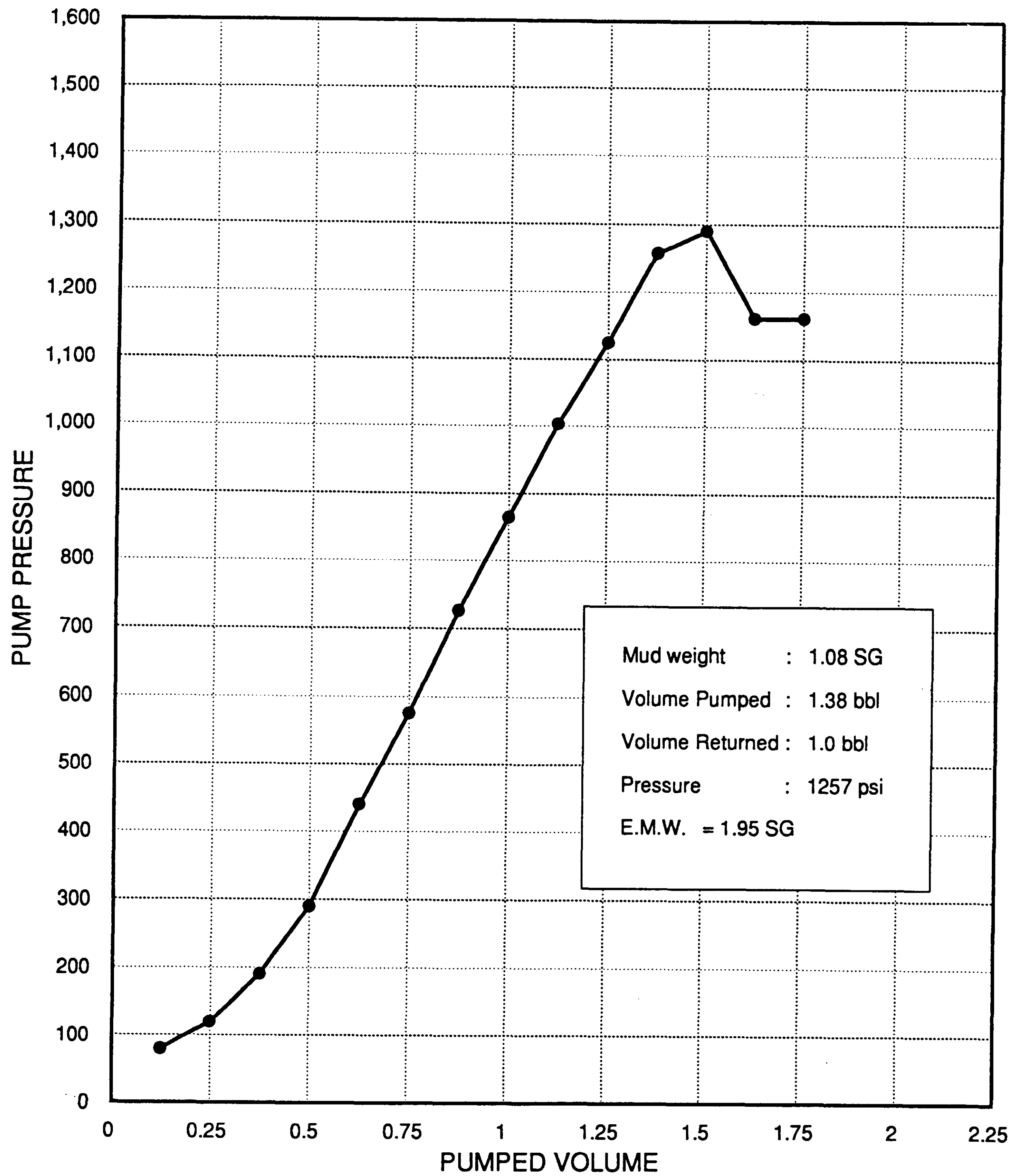
5.2.1 LEAK OFF TEST DIAGRAM

ERIC THE RED-1

Measured Depth : 1020m

Casing Diameter : 9.625" 47 lb/ft

Shoe Measured Depth : 1007m



FINAL DRILLING REPORT

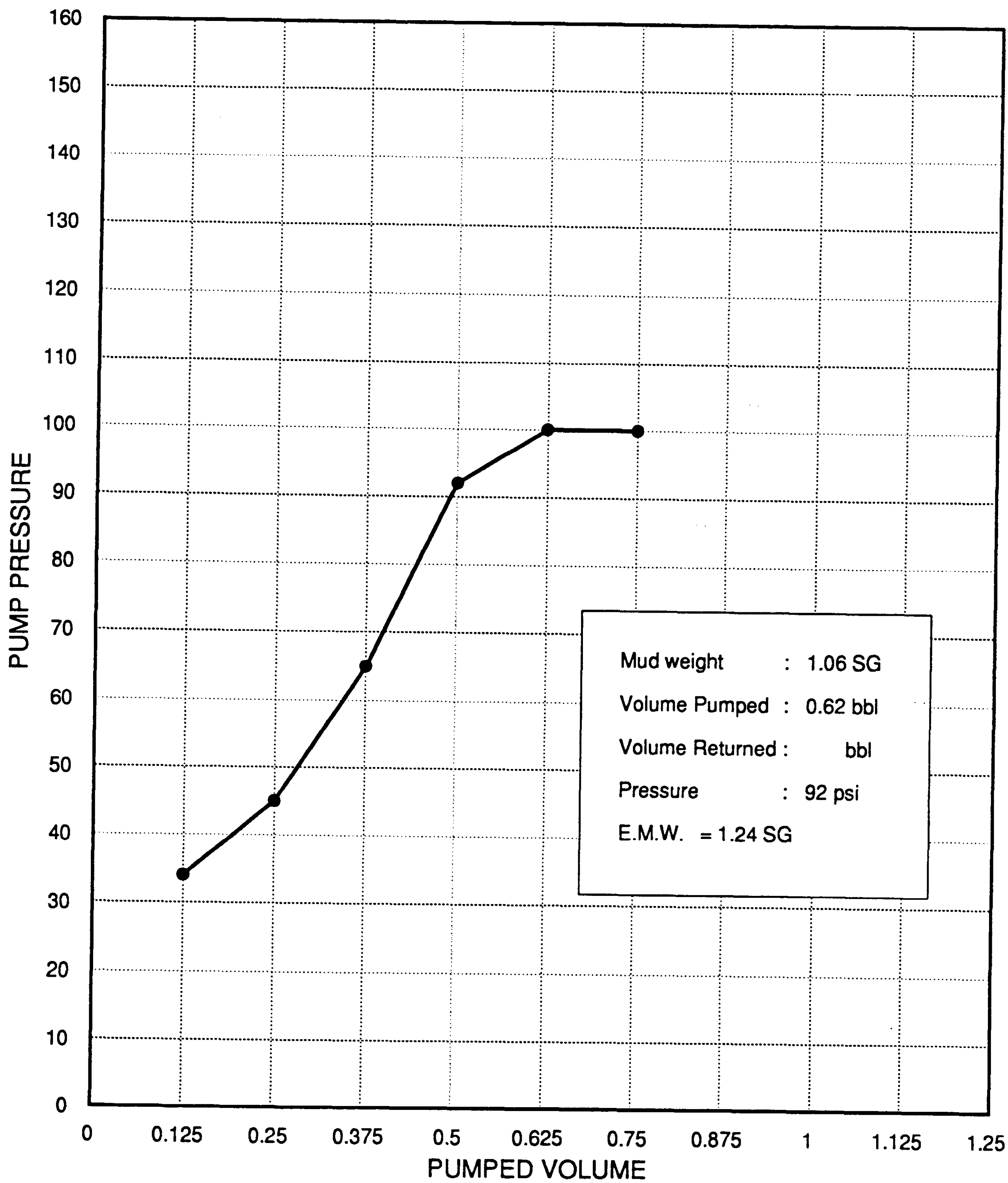
5.2.2 LEAK OFF TEST DIAGRAM

ERIC THE RED-1

Measured Depth : 367m

Casing Diameter : 13.375 68 lb/ft

Shoe Measured Depth : 355m



File: BM VND ER1_LOT2		Checked:	Date: 19-AUG-93

SECTION 6

BHP Petroleum

6.0 ABANDONMENT/SUSPENSION CEMENTING REPORT — ERIC THE RED-1

Job Type	P&A PLUG	Started	02:00 Hrs, 28/02/93	Completed	02:30 Hrs, 28/02/93
Cementer	R.STRANGE	CBL Log	No	Returns	Yes
Cemented Interval	900 - 1100 m.	CET Run	No	Total No. of Stages	01
		BHT Log	No	Time WOC	0hrs, 0

HOLE DESCRIPTION

FROM	TO	SIZE	% OVER	DISP. EFF.
1007	1875	8.5	20	97
100	1007	8.681	0	97

LEAK OFF INFORMATION

Casing Test	0 psi.	For	0 min.
Drilled	0 m.	of New	0 in. hole
Leak Off Test	0 psi.	with	0 S.G. mud
at a depth of	0 m.	Equivalent Fluid Density	0 S.G.
		Pressure at Test Depth	0 psi.

STAGE INFORMATION

Stage Number : 001 of 01 Stage Type : ABANDONMENT Planned Interval : 900 to 1100 m.

Drill String Depth	1100 m.	Tool Depth	m.	Drill String Pressure Initial	psi.	Final	psi.
				Annular Pressure Initial	psi.	Final	psi.

Started Mixing	02:00 Hrs.	Completed	02:30 Hrs.	Mixing Rate	100 gpm.	Mixing Pressure	150 psi.
Break Pressure	psi.	Time Circ. at Btm.	.25 Hrs.	Circulat. Rate	gpm.	CirculatingPressure	psi.
Displaced with	50 bbls of MUD	Fluid Wt.	1.1 S.G.	Top Plug	No	Bottom Plug	No
Plug Down	: Hrs,	Bumped	No	Bled Off to	psi.		
Disp Rate Initial	190	Final	300	Min	120	Max	300 gpm
Disp Press Initial	50	Final	200	Min	50	Max	200 psi.

Lost Cir. : No % Lost : 0 Volume : 0 bbl. Foam Cmt : No N2 : 0 Start : 0 End : 0 scfn/bt Tot : 0 scf

Fluid Vol. Total	105	Fluid Vol. Returned	105	Slurry Vol. Total	55	Slurry Vol. Returned	55
First Preflush Used	5 bbls of seawater	Fluid Wt.	1.03 S.G.	Additives			
Second Preflush Used	bbls of	Fluid Wt.	S.G.	Additives			
Time stage Started		Time stage Completed		Hours Before Open		Circ. Btwn Stages	
Time Broke Cir.		Time Pipe Move Start		Time Pipe Move End		Time Release Plug	

File: ERI1_CSG		Checked:	Date: 23-Aug-93

BHP Petroleum

Stage Number	001
Fluid Number	001
Fluid Description	ABANDONMENT PLUG
Fluid Type	
Fluid Class	CLASS G
Amount (sacks)	270
Volume (bbl)	55
Yield (ft3/sx)	1.15
Excess (%)	20
Caliper / Open Hole	C
From / To (m)	900 / 1100
Designed Top (m)	900
Density	1.9
Thickening Time (hrs)	
Water Req'd (bbl)	32
Water Used (gal/sack)	5
Water Source	FRESH
Total Vol. Mixed (bbl)	55
Volume Pumped (bbl)	55
Volume in Well (bbl)	55
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	
Outside Temp (°C)	15

Additives of

Stage Number	001
Fluid Number	002
Fluid Description	ABANDONMENT PLUG
Fluid Type	
Fluid Class	CLASS G
Amount (sacks)	120
Volume (bbl)	25
Yield (ft3/sx)	1.15
Excess (%)	20
Caliper / Open Hole	C
From / To (m)	124 / 174
Designed Top (m)	124
Density	1.9
Thickening Time (hrs)	
Water Req'd (bbl)	14
Water Used (gal/sack)	5
Water Source	FRESH
Total Vol. Mixed (bbl)	25
Volume Pumped (bbl)	25
Volume in Well (bbl)	25
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
Comp. Strength (lbs)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	
Outside Temp (°C)	15

Additives of

SECTION 7

BHP Petroleum

FINAL DRILLING REPORT

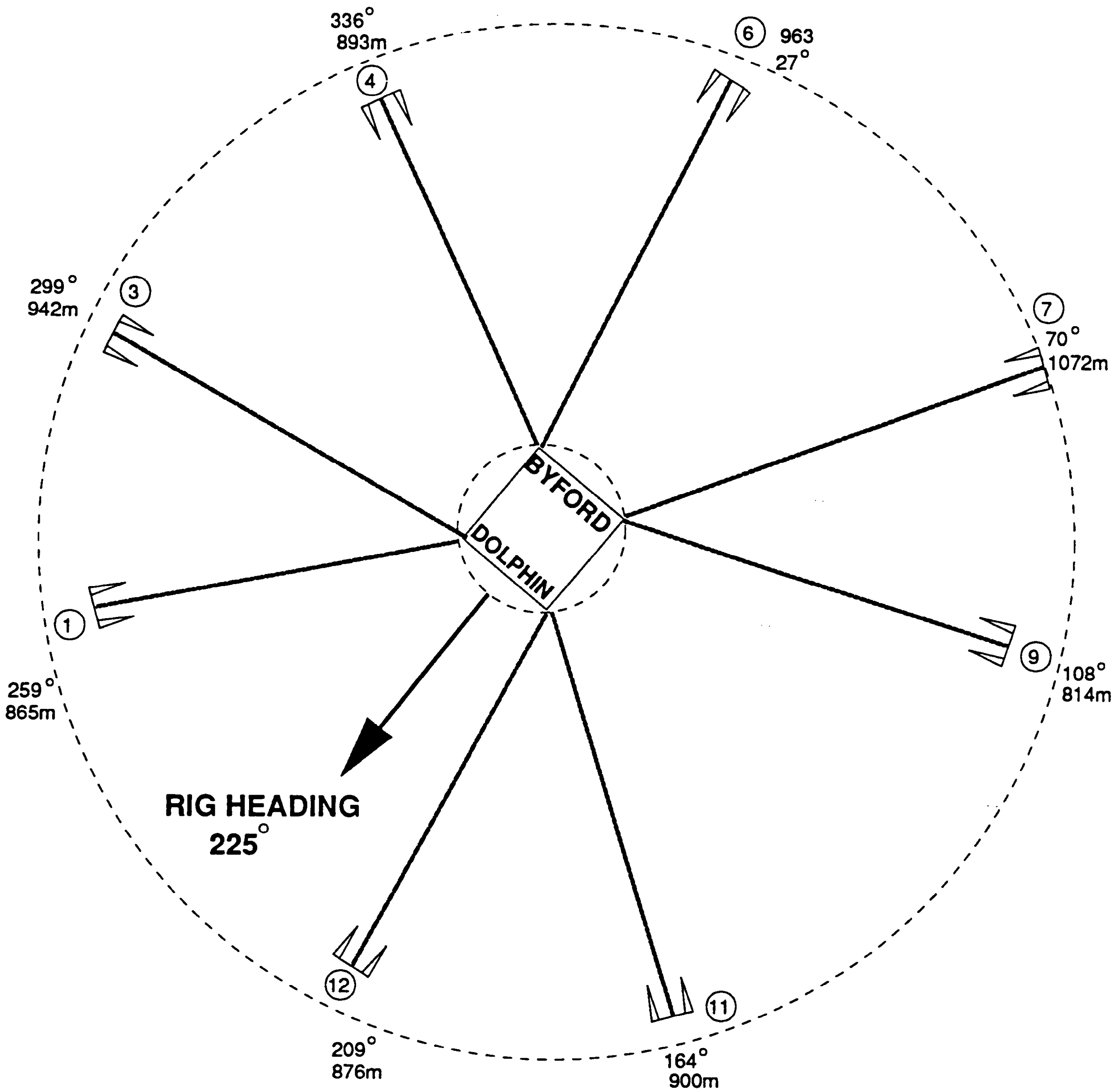
7.0 WEATHER DATA

ERIC THE RED-1

Date	Day	Wind Vel (Knots)	Wind Dir	Temp High (degC)	Visibility (Nm)	Weather State	Swell Height (m)	Swell Per (sec)	Swell Dir	Wave Height (m)	Wave Per (sec)	Wave Dir	Heave (m)	Pitch (deg)	Roll (deg)	Bar Pressure (HPa)
15/02/93	1	18	290	26	10	CLOUDY	1.5	10	230	0.5	3	290	1	1	1.3	1012
16/02/93	2	15	120	20	10	CLOUDY	1.5	10	230	0.5	3	120	0.9	1	0.6	1017
17/02/93	3	18	120	21	10	OVERCAST	1.3	10	230	0.5	3	120	1.4	0.5	0.3	1018
18/02/93	4	25	90	22	10	CLOUDY	1.3	10	230	0.8	3	90	0.7	0.4	0.2	1017
19/02/93	5	28	340	29	10	OVERCAST	2.5	8	240	1.2	3	340	0.7	0.9	0.3	1008
20/02/93	6	30	270	25	10	CLOUDY	4	8	240	1.5	3	270	2	0.8	0.4	1006
21/02/93	7	16	220	24	6	CLOUDY	3	9	220	0.5	3	220	1	0.6	0.3	1010
22/02/93	8	28	260	23	6	OVERCAST	3	9	220	1.8	3	250	1	0.4	0.4	1005
23/02/93	9	28	250	12	6	OVERCAST	4	9	230	2	3	250	1.3	1	1.3	1004
24/02/93	10	22	250	22	10	OVERCAST	3.5	9	230	2	3	250	1.3	1	1	1010
25/02/93	11	44	320	20	15	FINE	3	10	230	2.3	3	320	1.2	1.4	1.2	997
26/02/93	12	30	300	18	12	OVERCAST	4	3	310	2.5	3	300	1.4	0.6	0.7	1000
27/02/93	13	20	310	20	15	FINE	2	9	230	1.5	3	310	1	0.4	0.3	1003
28/02/93	14	16	210	18	10	OVERCAST	2	9	210	1.3	3	210	1	0.2	0.3	1004
01/03/93	15	30	220	20	10	FINE	3.5	8	230	2	4	220	1.4	1	0.6	1010
02/03/93	16	20	200	20	15	OVERCAST	3	9	230	1.4	3	200	1.9	0.8	0.6	1018
03/03/93	17	14	140	22	15	FINE	2	10	240	0.6	3	140	1	3	1	1022
04/03/93	18	8	180	22	15	FINE	1.6	11	240	0.3	3	180	1	1.5	1	1021
05/03/93	19	10	130	29	15	FINE	1.5	11	240	0.2	3	130	1	1.5	1	1020

7.1 MOORING DIAGRAM

ERIC THE RED-1



Note: Anchors Nos. 2, 5, 8 and 10 not run

File: BM VND ER1_AL1		Checked:	Date: 24-AUG-93

Compiled By:	Technical Assistant	Date
Reviewed By:	Senior Drilling Engineer	24/08/93 Date
	FOR J.BELL Drilling Superintendent	24/08/93 Date
Approved By:	Manager Drilling	24-08-93 Date

3. FORMATION SAMPLING

3.1 Ditch Cuttings

Cuttings were returned to the sea floor above 364 m. The 12.25" hole was drilled from 364 m to 1017 m. Ditch cuttings were collected from the shakers at 5 m intervals below 364 m except where high ROP necessitated increasing the sample interval to 10 m.

The 8.5" hole was drilled from 1017 m to 1875 m (TD). Cuttings were collected at 3 m interval over this hole section.

Circulation times were checked periodically with carbide-acetylene gas samples and pump stroke counters. Calculated lag times were refined accordingly.

Table 1 presents the sampling program used in the drilling of Eric The Red-1. Washed and dried cuttings samples were prepared in five sample splits, one each being sent to Bridge Oil and the government bodies: the Bureau of Resource Sciences, Canberra, and the Victorian Department of Energy and Minerals, Melbourne. The two remaining splits were sent to BHP Petroleum, Melbourne. Two sets of unwashed samples and one set of Petrocraft sample vials were also sent to BHP Petroleum, Melbourne.

Table 1
Ditch Cuttings Samples

Treatment	Collection Interval	Distribution	Purpose of Sample
Washed	No samples: 100.5 m - 364 m	BHPP (2)*	100g split samples
		Bridge Oil (1) Vic DEM (1)	*1 for geochemistry
	5 m samples: 364 m - 1017 m	BRS (1)	
	Except: 395, 415, 440, 450, 465, 485, 495, 505, 520, 530, 595, 600, 615, 625, 630, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 770, 780, 805, 815, 825, 855, 925, 940		
	3 m samples: 1017 m - 1875 m Except: 1170.		

Collection Treatment	Interval	Purpose Distribution	of Sample
Unwashed and possible palynological	as above	BHPP (2)	1 for bulk storage palaeontological/ analysis. 1 for possible fission-track analysis.

3.1.1 Cuttings Description Summary

All depths are referenced to the rotary table (RT) which is 25.3 m above Mean Sea Level. Depths were determined by reference to lag time, ROP and MWD data.

Depth mRT	Description
100.5 - 364	Returns to seafloor
370 - 413	SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE SANDSTONE: (70-100%) greyish brown to light grey, brownish black in part, friable with abundant loose grains, medium to coarse grains, occasionally fine and very coarse grains, subrounded to rounded, poorly sorted quartz, dominantly iron stained, trace to occasionally common greyish brown argillaceous matrix, trace to common iron oxide pellets, rare mica, good to very good visual porosity. No shows. Interbedded minor: CLAYSTONE: (0-30%) medium dark grey,becoming brownish grey to olive black, soft to firm, blocky where firm, dispersive in part, trace silt, trace very fine grained quartz, trace carbonaceous flecks, trace micromica, non calcareous.
413 - 466	SANDSTONE INTERBEDDED WITH CLAYSTONE SANDSTONE: (70-100%) greyish brown to light grey, occasionally brownish grey, friable with abundant loose grains, medium to coarse, occasional to abundant fine and very coarse grains, subrounded to rounded, occasionally subangular, moderately to well sorted quartz, occasionally iron stained in part, trace to occasional greyish brown argillaceous matrix, trace to common iron oxide pellets at depth, trace mica, good to occasionally very good visual porosity. No shows. Interbedded with: CLAYSTONE: (0-30%) brownish grey to olive black, becoming dusky brown with depth, soft to very soft, dispersive, slightly to commonly silty, trace very fine sand grains, trace carbonaceous flecks, trace micromica, rare pyrite, non calcareous.
466 - 537	SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE SANDSTONE: (70-100%) very light grey to light brownish grey, friable with abundant loose grains,

Depth mRT	Description
	brownish grey, friable with abundant loose grains, medium to coarse, occasionally very coarse, rarely fine grained, subrounded to rounded, occasionally subangular, poorly to occasionally moderately sorted quartz, rarely iron stained, trace brownish grey argillaceous matrix, trace pyrite, rare mica, good to very good visual porosity. No shows. Interbedded with minor:
	CLAYSTONE: (0-30%) light brownish grey to dusky brown, soft, dispersive, slightly silty, trace very fine quartz sand grains, trace micromica, non calcareous.
537 - 570	SANDSTONE GRADING TO CLAYSTONE
	SANDSTONE (0-100%): generally as above, grading to:
	CLAYSTONE: (0-100%) dusky brown to greyish brown, occasionally light brown, soft, dispersive, slightly silty, trace very fine quartz sand grains, non calcareous.
570 - 600	CONGLOMERATIC CLAYSTONE GRADING TO ARGILLACEOUS CONGLOMERATE
	CONGLOMERATIC CLAYSTONE: (0-100%) medium to dark brownish grey and grey, occasionally medium to dark greenish grey, soft, dispersive, abundant very coarse to granule, occasionally coarse, subrounded to rounded quartz and lithic pebbles, iron stained in part, trace fine to medium grained glauconite pellets, rare fine carbonaceous detritus, rare medium to coarse iron oxide pellets, rare mica, rare weathered limonitic clay/cement, with depth grading to:
	ARGILLACEOUS CONGLOMERATE: (0-100%) generally as above, friable with abundant loose grains, poorly sorted, poor visual porosity. No show
600 - 795	SANDSTONE INTERBEDDED WITH MINOR CLAYSTONE
	SANDSTONE: (30-100%) light grey to translucent, clear in part, friable with common to abundant loose grains, occasionally hard, fine to very coarse, occasionally granule, subangular to subrounded, rarely rounded, poorly sorted quartz and common grey, green and brown

Depth mRT	Description
	metamorphic(?) lithics and chert, common light grey to light brownish grey dispersive argillaceous matrix(washed away), trace to rare pyrite cement and nodules, rare mica, poor to fair visual porosity. No shows. Interbedded with minor:
	<u>CLAYSTONE</u>: (0-70%) medium dark grey and greenish grey, soft,dispersive, common glauconite, slightly silty, trace dispersed organic matter, occasional fragments of calcite cemented very fine quartz, rare pyrite.
795 - 845	<u>CLAYSTONE INTERBEDDED WITH MINOR SANDSTONE</u>
	<u>CLAYSTONE</u>: (80-100%) medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous. Interbedded with minor:
	<u>SANDSTONE</u>: (0-20%) light grey to translucent and commonly opaque, friable with abundant loose grains, fine to very coarse grained, angular to subrounded, moderately sorted quartz, common dispersive medium grey argillaceous matrix, common moderately weak calcareous cement, rare pyrite cement, trace mica, poor visual porosity. No shows.
845 - 877	<u>SANDSTONE WITH INTERBEDDED CLAYSTONE</u>
	<u>SANDSTONE</u>: (80-100%) medium greenish grey, medium grey in part, friable with abundant loose grains, fine to medium, subangular to dominantly subrounded, moderately to well sorted quartz, trace to common dispersive medium grey to green argillaceous matrix, rare weak calcareous cement, rare moderately strong pyrite cement, rare lithics, rare mica, good visual porosity. No shows. Interbedded with:
	<u>CLAYSTONE</u>: (0-20%) medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous.

Depth mRT	Description
877 - 967	<u>SANDSTONE WITH MINOR INTERBEDDED CLAYSTONE</u>

<u>SANDSTONE</u>: (80-100%) light greenish grey, clear in part, friable with abundant loose grains, medium to very coarse, dominantly coarse, subangular to rounded, dominantly subrounded, moderately sorted quartz, trace to occasionally common very dispersive light greenish grey to light grey argillaceous matrix (washed away), trace to rare grey, green and light brown lithics, rare glauconite pellets, rare to occasionally trace coarse to very coarse quartz overgrowths, good to very good visual porosity. No shows.

<u>CLAYSTONE</u>: (0-20%) medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous.

967 - 1043 <u>CLAYSTONE INTERBEDDED WITH MINOR SANDSTONE</u>

<u>SANDSTONE</u>: (10-90%) light greenish grey to light grey, clear in part, friable with abundant loose grains, predominantly medium grained, medium to coarse grained in part with occasional very coarse grains, subangular to rounded, dominantly subrounded, moderately to well sorted quartz, weak calcite cement throughout, trace to common light greenish grey to light grey dispersive argillaceous matrix (washed away in part), rare grey green and light brown lithics, rare glauconite pellet, trace to occasional quartz overgrowth, moderate to good visual porosity. No shows.

<u>CLAYSTONE</u>: (10-90%) brownish grey to medium dark grey, occasionally light grey and greenish grey, soft, slightly dispersive, moderately firm in part, trace silt to very fine quartz, rare disseminated organic matter, non calcareous.

1043 - 1146 <u>SANDSTONE INTERBEDDED WITH CLAYSTONE</u>

<u>SANDSTONE</u>: (10-100%) very light grey to light grey, friable with abundant loose grains, medium to coarse grained, occasional fine and very coarse grains, subangular to subrounded, moderately

Depth mRT	Description
	sorted quartz, trace light grey dispersive argillaceous matrix, trace moderately weak calcareous cement, occasional greyish black lithics, trace glauconite, good visual porosity. No shows.
	CLAYSTONE: (0-90%) medium grey to medium dark grey, soft to moderately firm, dispersive, trace glauconite, trace very fine quartz sand, trace coaly fragments, rare mica, non calcareous.
1146 - 1158	SANDSTONE
	SANDSTONE: (100%) very light grey to light grey, clear to translucent, friable with abundant loose grains, fine to very coarse grained, predominantly fine to medium, angular to subrounded, poorly sorted quartz, trace medium dark grey argillaceous matrix, trace weak calcareous cement,trace greyish black lithics, good visual porosity. No shows.
1158 - 1330	CLAYSTONE INTERBEDDED WITH MINOR SANDSTONE
	CLAYSTONE: (60-100%) medium light grey to medium grey, light to medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks and coal fragments, trace silt, non calcareous.
	SANDSTONE: (0-40%) very light grey, very fine, friable with abundant loose grains, subangular to subrounded, well sorted quartz, no apparent matrix, fair to good visual porosity. No shows.
1330 - 1412	SANDSTONE WITH MINOR CLAYSTONE
	SANDSTONE: (50-100%) clear to light grey, friable with abundant loose grains, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, common coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.

Depth mRT	Description
	CLAYSTONE: (0-50%) light grey to light brownish grey, rarely off-white in part, slightly silty in part, trace to common fine carbonaceous flecks and minor laminae, trace coal fragments, non calcareous.
1412 - 1436	CLAYSTONE INTERBEDDED WITH MINOR SANDSTONE
	CLAYSTONE: (50-100%) predominantly medium grey to medium dark grey, light grey to light brownish grey in part, soft to moderately firm, trace dispersed carbonaceous matter and coal fragments, trace silt, non calcareous.
	SANDSTONE: (0-50%) clear to light grey, friable with abundant loose grains, moderately hard in part, medium to very coarse, dominantly medium to coarse, subangular to subrounded, poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix, trace to rare medium to dark grey lithics, common coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, good to occasionally very good visual porosity. No shows.
1436 - 1509	SANDSTONE
	SANDSTONE: (100%) clear to light grey, friable with abundant loose grains, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, rare coal fragments, rare mica, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.
1509 - 1543	CLAYSTONE
	CLAYSTONE: (100%) medium grey to brownish grey, soft,occasional to common coal fragments, trace very fine quartz grains, non calcareous

Depth mRT	Description
1543 - 1665	SANDSTONE WITH MINOR CLAYSTONE
	SANDSTONE: (60-100%) very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (Washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowths, trace coal fragments, fair visual porosity. No shows.
	CLAYSTONE: (0-40%) medium light grey to medium grey, soft, dispersive in part, trace to occasional carbonaceous laminae, non calcareous.
1665 - 1695	ARGILLACEOUS LITHIC SANDSTONE
	ARGILLACEOUS LITHIC SANDSTONE: (50-90%) off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
1695 - 1710	CLAYSTONE
	CLAYSTONE: (90-100%) medium grey to medium dark grey, occasionally light brownish grey, soft to moderately firm, trace silt, trace carbonaceous flecks, non calcareous.
1710 - 1748	INTERBEDDED ARGILLACEOUS LITHIC SANDSTONE AND SANDSTONE
	ARGILLACEOUS LITHIC SANDSTONE: (20-90%) off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous

Depth mRT	Description
	Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows. With interbedded: <u>SANDSTONE</u>: (10-70%) light grey to very light grey, friable with abundant loose grains, medium to coarse grained, common very coarse to granule sized light green, dark grey, moderate pink, reddish orange and clear lithic and quartz grains, subangular to subrounded, larger grains very angular, common light grey argillaceous matrix, trace to occasional strong silica and moderately strong pyrite cement, occasional pyrite nodule, good visual porosity. No shows
1748 - 1875	<u>ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE AND CLAYSTONE</u> <u>ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE</u>: (80-100%) very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted black, light green and white lithic and feldspathic grains, clear to translucent quartz grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, grading to arenaceous claystone in part, poor visual porosity. No shows <u>CLAYSTONE</u>: (0-20%) medium light grey to light grey, soft, trace silt, trace to rare carbonaceous flecks, non calcareous

3.1.2 Cuttings Descriptions

The following detailed cuttings descriptions were prepared at the wellsite.

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	BHP Petroleum SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
First sample 370mRT, sample interval 5m. Casing shoe at 355mRT					
370	100	-	-	-	SANDSTONE: greyish brown, friable, abundant loose grains, medium to coarse grained, occasional very coarse grains, subrounded to occasionally subangular, well sorted iron stained quartz, trace greyish brown matrix, excellent inferred porosity. No shows. Note: sample heavily cement contaminated.
375	100	-	-	-	SANDSTONE: greyish brown to brownish black, friable, abundant loose grains, medium to coarse grained, occasional very coarse grain, subrounded to rounded, well sorted quartz, trace greyish brown matrix, common iron oxide grains (oolites and pisolites), trace medium dark grey claystone, excellent inferred porosity. No shows.
380	100	-	-	-	SANDSTONE: as above
385	90	-	-	-	SANDSTONE: greyish brown to light grey, friable, abundant loose grains, medium to coarse grained, common fine and very coarse grains, subrounded to rounded, moderately to poorly sorted iron stained quartz, occasional greyish brown matrix, occasional iron oxide grains (oolites and pisolites), occasional mica, good inferred porosity. No shows.
	10	-	-	-	CLAYSTONE: medium dark grey, firm, blocky, non calcareous.

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
390	100	-	-	-	SANDSTONE: light grey, occasionally brownish grey, friable, abundant loose grains, medium to coarse with abundant fine and very coarse grains, subrounded to rounded, poorly sorted, occasionally iron stained quartz, trace greyish brown matrix, occasional iron oxide grain, occasional mica, trace medium dark grey claystone, good inferred porosity. No shows.
395					Missed
400	90	-	-	-	SANDSTONE: light grey, occasionally brownish grey, friable, abundant loose grains, medium to coarse with occasional fine and very coarse grains, subrounded to rounded, moderately to well sorted, occasionally iron stained quartz, trace greyish brown matrix, occasional laterite grain, occasional mica, good inferred porosity. No shows.
	10	-	-	-	CLAYSTONE: brownish grey to olive black, soft dispersive, slightly silty, trace very fine quartz sand, non calcareous.
405	90	-	-	-	SANDSTONE: light grey, occasionally brownish grey, friable, abundant loose grains, medium to coarse with occasional fine and very coarse grains, subrounded to rounded, moderately to well sorted, occasionally iron stained quartz, trace greyish brown matrix, occasional laterite grain, occasional mica, good inferred porosity. No shows.
	10	-	-	-	CLAYSTONE: brownish grey to olive black, soft, dispersive, slightly silty, trace very fine quartz sand, non calcareous.
410	70	-	-	-	SANDSTONE: as above
	30	-	-	-	CLAYSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
415					missed
420	80	-	-	-	SANDSTONE: greyish brown to very light grey, friable, abundant loose grains, fine to medium grained, occasional coarse grains, subrounded to rounded, occasionally subangular, moderately to well sorted quartz, occasional greyish brown matrix, occasional mica, good inferred porosity. No shows.
	20	-	-	-	CLAYSTONE: as above
425	90	-	-	-	SANDSTONE: as above
	10	-	-	-	CLAYSTONE: as above
430	100	-	-	-	SANDSTONE: very light grey to light grey, friable, abundant loose grains, medium to coarse grained, common fine and occasional very coarse grains, subrounded to rounded, well sorted quartz, occasional greyish brown matrix, trace medium to medium dark grey claystone, good inferred porosity. No shows.
435	100	-	-	-	SANDSTONE: as above
440					missed
445	100	-	-	-	SANDSTONE: as above
450					missed
455	100	-	-	-	SANDSTONE: as above
460	100	-	-	-	SANDSTONE: as above
465					missed

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
470	70	-	-	tr	CLAYSTONE: dusky brown, very soft, dispersive, commonly silty, occasional very fine sand, trace greyish black carbonaceous matter, trace micromicaceous, rare pyrite, non calcareous.
	30	-	-	-	SANDSTONE: very light grey to light grey, friable, abundant loose grains, medium to coarse grained, common fine and occasional very coarse grains, subrounded to rounded, well sorted quartz, occasional greyish brown matrix, trace medium to medium dark grey claystone, good inferred porosity. No shows.
475	100	-	-	-	SANDSTONE: very light grey and greyish black, friable, abundant loose grains, predominantly medium to coarse grained, occasional very coarse grains, subrounded to rounded, well sorted quartz, up to 20% of grains are iron oxide pellets (oolites and pisolites), trace brownish grey argillaceous matrix, excellent inferred porosity. No shows.
480	90	-	-	-	SANDSTONE: light grey to pale brown, friable, abundant loose grains, medium to coarse grained, occasional fine and very coarse grains, subrounded to rounded, moderately sorted quartz, occasionally iron stained, trace brownish grey argillaceous matrix, rare calcite cement, trace to occasional pyrite, rare mica, good inferred porosity. No shows.
	10	-	-	-	CLAYSTONE: brownish grey to light brownish grey, soft, dispersive, possibly chloritic in parts, slightly silty, trace very fine quartz, non calcareous.
485					missed
490	100	-	-	-	SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
495					missed
500	100	-	-	-	SANDSTONE: very light grey to light grey, friable, abundant loose grains, coarse to very coarse grained, abundant fine to occasionally very fine grains, subrounded to rounded, poorly to moderately sorted quartz, trace medium grey to brownish grey argillaceous matrix, trace medium grey claystone, good inferred porosity. No shows.
505					missed
510	100	-	-	-	SANDSTONE: as above
515	90	-	-	-	SANDSTONE: very light grey to light grey, friable, abundant loose grains, coarse to very coarse grained, abundant fine to occasionally very fine grains, subrounded to rounded, poor to moderately sorted quartz, trace medium grey to brownish grey argillaceous matrix, trace medium grey claystone, good inferred porosity. No shows.
	10	-	-	-	CLAYSTONE: greyish brown to dusky brown, soft dispersive, slightly silty, trace very fine grained quartz, micromicaceous, non calcareous.
520					missed
525	100	-	-	-	SANDSTONE: as above
530					missed
535	100	-	-	-	SANDSTONE: very light grey to light brownish grey, friable, abundant loose grains, medium to coarse grained,occasional fine and very coarse grains, subangular to subrounded, moderately sorted quartz, trace brownish grey argillaceous matrix, rare pyrite, excellent inferred porosity. No shows.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
540	70	-	-	-	SANDSTONE: as above
	30	-	-	-	CLAYSTONE: as above
545	90	-	-	-	SANDSTONE: as above
	10	-	-	-	CLAYSTONE: as above
550	80	-	-	-	CLAYSTONE: dusky brown to greyish brown, occasionally light brown soft, dispersive, silty, trace very fine grained quartz, non calcarous.
	20	-	-	-	SANDSTONE: as above
555	100	-	-	-	CLAYSTONE: as above
560	100	-	-	-	CLAYSTONE: as above
565	100	-	-	-	CLAYSTONE: as above
570	100	-	-	-	CLAYSTONE: as above
575	100	-	tr	r	CONGLOMERATIC CLAYSTONE: medium to dark brownish grey and grey, occasionally medium to dark greenish grey, soft, dispersive, abundant very coarse to granule, occasionally coarse subrounded to rounded quartz and lithic pebbles, iron-stained in part, trace fine to medium, occasionally coarse glauconite pellets, rare disseminated fine carbonaceous detritus, rare medium to coarse iron oxide oolith and pisolith, rare mica, rare weathered limonitic cement/clay, grading to Argillaceous Conglomerate.
580	100	-	tr	r	CONGLOMERATIC CLAYSTONE: as above, grading to Argillaceous Conglomerate.
585	100	-	tr	r	ARGILLACEOUS CONGLOMERATE: as above, friable with abundant loose grains, poorly sorted, poor visual porosity. No shows.
590	100	-	tr	r	ARGILLACEOUS CONGLOMERATE: as above

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
595					missed
600					missed
605	100	-	r	r	CONGLOMERATIC CLAYSTONE: as above
610	100	-	-	-	SANDSTONE: light grey to translucent, clear in part, friable with common to abundant loose grains, occasionally hard, medium to very coarse, occasionally granule, subangular to subrounded, rarely rounded, poorly sorted quartz and common grey, green and brown metamorphic(?) lithics and chert, common light grey to light brownish grey dispersive argillaceous matrix (washed away), trace to rare pyrite cement and nodules, rare mica, poor to fair visual porosity. No shows.
615					missed
620	100	-	-	-	SANDSTONE: as above
625					missed
630					missed
635	100	-	-	-	SANDSTONE: as above
640	100	-	-	-	SANDSTONE: as above
645	100	-	-	-	SANDSTONE: as above
650					missed
655	100	-	-	-	SANDSTONE: generally as above, occasionally fine in part, common to occasionally abundant light to medium brown argillaceous matrix, poor visual porosity. No shows. Note: Due to hole being approximately 40% overgauge the lag is considered inaccurate. Further, because of the loosely consolidated lithology and high ROP the sample may contain abundant cavings.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
660					missed
665	100	-	-	-	SANDSTONE: as above
670					missed
675	80	-	-	-	SANDSTONE: as above, interbedded with:
	20	-	-	r	CLAYSTONE: light brownish grey, soft, dispersive in part, trace to rare micromica, rare carbonaceous flecks, non calcareous.
680					missed
685	100	-	-	-	SANDSTONE: as above
690					missed
695	100	-	-	-	SANDSTONE: light grey to translucent, clear in part, friable, abundant loose grains, medium to coarse grained, occasional to common very coarse grains, angular to subangular, occasionally subrounded, moderately sorted quartz with occasional greenish grey lithics (metamorphics?) and chert, common silica cement and quartz overgrowths, occasional pyrite cement, trace medium grey dispersive argillaceous matrix, common medium grey claystone, poor visual porosity. No shows.
700					missed
705	50	-	-	-	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft, dispersive, trace dispersed organic matter, commonly silty, common fine grained quartz, slightly calcareous.
710					missed

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
715	90	-	tr	tr	CLAYSTONE: as above with trace glauconite.
	10	-	-	-	SANDSTONE: as above
720					missed
725	100	-	tr	tr	CLAYSTONE: medium grey to medium dark grey, soft, dispersive, trace dispersed organic matter, commonly silty, common fine grained quartz, slightly calcareous.
730					missed
735	100	-	co	tr	CLAYSTONE: medium dark grey and greenish grey, soft, dispersive, common glauconite, slightly silty, trace dispersed organic matter, occasional fragments of calcite cemented very fine quartz, rare pyrite.
740					missed
745	100	-	co	tr	CLAYSTONE : as above with common very coarse quartz grains.
750					missed
755	70	-	co	tr	CLAYSTONE: medium grey to dark grey, generally soft and dispersive, occasionally hard, occasional to common pyrite, framboidal in part, trace disseminated organic material, common glauconite, non calcareous.
	30	-	-	tr	SANDSTONE: light grey to translucent and commonly opaque, friable with abundant loose grains, fine to very coarse grained, angular to subrounded, moderately sorted quartz, common dispersive medium grey argillaceous matrix common moderately weak calcareous cement, rare pyrite cement, trace mica, poor visual porosity. No shows.

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
760	70	-	tr	tr	CLAYSTONE: as above with decreasing glauconite.
	30	-	tr	tr	SANDSTONE: as above.
765	70	-	tr	tr	CLAYSTONE: as above.
	30	-	tr	tr	SANDSTONE: as above.
770					missed
775	70	-	tr	tr	CLAYSTONE: as above
	30	-	tr	tr	SANDSTONE: as above
780					missed
785	60	-	tr	tr	CLAYSTONE: as above, becoming medium to dark greenish grey in part.
	40	-	r	r	SANDSTONE: as above
790	60	-	tr	tr	CLAYSTONE: medium grey to dark grey, generally soft and dispersive, occasionally hard, occasional to common pyrite, framboidal in parts, trace disseminated organic material, common glauconite, non calcareous.
	40	-	r	r	SANDSTONE: light grey to translucent, commonly opaque, friable with abundant loose grains, fine to very coarse grained, angular to subrounded, moderately sorted quartz, common dispersive medium grey argillaceous matrix, common moderately weak calcareous cement, rare pyrite cement, trace mica, poor visual porosity. No shows.
795	60	-	tr	tr	CLAYSTONE: as above
	40	-	r	r	SANDSTONE: as above

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
800	90	-	r	r	CLAYSTONE: generally as above, medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous.
	10	-	r	r	SANDSTONE: as above
805					missed
810	100	-	r	r	CLAYSTONE: as above
815					missed
820	100	-	r	r	CLAYSTONE: as above
825					missed
830	80	-	r	r	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above
835	90	-	r	r	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
840	90	-	r	r	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
845	80	-	r	r	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
850	90	-	-	-	SANDSTONE: medium greenish grey, medium grey in part, friable with abundant loose grains, fine to medium, subangular to dominantly subrounded, moderately to well sorted quartz, trace to common dispersive medium grey to green argillaceous matrix (washed out), rare weak calcareous and moderately strong pyrite cement, rare lithics, rare mica, good visual porosity. No shows. Interbedded with minor:
	10	-	r	r	CLAYSTONE: generally as above, medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous.
855					missed
860	100	-	r	-	SANDSTONE: as above
865	90	-	r	-	SANDSTONE: as above
	10	-	r	r	CLAYSTONE: as above
870	80	-	r	-	SANDSTONE: as above
	20	-	r	r	CLAYSTONE: as above
875	80	-	r	-	SANDSTONE: as above, dominantly medium grained.
	20	-	r	r	CLAYSTONE: as above
880	80	-	r	-	SANDSTONE: as above, becoming coarse grained with depth.
	20	-	r	r	CLAYSTONE: as above

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
885	100	-	r	-	SANDSTONE: light greenish grey, clear in part, friable with abundant loose grains, medium to very coarse, dominantly coarse, subangular to rounded, dominantly subrounded, moderately sorted quartz, trace to occasionally common very dispersive light greenish grey to light grey argillaceous matrix (washed away), trace to rare grey, green and light brown lithics, rare glauconite pellets, rare to occasionally trace coarse to very coarse quartz overgrowths, good to very good visual porosity. No shows.
890	100	-	r	-	SANDSTONE: as above
895	100	-	r	-	SANDSTONE: as above, becoming dominantly coarse to very coarse.
900	95	-	r	-	SANDSTONE: as above
	5	-	r	r	CLAYSTONE: as above
905	95	-	r	-	SANDSTONE: light greenish grey, clear in part, friable with abundant loose grains, medium to very coarse, dominantly coarse, subangular to rounded, dominantly subrounded, moderately sorted quartz, trace to occasionally common very dispersive light greenish grey to light grey argillaceous matrix (washed away), trace to rare grey, green and light brown lithics, rare glauconite pellets, rare to occasionally trace coarse to very coarse quartz overgrowths, good to very good visual porosity. No shows.
	5	-	r	r	CLAYSTONE: generally as above, medium to dark brownish grey to medium to dark greenish grey, soft, occasionally firm to hard, occasionally dispersive, moderately silty, trace fine carbonaceous flecks, trace very fine quartz sand grains, rare glauconite, rare mica, non calcareous.

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	BHP Petroleum **SAMPLE DESCRIPTION SHEET** Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
910	100	0	r	-	SANDSTONE: as above
915	100	0	r	-	SANDSTONE: as above
920	100	0	r	-	SANDSTONE: as above
925					missed
930	100	0	r	-	SANDSTONE: as above, dominantly medium grained.
935	90	0	r	-	SANDSTONE: as above, moderately hard in part.
	10	0	r	r	CLAYSTONE: as above
940					missed
945	100	0	r	-	SANDSTONE: light greenish grey, clear in part, friable with abundant loose grains, medium to coarse grained, subangular to rounded, predominantly subrounded, moderately sorted quartz, trace to occasionally common very dispersive light greenish grey to light grey argillaceous matrix (washed away), trace to rare greyish green and light brown lithics, rare glauconite pellets, trace quartz overgrowths, good to very good visual porosity. No shows.
950	80	-	tr	-	SANDSTONE: as above, occasional very coarse grained.
	20	-	r	r	CLAYSTONE: as above
955	100	0	tr	-	SANDSTONE: as above
960	90	0	r	-	SANDSTONE: as above
	10	0	r	r	CLAYSTONE: as above

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	BHP Petroleum
965	80	-	r	-	<u>SANDSTONE</u>: light greenish grey to light grey, clear in part, friable with abundant loose grains, predominantly medium grained, medium to coarse grained in part with occasional very coarse grains, subangular to rounded, dominantly subrounded, moderately to well sorted quartz, weak calcite cement throughout, trace to common light greenish grey to light grey dispersive argillaceous matrix (washed away in parts), rare greyish green and light brown lithics, rare glauconite pellet, trace to occasional quartz overgrowth, moderate to good visual porosity. No shows.
	20	-	-	r	<u>CLAYSTONE</u>: brownish grey to medium dark grey, occasionally light grey and greenish grey, soft, slightly dispersive, moderately firm in parts, trace silt to very fine quartz, rare disseminated organic matter, non calcareous.
970	60	-	-	r	<u>CLAYSTONE</u>: as above
	40	-	r	-	<u>SANDSTONE</u>: as above
975	70	-	r	-	<u>SANDSTONE</u>: as above
	30	-	-	r	<u>CLAYSTONE</u>: as above
980	90	-	-	r	<u>CLAYSTONE</u>: as above
	10	-	r	-	<u>SANDSTONE</u>: as above
985	90	-	-	r	<u>CLAYSTONE</u>: as above
	10	-	r	-	<u>SANDSTONE</u>: as above
990	90	-	-	r	<u>CLAYSTONE</u>: as above
	10	-	r	-	<u>SANDSTONE</u>: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
995	100	-	r	r	CLAYSTONE: medium dark grey to brownish grey, soft, dispersive, trace silt to very fine quartz grains, trace medium quartz sand, rare glauconite, trace to rare dispersed organic matter, non calcareous.
1000	90	-	r	tr	CLAYSTONE: as above
	10	-	r	-	SANDSTONE: as above
1005	100	-	r	tr	CLAYSTONE: as above
1010	70	-	r	tr	CLAYSTONE: as above
	30	-	r	-	SANDSTONE: as above
1015	90	-	r	tr	CLAYSTONE: as above
	10	-	r	-	SANDSTONE: as above
1017	90	-	r	tr	CLAYSTONE: medium dark grey to brownish grey, soft, becoming moderately firm, dispersive, trace silt to very fine quartz grains, trace medium quartz sand, rare glauconite, trace to rare dispersed organic matter, non calcareous.
	10	-	r	-	SANDSTONE: light greenish grey to light grey, clear in part, friable with abundant loose grains, predominantly medium grained, medium to coarse grained in part, occasional very coarse grains, subangular to rounded, dominantly subrounded, moderately to well sorted quartz, weak calcite cement throughout, trace to common light greenish grey to light grey dispersive argillaceous matrix (washed away in parts), rare grey green and light brown lithics, rare glauconite pellets, trace to occasional quartz overgrowths, moderate to good visual porosity. No shows.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
Casing point of 1017.0m was reached at 10.00 hrs on 21-02-93 Casing shoe was set at 1007.42m. Leak off test at 1020.0m = 1.96 SG					
1020	90	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft to moderately firm, trace silt, trace carbonaceous and coaly flecks, trace very fine quartz sand, trace calcite.
	10	-	-	-	SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, well sorted quartz, trace medium grey dispersive argillaceous matrix, trace greyish black lithics, trace pyrite, good visual porosity. No shows.
1023	90	-	-	tr	CLAYSTONE: as above.
	10	-	-	-	SANDSTONE: as above.
1026	90	-	-	tr	CLAYSTONE: as above.
	10	-	-	-	SANDSTONE: as above.
1026	90	-	-	tr	CLAYSTONE: as above.
	10	-	-	-	SANDSTONE: as above.
1029	80	-	-	tr	CLAYSTONE: as above.
	20	-	-	-	SANDSTONE: as above:
1032	60	-	-	tr	CLAYSTONE: as above.
	40	-	-	-	SANDSTONE: as above.
1035	80	-	-	tr	CLAYSTONE: as above.
	20	-	-	-	SANDSTONE: as above.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
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Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1038	90	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft to moderately firm, trace silt, trace carbonaceous and coaly flecks, trace very fine quartz sand, trace calcite.
	10	-	-	-	SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, well sorted quartz, trace medium grey dispersive argillaceous matrix, trace greyish black lithics, trace pyrite, good visual porosity. No shows.
1041	90	-	-	tr	CLAYSTONE: as above.
	10	-	-	-	SANDSTONE: as above, trace dull yellowish white mineral fluorescence.
1044	80	-	-	-	SANDSTONE: light grey to very light grey, friable with abundant loose grains, medium to coarse grained, abundant fine grains, occasional very coarse grains, angular to subrounded, moderately sorted quartz, trace medium light grey dispersive argillaceous matrix, occasional calcareous cement, common greyish black lithic grains, good visual porosity, trace dull yellowish white mineral fluorescence.
	20	-	-	tr	CLAYSTONE: as above.
1047	80	-	-	-	SANDSTONE: as above.
	20	-	-	tr	CLAYSTONE: as above.
1050	90	-	-	-	SANDSTONE: as above.
	10	-	-	tr	CLAYSTONE: as above.
1053	80	-	-	-	SANDSTONE: as above.
	20	-	-	tr	CLAYSTONE: as above.

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SAMPLE DESCRIPTION SHEET

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1056	90	-	-	-	SANDSTONE: as above.
	10	-	-	tr	CLAYSTONE: as above.
1059	80	-	tr	-	SANDSTONE: very light grey to light grey, friable with abundant loose grains, medium to coarse grained, occasional fine and very coarse grains, subangular to subrounded, moderately sorted quartz, trace light grey dispersive argillaceous matrix,trace moderately weak calcareous cement, occasional greyish black lithics, trace glauconite, good visual porosity. No shows.
	20	-	tr	tr	CLAYSTONE: medium grey to medium dark grey, soft to moderately firm, dispersive, trace glauconite, trace very fine quartz sand, trace coaly fragments, rare mica, non calcareous.
1062	80	-	tr	-	SANDSTONE: as above.
	20	-	tr	tr	CLAYSTONE: as above.
1065	80	-	tr	tr	CLAYSTONE: as above.
	20	-	tr	-	SANDSTONE: as above.
1068	90	-	tr	tr	CLAYSTONE: as above.
	10	-	tr	-	SANDSTONE: as above.
1071	80	-	tr	tr	CLAYSTONE: as above.
	20	-	tr	-	SANDSTONE: as above.
1074	100	-	tr	tr	CLAYSTONE: as above.
1077	100	-	tr	tr	CLAYSTONE: as above.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1080	60	-	-	-	SANDSTONE: very light grey to light grey, fine to medium grained, occasional coarse grains, friable with abundant loose grains, subangular to subrounded, moderately sorted quartz, trace to common medium grey argillaceous matrix, trace moderately weak calcareous cement, common greyish black lithic grains, fair visual porosity. No shows.
	40	-	tr	tr	CLAYSTONE: as above.
1083	60	-	-	-	SANDSTONE: as above.
	40	-	tr	tr	CLAYSTONE: as above.
1086	90	-	-	-	SANDSTONE: as above.
	10	-	tr	tr	CLAYSTONE: as above.
1089	80	-	-	-	SANDSTONE: as above.
	20	-	tr	tr	CLAYSTONE: as above
1092	80	-	-	-	SANDSTONE: very light grey to light grey, fine to medium grained, occasional coarse grains, friable with abundant loose grains, subangular to subrounded, moderately sorted quartz, trace to common medium grey argillaceous matrix, trace moderately weak calcareous cement, common greyish black lithic grains, fair visual porosity. No shows.
	20	-	tr	tr	CLAYSTONE: medium grey to medium dark grey, soft to moderately firm, dispersive, trace glauconite, trace very fine quartz sand, trace coaly fragments, rare mica, non calcareous.

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1095	90	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft, dispersive, common carbonaceous flecks, occasional coaly fragments, non calcareous.
	10	-	-	-	SANDSTONE: as above.
1098	80	-	-	tr	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above
1101	70	-	-	tr	CLAYSTONE: as above
	30	-	-	-	SANDSTONE: as above
1104	70	-	-	-	SANDSTONE: as above
	30	-	-	tr	CLAYSTONE: as above
1107	100	-	-	-	SANDSTONE: as above, dominantly medium to coarse.
1110	50	-	-	-	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1113	70	-	-	tr	CLAYSTONE: as above, light grey in part.
	30	-	-	-	SANDSTONE: as above
1116	70	-	-	tr	CLAYSTONE: as above
	30	-	-	-	SANDSTONE: as above
1119	70	-	-	tr	CLAYSTONE: as above
	30	-	-	-	SANDSTONE: as above
1122	70	-	-	tr	CLAYSTONE: as above
	30	-	-	-	SANDSTONE: as above

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SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1125	60	-	-	tr	CLAYSTONE: as above
	40	-	-	-	SANDSTONE: as above
1128	60	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft, dispersive, common carbonaceous flecks, occasional coaly fragments, non calcareous.
	40	-	-	-	SANDSTONE: very light grey to light grey, fine to medium grained, occasional coarse grains, friable with abundant loose grains, subangular to subrounded, moderately sorted quartz, trace to common medium grey argillaceous matrix, trace moderately weak calcareous cement, common greyish black lithic grains, in part interbedded with minor very fine sandstone, fair visual porosity. No shows.
1131	50	-	-	tr	CLAYSTONE: as above
	50	-	-	r	SANDSTONE: light grey, friable, very fine, occasionally very silty and grading to Arenaceous Siltstone, subrounded, well sorted quartz, abundant light grey argillaceous matrix, rare very fine lithics, rare carbonaceous detritus, very poor visual porosity. No shows.
1134	60	-	-	r	SANDSTONE: as above
	40	-	-	tr	CLAYSTONE: as above
1137	50	-	-	r	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1140	50	-	-	r	SANDSTONE: as above, becoming extremely argillaceous, in part grading to Arenaceous Claystone.
	50	-	-	tr	CLAYSTONE: as above

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Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1143	50	-	-	r	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1146	60	-	-	r	SANDSTONE: as above
	40	-	-	tr	CLAYSTONE: as above
1149	50	-	-	r	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1152	50	-	-	r	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1155	70	-	-	r	SANDSTONE: very light grey to light grey, clear to translucent, friable with abundant loose grains, fine to very coarse grained, predominantly fine to medium, angular to subrounded, poorly sorted quartz, trace medium dark grey argillaceous matrix, trace weak calcareous cement, trace greyish black lithics, good visual porosity. No shows.
	30	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft, dispersive, common carbonaceous flecks, occasional coaly fragments, non calcareous.
1158	60	-	-	r	SANDSTONE: as above, becoming predominantly medium to coarse grained.
	40	-	-	tr	CLAYSTONE: as above
1161	80	-	-	r	SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1164	60	-	-	r	SANDSTONE: as above with trace moderately strong pyrite cement on very coarse grains.
	40	-	-	tr	CLAYSTONE: as above
1167	70	-	-	tr	CLAYSTONE: as above
	30	-	-	r	SANDSTONE: as above
1170					missed
1173	90	-	-	tr	CLAYSTONE: medium light grey to medium grey, light to medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks and coal fragments, trace silt, non calcareous.
	10	-	-	r	SANDSTONE: as above
1176	100	-	-	tr	CLAYSTONE: as above
1179	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above, becoming predominantly fine to medium grained.
1182	100	-	-	tr	CLAYSTONE: as above
1185	100	-	-	tr	CLAYSTONE: as above
1188	100	-	-	tr	CLAYSTONE: as above
1191	100	-	-	tr	CLAYSTONE: as above with abundant loose fine quartz sand grains.
1194	100	-	-	tr	CLAYSTONE: as above
1197	100	-	-	tr	CLAYSTONE: as above
1200	100	-	-	tr	CLAYSTONE: medium light grey to medium grey, light to medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks and coal fragments, trace silt, non calcareous.

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1203	100	-	-	tr	CLAYSTONE: as above, rare black coaly particles.
1206	100	-	-	tr	CLAYSTONE: as above
1209	100	-	-	tr	CLAYSTONE: as above
1212	100	-	-	tr	CLAYSTONE: as above
1215	100	-	-	tr	CLAYSTONE: as above
1218	100	-	-	tr	CLAYSTONE: as above
1221	100	-	-	tr	CLAYSTONE: as above
1224	100	-	-	tr	CLAYSTONE: as above
1227	100	-	-	tr	CLAYSTONE: as above
1230	100	-	-	tr	CLAYSTONE: as above
1233	100	-	-	tr	CLAYSTONE: as above
1236	100	-	-	tr	CLAYSTONE: as above
1239	100	-	-	tr	CLAYSTONE: as above
1242	100	-	-	tr	CLAYSTONE: as above
1245	100	-	-	tr	CLAYSTONE: as above
1248	100	-	-	tr	CLAYSTONE: as above
1251	100	-	-	tr	CLAYSTONE: as above
1254	100	-	-	tr	CLAYSTONE: as above
1257	100	-	-	tr	CLAYSTONE: as above
1260	100	-	-	tr	CLAYSTONE: as above
1263	100	-	-	tr	CLAYSTONE: generally as above, light grey to medium grey, light to medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks and coal fragments, trace silt, non calcareous.
1266	100	-	-	tr	CLAYSTONE: as above

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1269	100	-	-	tr	CLAYSTONE: as above
1272	100	-	-	tr	CLAYSTONE: as above
1275	100	-	-	tr	CLAYSTONE: as above, dominantly medium brownish grey.
1278	100	-	-	c	CLAYSTONE: as above, trace to occasionally common coaly particles.
1281	100	-	-	c	CLAYSTONE: generally as above, light grey to medium grey, light to medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks, trace to occasionally common coaly particles, trace silt, non calcareous.
1284	100	-	-	c	CLAYSTONE: as above
1287	100	-	-	c	CLAYSTONE: as above
1290	100	-	-	c	CLAYSTONE: as above
1293	100	-	-	c	CLAYSTONE: as above
1296	80	-	-	tr	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: very light grey, very fine, friable with abundant loose grains, subangular to subrounded, well sorted quartz, no apparant matrix, fair to good visual porosity. No shows.
1299	80	-	-	tr	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above
1302	80	-	-	tr	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above
1305	80	-	-	tr	CLAYSTONE: as above
	20	-	-	-	SANDSTONE: as above

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1308	100	-	-	tr	CLAYSTONE: as above
	tr	-	-	-	SANDSTONE: as above
1311	100	-	-	tr	CLAYSTONE: as above, becoming dominantly medium brownish grey.
1314	100	-	-	tr	CLAYSTONE: as above
1317	100	-	-	tr	CLAYSTONE: as above
1320	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
1323	90	-	-	tr	CLAYSTONE: generally as above, light grey to medium grey, becoming dominantly medium brownish grey in part, soft, dispersive, trace to occasional carbonaceous flecks, trace to occasionally common coaly particles, trace silt, non calcareous.
	10	-	-	-	SANDSTONE: very light grey, very fine, friable with abundant loose grains, subangular to subrounded, well sorted quartz, no apparant matrix, fair to good visual porosity. No shows.
	tr	-	-	ab	COAL: very dark brown to black, firm, occasionally soft(?), blocky in part, subconchoidal fractures in part, rare cryptocrystalline pyrite in part. No shows.
1326	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
	tr	-	-	ab	COAL: as above
1329	100	-	-	tr	CLAYSTONE: as above
	tr	-	-	ab	COAL: as above

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	
1332	60	-	-	tr	SANDSTONE: clear to light grey, friable with abundant loose grains, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, rare coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.
	40	-	-	tr	CLAYSTONE: as above
	tr	-	-	ab	COAL: as above
1335	50	-	-	tr	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1338	100	-	-	tr	CLAYSTONE: as above
1341	100	-	-	tr	SANDSTONE: as above
1344	100	-	-	tr	SANDSTONE: as above
1347	100	-	-	tr	SANDSTONE: as above

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1350	100	-	-	c	SANDSTONE: clear to light grey, friable with abundant loose grains, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, common coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.
1353	100	-	-	tr	SANDSTONE as above, becoming dominantly coarse grained.
1356	100	-	-	tr	SANDSTONE: as above
1359	100	-	-	tr	SANDSTONE: as above
1362	100	-	-	tr	SANDSTONE: as above
1365	100	-	-	tr	SANDSTONE: as above
1368	100	-	-	tr	SANDSTONE: as above
1371	100	-	-	tr	SANDSTONE: as above
1374	90	-	-	tr	SANDSTONE: as above, moderately hard in part, rare pyrite nodules/moderately strong pyrite cement.
	10	-	-	tr	CLAYSTONE: light grey to light brownish grey, rarely off-white in part, slightly silty in part, trace to common fine carbonaceous flecks and minor laminae, trace coal fragments, non calcareous.
1377	100	-	-	tr	SANDSTONE: as above

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	BHP Petroleum SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1380	100	-	-	tr	SANDSTONE: as above, moderately hard in part, trace strong pyrite cement, good visual porosity. No shows.
1383	100	-	-	tr	SANDSTONE: as above, dominantly medium to coarse grained.
1386	100	-	-	tr	SANDSTONE: as above
1389	100	-	-	tr	SANDSTONE: as above
1392	100	-	-	tr	SANDSTONE: as above
1395	100	-	-	tr	SANDSTONE: as above
1398	30	-	-	tr	SANDSTONE: as above
	70	-	-	tr	CLAYSTONE: as above
1401	50	-	-	tr	SANDSTONE: clear to light grey, friable with abundant loose grains, moderately hard in part, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, common coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.
	50	-	-	tr	CLAYSTONE: light grey to light brownish grey, rarely off-white in part, slightly silty in part, trace to common fine carbonaceous flecks and minor laminae, trace coal fragments, non calcareous.

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1404	30	-	-	tr	SANDSTONE: as above
	70	-	-	tr	CLAYSTONE: as above
	tr	-	-	ab	COAL: very dark brown to black, firm, soft (?) in part, subconchoidal fractures in part. No shows.
1407	70	-	-	tr	SANDSTONE: as above
	30	-	-	tr	CLAYSTONE: as above
	tr	-	-	ab	COAL: as above
1410	50	-	-	tr	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: predominantly medium grey to medium dark grey, light grey to light brownish grey in part, soft to moderately firm, trace dispersed carbonaceous matter and coal fragments, trace silt, non calcareous.
1413	50	-	-	tr	SANDSTONE: as above
	50	-	-	tr	CLAYSTONE: as above
1416	70	-	-	tr	SANDSTONE: as above
	30	-	-	tr	CLAYSTONE: as above
1419	90	-	-	tr	CLAYSTONE: as above
	10	-	-	tr	SANDSTONE: as above
1422	80	-	-	tr	CLAYSTONE: as above
	20	-	-	tr	SANDSTONE: as above

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1425	60	-	-	tr	SANDSTONE: clear to light grey, friable with abundant loose grains, moderately hard in part, medium to very coarse, dominantly medium to coarse, subangular to subrounded, poorly to moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix, trace to rare medium to dark grey lithics, common coal fragments, rare mica, rare pyrite nodules, rare to occasional quartz overgrowths, good to occasionally very good visual porosity. No shows.
	40	-	-	tr	CLAYSTONE: predominantly medium grey to medium dark grey, light grey to light brownish grey in part, soft to moderately firm, trace dispersed carbonaceous matter and coal fragments, trace silt, non calcareous.
1428	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above, becoming blocky in part.
1431	90	-	-	tr	SANDSTONE: generally as above, occasional fine grains
	10	-	-	tr	CLAYSTONE: as above
1434	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1437	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1440	80	-	-	tr	CLAYSTONE: as above
	20	-	-	tr	SANDSTONE: as above

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1443	100	-	-	tr	CLAYSTONE: medium grey to medium dark grey, soft to moderately firm, trace silt, occasional carbonaceous and coaly flecks, subblocky, non calcareous.
1446	100	-	-	tr	CLAYSTONE: as above
1449	100	-	-	tr	CLAYSTONE: as above
1452	100	-	-	tr	CLAYSTONE: as above
1455	100	-	-	tr	CLAYSTONE: as above
1458	100	-	-	tr	CLAYSTONE: as above
1461	90	-	-	tr	CLAYSTONE: as above
	10	-	-	tr	SANDSTONE: as above
1464	80	-	-	tr	SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above
1467	100	-	-	tr	SANDSTONE: clear to light grey, friable with abundant loose grains, medium to very coarse, dominantly medium to coarse, subangular to subrounded, occasionally angular (fresh angular grains appear to be the product of bit), moderately sorted quartz, common light grey to off-white dispersive argillaceous matrix (almost all washed away), trace to rare medium to dark grey lithics, rare coal fragments, rare mica, rare to occasional quartz overgrowths, trace to rare rock flour, good to occasionally very good visual porosity. No shows.
1470	100	-	-	tr	SANDSTONE: as above
1473	100	-	-	tr	SANDSTONE: as above
1476	100	-	-	tr	SANDSTONE: as above
1479	100	-	-	tr	SANDSTONE: as above

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1482	100	-	-	tr	SANDSTONE: as above
1485	100	-	-	tr	SANDSTONE: as above
1488	100	-	-	tr	SANDSTONE: as above
1491	100	-	-	tr	SANDSTONE: as above
1494	90	-	-	tr	SANDSTONE: as above, with occasionally moderately strong siliceous cement
	10	-	-	tr	CLAYSTONE: as above
1497	100	-	-	tr	SANDSTONE: as above
1500	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1503	80	-	-	tr	SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above
1506	80	-	-	tr	SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above
1509	80	-	-	tr	CLAYSTONE: medium grey to brownish grey, soft, occasional to common coal fragments, trace very fine quartz grains, non calcareous
	20	-	-	tr	SANDSTONE: as above
	tr	-	-	tr	COAL: greyish black to black, bright, soft to moderately firm, subconchoidal fracture. No shows
1512	100	-	-	tr	CLAYSTONE: as above
1515	100	-	-	tr	CLAYSTONE: as above
1518	100	-	-	tr	CLAYSTONE: medium grey to brownish grey, soft, occasional to common coal fragments, trace very fine quartz grains, non calcareous

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	BHP Petroleum SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1521	100	-	-	tr	CLAYSTONE: as above
1524	100	-	-	tr	CLAYSTONE: as above
1527	100	-	-	tr	CLAYSTONE: medium light grey to medium grey, soft, occasional coal fragments, trace silt, non calcareous
1530	100	-	-	tr	CLAYSTONE: as above
1533	100	-	-	tr	CLAYSTONE: as above
1536	100	-	-	tr	CLAYSTONE: as above
1539	100	-	-	tr	CLAYSTONE: generally as above with trace medium grained quartz.
1542	100	-	-	tr	CLAYSTONE: as above
1545	60	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowth, fair visual porosity. No shows.
	40	-	-	tr	CLAYSTONE: as above
1548	90	-	-	tr	SANDSTONE: generally as above with occasional fragments of light grey to pale brown, fine to medium grained, strongly silica cemented quartz/lithic sandstone.
	10	-	-	tr	CLAYSTONE: as above

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1551	100	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowth, fair visual porosity. No shows.
1554	100	-	-	tr	SANDSTONE: generally as above, becoming predominantly medium to coarse grained, moderately sorted quartz.
1557	100	-	-	tr	SANDSTONE: as above
1560	100	-	-	tr	SANDSTONE: as above
1563	100	-	-	tr	SANDSTONE: as above
1569	100	-	-	tr	SANDSTONE: as above
1572	100	-	-	tr	SANDSTONE: as above
1575	100	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowth, fair visual porosity. No shows.

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Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1578	100	-	-	tr	SANDSTONE: as above
1581	100	-	-	tr	SANDSTONE: as above
1584	100	-	-	tr	SANDSTONE: generally as above, predominantly coarse to very coarse grained
1587	100	-	-	r	SANDSTONE: as above
1590	100	-	-	r	SANDSTONE: as above
1593	90	-	-	t	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowths, trace coal fragments, fair visual porosity. No shows.
	10	-	-	tr	CLAYSTONE: medium light grey to medium grey, soft, dispersive in part, trace to occasional carbonaceous laminae, non calcareous.
1596	100	-	-	tr	SANDSTONE: as above
1599	100	-	-	tr	SANDSTONE: as above
1602	100	-	-	tr	SANDSTONE: as above
1605	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1608	100	-	-	tr	SANDSTONE: as above

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	BHP Petroleum **SAMPLE DESCRIPTION SHEET** Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1611	90	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowths, trace coal fragments, fair visual porosity. No shows.
	10	-	-	tr	CLAYSTONE: medium light grey to medium grey, soft, dispersive in part, trace to occasional carbonaceous laminae, non calcareous.
1614	100	-	-	tr	SANDSTONE: as above
1617	100	-	-	tr	SANDSTONE: as above
1620	100	-	-	tr	SANDSTONE: as above
1623	100	-	-	tr	SANDSTONE: as above
Trip for bit at 1625 mRT					
1626	100	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowths, trace coal fragments, fair visual porosity. No shows.

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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1629	90	-	-	tr	SANDSTONE: as above, rarely fine to medium.
	10	-	-	tr	CLAYSTONE: light grey, light to medium brownish grey, rarely off-white in part, dominantly soft, occasionally firm and blocky, moderately silty, trace carbonaceous flecks and laminae, rare fine quartz sand grains in part, non calcareous.
1632	100	-	-	tr	SANDSTONE: as above
1635	100	-	-	tr	SANDSTONE: as above
1638	90	-	-	tr	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above, dominantly light grey to off-white.
1641	90	-	-	tr	SANDSTONE: as above, moderately hard in part, rare moderately strong siliceous cement, fair visual porosity. No shows.
	10	-	-	tr	CLAYSTONE: as above
1644	60	-	-	tr	SANDSTONE: as above
	40	-	-	tr	CLAYSTONE: as above

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Well: Eric The Red - 1
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Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1647	60	-	-	tr	SANDSTONE: very light grey to light grey, clear to translucent grains, friable with abundant loose grains, medium to very coarse grained, occasional granule sized grains, medium to coarse grains subangular to subrounded, larger grains predominantly very angular (possibly due to bit action), poorly sorted quartz, trace very light grey argillaceous matrix (washed away), trace to rare moderately strong pyrite cement, common medium dark grey, light green, moderate reddish orange metamorphic(?) and cherty lithics, trace quartz overgrowths, trace coal fragments, fair visual porosity. No shows.
	40	-	-	tr	CLAYSTONE: light grey, light to medium brownish grey, rarely off-white in part, dominantly soft, occasionally firm and blocky, moderately silty, trace carbonaceous flecks and laminae, rare fine quartz sand grains in part, non calcareous.
1650	100	-	-	tr	SANDSTONE: generally as above, abundant granule grained multi-coloured metamorphic(?) lithics as above, poor to fair visual porosity. No shows.
1653	100	-	-	tr	SANDSTONE: as above
1656	100	-	-	tr	SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1659	50	-	-	tr	SANDSTONE: as above
	50	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
1662	50	-	-	tr	SANDSTONE: as above
	50	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
1665	70	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	30	-	-	r	CLAYSTONE: light grey and light to medium brownish grey, soft, sticky in part, slightly silty, rare carbonaceous flecks, non calcareous.
1668	70	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	30	-	-	r	CLAYSTONE: as above

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	BHP Petroleum SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1671	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
	10	-	-	r	CLAYSTONE: light grey and light to medium brownish grey, soft, sticky in part, slightly silty, rare carbonaceous flecks, non calcareous.
1674	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above
1677	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above
1680	80	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
	20	-	-	r	CLAYSTONE: light grey and light to medium brownish grey, soft, sticky in part, slightly silty, rare carbonaceous flecks, non calcareous.

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1680	80	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	20	-	-	r	CLAYSTONE: as above
1680	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above
1683	80	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above, becoming more quartzose
	20	-	-	r	CLAYSTONE: as above, becoming predominantly light brown
1686	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above
1689	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above
1692	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	r	CLAYSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1695	80	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
	20	-	-	-	CLAYSTONE: light grey and light to medium brownish grey, soft, sticky in part, slightly silty, rare carbonaceous flecks, non calcareous.
1698	70	-	-	tr	CLAYSTONE: medium grey to medium dark grey, occasionally light brownish grey, soft to moderately firm, trace silt, trace carbonaceous flecks, non calcareous
	30	-	-	-	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows.
1701	90	-	-	tr	CLAYSTONE: generally as above with rare coaly laminae
	10	-	-	-	SANDSTONE: as above
1704	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1707	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
1710	90	-	-	tr	CLAYSTONE: as above
	10	-	-	-	SANDSTONE: as above
1713	70	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows. With interbedded:
	30	-	-	tr	SANDSTONE: light grey to very light grey, friable with abundant loose grains, medium to coarse grained, common very coarse to granule sized light green, dark grey, moderate pink, reddish orange and clear lithic and quartz grains, subangular to subround, larger grains very angular, common light grey argillaceous matrix, trace to occasional strong silica and moderately strong pyrite cement, occasional pyrite nodule, good visual porosity. No shows
	tr	-	-	tr	CLAYSTONE: medium grey to medium dark grey, occasionally light brownish grey, soft to moderately firm, trace silt, trace carbonaceous flecks, non calcareous

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1716	90	-	-	tr	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows. With interbedded:
	10	-	-	tr	CLAYSTONE: medium grey to medium dark grey, occasionally light brownish grey, soft to moderately firm, trace silt, trace carbonaceous flecks, non calcareous
1719	90	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1722	90	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1725	50	-	-	r	SANDSTONE: as above
	40	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1728	60	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	20	-	-	-	SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	BHP Petroleum SAMPLE DESCRIPTION SHEET Well: Eric The Red - 1 Permit: VIC/P31 Geologist(s): Ahmad Tabassi/Cliff Menhennitt
1731	70	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	20	-	-	-	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1734	80	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: off-white to light grey, speckled, friable, fine to dominantly medium, subangular to subrounded, well sorted grey with occasional green and brown lithics and quartz, abundant off-white to light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare to occasionally trace partially altered feldspar, trace to rare carbonaceous detritus, poor visual porosity. No shows. With interbedded:
	10	-	-	-	SANDSTONE: light grey to very light grey, friable with abundant loose grains, medium to coarse grained, common very coarse to granule sized light green, dark grey, moderate pink, reddish orange and clear lithic and quartz grains, subangular to subround, larger grains very angular, common light grey argillaceous matrix, trace to occasional strong silica and moderately strong pyrite cement, occasional pyrite nodule, good visual porosity. No shows
	10	-	-	tr	CLAYSTONE: medium grey to medium dark grey, occasionally light brownish grey, soft to moderately firm, trace silt, trace carbonaceous flecks, non calcareous
1737	70	-	-	-	SANDSTONE: as above
	20	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	
1740	80	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	-	SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1743	90	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1745	90	-	-	r	ARGILLACEOUS LITHIC SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above
1748	80	-	-	-	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted black, light green and white lithic and feldspathic grains, clear to translucent quartz grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, grading to arenaceous claystone in part, poor visual porosity. No shows
	20	-	-	tr	CLAYSTONE: medium light grey to light grey, soft, trace silt, trace to rare carbonaceous flecks, non calcareous
1752	80	-	-	-	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above
	20	-	-	tr	CLAYSTONE: as above
1755	90	-	-	-	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above
	10	-	-	tr	CLAYSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1758	100	-	-	r	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above, with rare coal laminae
1761	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above
1764	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above, rare moderately weak pyrite cement
1767	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above, trace greyish black to black coal fragments.
1770	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above
1773	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as above
1776	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above, becoming more quartzose
1779	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1782	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1785	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1788	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1791	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1794	100	-	-	tr	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted black, light green and white lithic and feldspathic grains, clear to translucent quartz grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, grading to arenaceous claystone in part, poor visual porosity. No shows
1797	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1800	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted clear to translucent quartz, black, light green and white lithic and feldspathic grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, grading to arenaceous claystone in part, poor visual porosity. No shows
1803	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1806	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1809	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above, trace to rare moderately weak pyrite cement
1812	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1815	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1818	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	%Fluor	Glauconite	Carb Matter	Description
1821	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1824	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1827	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted clear to translucent quartz and black, light green and white lithic and feldspathic grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, rare mica, grading to Arenaceous Claystone in part, poor visual porosity. No shows
1830	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1833	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1836	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1839	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1842	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1845	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	
1848	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted clear to translucent quartz and black, light green and white lithic and feldspathic grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, rare mica, grading to Arenaceous Claystone in part, poor visual porosity. No shows
1851	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1854	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1857	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1860	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above
1863	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above, occasionally coarse grained in part.
1866	100	-	-	tr	ARGILLACEOUS QUARZOSE/LITHIC SANDSTONE: as above. Note: There are common coarse to very coarse angular (freshly broken by bit) multi-coloured metamorphic(?) lithics (as describe at 1713m) in this sample which may be caving only.
1869	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above. Note: trace to common lithics (caving) as above.

3.2 Sidewall Cores

3.2.1 CST

One 30 shot CST run was performed in Eric The Red-1 within the 12-1/4" section of the hole between 1010.0 m and 373.5 m. One 60 shot CST run was performed in Eric The Red-1 within the 8-1/2" hole section between 1813.5 m and 1029.0 m. Detailed wellsite descriptions of the recovered sidewall cores appear on the following pages.

Table 2 contains a summary of the CST runs.

The remains of the sidewall cores subsequent to palynological, geochemical and petrological analysis are stored by BHP Petroleum at Kestrel Management (Australia) Pty Ltd, Unit 58, Slough Estate, 170 Forster Road, Mt Waverley, Victoria, 3149.

Table 2
Sidewall Core Summary

Ste No.	Run No.	Bullets in Gun	Bullets Fired	Misfires	Bullets Lost	Bullets Empty	Rec. Cores	Int. (mRT)
1	1	30	24	6	3	-	21	1010.5 - 373.5
2	2	60	60	0	4	3	53	1813.5 - 1029.0
Total		90	84	6	7	3	74	1813.5 - 355.0

The following CST descriptions were prepared at the wellsite.

Core No.	Depth (mRT)	Recovery (mm)	BHP Petroleum SIDEWALL CORE DESCRIPTION SHEET Well: ERIC THE RED 1 Permit: VIC/P 31 Date: 22-2-93 Geologist(s): Ahmad Tabassi/Cliff Menhennitt Logging Suite No: 1
1	1010	50	MASSIVE CLAYSTONE WITH MINOR SANDSTONE INTERBED CLAYSTONE: medium dark grey, firm, trace of very fine quartz sand grading to silt, trace to common very finely disseminated carbonaceous flecks, non calcareous, slightly dispersive, micromicaceous, with an interbed of: SANDSTONE: light grey to medium light grey, friable, very fine to occasionally fine grained, subangular to subrounded, well sorted quartz, abundant very light grey argillaceous matrix, common greyish black lithics, rare pyrite, occasional carbonaceous flecks, poor visual porosity. No shows.
2	990		NO RECOVERY. Bullet lost.
3	970	50	SANDY CLAYSTONE/ARGILLACEOUS SANDSTONE SANDY CLAYSTONE: medium light grey to medium grey, moderately firm to firm, dispersive, abundant very fine to fine grained quartz sand, (as per SWC #1) throughout, occasional greyish black lithics, common carbonaceous flecks, trace to rare pyrite, slightly micromicaceous, grading in part to: ARGILLACEOUS SANDSTONE: medium light grey to light grey, friable, very fine to fine grained, subangular to subrounded, well sorted quartz, abundant very light grey argillaceous matrix, occasional greyish black lithics, occasional carbonaceous flecks, poor visual porosity. No shows.
4	942		NO RECOVERY. Misfire.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED 1
Permit: VIC/P 31 Date: 22-2-93
Geologist(s): Ahmad Tabassi/Cliff Menhennitt
Logging Suite No: 1

Core No.	Depth (mRT)	Recovery (mm)	Description
5	893.5	50	SANDY CLAYSTONE/ARGILLACEOUS SANDSTONE SANDY CLAYSTONE: dark greenish grey to greenish black, moderately firm, slightly dispersive, abundant very fine to fine grained quartz, trace medium grains, rare pyrite, slightly micromicaceous, non calcareous, occasionally interlaminated with and grading to: ARGILLACEOUS SANDSTONE: medium light grey to light grey, friable, very fine to fine grained, occasional medium grains, subangular to subrounded, well sorted quartz, abundant very light grey to light greenish grey argillaceous matrix, rare pyrite, poor visual porosity. No shows.
6	876	50	SANDY CLAYSTONE/ARGILLACEOUS SANDSTONE SANDY CLAYSTONE/ARGILLACEOUS SANDSTONE: as per SWC 5 with laminae more defined.
7	836		NO RECOVERY. Misfire.
8	812.5	50	MASSIVE CLAYSTONE CLAYSTONE: medium grey to medium dark grey, firm, slightly dispersive, trace to occasional very fine to fine grained quartz, rare medium grains, trace pyrite, trace to occasional disseminated carbonaceous material, slightly micromicaceous, moderately calcareous.
9	797		NO RECOVERY. Bullet lost.
10	778.5	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: medium grey to medium dark grey, friable, predominantly fine to very fine grained, subangular to subrounded and occasionally rounded, well sorted quartz, abundant medium grey to medium dark grey dispersive argillaceous matrix, occasional greyish black lithic grains, slightly micromicaceous, trace carbonaceous flecks, rare biotite, rare pyrite, poor visual porosity. No shows.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED 1
Permit: VIC/P 31 Date: 22-2-93
Geologist(s): Ahmad Tabassi/Cliff Menhennitt
Logging Suite No: 1

Core No.	Depth (mRT)	Recovery (mm)	Description
11	746	45	CLAYSTONE WITH MINOR INTERLAMINATED SANDSTONE CLAYSTONE: medium grey to medium dark grey, moderately firm, rare carbonaceous flecks, trace very fine grained quartz, slightly micromicaceous, slightly calcareous, with minor interlaminae of: SANDSTONE: very light grey to light grey, friable, fine to very fine grained, grading to silt in part, subangular to subrounded, well sorted quartz, abundant argillaceous matrix, occasional carbonaceous flecks, trace greyish black lithic grains, rare pyrite, poor visual porosity. No shows.
12	720.5	50	SANDY CLAYSTONE/ARGILLACEOUS SANDSTONE SANDY CLAYSTONE: medium grey to medium dark grey, moderately firm, abundant fine to very fine grained quartz sand, slightly micromicaceous, trace to rare carbonaceous flecks, trace pyrite, non calcareous, grading in part to: ARGILLACEOUS SANDSTONE: very light grey to light grey, fine to very fine grained, subangular to subrounded, well sorted quartz, abundant argillaceous matrix, occasional greyish black lithic grain, rare carbonaceous flecks, very poor visual porosity. No shows.
13	689.5	35	CLAYSTONE WITH INTERBEDDED SANDSTONE CLAYSTONE: medium dark grey to dark grey, firm, rare very fine grained quartz sand, occasional carbonaceous flecks, slightly micromicaceous, non calcareous, with interbeds of: SANDSTONE: very light grey to light grey, very friable with abundant loose grains, fine to occsaionally very fine grained, subangular to subrounded, well sorted quartz, trace very light grey argillaceous matrix, occasional greyish black lithic grain, rare pyrite, good visual porosity. FLUORESCENCE: No direct, no cut, weak dull yellowish white crush cut, no apparent residual ring.

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SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED 1
Permit: VIC/P 31 Date: 22-2-93
Geologist(s): Ahmad Tabassi/Cliff Menhennitt
Logging Suite No: 1

Core No.	Depth (mRT)	Recovery (mm)	Description
14	664.5	50	CLAYSTONE WITH INTERBEDDED QUARTZOSE/LITHIC SANDSTONE CLAYSTONE: as for SWC 13. Interbedded with: QUARTZOSE/LITHIC SANDSTONE: light grey, friable with abundant loose grains, predominantly fine grained with common granule sized grains, subangular to subrounded, well sorted quartz, granule sized angular to subrounded cherty lithic grains, trace light grey and patchy light greenish grey (chloritic?) matrix, rare very coarse quartz grains, trace carbonaceous flecks, rare coaly fragment, moderate to good visual porosity. No shows.
15	642	50	CLAYSTONE WITH INTERBEDDED QUARTZOSE SANDSTONE CLAYSTONE: as for SWC 13 with occasional pyrite nodules. Interbedded with: SANDSTONE: light grey to very light grey, friable, very fine to fine grained, angular to subangular and occasionally subrounded, well sorted quartz, trace to common very light grey argillaceous matrix, rare pyrite, rare coaly fragments, rare weathered white lithic grains, good visual porosity. No shows.
16	612.5	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: medium light grey to medium grey, friable, predominantly fine to occasionally very fine grained, subangular to subrounded, well sorted quartz, abundant light grey to medium light grey argillaceous matrix, occasional greyish black lithic grains, occasional light greenish grey (chloritic?) grains, trace pyrite, poor visual porosity. No shows.
17	608		NO RECOVERY. Misfire.
18	599	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: as for SWC 16.
19	588.5		NO RECOVERY. Misfire.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED 1
Permit: VIC/P 31 Date: 22-2-93
Geologist(s): Ahmad Tabassi/Cliff Menhennitt
Logging Suite No: 1

Core No.	Depth (mRT)	Recovery (mm)	Description
20	569	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: medium light grey to medium grey, friable, predominantly fine to occasionally very fine grained, subangular to subrounded, well sorted quartz, common to abundant medium light grey argillaceous matrix, trace to common mica, rare pyrite, poor to fair visual porosity. No shows.
21	562	50	ARGILLACEOUS SANDSTONE WITH INTERBEDDED/INTERLAMINATED CLAYSTONE ARGILLACEOUS SANDSTONE: as for SWC 20. Interbedded/interlaminated with: CLAYSTONE: medium dark grey to dark grey, moderately firm to firm, trace very fine quartz sand, occasional carbonaceous flecks and coaly fragments, trace silt, non calcareous.
22	553.5	50	ARENACEOUS CLAYSTONE ARENACEOUS CLAYSTONE: medium dark grey to dark grey, moderately firm, dispersive, common to abundant very fine to fine grained quartz sand, abundant disseminated pyrite and weathered pyrite, rare carbonaceous flecks, rare lithic grains, trace weathered mica, non calcareous, grading in part to argillaceous sandstone.
23	471.5	0	NO RECOVERY. Misfire
24	467	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: dark grey to dusky brown, friable, predominantly very fine to occasionally fine grained, subangular to subrounded, well sorted quartz, iron stained in part, abundant dark grey to dusky brown argillaceous matrix, occasional cleaner sand laminae, fair to good visual porosity. No shows.
25	429	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: as for SWC 24.
26	411	0	NO RECOVERY. Bullet lost.
27	398.5	0	NO RECOVERY. Misfire.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED 1
Permit: VIC/P 31
Date: 22-2-93
Geologist(s): Ahmad Tabassi/Cliff Menhennitt
Logging Suite No: 1

Core No.	Depth (mRT)	Recovery (mm)	Description
28	388	45	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: dark grey to dusky brown, friable, fine to very fine grained, well sorted quartz, common to abundant dark grey to dusky brown dispersive argillaceous matrix, trace mica, rare carbonaceous flecks, poor visual porosity. No shows.
29	378.5	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: as for SWC 28.
30	373.5	50	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: as for SWC 28.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
31	1831.5	40	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: light grey to light greenish grey, speckled, friable, rarely moderately firm in part, fine to dominantly medium, subangular to dominantly subrounded, moderate to well sorted grey, green, black, minor brown volcanogenic lithics and clear to translucent quartz, abundant light grey to light greenish grey, dominantly dispersive argillaceous matrix, trace partially altered feldspar, rare off-white altered feldspar/kaolinite, rare mica, poor to fair visual porosity. FLUORESCENCE: Nil Note: 1- The partially altered and altered feldspar/kaolinite appear to be structural grains, rather than matrix. 2- Visual porosity decreases once water added to the sample (reactive argillaceous matrix?).
32	1790.0	35	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as per SWC No. 31. FLUORESCENCE: Nil
33	1776.5	0	NO RECOVERY (Bullet Lost)
34	1754.5	45	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as per SWC No. 31, dominantly fine grained, in part grading to Arenaceous Claystone. FLUORESCENCE: Nil
35	1749.5	40	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: light to medium greenish grey, firm, dominantly blocky, rare silt, trace to rare carbonaceous laminae and flecks, rare micromica, non calcareous. FLUORESCENCE: Nil

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: **ERIC THE RED**
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
36	1736.5	0	NO RECOVERY (Bullet Lost)
37	1719.0	40	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: dominantly light grey, occasionally light greenish grey, friable, dominantly fine, occasionally medium, subangular to dominantly subrounded, moderate to well sorted grey, brown, black, and minor green volcanogenic(?) lithics, partially altered feldspar and clear quartz, abundant light grey to occasionally yellowish white argillaceous matrix, rare very weak calcareous cement, trace to rare coaly fragments and carbonaceous flecks, rare mica, poor visual porosity. FLUORESCENCE: No direct, no cut, no crush cut, very thin dull bluish white residual ring.
38	1703.0	50	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium to dark grey and greenish grey, firm to moderately hard, blocky, rare silt and very fine quartz sand grains, very rare carbonaceous flecks, non calcareous. FLUORESCENCE: Nil
39	1682.0	40	INTERLAMINATED ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE INTERLAMINATED ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: light grey interlaminated with medium grey and medium brownish grey, friable to rarely moderately hard in part, dominantly fine, occasionally medium, dominantly subrounded, well sorted quartz and grey, minor green and brown lithics, abundant light grey argillaceous matrix, trace mica, rare carbonaceous flecks and laminae, trace to rare partially altered feldspar, poor visual porosity. FLUORESCENCE: No direct, no cut, no crush cut, thin dull bluish white residual ring.

BHP Petroleum

SAMPLE DESCRIPTION SHEET

Well: Eric The Red - 1
Permit: VIC/P31
Geologist(s): Ahmad Tabassi/Cliff Menhennitt

Depth (mRT)	Lithology (%)	% Fluor	Glauconite	Carb Matter	Description
1872	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: very light grey to light grey, friable, fine to medium grained, subangular to subrounded, moderately to well sorted clear to translucent quartz and black, light green and white lithic and feldspathic grains, abundant very light grey argillaceous matrix, occasional to common weak calcareous cement, rare mica, grading to Arenaceous Claystone in part, poor visual porosity. No shows Note: trace lithics (caving) as above.
1875	100	-	-	tr	ARGILLACEOUS QUARTZOSE/LITHIC SANDSTONE: as above. Note: trace to rare lithics (caving) as above

Total Depth of 1875 mRt was reached at 0600 hours on 26 Feb 1993.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
40	1678.0	25	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium to dark grey to greenish grey, firm to hard, blocky, rare carbonaceous micro-laminae, non calcareous. FLUORESCENCE: Nil
41	1674.0	0	NO RECOVERY (Bullet Empty)
42	1667.0	35	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: light greenish grey to light grey, speckled, friable to very rarely moderately hard, dominantly fine to occasionally medium, dominantly subrounded, well sorted grey, green, brown lithics and clear quartz, abundant light grey argillaceous matrix, trace partially altered feldspar, rare mica, rare carbonaceous detritus, poor to occasionally fair visual porosity. FLUORESCENCE: Nil
43	1650.0	0	NO RECOVERY (Bullet Empty)
44	1645.0	35	ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE ARGILLACEOUS LITHIC/QUARTZOSE SANDSTONE: as per SWC No. 42, dominantly medium, rare very coarse to granule quartz and light brown metamorphic(?) lithics, poor to occasionally fair visual porosity. FLUORESCENCE: Nil
45	1630.0	18	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: very dark grey, firm to moderately hard, blocky to occasionally subfissile, common to abundant carbonaceous flecks and micro-laminae, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, thin moderately dull bluish white residual ring.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
46	1602.0	35	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: light brownish grey to light grey, firm, occasionally moderately hard in part, blocky, rarely silty, rare carbonaceous flecks, rare mica, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, very thin dull yellowish white residual ring.
47	1598.5	55	MASSIVE SANDSTONE MASSIVE SANDSTONE: light grey to translucent, friable, medium to coarse, subangular to subrounded, moderately sorted quartz, common light grey to off-white argillaceous matrix, trace green, grey, rare black and red lithics, rare coaly fragments, fair to good visual porosity. FLUORESCENCE: Nil
48	1586.5	30	QUARTZOSE/LITHIC SANDSTONE INTERBEDDED WITH QUARTZOSE SANDSTONE QUARTZOSE/LITHIC SANDSTONE: light greenish grey, speckled, friable to rarely moderately hard, fine to medium, subangular to subrounded, moderately to well sorted quartz and grey, green, brown and occasionally red lithics, common light grey argillaceous matrix, trace partially altered feldspar, rare coaly fragments, fair visual porosity. Interbedded with: QUARTZOSE SANDSTONE: off-white to clear, friable, medium to coarse, occasionally fine, subangular to subrounded, poorly to moderately sorted quartz, trace to rare off-white kaolinitic argillaceous matrix, trace granule size quartz and medium grey metamorphic(?) lithics, fair to good visual porosity. FLUORESCENCE: Nil

Core No.	Depth (mRT)	Recovery (mm)	BHP Petroleum SIDEWALL CORE DESCRIPTION SHEET Well: ERIC THE RED Permit: VIC/P 31 Date:28-02-93 Geologist(s): Ahmad Tabassi Logging Suite No: 2
49	1575.0	35	ARGILLACEOUS SANDSTONE INTERLAMINATED WITH COAL ARGILLACEOUS SANDSTONE: light grey, friable, very fine to fine, dominantly subrounded, well sorted quartz, abundant light grey argillaceous matrix, in part grading to Arenaceous Claystone, rare partially altered feldspar, rare lithics, rare carbonaceous detritus, very poor to poor visual porosity. Interlaminated (on mm scale) with: COAL: very dark brown to black, soft to occasionally firm, commonly argillaceous, in part grading to Carbonaceous Claystone, dull lustre. FLUORESCENCE: No direct, no cut, no crush cut, Coal has moderately thick, moderately dull bluish white residual ring.
50	1552.5	25	PEBBLY SANDSTONE PEBBLY SANDSTONE: light grey to off-white, speckled in part, friable to occasionally moderately hard in part, fine to very coarse, occasional large pebble, subangular to rounded, dominantly subrounded, very poorly sorted quartz, common to abundant light grey to off-white argillaceous matrix, trace to rare lithics, rare partially altered feldspar, rare coaly fragments, poor visual porosity. FLUORESCENCE: Nil Note: The sample contains one large rounded quartz pebble, partly shattered by bullet.

Core No.	Depth (mRT)	Recovery (mm)	BHP Petroleum SIDEWALL CORE DESCRIPTION SHEET Well: ERIC THE RED Permit: VIC/P 31 Date:28-02-93 Geologist(s): Ahmad Tabassi Logging Suite No: 2
51	1543.5	30	PEBBLY CLAYSTONE/PEBBLY SANDSTONE PEBBLY CLAYSTONE/PEBBLY SANDSTONE: light grey, medium grey, medium green to medium greenish grey, soft, friable in part (in the sandstone portions), moderately hard to hard in part, common to abundant fine quartz and minor lithics grains, in part grading to Sandstone, common to abundant light grey, off-white, green and grey metamorphic(?) pebbles in the groundmass of Claystone/Sandstone, very poor visual porosity in sandstone. FLUORESCENCE: Nil
52	1520.0	35	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium to dark grey to slightly brownish grey, firm, blocky to subfissile, trace to common carbonaceous and coaly laminae, trace carbonaceous flecks, common micromica, non calcareous. FLUORESCENCE: Nil
53	1507.0	50	MASSIVE SANDSTONE MASSIVE SANDSTONE: clear to light grey, friable, coarse, rarely medium, rare off-white argillaceous matrix, rare partially altered feldspar, rare coaly detritus, rare lithics, rare mica, very good visual porosity. FLUORESCENCE: Nil
54	1464.5	50	MASSIVE SANDSTONE MASSIVE SANDSTONE: light grey, friable, fine to medium, occasionally coarse, subangular to subrounded, moderately to poorly sorted quartz, common to abundant light grey to off-white argillaceous matrix, rare mica, rare partially altered feldspar, rare coaly detritus, fair visual porosity. FLUORESCENCE: Nil

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: **ERIC THE RED**
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
55	1455.0	40	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: dark grey to dark brownish grey, firm to rarely moderately hard, blocky, common to occasionally abundant carbonaceous flecks and micro-laminae, common micromica, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, very thin dull bluish white residual ring.
56	1437.0	40	CLAYSTONE INTERLAMINATED WITH MINOR SANDSTONE CLAYSTONE: medium to dark grey, medium brownish grey in part, firm to moderately hard in part, trace to common micromica, common carbonaceous flecks, commonly to abundantly silty, in part grading to Argillaceous Siltstone, common very fine quartz sand grains, in part interlaminated with minor: SANDSTONE: very light grey, occasionally off-white, friable, very fine to silt size in part, dominantly subrounded, well sorted quartz, abundant light grey silty argillaceous matrix, very poor to nil visual porosity. FLUORESCENCE: No direct, no cut, no crush cut, very thin dull bluish white residual ring in Claystone portions.
57	1416.5	0	NO RECOVERY (Bullet Lost)
58	1395.0	40	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: light grey, friable, dominantly medium, occasionally fine, subangular to subrounded, well sorted quartz, common to occasionally abundant in part light grey argillaceous matrix, rare lithics, rare coaly detritus and laminae, rare partially altered feldspar, fair to occasionally good visual porosity. FLUORESCENCE: Nil
59	1375.5	0	NO RECOVERY (Bullet Empty)

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SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31
Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
60	1364.5	40	CARBONACEOUS CLAYSTONE INTERLAMINATED WITH MINOR SANDSTONE CARBONACEOUS CLAYSTONE: black to very dark brown, firm, moderately soft in part, blocky in part, moderately silty and arenaceous in part, grading to/interlaminated with minor; SANDSTONE: very light grey, friable, very fine to occasionally silt size, dominantly subrounded, well sorted quartz, common light grey argillaceous matrix, grading to Siltstone in part, very poor to nil visual porosity. FLUORESCENCE: No direct no cut, no crush cut, Carbonaceous Claystone has a thin dull bluish white residual ring.
61	1340.0	40	MASSIVE SANDSTONE MASSIVE SANDSTONE: clear to translucent, friable, dominantly coarse, rarely very coarse to granule, dominantly subrounded, moderate to well sorted quartz, very rare off-white kaolinitic argillaceous matrix, very rare black soft carbonaceous(?) material (bitumen like substance with no direct, no cut, no crush cut or residual ring), very good visual porosity. FLUORESCENCE: Nil
62	1336.0	30	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium to dominantly dark brownish grey and grey, firm, blocky, common micromica, non calcareous, common to abundant carbonaceous flecks and micro-laminae, slightly to occasionally moderately silty, in part grading to/interlaminated with very minor Siltstone. FLUORESCENCE: No direct, no cut, no crush cut, moderately thick dull bluish white residual ring.

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SIDEWALL CORE DESCRIPTION SHEET

Well: **ERIC THE RED**
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
63	1334.0	45	CLAYSTONE INTERLAMINATED WITH MINOR COAL CLAYSTONE: medium brownish grey, firm to moderately hard, dominantly blocky, rarely subfissile, common micromica and carbonaceous flecks, non calcareous, interlaminated with minor: COAL: black, dominantly soft, firm in part, dull luster, moderately argillaceous in part. FLUORESCENCE: Nil
64	1332.0	40	MASSIVE SANDSTONE MASSIVE SANDSTONE: light to occasionally medium brownish grey, friable, coarse to very coarse, occasionally medium and granule size, rarely fine, dominantly subrounded, poorly sorted quartz, trace light brownish grey argillaceous matrix, rare carbonaceous detritus, fair to good visual porosity. FLUORESCENCE: Nil
65	1328.5	40	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium to dark grey to brownish grey, firm, dominantly blocky, rarely subfissile, common micromica, common carbonaceous flecks, rarely silty, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, thin, dull, bluish white residual ring.
66	1324.5	0	NO RECOVERY (Bullet Lost)

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31
Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
67	1316.0	30	CLAYSTONE INTERLAMINATED WITH MINOR SILTSTONE CLAYSTONE: medium brownish grey, firm, rarely moderately hard, blocky, common micromica, common carbonaceous flecks and micro-laminae, non calcareous, commonly silty, in part grading to/interlaminated with minor: SILTSTONE: light grey, firm, abundantly argillaceous, common very fine quartz sand grains. FLUORESCENCE: Nil
68	1306.0	25	CLAYSTONE INTERLAMINATED WITH MINOR SILTSTONE CLAYSTONE: as per SWC No.67, interlaminated with minor: SILTSTONE: as per SWC No. 67. FLUORESCENCE: No direct, no cut, no crush cut, moderately thick dull bluish white residual ring.
69	1297.5	20	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: off-white to light grey, friable, occasionally moderately hard in part, fine to dominantly medium, subangular to subrounded, moderately to well sorted quartz, common to abundant light grey argillaceous matrix, trace moderately weak calcareous cement, trace to common grey, and minor red and black lithics, rare carbonaceous detritus, poor to fair visual porosity. FLUORESCENCE: Nil
70	1297.0	20	ARGILLACEOUS SANDSTONE ARGILLACEOUS SANDSTONE: as per SWC No. 69. FLUORESCENCE: Nil

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
71	1292.5	35	SILTY CLAYSTONE INTERLAMINATED WITH MINOR SILTSTONE SILTY CLAYSTONE: light to medium brownish grey, firm to occasionally moderately hard, dominantly blocky, common carbonaceous flecks and rare micro-laminae, trace micromica, non calcareous, commonly to occasionally abundantly silty, in part grading to/interlaminated with minor: SILTSTONE: light grey, firm, abundantly argillaceous, abundantly finely arenaceous, rare lithics, non calcareous. FLUORESCENCE: Nil
72	1275.0	15	COAL COAL: black, occasionally very dark brown, dominantly firm, rarely moderately hard in part, slightly argillaceous in part, rarely subconchoidal fractures, dull lustre in part,
73	1271.0	30	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: medium brownish grey, firm, soft in part, dispersive in part, commonly silty, trace carbonaceous flecks, trace micromica, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, thin to moderately thick dull to moderately bright bluish white residual ring.
74	1250.5	40	INTERLAMINATED ARGILLACEOUS SILTSTONE ARGILLACEOUS SILTSTONE: medium brownish grey interlaminated with light brownish grey, firm, dominantly blocky, trace micromica, trace to common carbonaceous flecks and laminae, non calcareous, abundantly argillaceous, in part grading to Silty Claystone. FLUORESCENCE: No direct, no cut, no crush cut, thin to moderately thick moderately bright bluish white residual ring.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
75	1219.5	35	MASSIVE ARGILLACEOUS SILTSTONE MASSIVE ARGILLACEOUS SILTSTONE: light brownish grey, moderately hard, abundantly argillaceous, in part grading to Silty Claystone, trace fine carbonaceous flecks, rare micromica, non calcareous. FLUORESCENCE: Nil
76	1186.0	35	SILTSTONE INTERLAMINATED WITH MINOR SANDSTONE SILTSTONE: medium grey to medium brownish grey, firm to moderately hard, dominantly blocky, commonly argillaceous, trace to occasionally common carbonaceous flecks and micro-laminae, non calcareous, interlaminated with minor: SANDSTONE: light grey, friable, very fine to occasionally silt size, subrounded, well sorted quartz, common light grey argillaceous matrix, rare lithics and partially altered feldspar, nil visual porosity. FLUORESCENCE: Nil
77	1177.0	39	SANDSTONE INTERLAMINATED WITH MINOR CARBONACEOUS CLAYSTONE SANDSTONE: light to medium grey, speckled in part, friable to moderately hard, dominantly fine, dominantly subrounded, well sorted quartz, trace light brownish grey argillaceous matrix, rare lithics, trace carbonaceous laminae, fair visual porosity, interlaminated with minor: CARBONACEOUS CLAYSTONE: dark brownish grey, soft to rarely firm in part, rarely silty, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, Carbonaceous Claystone has thin dull bluish white residual ring.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
78	1162.0	55	MASSIVE SANDSTONE MASSIVE SANDSTONE: light to occasionally medium greenish grey, friable to rarely moderately hard in part, very fine to dominantly fine, subrounded, well sorted quartz, common light greenish grey argillaceous matrix, rare to occasionally trace moderately weak calcareous cement, rare lithics, very rare partially altered feldspar, rare mica, rare fine carbonaceous flecks, poor visual porosity. FLUORESCENCE: Nil
79	1158.5	51	INTERLAMINATED SANDSTONE INTERLAMINATED SANDSTONE: light grey and light greenish grey, friable, very fine to dominantly fine, dominantly subrounded, well sorted quartz, trace light grey to greenish grey argillaceous matrix, trace partially altered feldspar, rare lithics, rare fine carbonaceous detritus, fair visual porosity. FLUORESCENCE: Nil
80	1151.0	45	SANDSTONE INTERLAMINATED WITH MINOR COAL SANDSTONE: light grey to clear, friable, medium to very coarse, dominantly medium to coarse, rarely fine, subangular to rounded, dominantly subrounded, poorly sorted quartz, trace to rare light grey dispersive argillaceous matrix, rare mica, good to occasionally very good visual porosity, interlaminated with minor: COAL: black to very dark brown, soft to firm, moderately to occasionally abundantly argillaceous, in part grading to Carbonaceous Claystone, trace pyritised woody fragments(?). FLUORESCENCE: No direct, no cut, no crush cut, Coal has thin to moderately thick dull yellowish green residual ring.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
81	1146.0	37	MASSIVE SANDSTONE MASSIVE SANDSTONE: light grey to clear, friable, fine, subrounded, very well sorted quartz, trace to rare light grey argillaceous matrix, rare mica, rare very fine carbonaceous detritus, fair to good visual porosity. FLUORESCENCE: Nil
82	1129.5	40	MASSIVE SANDSTONE MASSIVE SANDSTONE: as per SWC No. 81, trace to occasionally common light grey argillaceous matrix, fair visual porosity. FLUORESCENCE: Nil
83	1121.0	35	MASSIVE SANDSTONE MASSIVE SANDSTONE: clear to light grey to very light brownish grey, friable to rarely moderately hard in part, dominantly medium to coarse, occasionally very coarse to granule, subangular to subrounded, poorly sorted quartz, trace to rare dispersive light brownish grey argillaceous matrix, good to very good visual porosity. FLUORESCENCE: Nil Note: The light brownish colour may be due to mud filtrate.
84	1113.0	40	MASSIVE SANDSTONE MASSIVE SANDSTONE: as per SWC No. 81, common black and rare green lithics, fair to good visual porosity. FLUORESCENCE: Nil

SIDEWALL CORE DESCRIPTION SHEET

Well: **ERIC THE RED**
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
85	1102.0	55	MASSIVE SANDSTONE MASSIVE SANDSTONE: clear to light grey, friable, fine to dominantly medium, subrounded, well sorted quartz, rare light grey argillaceous matrix, rare greyish green and black lithics, rare carbonaceous detritus, good to occasionally very good visual porosity. FLUORESCENCE: Nil
86	1097.0	40	SANDSTONE INTERLAMINATED WITH SILTSTONE SANDSTONE: light grey, friable to occasionally moderately hard, very fine to dominantly fine, subrounded, well sorted quartz, trace to common light grey argillaceous matrix, rare very fine partially altered feldspar, rare lithics, trace fine carbonaceous detritus, very poor visual porosity, interlaminated with: SILTSTONE: light grey, occasionally light brownish grey, firm, commonly argillaceous, commonly arenaceous, trace to common carbonaceous flecks and minor laminae, non calcareous. FLUORESCENCE: No direct, no cut, no crush cut, Siltstone has thin dull greenish yellow residual ring.
87	1071.0	45	MASSIVE CLAYSTONE MASSIVE CLAYSTONE: dark grey, firm to moderately hard, blocky, common micromica, trace fine carbonaceous flecks, moderately silty in part, very slightly calcareous. FLUORESCENCE: No direct, no cut, no crush cut, thin, dull, greenish yellow residual ring.

BHP Petroleum

SIDEWALL CORE DESCRIPTION SHEET

Well: ERIC THE RED
Permit: VIC/P 31 Date:28-02-93

Geologist(s): Ahmad Tabassi
Logging Suite No: 2

Core No.	Depth (mRT)	Recovery (mm)	Description
88	1044.0	35	MASSIVE SANDSTONE MASSIVE SANDSTONE: clear to very light grey, friable, dominantly medium to coarse, occasionally very coarse and granule, subangular to dominantly subrounded, moderately to poorly sorted quartz, in part yellow stained, trace light grey argillaceous matrix, trace green (glauconite?), yellow and redish brown lithics, rare coaly fragments, good visual porosity. FLUORESCENCE: Nil
89	1040.5	65	SILTSTONE INTERLAMINATED WITH SANDSTONE SILTSTONE: medium grey, firm to moderately hard, blocky, commonly argillaceous, trace to common carbonaceous flecks and laminae, common very fine quartz sand grains, in part grading to/interlaminated with: SANDSTONE: light grey to light greenish grey, friable, very fine to fine, subrounded, well sorted quartz, trace to common light grey argillaceous matrix, trace fine green (glauconite?), grey, black, and minor yellow lithics, rare partially altered feldspar, rare mica, very poor to nil visual porosity. FLUORESCENCE: Nil
90	1029.0	50	ARENACEOUS CLAYSTONE ARENACEOUS CLAYSTONE: medium grey to medium brownish grey, firm, abundant very fine grained quartz sand, trace fine glauconite, rare mica, trace to rare carbonaceous flecks and laminae, in part grading to Argillaceous Sandstone. FLUORESCENCE: No direct, no cut, no crush cut, thin dull greenish yellow residual ring.

3.2.2 MSCT

No MSCTs were cut in Eric The Red-1

3.3 Conventional Cores

No conventional cores were cut in Eric The Red-1.

3.4 HYDROCARBON INDICATIONS

3.4.1 Cuttings Gas Summary

GAS READINGS (%):

DEPTH mRT	TG	C_1	C_2	C_3	iC_4	nC_4	C_5
Background Gas							
580-830	0.020-	0.015-	tr	0.000-	0.000-	0.000-	0.000-
830-1017	0.010- 0.050	0.002- 0.012	0.001- 0.003	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000
1017-1042	0.007- 0.007	0.007- 0.007	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000
1042-1145	0.012- 0.013	0.012- 0.013	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000
1145-1160	0.033- 0.033	0.033 0.033	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000
1160-1260	0.020- 0.020	0.020- 0.020	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000	0.000- 0.000
1260-1334	0.040- 0.040	0.019- 0.019	0.006- 0.006	0.002- 0.002	0.000- 0.000	0.000- 0.000	0.000- 0.000
1334-1419	0.060- 0.060	0.009- 0.009	0.002- 0.002	0.009- 0.009	0.000- 0.000-	0.000- 0.000	0.000- 0.000
1419-1464	0.040- 0.040	0.010- 0.010	0.002- 0.002	0.001- 0.001	0.000- 0.000	0.000- 0.000	0.000- 0.000
1464-1509	0.040- 0.040	0.010- 0.010	0.002- 0.002	0.001- 0.001	0.000- 0.000	0.000- 0.000	0.000- 0.000
1545-1620	0.060- 0.060	0.012- 0.012	0.003- 0.003	0.001- 0.001	0.000- 0.000	0.000- 0.000	0.000- 0.000
1625-1695	0.070-	0.031-	0.001-	tr	0.000-	0.000-	0.000-
1695-1710	0.030-	0.021-	0.001-	tr	0.000-	0.000-	0.000-
1710-1745	0.040-	0.027-	0.001-	tr	0.000-	0.000-	0.000-
1745-1875	0.060-	0.042-	0.001	tr	0.000-	0.000-	0.000-

GAS READINGS (%):

DEPTH mRT	TG	C_1	C_2	C_3	iC_4	nC_4	C_5
Peaks							
1255	0.08	0.064	0.0009	0.0008	0.000	0.000	0.000

Wiper Trip Gas

nil

Connection Gas

nil

3.4.2 Cuttings Hydrocarbon Fluorescence

No fluorescence was detected in the cuttings and sidewall cores from Eric The Red-1.

4. LOGGING AND SURVEYS

4.1 Mudlogging

Exlog provided conventional mudlogging services in conjunction with a computerised data logging and processing system (Drillbyte).

Gas detection equipment consisted of :

- Flame Ionisation Total Hydrocarbon Ditch Gas Detector.
- Flame Ionisation Chromatograph (continuous cycle-hydrocarbon detection C_1 through to C_5).
- Hydrogen Sulphide detector (continuous monitoring sensitive to 1 ppm).
- Infra red CO_2 detector.

The Exlog 'Drillbyte' monitoring system was utilised to measure, display and record conventional drilling data. Permanent storage of drilling data was made onto 3.5" floppy diskette. On-line and off-line plots of engineering parameters were made available when necessary.

Surveillance for potential abnormal pressure while drilling was assisted by the continuous computation of the D-Exponent and Pressure Logs.

The Exlog unit was operated continuously throughout the well. Once returns were achieved, routine analyses for fluorescence and cut in organic solvent were carried out on all ditch samples.

The Mudlog is included in this volume as Enclosure 1 and the Exlog End of Well Report appears as Appendix 2.

4.2 Wireline Logs

Two suites of wireline logs were run in Eric The Red-1. A list of the logs run in the well is included in Table 3.

Table 3
Wireline Logs

Suite No.	Run No.	Log Type	Depth Interval mRT	Date Run
1	1	DLL-MSFL-SDT-GR-SP-CAL-AMS	1010.5-355 (GR to seafloor)	21/02/93
1	1	Zero Offset VSP	1005-175	21/02/93
1	1	CST-GR (30 shots)	1010-373.5	30/01/93
2	1	DLL-MSFL-SDT-GR-SP-CAL-AMS	1871-1007	08/02/93
2	1	LDL-CNL-FMS-GR-AMS	1825-1007	08/02/93
2	1	RFT-GR-HP	1790-1058.5	09/02/93
2	1	CST-GR (60 shots)	1813.5-1029	10/02/93
2	2	Zero Offset VSP	1820-900	11/02/93

4.3 Measurement While Drilling

Eastman Teleco Measurement While Drilling Services were utilised by BHP Petroleum during the drilling of Eric The Red-1. A dual propagation resistivity (DPR) log in both real time and recorded modes and directional surveys were provided in the 12-1/4" hole section from a bit depth of 364 m to 1017 m. Reliable DPR and directional data were provided in real time throughout this hole section and a DPR memory log was produced at the end of the hole section. One MWD tool was required for the single tool run in the 12-1/4" hole section.

A DPR log in both real time and recorded modes and directional surveys were provided in the 8-1/2" hole section from a bit depth of 1017 m to 1875 m (TD). Reliable DPR and directional data were provided in real time throughout this hole section and a DPR memory log was produced at the end of each tool run. One MWD tool was required for the two tool runs in the 8-1/2" hole section.

The tools acquired a total of 81 circulating hours of data.

The MWD logs are provided in this volume as Enclosure 2 and the Eastman Teleco End of Well Report appears as Appendix 3.

4.4 Velocity Surveys

Schlumberger Seaco Inc conducted a Zero Offset Vertical Seismic Profile Survey in the 12.25" hole section on Eric The Red-1 using a Combinable Seismic Imager (CSI). Three sleeve air guns were used as the energy source for the survey. The guns were suspended from the rig and located 10 m below mean water level and offset 47 m from the wellhead on an azimuth of 053°. The survey was acquired on 21 and 22 February 1993 and obtained VSP data from a depth of 1005 to 175 mRT. A total of 36 VSP levels were recorded at approximately 20 m shot spacing.

Schlumberger Seaco Inc conducted a second VSP Survey in the 8.5" hole section at TD. Three sleeve air guns were used as the energy source for the survey. The guns were suspended from the rig and located 10 m below mean water level and offset 47 m from the wellhead on an azimuth of 053°. The survey was acquired on 27 February 1993 and obtained VSP data from a depth of 1820 to 900 mRT. A total of 43 VSP levels were recorded at approximately 20 m shot spacing.

No VSP Quicklook processing was applied at the wellsite.

The Schlumberger Well Seismic Processing Report appears as Appendix 7 (Volume 2) of this report.

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5. RESERVOIR AND FLUID ANALYSIS

5.1 RFT

One RFT run was made in Eric The Red-1 on 27 February 1993. Ten pretests were attempted (of which 6 were successful) over the interval 1785.0 m to 1058.5 mRT. Pretest data are presented below.

No fluid samples were collected.

ERIC THE RED - 1: RFT DATA SHEET

Test No.	Depth mRT	Depth mTVDSS	Time hh:mm	Initial Hydrostatic Pressure psig	Formation Pressure psig	Temperature Deg C AMS	Temperature Deg C Strain	Final Hydrostatic Pressure psig	Mobility mD/cp	Permeability* mD	Comments
1	1058.5	1033.5	05:20	1679.2	1496.8	50.2	51.8	1677.8	3164	1600	Good Test
2	1154.0	1129.0	05:35	1828.0	-----	-----	-----	-----			Lost Seal
3	1343.5	1318.5	06:05	2129.5	1897.8	57.7	59.3	2123.5	340	170	Good Test
4	1378.5	1353.5	06:17	2178.0	1947.2	58.3	60.1	2178.2	60	30	Good Test
5	1478.5	1453.5	06:30	2334.0	2088.8	60.4	61.8	2339.7	8	10 **	Good Test
6	1631.5	1606.5	06:55	2573.4	2306.6	65.1	66.8	2573.7	7	10 **	Good Test
7	1781.0	1756.0	07:25	2806.5	-----	70.0	71.4	-----	-----		Tight
8											
9	1154.5	1129.5	05:40	1828.3	1631.1	52.4	54.4	1828.2	1095	550	Good Test
10	1781.5	1756.5	07:30	2807.0	-----	-----	-----	-----	-----		Tight
11	1785.0	1760.0	07:35	2812.7	-----	-----	-----	-----	-----		Tight

* Permeabilities rounded to nearest 10 mD for <1000 mD, and nearest 100 mD for >1000 mD.

** Qualitative log inspection indicates permeabilities far greater than those indicated here.

Witness: James Boorman

Date: 27th Janurary 1993

Well KB: 25.0 m above MSL

Rig: Byford Dolphin

Filtrate Viscosity = 0.5 cP

k(rw) = 1.0

k(v)/k(h) = 1.0

Table 4
RFT Data Sheet

5.2 DST

No DSTs were performed in Eric The Red-1.

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6. APPENDICES

Appendix 1 Core Analysis Report

No cores were cut in Eric The Red-1.

Appendix 2 Exlog End of Well Report (Mudlogging)

FINAL WELL REPORT

BHP Petroleum Pty Ltd

Eric the Red-1

Otway Basin, Victoria

February - March 1993

by

EXLOG Australia

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•. INTRODUCTION

a. Well & Rig Data

Company	:	BHP Petroleum Pty Ltd
Well Name	:	Eric the Red-1
Location	:	Otway Basin, Victoria
Permit	:	VIC/P31
Latitude	:	39° 00′ 45.44" South
Longitude	:	143° 10′ 51.45" East
Field	:	Exploration
Rig	:	"Byford Dolphin" Semi-submersible
RT - MSL	:	25.3 metres
RT - Seabed	:	100.5 metres
Spud Date	:	17th February 1993
Total Depth	:	1875 metres
Total Depth Date	:	26th February 1993
Completion Status	:	Plugged and abandoned.
Exlog Unit No	:	503
Crew, DrillByte	:	M. Sale, A. Thangam, K. Clarke, S. Ong
Crew, Logging	:	S. Alexander, V. Surla, D. Alsop R. Tadiar

b. Prognosis

The proposed location for Eric the Red-1 was in the southeastern part of VIC/P31, in the eastern Otway Basin, approximately 35 km east of Mussel-1. The well was designed to test a fault dependent closure mapped at the Top Upper Shipwreck Group.

At Top Upper Shipwreck Group level, the Eric the Red structure is an elongate northeast-southwest faulted anticline. Both older east-west and younger north-south orientated faults cross cut and bound the structure with no fault independent closure mapped.

The primary target is sealed by overlying claystones and siltstones of the Sherbrook Group with potential closure of 200 metres at the most likely closing contour at 1310 mSS. Closure is mapped from within the mid Sherbrook Group, until Total Depth of the well with the potential for accumulations if intra-formational seals exist.

Exploration Logging provided a DrillByte Service on Eric the Red-1 from spud to a Total Depth of 1875 metres. In addition to formation evaluation and conventional mud logging, real time data monitoring and recording as well as pressure and drilling analyses were carried out. Continuous evaluation of pressures and drilling progress provided an aid in optimizing drilling costs and ensuring that drilling continued with maximum safety to personnel, the well, and equipment. The operator was continuously advised as to the status of these analyses, with data and results stored on floppy disks for post-well evaluation. The printouts and plots of the results of these services are contained in the appendices to this report.

c. Sample Distribution

Formation evaluation services were provided from 370 metres to 1875 metres TD.

Two sets of unwashed cuttings, five sets of washed and dried cuttings samples and one set of Petrocraft sample vials were prepared for distribution as follows:

2 sets 200g unwashed
2 sets 200g washed and dried
Petrocraft sample vials
To: BHP Petroleum Pty Ltd
BHP Core Store
C/- Kestrel Management
Unit 58
Slough Estate
170 Forester Road
Mt Waverley
Victoria

1 set 100g washed and dried samples
To: Officer-in-Charge
BMR Core and Cuttings Laboratory
80 Collins Street
Fyshwick ACT 2609

1 set 100g washed and dried samples
To: VIC DEM
DMID Corelab
196 Turner Street
Port Melbourne
VIC 3207

1 set 100g washed and dried samples
To: Bridge Oil Officer-in-Charge
255 Elizabeth Street
NSW 2000
Attn. Mr G. Roder

1 set mud samples comprising of:
2 x 200g composite unwashed 100m samples
1 x 1Kg tin unwashed 100m samples
To: BHPP Melbourne
Attn. R. Craddock

Samples were collected and processed from the 13.375" casing shoe ver the following intervals:

370m - 1017m : 5m samples 1017m- 1875m : 3m samples

Samples not collected due to excessively high ROP and/or the highly dispersive nature of clay formations:

395
415, 440, 450, 465, 485, 495
505, 520, 530, 595
600, 615, 625, 630, 650, 660, 670, 680, 690
700, 710, 720, 730, 740, 750, 770, 780, 795
805, 815, 825, 855
925, 940
1170.

2. DRILLING AND ENGINEERING

a. Well History

The rig "Byford Dolphin" arrived at the Eric the Red-1 location on the 17th January 1993. The drill floor was 25.3 metres above sea level, and 100.5 metres above the sea-bed (water depth 75.2 metres).

36.00" Hole Section: 100 to 116 metres

After securing anchors and ballasting down, Eric the Red-1 was spudded at 07:00 hrs on the 17th February 1993.

NB#1, a 26.0" Security S3J (3x24 jets), run in tandem with a 36" hole-opener, spudded the well and drilled to a depth of 116 metres in 0.63 hrs (on-bottom) at an average rate of penetration of 25.4 m/hr and was graded 1-1-NO-A-E-I-NO-TD. Hi-vis pills were spotted at every stand down and all returns were to the sea floor. At 116 metres, the bit was pulled out for a BHA and bit change. Typical drilling parameters used on this bit run were: WOB 0-5 klbs, RPM 30-80 and pump pressure 300 psi at 970 gpm.

9.875" Pilot Hole Section: 116 to 370 metres

Due to the possibility of encountering shallow gas, a small (9.875") diameter hole section was first penetrated prior to being opened up to 36" and 17.5". This was completed during daylight hours so that any gas could easily be seen.

NB#2, a 9.875" Security S44GF (3x16 jets), was made up on a new BHA and run into the hole to drill from 116 metres, using seawater and guar gum hi-vis sweeps as the drilling fluid with returns were to the sea floor. At 370 metres, a survey was dropped (Dev = 0.5° @ 370 metres), the hole circulated and conditioned and the bit pulled out of the hole for a BHA and bit change. This bit drilled to 254 metres in 3.85 hrs (on-bottom) at an average rate of penetration of 65.9 m/hr and was graded 1-1-NO-A-1-I-NO-TD. Typical drilling parameters used on this bit run were: WOB 0-15 klbs, RPM 110-120 and pump pressure 1150 psi at 1185 gpm.

36.00" Hole-opening Section: 116 to 137 metres

RR#1.1, a 26.0" Security S3J (3x24 jets), run in tandem with a 36" hole-opener, opened up the 9.875" hole from 116 to 137 metres, with hi-vis sweeps at each half stand. At 137 metres, 150 bbls of spud mud was pumped and then displaced by 150 bbls of kill mud. A survey was dropped (Dev = 1.0° at 137 metres) before the bit was pulled to run 30.0" casing. This bit drilled 21.0 metres in 1.8 hrs at an average penetration rate of 12.0 m/hr and was graded 2-2-NO-A-E-I-NO-TD. The drilling parameters used were: WOB 20 klbs, RPM 120 and pump pressure 1250 psi at 1075 gpm.

Three joints of 30.0" casing (310 lb/ft, R3) were then run with the shoe set at 136 metres. The casing was cemented with 456 sx class "G" cement at 1.90 sg (15.9 ppg), with 2% CaCl2, and displaced with 18 bbls seawater.

17.5" Hole-opening Section: 137 to 364 metres

NB#3, a 17.5" Security SS44G (3x18 jets), was made up with a new BHA and run into the hole. The cement and casing shoe were drilled out and the 9.875" pilot open hole section was then opened up to 17.5" from 137 metres to 364 metres. Hi-vis pills were pumped (30 -50 bbls) at every connection. At 364 metres, 200 bbls of hi-vis mud and 300 bbls of kill mud was pumped before a survey was dropped (Dev = 1.0° at 364 metres) and the bit pulled out of the hole for the 13.375" casing run. This bit drilled 227 metres in 4.5 hrs (on-bottom) at an average rate of penetration of 50.4 m/hr and was graded 1-1-NO-A-1-1-NO-TD. The drilling parameters used on this bit run were: WOB 10-30 klbs, RPM 155 and pump pressure 2900 psi at 1075 gpm.

Twenty one joints of 13.375" casing (68 lb/ft, Sumiton, BTC, N80) was then run with the shoe set at 355 metres. The casing was cemented with a lead of 300 sacks class "G" cement at 1.50 sg (12.5 ppg) with 0.55 gal per sack, and a tail slurry of 500 sacks of class "G" cement at 1.90 sg (15.8 ppg), and displaced with 118 bbls of drillwater.

The BOPs and riser were rigged up and run to the seafloor. The BOPs were then tested to BHP's specifications.

12.25" Hole Section: 370 to 1017 metres

NB#4, a 12.25" Hughes ATM11H (13x16x18 jets), was made up on a MWD assembly and run into the hole, tagging cement at 319 metres. This was subsequently drilled, together with the shoe at 355 metres. At 355 metres, 100 bbls of guar gum and 100 bbls of seawater was pumped prior to displacing the hole and riser with KCL/PHPA mud. The bit then reamed and cleaned out the 17.5" rathole at 364 metres and was pulled back to the shoe to perform a Formation Integrity Test. The results were as follows.

Depth (m)	Casing Shoe (m)	Hole Size (inches)	Mud σ (sg)	Fracture Press (sg EMD)
364	355.0	12.25	1.07	1.24 (10.3ppg)

After the leak-off test, the bit was run into the hole to open the 9.875" hole from 364-370 metres, and subsequently drilled ahead from 370 to 1017 metres, reaming at every connection. At 1017 metres, the programed casing depth, the mud was circulated clean prior to the bit being pulled out of the hole without problem. This bit drilled 647 metres in 9.62 hrs (on-bottom) at an average rate of penetration of 67.3 m/hr and was graded 2-2-EC-G-E-I-FC-TD. The drilling parameters used on this bit run were: WOB 0-30 klbs, RPM 120-140 and pump pressure 1800 psi at 650 gpm.

The wireline tools were then rigged up and the following logs were run:

Run	Log Type	Interval
1	DLL-MSFL-BHC-SP-GR-CAL-AMS	355.0m - 1012m
2	VSP	348.0m - 980m
3	CST (30 shot, 27 recovered)	373.5m - 1010m

Seventy six joints of 9.625" casing (47 lb/ft, P110) was then run with the shoe set at 1007.42 metres. The casing was cemented with 254 sx class "G" cement at 1.9 sg (15.8 ppg), and displaced with 223 bbls of mud.

8.5" Hole Section: 1017 to 1875 metres

NB#5, an 8.5" Hughes ATM22 (1x14, 2x10 jets) was then made up in combination with a Teleco MWD tool and run into the hole. The top of the cement was tagged at 968 metres. The float was then drilled together with the shoe and shoe track. The rathole was reamed and cleaned out to 1017 metres and surged for junk on bottom to recover lost CST bullets.

New hole was drilled from 1017 metres to 1020 metres, and the bit was then pulled back to the shoe to perform a Formation integrity Test. The results were as follows:

Depth (m)	Casing Shoe (m)	Hole Size (inches)	Mud σ (sg)	Fracture Press (sg EMD)
1020	1007	8.50	1.08	1.95 (16.3ppg)

Drilling continued from 1020 metres to 1238 metres where a flow-check was performed due to a suspected rise in the active pits (no flow). From 1355 metres, problems were encountered due to high and erratic torque. Initially, it was thought to be related to the stabilizers entering the many well-cemented sandstone bands. By 1625 metres however, the situation had worsened to the point of continually stalling out the rotary and it was decided to pull the bit. This bit drilled 608 metres in 27.68 hrs (on-bottom) at an average rate of penetration of 21.96 m/hr and was graded 8-8-BT-A-F-24-WT-TQ. Typical drilling parameters used on this bit run were: WOB 5-35 klbs, RPM 100-115 and pump pressure 2300 psi at 405 gpm. The trip out recorded tight hole from 1518-480 metres and required overpull up to a maximum of 90 klbs.

NB#6, an 8.5" Hughes ATM22 (1x14, 2x10 jets) was then made up in combination with a Teleco MWD tool and run into the hole. Due to the last bit being excessively undergauge, this bit was reamed and washed to bottom, encountering only minor drag of up to 30 klbs. Drilling ahead continued from 1625 metres without problem. Trip gas of 0.04% was recorded on bottoms up. At 1875 metres, the programed Total Depth for the well, a survey was taken (Dev = 1.1° at 1867 metres) and the shakers circulated until clean. A slug was then pumped and a 20 stand wiper trip then performed. Intermittent drag was recorded from 1816-1352 metres of up to 120 klbs at 1643 metres, and averaging 60 klbs. The bit was then run back to bottom with only normal drag. The shakers were again circulated until clean, prior to a slug being pumped and the bit pulled out of the hole to run logs. No problems were encountered during the trip out. This bit drilled 250 metres in 14.55 hrs (on-bottom) at an average rate of penetration of 17.2 m/hr and was graded 5-7-BT-H-E-1-WT-LOG. Typical drilling parameters used on this bit run were: WOB 15-35 klbs, RPM 110-115 and pump pressure 2200 psi at 395 gpm.

The wireline unit was then rigged up and the following logs were run:

Run	Log Type	Interval
1	DLL-MSFL-AS-AMS-GR-CAL	1871 m - 1007 m
2	FMS-CNL-LDL	1825 m - 1007 m
3	VSP (aborted)	- m - - m
4	RFT	1790 m - 1058 m
5	VSP (re-run)	1820 m - 900 m
6	CST (60 shot) (55 recovered)	1814 m - 1029 m

Eric the Red-1 was then plugged and abandoned according to the BHP abandonment plan.

b. Bit Optimisation

Bit performance was continuously monitored and the operator advised of rate of penetration, torque and formation changes. See Table 4 for a detailed breakdown bit data. No bits were tripped on a cost/metre criteria.

Eric the Red-1 was drilled using a total of 6 new bits and 1 re-run bit in 62.63 hrs on-bottom at an average rate of penetration of 28.34 m/hr.

The 36" section was drilled in one run using one new bit.

NB#1, a 26.0" Security S3SJ bit (IADC 111), was run in tandem with a 36.0" hole-opener. This bit drilled 16 metres in 0.63 hrs (on-bottom) at rates of penetration varying between 15 and 168 m/hr with an average of 25.4 m/hr. Drilling parameters used were: WOB 0-5 klb, RPM 30-80 and pump pressure 300 psi at 970 gpm. This bit performed well and showed only minor wear consistent with the small amount of new formation penetrated. It was graded 1-1-NO-A-1-I-NO-TD.

The 9.875" hole section was drilled using one new bit.

NB#2, a 9.875" Security S44GF (IADC 137), was used to drill the pilot hole for this section from 116 to 370 metres, a distance of 254 metres, in 3.85 hrs (on-bottom). Penetration rates varied from 15 to 220 m/hr with an average of 65.9 m/hr. It was graded 1-1-NO-A-1-I-NO-TD. The bit was pulled to allow the section to be opened out to 36.0" showing only minor wear. Typical drilling parameters used were: WOB 0-15 klb, RPM 120-135 and pump pressure 1150 psi at 1180 gpm.

The top 9.875" hole section was opened to 36.0" using one rerun bit.

RR#1.1, a 26.0" Security S3J (IADC 111), run in conjunction with a 36.0" hole-opener, was used to open the pilot hole to 137 metres prior to running 30.0" casing. This bit drilled 21.0 metres in 1.8 hrs at an average penetration rate of 12.0 m/hr and was graded 2-2-NO-A-E-I-NO-TD. The drilling parameters used were: WOB 20 klb, RPM 120 and pump pressure 1250 psi at 1080 gpm.

The remainder of the 9.875" hole section was opened to 17.5" with one new bit.

NB#3, a 17.5" Security SS44G (IADC 135), opened the remaining 9.875" pilot hole section of the previous run from 137 -364 metres, in 6.5 hours (on-bottom). Penetration rates averaged 72.3 m/hr. This bit was pulled to run 13.375" casing, showing only minor wear for the amount of formation drilled and was graded 2-2-NO-A-1-I-NO-TD. Typical drilling parameters used were: WOB 5-25 klb, RPM 100-120 and pump pressure 2900 psi at 1080 gpm.

The 12.25" hole section was drilled using one new bit.

NB#4, a Hughes ATM11H 12.25" (IADC 437), was used to drill the cement, shoe track, shoe and 6 metres of 9.875" pilot hole to 370 metres. New hole was drilled from 370 metres to 1017 metres, in 9.62 hours (on bottom). Penetration rates averaged 67.26 m/hr over the hole section. This bit performed well and showed only moderate wear consistent with the amount of new formation penetrated. It was graded 2-2-EC-G-E-I-FC-TD. Typical drilling parameters were: WOB 0-30 klb, RPM 120-140, and pump pressure 1800 psi at 650 gpm.

The 8.5" hole section was drilled using two new bits in 42.23 hours at an average penetration rate of 19.1 m/hr.

NB#5, a Hughes ATM22 8.5" (IADC 517), was used to drill the cement, shoe track, shoe and clean up 10 metres of 12.25" rathole to 1017 metres. New hole was drilled from 1017 metres to 1625, in 27.68 hours (on-bottom). Penetration rates averaged 22.0 m/hr over the hole section. This bit did not perform well considering the amount of new formation drilled. It recorded extensive wear in all areas, notably teeth and gauge, and was graded 8-8-BT-A-F-24-WT-TQ. Typical drilling parameters were: WOB 5-35 Klb, RPM 100-115, and pump pressure 2300 psi at 405 gpm.

NB#6, a Hughes ATM22 8.5" (IADC 517), drilled new hole from 1625 metres to 1875, in 14.55 hours (on-bottom). Penetration rates averaged 17.18 m/hr over the hole section. This bit performed moderately well and showed wear above what was expected for the amount of new formation penetrated. It was graded 5-7-BT-H-E-1-WT-LOG. Typical drilling parameters were: WOB 15-35 Klb, RPM 110-115, and pump pressure 2200 psi at 395 gpm.

c. Hydraulics Optimisation

Hydraulics analyses were provided for the operator on a daily basis. Results of these analyses are provided on the daily Geological - Engineering reports and on the Hydraulic data printouts in Appendices VII and VIII, respectively. A summary of this data is also provided in Table 5.

The rig was equipped with two NATIONAL 12-P-160 triplex pumps. A pump output of 5.38 gal/stk at 96% efficiency was utilized.

The 36" hole section was drilled with returns to the sea floor using seawater with guar gum, hi-vis sweeps as the drilling fluid. Flow rates of 250-300 gpm were used giving fairly low annular velocities with laminar flow around the collars. The impact force and percentage pressure loss were low due to the presence of the 36" hole-opener. However, the lithology penetrated was probably insufficiently consolidated for the poor hydraulics to significantly affect the rate of penetration.

The 9.875" pilot hole section was drilled using seawater with hi-vis gel sweeps as the drilling fluid at a flow rate of 970 gpm, producing excellent cuttings transport properties but turbulent flow regimes within the 9.875" hole section. Bit hydraulics were optimal with the percentage pressure loss at the bit being 83% of the surface pressure. This hole section was subsequently opened out to 17.5" using a flow rate of 1080 gpm, again producing excellent cuttings transport properties but turbulent flow regimes within the 17.5" hole section. Bit hydraulics were sub-optimal, with the percentage bit pressure drop being 14% due to the presence of the hole-opener.

The 12.25" hole section was drilled using a closed KCL/PHPA mud system. Adequate mud rheology and flow rates in the order of 600-700 gpm resulted in laminar flow regimes throughout all sections of the annulus whilst drilling, thus keeping hole erosion to a minimum. Cuttings transport was also optimal with sufficient annular velocities in the largest annular section (i.e. the marine riser) to maintain efficient hole cleaning. Bit hydraulics were optimal (despite the use of a MWD tool with the associated 'parasitic' pressure loss) with a typical bit pressure drop of 58%, producing hydraulic power of between 590 and 660 hp, impact force of between 1300 and 1400 lbf and jet velocities of between 130 and 135 m/sec.

The 8.5" hole section was again drilled with a closed KCL/PHPA mud system and using an MWD tool. Flow rates were maintained between 390 to 415 gpm which, when combined with good mud properties, ensured laminar flow regimes throughout all section of the annulus. Thus, hole erosion was minimised whilst maintaining optimal cuttings transport in the largest annular section (riser). Bit hydraulics were also optimal (despite the use of a MWD tool with the associated 'parasitic' pressure loss) with bit pressure losses at between 52 and 73% of total losses. Hydraulic power was maintained between 230 and 370 hp, impact force between 615 and 830 lbf and jet velocity ranged from 113 to 131 m/sec.

d. Borehole Condition.

Borehole condition was monitored by observing rotary torque, overpull and cavings for indications of tight hole. Carbides were also run to check the lag and indicate the average hole size.

The 36" hole was drilled to 116 metres with no hole problems.

The 9.875" pilot hole was drilled to 370 metres with no hole problems. This was subsequently opened out to 36.0" to 137 metres without problems and the 30.0" casing run without drag. The remainder of the pilot hole section was then opened up to 17.5" and 13.375" casing run without problem.

The 12.25" hole section recorded no hole problems whilst drilling. Torque and drag on connections remained normal. Carbide lag checks run at 588, 644 and 848 metres indicated the open hole to this depth was washed out to 17.2, 17.2 and 15.2" respectively. The trip out at 1017 metres recorded only normal drag.

The 8.5" hole section was drilled without any hole problems from 1017 to 1355 metres. From 1355-1625 metres, high and erratic torque was encountered. Initially this was thought to be related to well-cemented sandstone bands causing the stabilizers to hang up. However, by 1625 metres very high torque had caused repeated stalling of the rotary and it was decided to pull the bit. The trip out recorded drag of up to 90 klbs from 1518-480 metres. The bit was subsequently found to be severely undergauge (1.25") and therefore largely responsible for the hole problems encountered. NB#6 was then washed and reamed to bottom as a precaution for undergauge hole and recorded only slightly above normal drag of up to 30 klbs. At TD (1875 metres), a 20 stand wiper trip recorded overpull of up to 120 klbs from 1816-1352 metres. The trip in and subsequent trip out to run logs, recorded only normal drag.

3. PRESSURE EVALUATION

a. Formation Fracture Pressure

Fracture pressures were calculated using the "Constant Effective Stress Ratio" method. This utilises leak-off data and allows for lithological and pore pressure variations. It should be noted that this method assumes uniform tectonic stress, and any unconformities may place the section on either side in a different stress regime. See Appendix III, Pressure Gradient Analysis Plot.

Two Formation Integrity Tests were conducted during the drilling of Eric the Red-1 and the results were as follows:

Depth (m)	Casing Shoe (m)	Hole Size (inches)	Mud σ (sg)	Fracture Press (sg EMD)
364	355.0	12.25	1.07	1.24 (10.3ppg)
1020	1007.0	8.50	1.08	1.95 (16.3ppg)

Whilst drilling the 12.25" hole mud losses remained low and no partial or total loss of returns was encountered. The minimum fracture pressure of 1.24 sg EMD was not exceeded at any time by the maximum circulating density of 1.11 sg. Some minor drilling losses were encountered within this section but were thought to be the product of mud invasion resulting from an overbalanced mud system.

The 8.5" hole was drilled with no mud losses. The minimum estimated fracture pressure of 1.95 sg EMD was never exceeded by the maximum equivalent circulating density of 1.16 sg.

b. Formation Pore Pressure

Pore pressure indicators, including Dxc, flowline temperature, mud resistivity, hole condition, cavings and gas values, were monitored on a continuous basis while drilling and pore pressure estimates were reported to the operator on a daily basis. Plots of relevant pressure indicators and pressure estimates are detailed in the Drilling Data Pressure Plot in Appendix II and the Pressure Gradient Analysis Plot in Appendix III. Based on data from nearby wells, a normal pore pressure gradient of 1.03 sg EMD (8.6 ppg) is assumed for Eric the Red-1.

36.0" and 9.875" Hole Sections

It was not possible to accurately monitor pore pressure through these sections as there were no returns to surface. However the Dxc plot showed a normal trend through this interval and it is assumed that pore pressure remained normal at 1.03 sg EMD to 370 metres.

12.25" Hole Section

For this section of the well, all pressure parameters remained normal, indicating a normally pressured regime. Both Dxc, temperature and resistivity show normally pressured trends. Increasing background gas and the presence of connection gasses was not found and therefore it can be assumed that this interval is normally pressured at 1.03 sg EMD to 1017 metres.

8.5" Hole Section

The 8.5" hole section showed a normal pore pressure regime from 1017 to 1875 metres TD. This assumption was made, based on the following evidences. The mud density used in drilling out this section was 1.13 sg and there was no connection gases encountered. The background gas remained low at around 0.06% and showed no increasing trend. Flow-checks made after drill breaks were static and there were no overpressured cavings present at the shakers. The Dxc, temperature and resistivity readings also corroborated with this normal pressure trend of 1.03 sg EMD.

From the RFT results, a normal pore pressure regime was also obtained.

4. GEOLOGY AND SHOWS

See Enclosure 1 - Mudlog.

5. TESTING AND EVALUATION

a. Hydrocarbon Evaluation

Standard mudlogging techniques were utilized while drilling the Eric the Red-1. Total combustible gas levels in the mud were monitored continuously using an FID Total Gas Detector. The gas was also analyzed for its components (methane through pentane) using an FID Chromatograph. Carbon dioxide and hydrogen sulfide detectors were also run for the duration of the well. Mud returns, unwashed and washed were observed under ultra-violet light and cut with solvent to check for the presence of liquid hydrocarbons. Selected chromatograph data at certain depth intervals were used to produce gas ratio plots as an aid in interpreting any oil shows.

b. Wireline Logging

Depth (m)	Hole Diameter (inch)	LOGS
1017.0	12.25"	DLL-MSFL-BHC-SP-GR-CAL-AMS VSP CST (30 shot) (27 recovered)
1875.0	8.50"	DLL-MSFL-AS-AMS-GR-CAL FMS-CNL-LDL VSP (aborted) RFT VSP (re-run) CST (60 shot) (53 recovered)

c. Coring

No cores were cut during the drilling of Eric The Red-1.

d. Measurement while Drilling.

Measurement while drilling services were provided by Eastman-Teleco. Data was regularly transferred to Exlog's DrillByte computer and plots against penetration rate were submitted to BHP on a daily basis. See Appendix IV for the MWD data plot.

e. Formation Testing

10 RFT's were performed in 1 runs. The RFT results are tabulated in Table 6.

6. DATA INVENTORY

The following were supplied to BHPP on a daily basis or as required:

1 copy	Morning Report
1 copy	Hydraulics Printout
1 copy	Formation Evaluation Log

As well as the above, data (drilling, geological and MWD) was transmitted to BHPPs office in Melbourne, by modem, on a daily basis.

On completion of Eric the Red-1, all charts, worksheets, raw data and data disks were forwarded to EXLOG Australia. Four (4) copies of the Final Well Report were compiled, with EXLOG Australia retaining one (1) copy, as well as all relevant data.

EXLOG Australia will use all reasonable diligence to maintain and store the listed items in a manner to reasonably prevent damage or loss. Provided , however, EXLOG Australia assumes no responsibility for the loss, damage or theft of these items or information contained herein, and shall not be liable to the Operator in any such event irrespective of cause, fault, or the active or passive negligence of EXLOG Australia its employees.

TABLES

1. Deviation Survey Record
2. Casing and Cementing Details
3. Drilling Fluid Properties
4. Bit Record
5. Bit Hydraulics Record
6. RFT Preliminary results

Table 1.
Survey Data

Depth m	Inclination deg	Azimuth deg
137.0	1.0	-
370.0	0.5	-
396.6	1.1	309.1
542.0	1.3	273.3
718.0	0.8	302.1
891.0	0.4	210.0
1001.0	0.4	221.2
1150.0	0.1	221.2
1292.0	0.3	110.2
1439.0	0.4	355.2
1584.0	0.7	290.2
1728.0	0.4	203.0
1867.0	1.1	229.7

Table 2.
Casing and Cementing Summary

Hole Depth m	Hole Size in	Casing Size Nom in	Casing Size ID in	Weight ppf	Shoe Depth m	Joints Run	Cement Details
137	36.00	30.000	29.000	310	136	3	456 sx 'G' cement @ 1.90 sg (15.9 ppg) + 2% CaCl
364	17.50	13.375	12.347	68	355	21	Lead: 300 sx Class 'G' cement @ 1.50 sg (12.5 ppg) + 0.55 gal/sack Econolite Tail: 500 sx Class 'G' neat slurry @ 1.90 sg (15.8 ppg)
1017	12.25	9.375	8.681	47	1007	76	254 sx Class 'G' cement @ 1.90 sg (15.8ppg) displaced with 223 bbl drilling mud

Table 3.
Mud Properties

Depth m	MW sg	Vis sec/qt	PV cp	YP lb/cft²	Gels lb/cft² 10s/10m	F cc	FC 1/32"	SOL %	OIL %	SD %	MBT	pH	Cl Kppm	Ca mg/l	K+ Kmg/l	KCl %
370	1.03	Seawater with Guar Gum Hi-Vis sweeps used for the 36.0, 9.875, 17.5" hole sections														
460	1.08	53	18	29	5/6	14.0	1.0	5.0	-	2.00	5.0	9.0	33.0	240	26.8	5.2
960	1.10	58	17	28	3/4	6.0	1.0	6.2	-	2.50	6.0	9.2	35.0	275	33.3	6.4
1017	1.08	50	13	12	2/3	7.0	1.0	5.0	-	0.10	5.0	11.5	38.0	300	33.0	6.0
1206	1.08	50	15	20	3/4	7.0	1.0	5.0	-	1.50	5.0	10.2	37.0	110	31.6	6.0
1333	1.10	68	20	30	4/7	6.0	1.0	6.5	-	0.50	6.0	9.0	40.0	150	30.0	6.0
1652	1.10	51	16	18	3/4	5.0	1.0	5.8	-	0.50	6.0	9.0	40.0	190	38.0	7.2
1781	1.10	51	16	22	4/6	5.2	1.0	6.0	-	0.25	8.0	9.3	39.0	120	38.4	7.3
1875	1.10	54	19	21	4/6	5.2	1.0	6.0	-	0.50	8.0	9.0	41.0	200	39.0	7.4

Table 4.
Bit Record

Run #	Bit #	Vendor	Type	Size in	IADC	Jets 1/32"	Depth In (m)	Metres run	Hours	Avg ROP	WOB klb	RPM	Torque amps	Pump psi	GPM	Grade IODLBGOR
1	NB1	Security H/O	S3J	26.00 36.00	111 111	24,24,24 22,22,22	100.0	16.0	0.63	25.4	0-5	30-80	36-176	300	970	1-1-NO-A-1-I-NO-TD
2	NB2	Security	S44GF	9.875	137	16x16x16	116.0	254.0	3.85	65.9	0-15	110-120	40-200	1150	1180	1-1-NO-A-1-I-NO-TD
3	RR1.1	Security H/O	S3J	26.00 36.00	111 111	24,24,24 CJx20,4x20	Open up 9.875" hole to 36" from 116-137m									2-2-NO-A-E-I-NO-TD
4	NB3	Security	SS44G	17.50	135	18,18,18	Open up 9.875" hole to 17.5" from 137-364m									1-1-NO-A-E-I-NO-TD
5	NB4	HTC	ATM11H	12.25	437	13,16,18	370.0	647.0	9.62	67.3	0-30	120-140	100-350	1800	650	2-2-EC-G-E-I-FC-TD
6	NB5	HTC	ATM22	8.50	517	14,10,10	1017.0	608.0	27.68	22.0	5-35	100-115	180-600	2300	405	8-8-BT-A-F-24-WT-TQ
7	NB6	HTC	ATM22	8.50	517	14,10,10	1625	250.0	14.55	17.2	15-35	110-115	150-250	2200	395	5-7-BT-H-E-1-WT-LOG

Note : Gauge in 1/16"

Table 5.
Hydraulics Summary

Bit #	Depth m	Hole Size in	Jets	MW sg	PV/YP	Flow Rate gpm	ECD sg	Annular Velocities Min ¦ DP ¦ DC ¦ Crit m/min	Jet Vel m/sec	HHP hp	Impact Force lbf	Loss Bit psi	Pump Pres psi	%Bit Loss
NB4	629 1017	12.25	13,16,18	1.06 1.10	15/18 15/22	652 640	1.07 1.12	13 ¦ 38 ¦ 57 ¦ 117 13 ¦ 38 ¦ 56 ¦ 129	111 109	399 391	1088 1088	1049 1049	1739 1742	60 60
NB5	1206 1593	8.50	14,10,10	1.08 1.09	15/20 18/24	413 408	1.16 1.15	9 ¦ 62 ¦116 ¦ 169 8 ¦ 65 ¦114 ¦ 188	133 131	366 359	833 829	1520 1511	2100 2200	73 69
NB6	1771 1875	8.50	14,10,10	1.10 1.10	16/22 19/21	390 395	1.16 1.16	7 ¦ 56 ¦ 98 ¦ 175 8 ¦ 63 ¦111 ¦ 180	113 127	229 329	615 784	1122 1429	2150 2200	52 65

Table 6.
Preliminary Open Hole RFT Results

Test No.	Depth mTVDRT	mTVDSS	Formation Pressure psig	Temp degC	Mobility mD/cp	Comments
1	1058.5	1033.5	1496.8	50.2	-	
2	1154.0	1129.0	-	-	-	Lost Seal
3	1343.5	1318.5	1897.8	57.7	340.0	
4	1378.5	1353.5	1947.2	50.3	60.3	
5	1478.5	1453.5	2088.8	60.4	7.7	
6	1631.5	1606.5	2306.6	65.1	7.4	
7	1781.0	1756.0	-	70.0	-	Tight
8	1154.5	1129.5	1631.1	52.4	1095.0	
9	1781.5	1756.5	-	-	-	Tight
10	1785.0	1760.0	-	-	-	Tight

APPENDIX VI: Drilling Data Printout

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT- mts	-BIT- hh:mm	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
17th February 1993																			
RRB#1. Security S3J, 26.0",3x24																			
07:36:26	102.0	40.7	8.1	33	378	6	192		1.04	0.00	18.3	16.9	100.0	681	2.0	0:03	1.04	0.60	0.00
07:36:26	103.0	40.7	8.1	33	378	6	192		1.04	0.00	18.3	16.9	100.0	681	3.0	0:05	1.04	0.60	0.00
07:37:54	104.0	47.7	1.8	40	326	10	520		1.04	0.00	18.3	16.9	100.3	681	4.0	0:07	1.04	0.39	0.00
07:39:59	105.0	25.6	2.9	41	373	10	608		1.04	0.00	18.4	16.9	100.7	681	5.0	0:09	1.04	0.50	0.00
07:43:51	106.0	34.2	1.2	42	317	10	481		1.04	0.00	18.4	16.9	101.2	681	6.0	0:11	1.04	0.48	0.00
07:47:08	107.0	29.7	1.0	42	316	10	565		1.04	0.00	18.4	16.9	101.7	681	7.0	0:13	1.04	0.44	0.00
07:50:00	108.0	22.4	1.3	42	300	10	565		1.04	0.00	18.4	16.9	102.2	681	8.0	0:16	1.04	0.47	0.00
07:52:42	109.0	74.4	0.8	50	378	10	567		1.04	0.00	18.5	17.0	103.8	681	9.0	0:17	1.04	0.40	0.00
07:54:50	110.1	89.0	1.3	51	408	10	567		1.04	0.00	18.4	17.0	104.8	681	10.1	0:17	1.04	0.00	0.00
07:57:02	111.0	78.2	0.9	53	436	10	568		1.04	0.00	18.5	17.0	105.2	681	11.0	0:17	1.04	0.25	0.00
07:59:01	112.0	56.5	1.9	52	430	10	569		1.04	0.00	18.5	17.0	105.8	681	12.0	0:18	1.04	0.42	0.00
08:01:22	113.0	36.5	0.9	51	401	10	571		1.04	0.00	18.5	17.0	106.3	681	13.0	0:20	1.04	0.40	0.00
08:04:12	114.0	115.9	0.5	52	361	10	581		1.04	0.00	18.7	17.0	107.4	681	14.0	0:21	1.04	0.24	0.00
08:07:38	115.0	16.6	4.2	61	329	10	586		1.04	0.00	18.6	17.0	109.1	681	15.0	0:24	1.04	0.67	0.00
08:24:48	116.0	2.9	6.0	62	365	10	581		1.04	0.00	18.7	17.1	115.5	681	16.0	0:38	1.04	0.94	0.00
18th February 1993																			
NB#2.0.Security,9.875",3x16 jets																			
12:10:24	117.0	48.9	2.9	108	46	20	511		1.04	0.00	18.7	18.5	116.0	681	1.0	0:01	1.04	1.05	0.00
12:11:17	118.1	75.8	5.3	108	54	20	533		1.04	0.00	18.7	18.6	116.1	681	2.1	0:02	1.04	0.67	0.00
12:11:58	119.1	95.5	5.3	108	49	20	572		1.04	0.00	18.7	18.6	116.1	681	3.1	0:02	1.04	0.62	0.00
12:12:36	120.0	96.2	5.5	108	50	20	587		1.04	0.00	18.7	18.6	116.8	681	4.0	0:03	1.04	0.60	0.00
1[illegible]:13	121.0	100.9	6.1	110	59	20	592		1.04	0.00	18.7	18.6	117.1	681	5.0	0:04	1.05	0.63	0.00
12:13:54	122.0	92.5	5.8	117	55	20	594		1.04	0.00	18.7	18.6	117.3	681	6.0	0:04	1.05	0.62	0.00
12:14:41	123.0	75.9	5.1	119	51	20	594		1.04	0.00	18.7	18.6	117.9	681	7.0	0:05	1.05	0.63	0.00
12:15:28	124.0	77.2	5.4	120	54	20	594		1.04	0.00	18.7	18.6	118.4	681	8.0	0:06	1.05	0.66	0.00
12:16:12	125.1	97.9	6.1	120	59	20	594		1.04	0.00	18.7	18.6	118.9	681	9.1	0:07	1.05	0.64	0.00
12:16:46	126.1	95.2	6.5	120	55	20	594		1.04	0.00	18.6	18.6	119.4	681	10.1	0:07	1.05	0.64	0.00
12:17:20	127.0	99.4	6.2	120	52	20	594		1.04	0.00	18.6	18.6	119.8	681	11.0	0:08	1.05	0.61	0.00
12:17:52	128.0	105.8	6.3	120	53	20	594		1.04	0.00	18.6	18.6	120.5	681	12.0	0:08	1.06	0.61	0.00
12:18:29	129.0	79.9	6.8	120	64	20	594		1.04	0.00	18.6	18.6	121.1	681	13.0	0:09	1.06	0.66	0.00
12:19:19	130.1	68.2	7.3	120	54	20	594		1.04	0.00	18.6	18.6	121.9	681	14.1	0:10	1.06	0.68	0.00
12:20:16	131.0	59.3	6.5	120	58	20	595		1.04	0.00	18.6	18.6	122.8	681	15.0	0:11	1.06	0.73	0.00
12:21:06	132.0	79.2	4.7	120	53	20	594		1.04	0.00	18.6	18.6	123.4	681	16.0	0:11	1.06	0.65	0.00
12:21:53	133.0	79.4	5.6	120	63	20	594		1.04	0.00	18.6	18.6	124.0	681	17.0	0:12	1.06	0.67	0.00
12:22:40	134.1	79.1	6.2	120	59	20	594		1.04	0.00	18.6	18.6	124.8	681	18.1	0:13	1.06	0.65	0.00
12:31:59	135.0	113.6	6.3	118	67	20	584		1.04	0.00	18.6	18.6	129.9	682	19.0	0:13	1.06	0.65	0.00
12:32:27	136.0	116.1	4.2	119	64	20	587		1.04	0.00	18.6	18.7	131.0	682	20.0	0:14	1.06	0.47	0.00
12:33:08	137.0	121.1	3.5	119	59	20	588		1.04	0.00	18.6	18.7	132.4	682	21.0	0:14	1.07	0.47	0.00
12:33:49	138.1	86.7	3.0	119	57	20	589		1.04	0.00	18.6	18.7	133.9	682	22.1	0:15	1.07	0.56	0.00
12:34:51	139.0	48.0	2.7	119	48	20	592		1.04	0.00	18.6	18.7	135.2	682	23.0	0:16	1.07	0.62	0.00
12:36:22	140.1	67.7	2.7	119	48	20	599		1.04	0.00	18.6	18.7	136.7	682	24.1	0:17	1.07	0.68	0.00
12:37:28	141.0	50.4	3.6	119	51	20	597		1.04	0.00	18.6	18.7	137.4	682	25.0	0:18	1.07	0.64	0.00
12:38:37	142.0	54.1	2.5	119	51	20	594		1.04	0.00	18.6	18.7	138.3	682	26.0	0:19	1.07	0.61	0.00
12:39:24	143.0	87.8	3.3	119	55	20	597		1.04	0.00	18.6	18.7	138.7	682	27.0	0:20	1.07	0.59	0.00
12:39:58	144.0	109.8	4.2	119	62	20	594		1.04	0.00	18.6	18.7	139.0	682	28.0	0:21	1.07	0.54	0.00
12:40:33	145.1	114.9	4.5	119	73	20	592		1.04	0.00	18.5	18.7	139.2	682	29.1	0:21	1.07	0.54	0.00
[illegible]:04	146.1	116.0	3.8	118	74	20	591		1.04	0.00	18.6	18.7	139.3	682	30.1	0:22	1.07	0.54	0.00
12:41:35	147.0	103.2	4.4	119	71	20	591		1.04	0.00	18.6	18.8	139.6	682	31.0	0:22	1.07	0.54	0.00
12:42:13	148.0	93.3	4.5	119	67	20	591		1.04	0.00	18.6	18.8	140.0	682	32.0	0:23	1.07	0.57	0.00
12:42:50	149.1	98.8	3.8	119	63	20	592		1.04	0.00	18.6	18.8	140.5	682	33.1	0:24	1.08	0.54	0.00
12:43:25	150.0	91.3	3.8	119	65	20	595		1.04	0.00	18.6	18.8	140.8	682	34.0	0:24	1.08	0.56	0.00

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm	gpm	sg	sg	deg C	deg C	m	bbl	mts	hh:mm	sg		%
12:44:06	151.0	87.1	3.9	119	67	20	599		1.04	0.00	18.6	18.8	141.1	682	35.0	0:25	1.08	0.59	0.00
12:44:46	152.1	95.5	3.7	119	60	20	598		1.04	0.00	18.5	18.8	141.6	682	36.1	0:26	1.08	0.56	0.00
12:45:49	153.0	51.2	3.0	119	50	20	593		1.04	0.00	18.6	18.8	142.2	682	37.0	0:27	1.08	0.60	0.00
12:46:51	154.0	57.7	2.8	119	56	20	591		1.04	0.00	18.6	18.8	143.3	682	38.0	0:28	1.08	0.63	0.00
12:47:51	155.0	56.8	3.6	119	58	20	596		1.04	0.00	18.6	18.8	144.6	682	39.0	0:29	1.08	0.65	0.00
12:49:09	156.0	46.4	3.7	119	52	20	601		1.04	0.00	18.6	18.8	146.5	682	40.0	0:30	1.08	0.69	0.00
12:51:39	157.0	17.9	2.6	119	42	20	597		1.04	0.00	18.6	18.8	149.5	681	41.0	0:33	1.08	0.75	0.00
12:52:57	158.0	48.8	1.8	119	50	20	592		1.04	0.00	18.6	18.9	151.0	681	42.0	0:34	1.08	0.62	0.00
13:08:04	159.0	75.5	1.6	118	61	20	603		1.04	0.00	18.6	19.0	156.0	681	43.0	0:35	1.09	0.63	0.00
13:08:48	160.0	82.3	2.6	118	68	20	605		1.04	0.00	18.6	19.0	156.8	682	44.0	0:35	1.09	0.56	0.00
13:09:28	161.0	86.7	2.2	118	70	20	606		1.04	0.00	18.6	19.0	157.7	681	45.0	0:36	1.09	0.54	0.00
13:10:12	162.0	81.1	2.4	118	69	20	607		1.04	0.00	18.6	19.0	158.5	682	46.0	0:37	1.09	0.55	0.00
13:11:08	163.0	66.4	1.9	118	61	20	607		1.04	0.00	18.6	19.0	159.1	682	47.0	0:38	1.09	0.55	0.00
13:12:08	164.0	61.4	2.1	118	62	20	607		1.04	0.00	18.6	19.0	159.8	682	48.0	0:39	1.09	0.53	0.00
13:12:58	165.0	72.8	2.5	118	64	20	608		1.04	0.00	18.6	19.0	160.6	682	49.0	0:39	1.09	0.54	0.00
13:13:48	166.0	78.6	2.8	118	64	20	609		1.04	0.00	18.6	19.0	161.0	682	50.0	0:40	1.09	0.56	0.00
13:14:38	167.0	68.2	2.6	118	67	20	608		1.04	0.00	18.6	19.0	161.6	682	51.0	0:41	1.09	0.56	0.00
13:16:09	168.0	44.5	1.1	118	50	20	608		1.04	0.00	18.6	19.0	162.8	682	52.0	0:42	1.09	0.49	0.00
13:17:24	169.0	77.7	2.0	118	66	20	608		1.04	0.00	18.6	19.0	163.5	682	53.0	0:43	1.09	0.56	0.00
13:18:08	170.0	87.3	3.3	118	70	20	608		1.04	0.00	18.6	19.0	164.1	682	54.0	0:44	1.09	0.55	0.00
13:18:46	171.0	94.4	4.0	118	71	20	608		1.04	0.00	18.6	19.0	164.6	682	55.0	0:44	1.09	0.56	0.00
13:19:20	172.0	102.9	3.6	118	72	20	608		1.04	0.00	18.6	19.0	165.1	682	56.0	0:45	1.09	0.52	0.00
13:19:58	173.1	98.2	3.9	118	74	20	608		1.04	0.00	18.6	19.0	165.7	682	57.1	0:45	1.10	0.54	0.00
13:20:35	174.0	85.8	3.9	118	75	20	608		1.04	0.00	18.6	19.0	166.1	682	58.0	0:46	1.10	0.56	0.00
13:21:16	175.0	79.7	3.1	118	63	20	607		1.04	0.00	18.6	19.0	166.6	682	59.0	0:47	1.09	0.53	0.00
13:22:19	176.1	60.3	2.4	118	61	20	607		1.04	0.00	18.6	19.0	167.5	682	60.1	0:48	1.09	0.59	0.00
13:23:05	177.1	80.6	3.2	118	67	20	608		1.04	0.00	18.6	19.0	167.8	682	61.1	0:49	1.09	0.56	0.00
13:23:52	178.0	75.7	2.7	118	64	20	608		1.04	0.00	18.6	19.1	168.0	682	62.0	0:49	1.09	0.59	0.00
13:24:42	179.1	74.8	3.1	118	61	20	608		1.04	0.00	18.6	19.1	168.3	681	63.1	0:50	1.09	0.56	0.00
13:25:41	180.0	51.0	2.9	118	56	20	608		1.04	0.00	18.6	19.1	169.1	681	64.0	0:51	1.09	0.59	0.00
13:26:44	181.0	57.6	2.1	118	57	20	608		1.04	0.00	18.6	19.1	170.4	681	65.0	0:52	1.09	0.61	0.00
13:27:43	182.1	59.4	3.3	118	56	20	609		1.04	0.00	18.5	19.1	171.5	682	66.1	0:53	1.09	0.60	0.00
13:28:05	183.0	46.7	4.7	118	66	20	609		1.04	0.00	18.6	19.1	171.9	682	67.0	0:54	1.10	0.67	0.00
13:28:24	184.1	57.3	2.6	118	44	20	609		1.04	0.00	18.6	19.1	172.9	682	68.1	0:54	1.09	0.69	0.00
13:29:24	185.0	54.2	5.4	118	62	20	609		1.04	0.00	18.6	19.1	176.9	682	69.0	0:55	1.09	0.69	0.00
13:38:33	186.1	38.7	3.9	119	63	20	608		1.04	0.00	18.6	19.1	185.4	682	70.1	0:56	1.09	0.68	0.00
13:38:49	187.0	73.4	3.2	120	53	20	611		1.04	0.00	18.6	19.2	185.4	682	71.0	0:56	1.09	0.61	0.00
13:39:14	188.0	68.4	2.4	121	59	20	614		1.04	0.00	18.6	19.2	185.6	682	72.0	0:57	1.09	0.55	0.00
13:39:45	189.0	47.5	1.7	121	50	20	616		1.04	0.00	18.5	19.2	186.0	681	73.0	0:57	1.09	0.55	0.00
13:41:01	190.0	49.6	1.8	122	60	20	617		1.04	0.00	18.6	19.2	187.4	682	74.0	0:58	1.09	0.60	0.00
13:42:00	191.0	68.4	2.3	121	64	20	618		1.04	0.00	18.6	19.2	188.5	682	75.0	0:59	1.09	0.57	0.00
13:42:47	192.0	77.5	3.2	121	65	20	618		1.04	0.00	18.6	19.3	189.0	682	76.0	1:00	1.09	0.57	0.00
13:44:08	193.0	44.0	1.4	122	51	20	618		1.04	0.00	18.6	19.3	189.6	682	77.0	1:01	1.09	0.58	0.00
13:45:11	194.1	62.1	3.1	122	67	20	618		1.04	0.00	18.6	19.3	190.0	682	78.1	1:02	1.09	0.59	0.00
13:45:52	195.0	79.0	3.7	122	72	20	618		1.04	0.00	18.6	19.3	190.4	682	79.0	1:03	1.09	0.57	0.00
13:46:40	196.1	79.7	4.0	122	67	20	618		1.04	0.00	18.6	19.3	190.9	682	80.1	1:04	1.09	0.57	0.00
13:47:35	197.0	54.8	3.1	122	60	20	618		1.04	0.00	18.6	19.3	191.4	682	81.0	1:05	1.09	0.60	0.00
13:48:52	198.0	51.3	1.8	122	54	20	619		1.04	0.00	18.6	19.3	192.4	681	82.0	1:06	1.09	0.63	0.00
13:50:17	199.0	46.3	2.6	122	54	20	620		1.04	0.00	18.6	19.4	193.1	682	83.0	1:07	1.09	0.66	0.00
13:51:19	200.0	73.3	3.6	122	59	20	620		1.04	0.00	18.6	19.4	193.8	682	84.0	1:09	1.09	0.65	0.00
13:52:06	201.0	84.1	4.3	122	64	20	619		1.04	0.00	18.6	19.4	194.5	682	85.0	1:09	1.09	0.61	0.00
13:52:50	202.0	80.7	4.4	122	67	20	621		1.04	0.00	18.6	19.4	195.2	682	86.0	1:10	1.09	0.59	0.00

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
m:sec	m	m/hr	klb		amp	psi	gpm			sg	deg C		m	bbl	mts	hh:mm	sg		%
13:53:44	203.0	59.3	3.0	122	58	20	621		1.04	0.00	18.6	19.4	196.1	682	87.0	1:11	1.09	0.58	0.00
13:54:24	204.0	105.0	5.1	122	73	20	619		1.04	0.00	18.5	19.4	196.6	682	88.0	1:12	1.09	0.61	0.00
13:54:56	205.0	129.6	7.1	122	83	20	619		1.04	0.00	18.5	19.4	197.0	682	89.0	1:12	1.09	0.58	0.00
13:55:24	206.1	143.3	7.1	122	85	20	618		1.04	0.00	18.5	19.4	197.2	682	90.1	1:13	1.09	0.55	0.00
13:55:51	207.0	125.5	7.4	122	86	20	618		1.04	0.00	18.5	19.4	197.4	682	91.0	1:13	1.09	0.57	0.00
13:56:22	208.1	110.0	6.0	122	74	20	620		1.04	0.00	18.5	19.4	197.7	682	92.1	1:14	1.09	0.57	0.00
13:56:57	209.1	101.1	5.8	122	74	20	622		1.04	0.00	18.5	19.4	198.0	682	93.1	1:14	1.09	0.58	0.00
13:57:31	210.1	112.2	4.7	122	70	20	624		1.04	0.00	18.5	19.4	198.3	682	94.1	1:15	1.09	0.56	0.00
13:58:06	211.0	92.9	4.7	122	70	20	625		1.04	0.00	18.5	19.4	198.7	682	95.0	1:15	1.09	0.57	0.00
13:58:43	212.1	110.5	5.1	122	72	20	624		1.04	0.00	18.5	19.5	199.0	682	96.1	1:16	1.09	0.55	0.00
13:59:14	213.0	97.1	4.8	122	73	20	621		1.04	0.00	18.5	19.5	199.5	682	97.0	1:16	1.09	0.56	0.00
13:59:49	214.0	102.2	4.6	121	68	20	619		1.04	0.00	18.5	19.5	199.9	682	98.0	1:17	1.09	0.56	0.00
14:01:01	215.0	43.9	2.0	122	47	20	618		1.04	0.00	18.5	19.5	201.1	682	99.0	1:18	1.09	0.59	0.00
14:02:32	216.0	55.8	2.9	122	55	20	626		1.04	0.00	18.5	19.5	202.5	682	100.0	1:20	1.09	0.68	0.00
14:13:18	217.0	30.1	0.0	122	75	20	584		1.04	0.00	18.5	19.6	210.7	682	101.0	1:21	1.09	0.67	0.00
14:14:26	218.1	95.2	0.7	122	62	20	587		1.04	0.00	18.5	19.6	212.8	682	102.1	1:22	1.09	0.49	0.00
14:15:18	219.1	68.1	3.1	122	65	20	588		1.04	0.00	18.5	19.6	214.2	682	103.1	1:22	1.09	0.68	0.00
14:15:40	220.0	56.1	7.6	122	65	20	588		1.04	0.00	18.5	19.6	214.3	682	104.0	1:23	1.09	0.70	0.00
14:16:27	221.0	77.8	7.1	122	72	20	588		1.04	0.00	18.5	19.6	215.7	682	105.0	1:23	1.09	0.68	0.00
14:16:52	222.0	64.2	5.3	122	69	20	589		1.04	0.00	18.5	19.6	216.4	682	106.0	1:24	1.09	0.68	0.00
14:17:35	223.0	90.3	8.4	122	77	20	589		1.04	0.00	18.5	19.6	217.2	682	107.0	1:25	1.09	0.66	0.00
14:18:07	224.0	103.8	9.3	122	86	20	590		1.04	0.00	18.5	19.6	218.2	682	108.0	1:25	1.09	0.64	0.00
14:18:46	225.2	114.5	9.5	122	83	20	590		1.04	0.00	18.5	19.6	219.3	682	109.2	1:26	1.09	0.63	0.00
[illegible]9:24	226.0	77.8	8.5	122	78	20	591		1.04	0.00	18.5	19.6	220.3	682	110.0	1:26	1.09	0.66	0.00
14:20:17	227.0	66.4	9.3	122	80	20	592		1.04	0.00	18.5	19.6	221.8	682	111.0	1:27	1.09	0.74	0.00
14:21:12	228.0	61.5	8.0	122	65	20	591		1.04	0.00	18.5	19.6	222.6	682	112.0	1:28	1.09	0.72	0.00
14:21:59	229.0	72.0	8.0	122	67	20	591		1.04	0.00	18.5	19.6	223.5	682	113.0	1:29	1.09	0.68	0.00
14:22:48	230.1	76.3	7.1	122	67	20	591		1.04	0.00	18.5	19.6	224.4	682	114.1	1:30	1.09	0.68	0.00
14:23:35	231.0	75.3	7.8	122	71	20	591		1.04	0.00	18.5	19.7	225.3	682	115.0	1:31	1.09	0.71	0.00
14:24:22	232.1	82.0	7.9	122	71	20	592		1.04	0.00	18.5	19.7	225.9	682	116.1	1:31	1.09	0.68	0.00
14:25:06	233.0	86.3	7.8	122	72	20	592		1.04	0.00	18.5	19.7	226.5	682	117.0	1:32	1.09	0.70	0.00
14:25:53	234.0	82.2	8.0	122	76	20	592		1.04	0.00	18.5	19.7	226.9	682	118.0	1:33	1.09	0.70	0.00
14:26:37	235.0	95.4	8.8	122	73	20	591		1.04	0.00	18.5	19.7	227.5	682	119.0	1:34	1.09	0.69	0.00
14:27:21	236.0	73.8	8.3	122	72	20	591		1.04	0.00	18.5	19.7	227.9	682	120.0	1:34	1.09	0.67	0.00
14:28:05	237.1	82.8	7.9	122	73	20	591		1.04	0.00	18.5	19.7	228.6	682	121.1	1:35	1.09	0.66	0.00
14:29:00	238.1	61.7	7.6	122	77	20	592		1.04	0.00	18.5	19.7	229.6	682	122.1	1:36	1.09	0.72	0.00
14:29:53	239.0	61.6	6.5	122	67	20	592		1.04	0.00	18.5	19.7	230.2	682	123.0	1:37	1.09	0.70	0.00
14:30:49	240.0	70.3	6.8	122	70	20	592		1.04	0.00	18.5	19.7	231.2	682	124.0	1:38	1.09	0.70	0.00
14:32:29	241.0	32.2	6.2	122	59	20	592		1.04	0.00	18.5	19.7	232.7	682	125.0	1:39	1.09	0.79	0.00
14:33:26	242.0	67.2	8.3	122	73	20	592		1.04	0.00	18.5	19.7	233.6	682	126.0	1:40	1.09	0.74	0.00
14:34:12	243.0	82.9	8.1	122	67	20	592		1.04	0.00	18.5	19.7	234.2	682	127.0	1:41	1.09	0.68	0.00
14:35:46	244.0	37.0	9.2	122	77	20	591		1.04	0.00	18.5	19.8	235.9	682	128.0	1:43	1.08	0.87	0.00
14:36:36	245.0	69.2	8.7	122	75	20	591		1.04	0.00	18.5	19.8	237.0	682	129.0	1:44	1.08	0.70	0.00
14:37:32	246.0	57.0	9.4	122	76	20	592		1.04	0.00	18.5	19.8	237.7	682	130.0	1:45	1.08	0.79	0.00
14:39:12	247.0	37.8	10.5	122	66	20	592		1.04	0.00	18.6	19.8	239.1	682	131.0	1:46	1.08	0.91	0.00
14:40:39	248.0	41.4	8.4	122	65	20	592		1.04	0.00	18.6	19.8	240.3	682	132.0	1:48	1.08	0.83	0.00
14:59:01	249.0	64.3	6.8	129	67	20	600		1.04	0.00	18.6	19.9	246.4	682	133.0	1:49	1.09	0.82	0.00
14:59:54	250.0	60.9	8.7	130	78	20	600		1.04	0.00	18.6	19.9	246.9	682	134.0	1:50	1.09	0.74	0.00
1[illegible]:01:31	251.0	46.1	9.6	130	81	20	601		1.04	0.00	18.6	19.9	247.8	682	135.0	1:51	1.09	0.92	0.00
[illegible]2:37	252.1	58.7	7.7	130	69	20	601		1.04	0.00	18.6	19.9	248.4	682	136.1	1:52	1.08	0.76	0.00
15:03:57	253.0	41.4	8.6	130	86	20	601		1.04	0.00	18.6	19.9	249.5	682	137.0	1:54	1.08	0.85	0.00
15:04:57	254.0	58.6	7.0	130	69	20	601		1.04	0.00	18.6	19.9	250.2	682	138.0	1:55	1.08	0.74	0.00

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
15:05:59	255.0	52.1	6.7	130	65	20	601		1.04	0.00	18.6	19.9	250.6	682	139.0	1:56	1.08	0.74	0.00
15:06:59	256.0	61.0	6.8	130	73	20	601		1.04	0.00	18.6	19.9	250.8	682	140.0	1:57	1.08	0.75	0.00
15:08:01	257.0	58.3	6.4	130	78	20	601		1.04	0.00	18.6	19.9	251.4	682	141.0	1:58	1.08	0.74	0.00
15:09:07	258.0	52.1	8.4	130	76	20	601		1.04	0.00	18.6	19.9	252.0	682	142.0	1:59	1.08	0.81	0.00
15:10:07	259.0	66.1	8.4	130	72	20	601		1.04	0.00	18.6	19.9	252.7	682	143.0	1:60	1.08	0.76	0.00
15:10:54	260.0	76.8	8.4	130	81	20	601		1.04	0.00	18.6	20.0	253.1	682	144.0	2:01	1.08	0.72	0.00
15:11:37	261.0	72.4	8.2	130	78	20	601		1.04	0.00	18.6	20.0	253.6	682	145.0	2:01	1.08	0.70	0.00
15:12:26	262.0	65.3	10.4	130	90	20	601		1.04	0.00	18.6	20.0	254.3	682	146.0	2:02	1.08	0.75	0.00
15:13:23	263.0	60.5	8.1	130	76	20	601		1.04	0.00	18.6	20.0	254.9	682	147.0	2:03	1.08	0.73	0.00
15:14:25	264.0	65.4	6.0	130	68	20	601		1.04	0.00	18.6	20.0	255.6	682	148.0	2:04	1.08	0.71	0.00
15:15:34	265.0	50.2	6.3	130	67	20	601		1.04	0.00	18.6	20.0	256.4	682	149.0	2:05	1.08	0.75	0.00
15:16:43	266.0	56.6	6.3	130	68	20	601		1.04	0.00	18.6	20.0	257.2	682	150.0	2:07	1.08	0.76	0.00
15:17:52	267.0	54.0	6.9	130	66	20	601		1.04	0.00	18.6	20.0	257.9	682	151.0	2:08	1.08	0.77	0.00
15:19:04	268.0	56.7	9.9	130	85	20	601		1.04	0.00	18.6	20.0	258.9	682	152.0	2:09	1.08	0.83	0.00
15:20:05	269.1	57.5	6.8	130	70	20	601		1.04	0.00	18.6	20.0	260.1	682	153.1	2:10	1.08	0.73	0.00
15:21:27	270.0	34.5	7.6	130	68	20	601		1.04	0.00	18.6	20.0	261.4	682	154.0	2:11	1.08	0.85	0.00
15:23:38	271.1	48.0	9.8	130	70	20	601		1.04	0.00	18.6	20.0	263.3	682	155.1	2:13	1.08	0.92	0.00
15:24:52	272.1	51.7	7.8	130	54	20	601		1.04	0.00	18.6	20.1	264.2	682	156.1	2:15	1.08	0.80	0.00
15:25:58	273.0	56.9	7.5	130	57	20	601		1.04	0.00	18.6	20.1	265.0	682	157.0	2:16	1.08	0.77	0.00
15:26:54	274.0	64.0	7.4	130	61	20	601		1.04	0.00	18.6	20.1	265.6	682	158.0	2:17	1.08	0.73	0.00
15:38:17	275.0	32.4	7.1	114	35	20	601		1.04	0.00	18.6	20.1	275.0	672	159.0	2:17	1.08	0.74	0.00
15:38:40	276.0	56.7	9.5	120	65	20	596		1.04	0.00	18.6	20.2	275.0	662	160.0	2:17	1.09	0.46	0.00
15:39:08	277.0	35.2	8.5	121	57	20	596		1.04	0.00	18.6	20.2	275.2	662	161.0	2:18	1.08	0.87	0.00
15:40:51	278.0	65.5	4.8	121	57	20	596		1.04	0.00	18.6	20.2	276.0	632	162.0	2:19	1.08	0.72	0.00
15:42:10	279.0	113.1	4.0	121	66	20	596		1.04	0.00	18.6	20.2	276.5	642	163.0	2:20	1.08	0.58	0.00
15:43:34	280.0	108.7	4.3	121	74	20	596		1.04	0.00	18.6	20.2	277.0	632	164.0	2:20	1.08	0.55	0.00
15:45:52	281.0	137.1	3.9	121	64	20	596		1.04	0.00	18.6	20.2	277.9	642	165.0	2:21	1.08	0.55	0.00
15:47:01	282.0	68.3	4.6	121	60	20	596		1.04	0.00	18.6	20.2	278.3	642	166.0	2:22	1.08	0.68	0.00
15:47:48	283.0	114.1	5.0	121	60	20	597		1.04	0.00	18.5	20.2	278.7	642	167.0	2:22	1.08	0.61	0.00
15:50:12	284.1	114.2	4.3	120	52	20	597		1.04	0.00	18.5	20.2	279.9	672	168.1	2:23	1.08	0.25	0.00
15:51:14	285.0	94.2	4.3	121	67	20	598		1.04	0.00	18.5	20.2	280.3	682	169.0	2:23	1.08	0.45	0.00
15:52:00	286.0	95.0	5.7	121	60	20	598		1.04	0.00	18.5	20.2	280.4	682	170.0	2:24	1.08	0.59	0.00
15:52:50	287.0	134.3	3.9	121	54	20	598		1.04	0.00	18.5	20.2	280.4	682	171.0	2:24	1.08	0.51	0.00
15:54:43	288.0	33.5	3.0	121	42	20	597		1.04	0.00	18.5	20.2	281.7	682	172.0	2:26	1.08	0.69	0.00
15:55:49	289.0	50.1	5.1	121	47	20	598		1.04	0.00	18.5	20.2	282.7	682	173.0	2:27	1.08	0.71	0.00
15:56:45	290.0	61.7	7.7	121	73	20	599		1.04	0.00	18.5	20.2	283.5	682	174.0	2:28	1.08	0.73	0.00
15:57:42	291.0	62.8	7.9	121	58	20	600		1.04	0.00	18.5	20.3	283.6	682	175.0	2:29	1.08	0.73	0.00
15:58:32	292.0	65.7	7.3	121	74	20	599		1.04	0.00	18.5	20.3	283.6	682	176.0	2:29	1.08	0.69	0.00
15:59:52	293.1	62.6	9.7	121	79	20	598		1.04	0.00	18.5	20.3	284.1	682	177.1	2:31	1.08	0.83	0.00
16:00:42	294.0	67.3	9.5	121	67	20	598		1.04	0.00	18.5	20.3	284.9	682	178.0	2:32	1.08	0.75	0.00
16:01:42	295.1	67.1	9.2	121	63	20	598		1.04	0.00	18.5	20.3	286.5	682	179.1	2:33	1.08	0.77	0.00
16:02:38	296.0	60.6	9.6	121	62	20	599		1.04	0.00	18.5	20.3	286.9	682	180.0	2:33	1.08	0.75	0.00
16:03:34	297.0	59.1	9.4	121	68	20	599		1.04	0.00	18.5	20.3	287.3	682	181.0	2:34	1.08	0.77	0.00
16:04:31	298.0	67.0	9.3	121	63	20	599		1.04	0.00	18.5	20.3	287.7	682	182.0	2:35	1.08	0.75	0.00
16:05:27	299.1	65.8	9.1	121	65	20	599		1.04	0.00	18.5	20.3	288.3	682	183.1	2:36	1.08	0.73	0.00
16:06:30	300.0	55.2	8.3	121	63	20	600		1.04	0.00	18.5	20.3	289.1	682	184.0	2:37	1.08	0.75	0.00
16:07:34	301.0	53.7	8.4	121	62	20	601		1.04	0.00	18.5	20.3	290.0	682	185.0	2:38	1.08	0.75	0.00
16:08:49	302.0	42.4	9.3	121	66	20	602		1.04	0.00	18.5	20.3	291.1	682	186.0	2:40	1.08	0.83	0.00
16:10:27	303.0	40.6	10.5	121	62	20	602		1.04	0.00	18.5	20.3	292.4	682	187.0	2:41	1.08	0.91	0.00
16:11:39	304.0	53.3	10.4	121	59	20	601		1.04	0.00	18.5	20.3	293.4	682	188.0	2:42	1.08	0.80	0.00
16:22:45	305.0	40.7	8.8	123	68	20	606		1.04	0.00	18.6	20.4	298.1	682	189.0	2:43	1.08	0.77	0.00
16:23:11	306.1	63.7	9.2	123	65	20	608		1.04	0.00	18.5	20.4	298.7	682	190.1	2:44	1.08	0.79	0.00

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT- mts	-BIT- hh:mm	ECD	DXC	GAS
[illegible]mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
16:24:02	307.0	63.7	9.3	123	67	20	608		1.04	0.00	18.5	20.4	300.0	682	191.0	2:45	1.08	0.73	0.00
16:24:49	308.0	79.2	10.5	123	81	20	609		1.04	0.00	18.5	20.4	301.2	682	192.0	2:45	1.08	0.70	0.00
16:25:40	309.0	72.9	9.3	123	68	20	610		1.04	0.00	18.5	20.4	302.7	682	193.0	2:46	1.08	0.74	0.00
16:26:53	310.0	46.1	8.4	123	66	20	610		1.04	0.00	18.6	20.4	304.6	682	194.0	2:47	1.08	0.79	0.00
16:28:15	311.0	43.6	7.5	123	65	20	610		1.04	0.00	18.5	20.4	306.3	682	195.0	2:49	1.08	0.79	0.00
16:29:26	312.1	60.2	9.2	124	75	20	611		1.04	0.00	18.5	20.4	307.1	682	196.1	2:50	1.08	0.79	0.00
16:30:07	313.0	81.3	10.4	124	75	20	611		1.04	0.00	18.5	20.4	307.8	682	197.0	2:51	1.08	0.72	0.00
16:30:54	314.1	69.7	10.3	124	72	20	611		1.04	0.00	18.5	20.4	308.5	682	198.1	2:51	1.08	0.70	0.00
16:31:45	315.1	70.5	10.0	124	76	20	611		1.04	0.00	18.5	20.4	309.1	682	199.1	2:52	1.08	0.75	0.00
16:32:31	316.1	77.7	10.3	124	83	20	611		1.04	0.00	18.5	20.4	309.6	682	200.1	2:53	1.08	0.73	0.00
16:33:23	317.0	59.0	11.3	123	82	20	611		1.04	0.00	18.5	20.4	310.0	682	201.0	2:54	1.08	0.81	0.00
16:34:50	318.0	33.9	8.7	123	73	20	611		1.04	0.00	18.5	20.4	310.7	682	202.0	2:55	1.08	0.83	0.00
16:35:57	319.0	51.5	9.2	124	74	20	611		1.04	0.00	18.5	20.4	311.3	682	203.0	2:56	1.08	0.80	0.00
16:36:44	320.0	82.1	10.5	124	81	20	611		1.04	0.00	18.5	20.4	311.8	682	204.0	2:57	1.08	0.71	0.00
16:38:06	321.0	38.0	10.7	124	78	20	611		1.04	0.00	18.5	20.4	313.3	682	205.0	2:59	1.08	0.87	0.00
16:39:34	322.1	56.6	11.4	123	91	20	610		1.04	0.00	18.4	20.4	314.6	682	206.1	3:00	1.08	0.88	0.00
16:41:22	323.0	30.1	11.9	124	76	20	610		1.04	0.00	18.5	20.4	316.5	682	207.0	3:02	1.08	0.97	0.00
16:44:59	324.0	15.3	12.2	124	76	20	610		1.04	0.00	18.5	20.4	318.6	682	208.0	3:06	1.08	1.11	0.00
16:46:31	325.0	34.3	7.9	129	58	20	610		1.04	0.00	18.5	20.4	320.1	682	209.0	3:07	1.08	0.85	0.00
16:49:19	326.0	20.7	11.5	134	74	20	611		1.04	0.00	18.5	20.4	321.5	682	210.0	3:10	1.08	1.07	0.00
16:50:41	327.0	48.7	8.7	134	66	20	610		1.04	0.00	18.5	20.4	322.4	682	211.0	3:11	1.08	0.81	0.00
16:51:53	328.0	46.1	6.5	134	59	20	610		1.04	0.00	18.5	20.4	322.8	682	212.0	3:12	1.08	0.77	0.00
16:53:31	329.0	52.0	9.5	134	71	20	610		1.04	0.00	18.5	20.5	323.3	682	213.0	3:14	1.08	0.90	0.00
[illegible]5:13	330.0	29.2	9.7	134	74	20	611		1.04	0.00	18.5	20.5	323.7	682	214.0	3:16	1.08	0.93	0.00
16:57:48	331.1	32.5	10.9	134	72	20	611		1.04	0.00	18.5	20.5	324.7	682	215.1	3:18	1.08	1.00	0.00
16:59:46	332.0	22.7	15.1	134	90	20	611		1.04	0.00	18.5	20.5	325.3	682	216.0	3:20	1.08	1.06	0.00
17:11:35	333.0	17.7	10.0	134	70	20	610		1.04	0.00	18.5	20.5	328.6	682	217.0	3:22	1.08	0.96	0.00
17:12:21	334.0	76.6	7.2	134	63	20	590		1.04	0.00	18.5	20.5	329.2	682	218.0	3:23	1.08	0.48	0.00
17:12:37	335.1	68.4	3.7	134	47	20	588		1.04	0.00	18.5	20.5	329.3	682	219.1	3:23	1.08	0.46	0.00
17:12:57	336.1	52.7	8.0	134	63	20	588		1.04	0.00	18.5	20.5	329.5	682	220.1	3:23	1.08	0.77	0.00
17:13:17	337.0	39.6	11.7	134	80	20	588		1.04	0.00	18.5	20.5	329.7	682	221.0	3:24	1.08	0.90	0.00
17:14:04	338.0	82.9	9.1	134	79	20	588		1.04	0.00	18.6	20.5	330.7	682	222.0	3:24	1.08	0.69	0.00
17:14:55	339.1	73.1	9.3	134	81	20	589		1.04	0.00	18.5	20.5	332.0	682	223.1	3:25	1.08	0.75	0.00
17:15:52	340.0	55.9	12.1	134	98	20	589		1.04	0.00	18.5	20.5	333.3	682	224.0	3:26	1.08	0.83	0.00
17:17:19	341.0	39.0	11.8	134	79	20	589		1.04	0.00	18.6	20.5	335.3	672	225.0	3:28	1.08	0.91	0.00
17:19:13	342.1	72.6	10.8	134	74	20	587		1.04	0.00	18.6	20.5	337.4	672	226.1	3:30	1.08	0.94	0.00
17:20:46	343.1	31.2	11.6	134	75	20	587		1.04	0.00	18.6	20.5	338.8	682	227.1	3:31	1.08	0.94	0.00
17:21:57	344.1	56.2	8.8	135	67	20	589		1.04	0.00	18.6	20.6	339.8	682	228.1	3:32	1.08	0.77	0.00
17:23:09	345.1	47.9	9.2	134	68	20	591		1.04	0.00	18.6	20.6	340.5	682	229.1	3:34	1.08	0.82	0.00
17:24:10	346.1	59.8	8.5	134	72	20	590		1.04	0.00	18.5	20.6	341.0	682	230.1	3:35	1.08	0.80	0.00
17:25:22	347.0	42.7	8.7	134	70	20	590		1.04	0.00	18.5	20.6	341.2	682	231.0	3:36	1.08	0.85	0.00
17:26:34	348.0	57.4	10.8	134	80	20	589		1.04	0.00	18.5	20.6	341.6	682	232.0	3:37	1.08	0.84	0.00
17:27:25	349.1	64.4	7.5	134	68	20	588		1.04	0.00	18.5	20.6	342.4	682	233.1	3:38	1.08	0.72	0.00
17:28:16	350.0	65.2	7.1	134	74	20	589		1.04	0.00	18.5	20.6	342.8	682	234.0	3:39	1.08	0.73	0.00
17:29:13	351.0	63.8	5.2	134	59	20	589		1.04	0.00	18.5	20.6	343.1	682	235.0	3:40	1.08	0.67	0.00
17:29:59	352.0	77.3	4.7	134	57	20	589		1.04	0.00	18.5	20.6	343.5	682	236.0	3:40	1.08	0.60	0.00
17:30:40	353.1	103.3	2.3	134	52	20	589		1.04	0.00	18.5	20.6	344.2	682	237.1	3:41	1.08	0.50	0.00
17:31:20	354.1	84.7	1.3	134	64	20	589		1.04	0.00	18.5	20.6	344.6	682	238.1	3:42	1.08	0.50	0.00
1[illegible]2:01	355.0	82.5	1.4	134	82	20	589		1.04	0.00	18.5	20.6	345.0	682	239.0	3:42	1.08	0.49	0.00
1[illegible]3:04	356.1	52.0	5.1	135	72	20	589		1.04	0.00	18.5	20.6	345.8	682	240.1	3:43	1.08	0.57	0.00
17:33:44	357.1	87.4	2.5	135	52	20	588		1.04	0.00	18.5	20.6	346.4	682	241.1	3:44	1.08	0.51	0.00
17:35:11	358.9	100.9	2.3	135	52	20	588		1.04	0.00	18.5	20.6	347.1	682	242.9	3:44	1.08	0.61	0.00

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
17:35:17	359.1	87.6	0.0	134	72	20	590		1.04	0.00	18.5	20.6	347.2	682	243.1	3:44	1.08	0.50	0.00
17:36:29	360.0	46.8	1.3	134	80	20	592		1.04	0.00	18.5	20.6	348.1	682	244.0	3:45	1.08	0.62	0.00
17:37:46	361.0	64.1	3.5	134	62	20	594		1.04	0.00	18.5	20.5	349.2	682	245.0	3:47	1.08	0.66	0.00
17:38:26	362.0	83.7	2.5	134	89	20	596		1.04	0.00	18.5	20.5	350.0	682	246.0	3:47	1.08	0.59	0.00
17:39:02	363.2	118.7	1.6	134	94	20	597		1.04	0.00	18.5	20.5	350.5	682	247.2	3:48	1.08	0.41	0.00
17:50:47	364.1	88.6	0.2	134	117	20	598		1.04	0.00	18.5	20.5	355.6	682	248.1	3:48	1.08	0.41	0.00
17:51:08	365.1	67.6	0.0	133	149	20	609		1.04	0.00	18.4	20.4	356.1	682	249.1	3:48	1.08	0.41	0.00
17:52:14	366.3	47.0	0.2	129	128	20	609		1.04	0.00	19.2	20.4	339.3	682	250.3	3:50	1.09	0.55	0.00
17:52:40	367.0	80.8	0.1	133	124	20	613		1.04	0.00	18.5	20.4	345.2	682	251.0	3:50	1.08	0.42	0.00
20th February 1993																			
NB#4, HTC ATM 1H 12.25" 18,16,13																			
18:02:31	371.1	223.0	13.9	52	73	1472	579	367	1.05	1.04	25.7	24.8	370.0	583	1.1	0:00	1.06	0.28	0.00
18:03:50	372.9	86.0	9.5	76	26	1587	641	317	1.06	1.06	28.7	28.0	370.0	587	2.9	0:01	1.06	0.41	0.00
18:04:02	373.9	85.0	5.5	76	56	1626	641	281	1.06	1.05	28.8	28.0	370.1	587	3.9	0:01	1.05	0.32	0.01
18:04:26	375.1	91.6	2.0	76	139	1593	640	285	1.06	1.06	28.7	27.9	370.1	587	5.1	0:01	1.05	0.32	0.01
18:05:10	376.0	85.3	2.0	77	95	1612	640	260	1.06	1.06	28.7	28.1	370.3	585	6.0	0:01	1.05	0.32	0.01
18:05:53	377.0	93.0	5.1	76	100	1608	641	273	1.06	1.05	28.7	28.5	370.6	587	7.0	0:02	1.06	0.54	0.01
18:06:37	378.0	82.0	7.8	76	124	1573	641	289	1.06	1.05	28.7	28.8	370.9	588	8.0	0:03	1.06	0.58	0.02
18:07:15	379.1	99.8	8.5	76	117	1605	641	274	1.06	1.05	28.6	29.0	371.2	589	9.1	0:03	1.06	0.53	0.02
18:07:46	380.0	114.3	9.0	76	112	1604	641	286	1.06	1.05	28.6	29.2	371.4	587	10.0	0:04	1.06	0.51	0.02
18:08:19	381.1	143.2	8.6	76	88	1602	641	264	1.06	1.05	28.6	29.4	371.6	589	11.1	0:04	1.06	0.48	0.02
18:27:42	382.2	16.5	3.2	74	63	1617	645	237	1.06	1.05	28.6	29.5	380.8	588	12.2	0:05	1.07	0.49	0.02
18:28:25	383.3	169.4	4.1	78	118	1614	663	322	1.05	1.09	28.7	29.5	380.7	586	13.3	0:05	1.06	0.30	0.02
18:29:22	385.0	169.4	3.7	86	162	1648	666	336	1.05	1.09	28.7	29.5	380.8	587	15.0	0:05	1.07	0.18	0.02
18:29:58	386.0	85.7	7.8	90	86	1617	666	287	1.05	1.09	28.8	29.4	380.9	585	16.0	0:06	1.07	0.54	0.02
18:30:29	387.0	119.7	6.7	93	80	1618	667	295	1.05	1.09	28.8	29.5	380.9	585	17.0	0:06	1.07	0.52	0.02
18:31:13	388.0	72.8	7.4	96	84	1621	667	271	1.05	1.10	28.8	29.5	381.0	585	18.0	0:07	1.07	0.61	0.02
18:34:42	389.5	189.9	8.9	94	112	1630	667	298	1.05	1.10	28.8	29.5	381.3	597	19.5	0:08	1.06	0.30	0.02
18:35:19	391.7	190.6	3.3	84	67	1548	516	159	1.06	1.10	28.9	29.5	381.3	597	21.7	0:08	1.06	0.30	0.02
18:35:28	392.3	211.8	3.0	93	56	1587	509	155	1.06	1.10	28.9	29.5	381.3	597	22.3	0:08	1.06	0.18	0.02
18:35:50	393.1	151.1	3.8	95	88	1515	526	238	1.06	1.10	28.8	29.6	381.4	595	23.1	0:08	1.07	0.42	0.02
18:36:18	394.1	126.5	7.2	103	93	1534	548	259	1.06	1.10	28.9	29.6	381.4	594	24.1	0:09	1.07	0.51	0.02
18:36:56	395.0	82.6	7.6	107	101	1546	554	272	1.06	1.10	28.9	29.5	381.5	593	25.0	0:09	1.07	0.60	0.02
18:37:30	396.1	110.2	8.4	108	98	1545	555	271	1.06	1.09	28.9	29.5	381.5	593	26.1	0:10	1.07	0.57	0.02
18:38:13	397.1	79.9	9.7	108	109	1540	555	237	1.06	1.09	28.9	29.5	381.6	593	27.1	0:11	1.07	0.64	0.02
18:38:38	398.1	154.3	8.4	110	125	1534	556	246	1.06	1.09	28.9	29.5	381.6	593	28.1	0:11	1.07	0.55	0.02
18:39:25	399.0	71.7	11.4	113	133	1539	556	286	1.06	1.08	28.9	29.4	381.7	592	29.0	0:12	1.07	0.71	0.02
18:40:03	400.0	91.4	11.2	113	130	1550	556	275	1.06	1.08	28.9	29.4	381.8	591	30.0	0:12	1.07	0.67	0.02
18:40:37	401.2	136.0	9.7	113	108	1541	556	268	1.06	1.08	28.9	29.3	381.8	592	31.2	0:13	1.07	0.58	0.02
18:41:01	402.0	137.2	7.1	113	84	1536	555	229	1.06	1.08	29.0	29.3	381.9	592	32.0	0:13	1.07	0.49	0.02
18:42:22	404.1	83.8	4.3	101	62	1536	555	149	1.06	1.07	29.0	29.3	382.0	591	34.1	0:15	1.07	0.55	0.02
18:43:06	405.0	88.2	5.3	92	81	1572	556	241	1.06	1.07	29.0	29.3	382.1	591	35.0	0:15	1.07	0.54	0.02
18:43:50	406.1	87.8	5.2	90	64	1816	560	218	1.06	1.08	29.0	29.2	382.1	590	36.1	0:16	1.07	0.53	0.02
18:44:41	407.0	71.3	4.6	85	59	1848	578	245	1.06	1.08	29.0	29.2	382.9	589	37.0	0:17	1.07	0.52	0.02
18:45:26	408.1	78.8	5.6	84	71	1850	594	266	1.06	1.08	29.0	29.2	383.5	589	38.1	0:17	1.07	0.56	0.02
18:46:15	409.0	81.4	8.4	93	91	1820	596	300	1.06	1.09	29.1	29.2	384.9	588	39.0	0:18	1.07	0.64	0.02
18:47:17	410.0	85.3	12.3	95	132	1843	596	392	1.06	1.10	29.1	29.2	386.2	587	40.0	0:19	1.07	0.71	0.02
18:48:11	411.0	54.9	9.8	95	89	1865	597	327	1.06	1.10	29.1	29.2	387.4	587	41.0	0:20	1.07	0.70	0.02
18:49:22	412.0	48.9	12.3	94	102	1853	597	287	1.06	1.11	29.1	29.2	388.4	586	42.0	0:21	1.07	0.77	0.02
19:08:45	413.0	13.7	11.2	92	88	1740	645	460	1.06	1.13	29.3	28.9	403.6	582	43.0	0:22	1.07	0.51	0.02
19:09:01	414.0	58.7	12.4	115	118	1653	659	469	1.06	1.14	29.4	28.6	403.7	581	44.0	0:22	1.06	0.77	0.02
19:09:22	415.1	100.3	10.6	117	103	1757	661	458	1.06	1.14	29.4	28.6	403.9	578	45.1	0:23	1.06	0.61	0.02
19:09:32	416.0	86.2	10.4	117	93	1782	661	461	1.06	1.14	29.5	28.6	403.8	577	46.0	0:23	1.06	0.64	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
19:09:49	417.2	131.7	10.0	117	94	1765	661	460	1.06	1.14	29.4	28.7	404.0	576	47.2	0:23	1.06	0.58	0.02
19:10:04	418.3	153.6	8.5	116	96	1765	661	470	1.06	1.14	29.4	28.7	404.1	574	48.3	0:23	1.06	0.61	0.02
19:10:42	419.2	127.6	13.3	117	222	1771	661	545	1.06	1.14	29.4	28.8	404.7	573	49.2	0:24	1.06	0.70	0.02
19:11:16	420.0	86.8	13.7	118	153	1781	660	528	1.06	1.14	29.4	28.9	405.3	571	50.0	0:25	1.06	0.71	0.02
19:11:54	421.0	93.6	15.4	117	151	1757	661	499	1.06	1.14	29.4	29.1	406.0	573	51.0	0:25	1.07	0.73	0.02
19:12:58	422.1	135.3	20.0	119	169	1744	661	535	1.06	1.13	29.4	29.3	407.0	571	52.1	0:26	1.07	0.86	0.02
19:13:29	423.1	119.9	12.2	120	133	1743	661	501	1.06	1.13	29.4	29.4	407.6	572	53.1	0:27	1.07	0.63	0.02
19:13:54	424.0	146.3	8.8	120	100	1707	661	465	1.06	1.12	29.4	29.5	408.0	572	54.0	0:27	1.07	0.53	0.02
19:14:48	425.0	119.0	6.8	120	76	1780	661	421	1.06	1.11	29.4	29.7	408.6	571	55.0	0:28	1.06	0.57	0.02
19:15:27	426.1	83.7	6.5	120	89	1778	660	397	1.06	1.11	29.4	29.7	409.3	571	56.1	0:29	1.06	0.59	0.02
19:16:04	427.1	99.5	6.5	120	84	1784	660	415	1.06	1.11	29.5	29.9	410.0	571	57.1	0:29	1.07	0.62	0.02
19:16:32	428.0	122.6	6.8	120	87	1696	661	410	1.06	1.10	29.4	29.9	410.6	571	58.0	0:30	1.07	0.54	0.02
19:17:09	429.1	96.9	6.4	120	84	1782	661	376	1.06	1.10	29.4	30.0	411.2	571	59.1	0:30	1.07	0.58	0.02
19:17:47	430.0	93.2	7.2	119	97	1790	661	420	1.06	1.11	29.4	30.0	412.0	568	60.0	0:31	1.07	0.62	0.02
19:18:28	431.1	75.1	7.3	119	100	1767	661	442	1.06	1.11	29.4	30.1	412.8	568	61.1	0:32	1.07	0.65	0.02
19:19:10	432.1	83.7	9.7	120	99	1778	661	459	1.06	1.11	29.4	30.1	413.6	567	62.1	0:32	1.07	0.68	0.02
19:19:53	433.1	90.1	9.0	120	96	1767	661	435	1.06	1.11	29.4	30.1	414.4	568	63.1	0:33	1.07	0.64	0.02
19:20:24	434.1	119.0	5.7	120	80	1776	662	436	1.06	1.11	29.5	30.0	415.1	568	64.1	0:34	1.07	0.55	0.02
19:20:56	435.0	107.2	4.2	120	70	1767	662	403	1.06	1.10	29.5	30.0	415.6	569	65.0	0:34	1.07	0.52	0.03
19:21:33	436.0	97.9	3.5	120	68	1788	661	407	1.06	1.10	29.4	30.0	416.4	570	66.0	0:35	1.07	0.54	0.03
19:22:16	437.0	82.3	4.2	120	77	1802	661	391	1.06	1.10	29.4	30.0	417.1	568	67.0	0:35	1.07	0.57	0.03
19:23:00	438.1	79.0	5.7	120	85	1809	661	395	1.06	1.10	29.5	30.0	418.0	568	68.1	0:36	1.07	0.60	0.03
19:23:34	439.1	97.5	6.3	120	99	1738	661	442	1.06	1.10	29.5	30.0	418.7	567	69.1	0:37	1.07	0.59	0.03
[illegible]4:06	440.1	123.0	5.1	120	83	1793	662	440	1.06	1.10	29.5	30.0	419.3	566	70.1	0:37	1.07	0.57	0.03
19:24:29	441.0	147.3	4.0	120	83	1775	661	408	1.06	1.10	29.5	30.0	419.7	567	71.0	0:38	1.07	0.47	0.03
19:25:06	442.1	126.2	3.9	120	72	1804	661	402	1.06	1.10	29.5	30.0	420.5	566	72.1	0:38	1.07	0.52	0.03
19:50:29	443.1	165.1	5.5	115	79	1973	690	455	1.06	1.19	29.9	28.5	430.3	576	73.1	0:39	1.06	0.54	0.02
19:51:05	444.2	102.1	4.8	120	90	1977	706	488	1.06	1.19	29.9	28.5	430.9	571	74.2	0:40	1.07	0.56	0.02
19:51:27	445.0	157.5	5.1	119	88	2027	706	489	1.06	1.19	29.9	28.3	431.2	568	75.0	0:40	1.07	0.47	0.02
19:51:55	446.0	131.7	4.8	119	79	2020	706	468	1.06	1.19	29.9	28.0	431.6	564	76.0	0:41	1.07	0.52	0.02
19:52:31	447.0	87.1	4.2	119	75	2007	706	453	1.06	1.19	29.9	27.7	432.1	558	77.0	0:41	1.07	0.55	0.02
19:53:12	448.1	100.9	2.9	119	67	2017	707	457	1.06	1.18	29.9	27.6	432.8	553	78.1	0:42	1.07	0.52	0.02
19:53:56	449.0	82.1	3.4	120	72	2030	707	446	1.06	1.18	29.9	27.6	433.5	545	79.0	0:43	1.07	0.56	0.02
19:54:45	450.1	80.6	3.6	121	77	1938	707	479	1.06	1.18	29.9	27.7	434.2	542	80.1	0:43	1.07	0.55	0.02
19:55:35	451.1	95.1	2.8	120	70	2015	707	491	1.06	1.18	29.9	28.0	435.0	540	81.1	0:44	1.07	0.54	0.02
19:56:11	452.1	101.8	4.6	120	72	1991	707	482	1.06	1.18	29.9	28.4	435.6	538	82.1	0:45	1.07	0.54	0.02
19:56:46	453.0	102.4	3.9	120	78	2017	707	483	1.06	1.17	29.9	28.5	436.1	536	83.0	0:45	1.07	0.54	0.02
19:57:24	454.1	124.4	3.2	120	72	2023	707	468	1.06	1.17	29.8	28.8	436.7	536	84.1	0:46	1.07	0.49	0.02
19:58:00	455.0	112.5	4.2	120	87	1962	707	471	1.06	1.18	29.7	29.1	437.2	535	85.0	0:47	1.07	0.55	0.02
19:58:35	456.1	120.8	3.5	120	71	2018	707	462	1.06	1.18	29.7	29.3	437.8	535	86.1	0:47	1.07	0.51	0.02
19:59:09	457.1	134.6	3.8	120	80	2021	707	452	1.06	1.18	29.6	29.4	438.4	536	87.1	0:48	1.07	0.48	0.02
19:59:43	458.1	128.0	4.1	120	75	2018	707	466	1.06	1.18	29.6	29.6	438.9	536	88.1	0:48	1.07	0.51	0.02
20:00:14	459.0	105.4	4.6	120	88	2031	707	474	1.06	1.17	29.6	29.8	439.3	534	89.0	0:49	1.07	0.52	0.02
20:00:51	460.1	108.4	4.7	120	88	2031	707	494	1.06	1.18	29.5	29.9	439.9	532	90.1	0:49	1.07	0.52	0.02
20:01:22	461.0	98.5	5.8	119	83	2055	707	514	1.06	1.18	29.5	30.0	440.4	531	91.0	0:50	1.07	0.54	0.02
20:01:56	462.0	96.1	4.4	119	75	1979	707	510	1.06	1.18	29.5	30.0	441.0	527	92.0	0:50	1.07	0.54	0.02
20:02:33	463.0	99.5	4.2	120	84	2032	707	507	1.06	1.18	29.5	30.1	441.5	526	93.0	0:51	1.07	0.54	0.02
20:03:08	464.0	117.1	3.6	120	75	2031	707	525	1.06	1.17	29.5	30.1	442.0	525	94.0	0:51	1.07	0.49	0.02
[illegible]3:51	465.0	94.7	3.8	120	79	2014	707	521	1.06	1.17	29.5	30.2	442.5	524	95.0	0:52	1.07	0.52	0.02
[illegible]4:29	466.0	88.4	4.0	120	88	2029	707	532	1.06	1.17	29.5	30.3	443.7	524	96.0	0:53	1.08	0.53	0.02
20:05:16	467.1	78.6	4.3	120	86	2014	708	530	1.06	1.16	29.5	30.4	444.8	522	97.1	0:53	1.08	0.58	0.02
20:05:53	468.0	87.7	5.0	119	91	2042	708	532	1.06	1.16	29.4	30.5	446.1	522	98.0	0:54	1.08	0.57	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT gpm	MUD DENSITY IN sg	MUD DENSITY OUT sg	MUD TEMP IN deg C	MUD TEMP OUT deg C	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
20:06:53	469.1	57.3	8.5	119	106	2038	708	542	1.06	1.16	29.4	30.5	447.5	520	99.1	0:55	1.08	0.72	0.02
20:07:46	470.1	69.8	11.7	119	125	2036	708	530	1.06	1.18	29.4	30.5	448.5	521	100.1	0:56	1.08	0.74	0.02
20:29:47	471.0	76.8	9.6	120	97	2023	712	540	1.06	1.18	29.4	30.4	462.8	531	101.0	0:57	1.08	0.72	0.02
20:31:38	472.0	25.5	7.9	119	141	1898	716	573	1.06	1.16	29.6	29.6	465.2	521	102.0	0:59	1.08	0.84	0.02
20:32:43	473.0	56.8	18.9	118	185	1946	696	551	1.07	1.16	29.7	29.9	466.6	521	103.0	0:60	1.08	0.91	0.02
20:34:20	474.0	24.9	19.2	117	187	1940	694	598	1.07	1.15	29.6	30.1	468.4	511	104.0	1:01	1.08	0.99	0.02
20:36:28	475.1	67.7	21.9	117	306	2021	707	543	1.07	1.13	29.7	30.5	470.3	511	105.1	1:04	1.08	0.99	0.02
20:37:30	476.0	52.0	19.5	117	304	1988	710	517	1.07	1.13	29.7	30.7	470.9	501	106.0	1:05	1.08	0.88	0.02
20:38:44	477.1	55.9	19.3	117	312	2052	710	546	1.07	1.13	29.7	30.8	470.9	501	107.1	1:06	1.08	0.89	0.02
20:39:53	478.0	53.6	20.7	117	299	2049	711	528	1.07	1.13	29.8	30.8	470.9	501	108.0	1:07	1.08	0.92	0.02
20:40:31	479.0	81.8	18.9	117	305	2054	711	568	1.07	1.13	29.8	30.8	470.9	501	109.0	1:08	1.08	0.73	0.02
20:41:11	480.1	102.4	16.6	117	275	1985	712	549	1.07	1.13	29.8	30.8	470.9	501	110.1	1:08	1.08	0.70	0.02
20:41:46	481.0	92.5	14.5	120	285	2059	711	596	1.07	1.12	29.8	30.7	470.9	501	111.0	1:09	1.08	0.71	0.02
20:42:19	482.0	95.4	14.5	122	298	2065	711	594	1.07	1.12	29.8	30.6	470.9	501	112.0	1:09	1.08	0.67	0.02
20:42:47	483.1	151.4	12.2	122	292	2039	711	594	1.07	1.11	29.8	30.5	470.9	501	113.1	1:10	1.08	0.59	0.02
20:43:15	484.0	119.1	11.1	122	305	2048	711	526	1.07	1.11	29.8	30.5	470.9	501	114.0	1:10	1.08	0.61	0.02
20:43:47	485.1	124.6	10.0	122	310	2058	711	526	1.07	1.11	29.8	30.4	470.9	501	115.1	1:11	1.08	0.58	0.02
20:44:12	486.1	143.6	9.2	122	296	2070	711	520	1.07	1.10	29.8	30.3	470.9	501	116.1	1:11	1.08	0.53	0.02
20:44:40	487.1	120.7	8.8	122	289	2003	711	497	1.07	1.10	29.8	30.3	470.9	501	117.1	1:12	1.08	0.54	0.02
20:45:07	488.1	125.4	6.4	122	251	2059	711	409	1.07	1.10	29.9	30.3	470.9	501	118.1	1:12	1.08	0.54	0.02
20:45:37	489.0	109.1	6.1	122	258	2058	711	433	1.07	1.10	29.9	30.3	470.9	501	119.0	1:13	1.08	0.56	0.02
20:46:08	490.1	107.7	5.6	122	246	2066	711	439	1.07	1.10	29.9	30.2	470.9	501	120.1	1:13	1.08	0.52	0.02
20:46:41	491.1	118.5	5.4	122	237	2052	711	428	1.07	1.10	29.9	30.2	470.9	501	121.1	1:14	1.08	0.54	0.02
20:47:14	492.1	101.5	5.4	122	239	2068	710	431	1.07	1.11	29.9	30.2	470.9	501	122.1	1:14	1.08	0.54	0.02
20:47:51	493.1	108.4	5.4	122	256	2083	710	465	1.07	1.12	29.9	30.1	470.9	501	123.1	1:15	1.08	0.58	0.02
20:48:31	494.1	94.0	6.1	122	261	1996	710	451	1.07	1.12	29.9	30.1	471.2	511	124.1	1:16	1.08	0.58	0.02
20:49:00	495.0	115.8	5.9	122	256	2061	710	429	1.07	1.12	29.9	30.0	471.4	511	125.0	1:16	1.08	0.52	0.02
20:49:37	496.1	116.6	5.1	122	249	2085	710	408	1.07	1.12	30.0	30.0	471.5	511	126.1	1:17	1.08	0.52	0.02
20:50:10	497.1	101.4	5.4	122	254	2054	710	394	1.07	1.12	30.0	30.0	471.8	511	127.1	1:17	1.08	0.55	0.02
20:50:41	498.0	127.1	4.4	122	254	2044	710	424	1.07	1.12	29.9	30.1	472.1	511	128.0	1:18	1.08	0.50	0.02
20:51:13	499.1	188.6	3.9	122	253	2057	710	416	1.07	1.12	29.9	30.1	472.6	521	129.1	1:18	1.08	0.44	0.02
21:02:40	500.1	118.8	4.0	122	269	2050	710	426	1.07	1.12	30.0	30.1	477.1	601	130.1	1:19	1.08	0.48	0.02
21:03:17	501.6	239.0	2.8	122	126	1981	698	509	1.07	1.15	30.1	30.2	477.4	601	131.6	1:19	1.08	0.50	0.02
21:03:55	503.0	231.0	2.0	123	85	1903	700	515	1.06	1.16	30.1	30.2	478.0	601	133.0	1:19	1.08	0.51	0.02
21:04:18	504.1	210.0	2.1	123	83	1955	701	493	1.06	1.17	30.1	30.0	478.1	601	134.1	1:19	1.08	0.60	0.02
21:04:43	505.1	254.5	2.1	122	103	1973	701	496	1.06	1.18	30.1	30.0	478.9	601	135.1	1:19	1.06	0.11	0.02
21:05:29	506.9	510.0	2.3	122	97	1943	701	502	1.07	1.18	30.1	29.9	480.1	601	136.9	1:19	1.06	0.39	0.02
21:05:38	507.2	517.1	2.1	123	126	1965	701	415	1.07	1.18	30.0	29.9	480.4	601	137.2	1:19	1.06	0.40	0.02
21:06:02	508.0	257.2	3.0	123	192	1996	701	443	1.07	1.19	30.1	29.9	481.0	601	138.0	1:20	1.07	0.32	0.02
21:06:36	509.0	143.2	3.2	122	358	1973	701	428	1.06	1.18	30.0	29.9	482.0	601	139.0	1:20	1.07	0.47	0.02
21:07:05	510.1	462.8	5.4	122	361	1957	702	407	1.06	1.18	30.0	29.9	482.9	611	140.1	1:20	1.07	0.44	0.02
21:07:39	511.0	123.8	5.2	122	359	1868	703	417	1.06	1.19	30.0	29.9	483.9	611	141.0	1:21	1.07	0.54	0.02
21:08:15	512.0	90.3	6.6	122	357	1971	704	353	1.06	1.19	30.0	29.9	484.9	601	142.0	1:21	1.07	0.59	0.02
21:08:49	513.0	98.3	7.2	122	363	1974	703	324	1.06	1.18	30.0	29.9	485.9	601	143.0	1:22	1.07	0.57	0.02
21:09:20	514.1	127.4	6.7	122	360	1975	704	236	1.06	1.18	30.0	29.9	486.9	601	144.1	1:23	1.07	0.55	0.02
21:09:48	515.1	126.9	6.8	122	329	1974	704	146	1.06	1.19	30.0	29.9	487.6	601	145.1	1:23	1.07	0.54	0.02
21:10:13	516.1	155.5	5.7	122	319	1975	704	203	1.06	1.19	30.0	30.0	488.3	601	146.1	1:23	1.07	0.49	0.02
21:10:47	517.1	110.8	5.8	122	337	1973	704	207	1.06	1.19	30.0	30.0	489.4	601	147.1	1:24	1.07	0.56	0.02
21:11:17	518.2	120.9	7.7	122	312	1888	704	309	1.06	1.20	29.9	30.0	490.3	591	148.2	1:24	1.07	0.56	0.02
21:11:50	519.1	111.1	5.6	122	324	1982	704	297	1.06	1.20	30.0	30.0	491.3	591	149.1	1:25	1.07	0.55	0.02
21:12:17	520.0	130.3	4.2	122	311	1982	704	264	1.06	1.19	30.0	30.0	492.0	591	150.0	1:25	1.07	0.51	0.02
21:12:51	521.0	104.4	5.1	122	291	1997	704	185	1.06	1.19	30.0	30.0	493.0	591	151.0	1:26	1.07	0.56	0.02

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
m:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
21:13:25	522.0	106.5	4.8	122	292	1978	704	143	1.06	1.20	30.0	30.0	494.0	581	152.0	1:27	1.07	0.56	0.02
21:13:57	523.0	228.2	5.6	122	302	1983	704	186	1.06	1.22	29.9	30.0	495.0	581	153.0	1:27	1.07	0.35	0.02
21:14:32	524.1	136.7	4.8	122	300	2008	703	249	1.06	1.23	29.9	30.0	496.0	581	154.1	1:28	1.07	0.52	0.02
21:15:03	525.0	109.7	5.0	122	317	1942	703	262	1.06	1.23	29.9	30.0	497.0	581	155.0	1:28	1.07	0.53	0.02
21:15:38	526.0	98.1	4.6	122	312	1987	703	215	1.06	1.23	30.0	29.9	498.0	581	156.0	1:29	1.07	0.55	0.02
21:16:11	527.0	103.2	4.4	122	280	2007	703	143	1.06	1.23	29.9	29.9	498.9	571	157.0	1:29	1.07	0.53	0.02
21:16:46	528.2	155.7	4.0	122	293	1986	703	198	1.06	1.24	30.0	29.8	499.9	571	158.2	1:30	1.08	0.39	0.02
21:24:29	529.1	327.7	3.5	115	189	2043	704	100	1.06	1.26	30.0	29.4	511.2	541	159.1	1:30	1.07	0.48	0.02
21:32:52	530.0	175.4	5.0	103	209	2032	707	357	1.06	1.26	29.9	29.2	515.4	551	160.0	1:30	1.07	0.48	0.02
21:33:24	531.1	146.6	5.0	111	262	2023	710	442	1.06	1.27	29.8	29.0	516.1	551	161.1	1:31	1.07	0.49	0.02
21:33:52	532.1	158.5	8.0	115	291	2034	707	528	1.06	1.22	29.8	29.0	516.8	551	162.1	1:31	1.07	0.60	0.02
21:34:19	533.0	140.1	9.5	119	299	1908	705	518	1.06	1.15	29.8	28.9	517.3	551	163.0	1:32	1.07	0.55	0.02
21:34:44	534.0	135.8	7.6	121	297	2012	704	506	1.06	1.14	29.8	28.7	517.9	541	164.0	1:32	1.07	0.52	0.02
21:35:15	535.1	116.2	8.1	122	315	2043	703	459	1.06	1.15	29.8	28.6	518.6	541	165.1	1:33	1.07	0.57	0.02
21:35:45	536.1	116.1	7.9	122	285	2035	703	493	1.06	1.15	29.8	28.6	519.2	541	166.1	1:33	1.07	0.58	0.02
21:36:17	537.0	123.1	9.3	122	270	1883	702	506	1.06	1.16	29.8	28.4	520.0	541	167.0	1:34	1.07	0.61	0.02
21:36:47	538.0	137.8	10.8	122	284	1941	693	504	1.06	1.18	29.8	28.3	520.6	541	168.0	1:34	1.07	0.62	0.02
21:37:35	539.1	96.8	11.0	122	298	1930	682	609	1.06	1.20	29.7	28.0	521.7	531	169.1	1:35	1.07	0.65	0.02
21:38:05	540.0	91.4	9.6	122	300	1867	685	587	1.06	1.20	29.7	27.9	522.4	531	170.0	1:36	1.07	0.63	0.02
21:38:49	541.0	87.8	10.2	122	285	1937	686	563	1.06	1.20	29.7	27.9	523.4	531	171.0	1:36	1.07	0.68	0.02
21:39:14	542.0	127.8	7.3	122	273	1917	686	603	1.06	1.23	29.7	28.0	523.9	531	172.0	1:37	1.07	0.53	0.02
21:40:33	543.1	55.0	14.9	122	282	1916	686	629	1.06	1.26	29.6	28.4	525.6	531	173.1	1:38	1.08	0.88	0.02
21:41:23	544.0	58.7	17.4	122	325	1941	687	669	1.06	1.30	29.6	28.6	526.7	521	174.0	1:39	1.08	0.82	0.02
2[illegible]1:54	545.0	112.6	15.0	122	303	1852	687	663	1.06	1.33	29.6	28.6	527.5	521	175.0	1:39	1.08	0.66	0.02
21:42:29	546.0	105.2	14.4	122	283	1919	687	600	1.06	1.34	29.5	28.6	528.2	521	176.0	1:40	1.08	0.69	0.02
21:43:09	547.1	92.5	14.7	122	287	1935	687	565	1.06	1.34	29.5	28.6	528.2	521	177.1	1:41	1.08	0.71	0.02
21:43:46	548.0	92.9	13.6	122	291	1896	687	574	1.06	1.33	29.5	28.6	528.2	521	178.0	1:41	1.08	0.70	0.02
21:44:33	549.0	69.3	13.6	122	286	1937	686	619	1.06	1.31	29.5	28.6	528.2	521	179.0	1:42	1.08	0.75	0.02
22:14:24	550.0	160.2	13.3	120	269	1921	686	625	1.06	1.30	29.4	28.6	549.5	531	180.0	1:43	1.08	0.57	0.02
22:15:49	551.0	52.6	2.9	121	118	1785	666	536	1.06	1.08	28.7	30.0	549.5	531	181.0	1:44	1.08	0.59	0.02
22:17:04	552.0	49.2	5.9	121	135	1806	670	521	1.06	1.08	28.7	29.9	549.5	531	182.0	1:45	1.08	0.73	0.02
22:18:09	553.0	51.8	12.1	121	162	1732	668	518	1.06	1.07	28.7	29.9	549.5	531	183.0	1:46	1.08	0.80	0.02
22:19:14	554.0	55.0	15.7	121	192	1689	656	512	1.06	1.06	28.7	29.8	549.5	531	184.0	1:47	1.08	0.86	0.02
22:20:14	555.0	66.8	18.3	121	197	1742	653	523	1.06	1.07	28.7	29.8	549.5	531	185.0	1:48	1.08	0.87	0.02
22:20:59	556.0	94.9	18.1	121	196	1740	653	511	1.06	1.07	28.7	29.8	549.5	531	186.0	1:49	1.08	0.80	0.02
22:22:48	557.1	32.6	19.7	121	201	1706	653	557	1.07	1.08	28.7	29.9	549.5	531	187.1	1:50	1.08	1.02	0.02
22:24:05	558.0	45.8	21.8	120	219	1716	653	494	1.06	1.06	28.6	29.9	549.5	541	188.0	1:52	1.08	0.97	0.02
22:25:23	559.0	48.5	22.4	120	217	1721	653	521	1.06	1.06	28.6	29.9	549.5	531	189.0	1:53	1.08	0.97	0.02
22:43:48	560.0	38.0	23.1	121	213	1801	665	567	1.06	1.18	28.1	29.5	550.3	551	190.0	1:57	1.06	1.07	0.02
22:46:02	561.0	25.3	18.5	121	179	1786	664	597	1.06	1.20	28.1	29.7	551.6	561	191.0	1:59	1.06	1.07	0.02
22:47:52	562.0	29.6	22.9	121	218	1791	665	587	1.06	1.19	28.0	29.9	552.6	561	192.0	2:01	1.07	1.08	0.02
22:49:37	563.0	41.8	22.1	121	198	1757	665	589	1.06	1.21	28.0	30.0	553.6	561	193.0	2:03	1.07	1.05	0.02
22:51:13	564.0	57.3	22.3	121	217	1798	665	595	1.06	1.20	28.0	30.1	554.5	561	194.0	2:04	1.07	1.03	0.02
22:52:50	565.1	44.2	20.7	121	214	1769	666	591	1.06	1.20	28.1	30.1	555.3	551	195.1	2:06	1.07	0.99	0.02
22:54:15	566.1	40.3	17.7	121	193	1810	665	602	1.06	1.19	28.2	30.1	556.1	551	196.1	2:07	1.07	0.94	0.02
22:55:23	567.2	83.5	16.3	121	179	1854	665	594	1.06	1.19	28.3	30.1	556.8	551	197.2	2:08	1.07	0.85	0.02
22:56:19	568.0	60.3	14.2	121	181	1783	666	617	1.06	1.18	28.4	30.2	557.3	551	198.0	2:09	1.07	0.83	0.02
22:57:18	569.1	59.6	16.9	121	201	1848	666	661	1.06	1.17	28.5	30.2	557.8	551	199.1	2:10	1.07	0.85	0.02
22:58:21	570.1	66.2	15.9	121	185	1829	666	613	1.06	1.17	28.6	30.2	558.4	562	200.1	2:11	1.07	0.85	0.02
2[illegible]:05	571.0	84.8	17.0	121	202	1853	666	583	1.06	1.16	28.7	30.2	558.8	562	201.0	2:12	1.07	0.79	0.02
22:59:48	572.1	90.6	15.6	121	198	1777	666	595	1.06	1.17	28.7	30.1	559.3	562	202.1	2:13	1.07	0.73	0.02
23:00:33	573.0	64.0	11.7	122	178	1848	666	589	1.06	1.17	28.8	30.1	559.5	562	203.0	2:13	1.07	0.74	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm	gpm	sg	sg	deg C	deg C	m	bbl	mts	hh:mm	sg		%
23:01:36	574.1	67.1	11.7	122	167	1879	666	593	1.06	1.16	28.9	30.1	560.0	562	204.1	2:14	1.07	0.76	0.02
23:02:07	575.1	172.9	10.9	122	145	1863	666	570	1.06	1.16	28.9	30.1	560.3	562	205.1	2:15	1.07	0.61	0.02
23:02:45	576.1	117.8	8.4	122	130	1829	666	587	1.06	1.18	29.0	30.1	560.5	562	206.1	2:16	1.07	0.58	0.02
23:03:36	577.1	73.2	5.8	122	108	1808	666	583	1.06	1.16	29.0	30.1	560.8	562	207.1	2:16	1.07	0.61	0.02
23:04:40	578.0	86.3	2.7	121	114	1831	665	567	1.06	1.16	29.1	30.2	561.3	562	208.0	2:17	1.07	0.58	0.02
23:06:13	579.0	70.2	1.9	123	122	1792	665	573	1.06	1.16	29.2	30.3	562.0	562	209.0	2:18	1.07	0.53	0.02
23:07:35	580.0	51.6	2.0	122	114	1818	666	582	1.06	1.16	29.2	30.3	562.6	562	210.0	2:20	1.07	0.62	0.02
23:08:34	581.0	62.0	3.6	122	123	1834	666	583	1.06	1.16	29.3	30.4	563.1	572	211.0	2:20	1.07	0.63	0.02
23:09:24	582.1	79.9	4.7	122	124	1835	666	596	1.06	1.16	29.3	30.4	563.5	572	212.1	2:21	1.07	0.59	0.02
23:10:31	583.1	55.2	5.0	121	121	1775	666	573	1.06	1.15	29.4	30.4	564.3	572	213.1	2:22	1.07	0.69	0.02
23:11:24	584.1	91.9	7.7	122	139	1839	666	550	1.06	1.16	29.4	30.4	564.8	572	214.1	2:23	1.07	0.69	0.02
23:12:14	585.1	82.5	8.5	121	142	1845	666	578	1.06	1.15	29.4	30.5	565.3	572	215.1	2:24	1.07	0.70	0.02
23:13:08	586.0	60.1	8.0	122	138	1842	666	594	1.06	1.15	29.4	30.5	566.3	572	216.0	2:25	1.07	0.72	0.02
23:27:25	587.1	36.4	10.1	122	180	1819	647	580	1.06	1.22	29.8	30.2	574.6	582	217.1	2:30	1.06	0.88	0.02
23:28:27	588.0	74.2	13.3	122	180	1804	652	596	1.06	1.22	29.8	29.9	575.3	572	218.0	2:31	1.06	0.77	0.02
23:29:39	589.0	43.7	11.7	123	155	1802	652	544	1.06	1.21	29.8	29.7	576.1	572	219.0	2:32	1.06	0.83	0.02
23:31:16	590.2	86.5	10.9	122	158	1767	653	573	1.06	1.24	29.8	29.7	577.2	572	220.2	2:34	1.07	0.84	0.02
23:33:23	591.0	24.4	12.7	122	160	1815	653	565	1.06	1.23	29.9	29.8	578.6	572	221.0	2:36	1.07	0.99	0.02
23:34:40	592.0	49.6	16.2	122	154	1735	654	540	1.06	1.25	29.8	30.2	579.5	562	222.0	2:37	1.07	0.91	0.02
23:36:22	593.2	105.2	16.9	122	174	1774	654	552	1.06	1.24	29.8	30.4	580.6	572	223.2	2:39	1.07	0.77	0.02
23:37:06	594.1	100.0	15.3	122	182	1802	654	551	1.06	1.26	29.8	30.4	581.1	572	224.1	2:40	1.07	0.77	0.02
23:37:34	595.0	144.3	14.2	123	170	1796	654	558	1.06	1.25	29.8	30.5	581.4	572	225.0	2:40	1.07	0.65	0.02
23:38:09	596.0	108.7	13.9	122	167	1733	654	561	1.06	1.27	29.8	30.5	581.9	572	226.0	2:41	1.07	0.67	0.02
23:38:43	597.0	130.7	14.3	122	177	1794	654	597	1.06	1.28	29.8	30.5	582.2	572	227.0	2:41	1.07	0.69	0.02
23:39:13	598.1	128.2	13.4	122	166	1794	655	587	1.06	1.32	29.7	30.5	582.6	572	228.1	2:42	1.07	0.62	0.02
23:39:35	599.0	152.7	11.1	122	234	1809	655	598	1.06	1.32	29.7	30.6	582.8	572	229.0	2:42	1.07	0.56	0.02
23:40:10	600.0	130.4	13.4	123	202	1804	656	623	1.06	1.33	29.7	30.6	583.2	572	230.0	2:43	1.07	0.70	0.02
23:40:28	601.1	288.5	12.8	123	249	1803	656	580	1.06	1.32	29.7	30.6	583.4	572	231.1	2:43	1.07	0.48	0.02
23:40:51	602.1	200.2	8.8	122	156	1814	656	601	1.06	1.33	29.7	30.6	583.7	572	232.1	2:43	1.07	0.52	0.02
23:41:14	603.2	151.3	9.0	122	158	1814	656	590	1.06	1.34	29.7	30.6	583.9	572	233.2	2:44	1.07	0.51	0.02
23:41:35	604.1	157.1	6.3	122	129	1787	656	607	1.06	1.32	29.7	30.6	584.2	572	234.1	2:44	1.07	0.51	0.02
23:41:54	605.0	200.8	5.0	122	124	1760	655	607	1.06	1.31	29.7	30.6	584.4	572	235.0	2:44	1.07	0.38	0.02
23:42:27	606.1	279.8	4.0	123	120	1803	655	546	1.06	1.29	29.7	30.7	584.8	582	236.1	2:45	1.07	0.32	0.02
23:42:50	607.0	328.5	3.2	122	121	1827	655	535	1.06	1.27	29.7	30.7	585.0	582	237.0	2:45	1.07	0.33	0.02
23:43:24	608.1	202.3	6.1	123	150	1827	655	515	1.06	1.29	29.7	30.6	585.4	582	238.1	2:45	1.07	0.38	0.02
23:43:55	609.1	137.0	4.9	123	127	1804	655	588	1.06	1.28	29.7	30.6	585.8	582	239.1	2:45	1.07	0.50	0.02
23:44:20	610.0	177.5	4.6	123	139	1800	655	558	1.06	1.28	29.8	30.6	586.0	582	240.0	2:46	1.07	0.45	0.02
23:44:58	611.1	125.4	7.3	122	146	1816	655	597	1.06	1.28	29.8	30.6	586.3	582	241.1	2:46	1.07	0.54	0.02
23:45:35	612.1	84.3	8.9	123	144	1743	655	578	1.06	1.28	29.8	30.6	586.7	582	242.1	2:47	1.07	0.65	0.02
23:46:05	613.1	116.4	10.1	122	150	1796	655	540	1.06	1.28	29.8	30.6	587.0	582	243.1	2:47	1.07	0.61	0.02
23:46:33	614.2	118.1	7.9	122	144	1806	655	639	1.06	1.28	29.8	30.6	587.4	582	244.2	2:48	1.07	0.59	0.02
23:47:09	615.1	124.1	7.3	123	112	1820	655	643	1.06	1.26	29.8	30.5	587.9	582	245.1	2:48	1.07	0.54	0.02
23:56:10	616.2	278.1	4.3	130	147	1814	648	517	1.06	1.18	29.9	30.5	591.2	612	246.2	2:49	1.07	0.39	0.02
23:56:38	617.3	240.0	3.7	140	157	1788	645	488	1.06	1.09	30.0	30.5	591.5	612	247.3	2:49	1.07	0.40	0.02
23:57:02	618.4	153.0	3.7	142	154	1763	648	495	1.06	1.07	30.0	30.5	591.8	612	248.4	2:49	1.07	0.50	0.03
23:57:18	619.1	164.0	3.6	142	160	1731	648	507	1.06	1.07	30.0	30.4	592.0	612	249.1	2:49	1.07	0.50	0.03
23:57:47	620.0	163.8	4.8	141	161	1694	648	520	1.06	1.07	30.0	30.4	592.0	612	250.0	2:49	1.07	0.48	0.03
23:58:08	621.2	250.0	4.2	142	158	1794	649	530	1.06	1.07	30.0	30.2	592.1	602	251.2	2:50	1.07	0.43	0.03
23:58:32	622.1	259.7	6.3	142	187	1790	650	540	1.06	1.07	30.0	30.1	592.3	602	252.1	2:50	1.07	0.46	0.03
23:58:58	623.2	263.4	6.9	141	197	1818	651	563	1.06	1.07	30.0	30.1	592.7	602	253.2	2:50	1.07	0.45	0.03
23:59:25	624.1	143.3	6.4	141	200	1815	652	600	1.06	1.07	30.0	30.1	593.3	602	254.1	2:50	1.08	0.51	0.03
23:59:50	625.3	250.0	3.5	141	149	1801	652	577	1.06	1.07	30.0	30.1	593.8	602	255.3	2:51	1.08	0.40	0.03

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
22 February 1993																			
00:00:16	626.1	116.7	4.0	142	148	1814	653	560	1.06	1.07	30.0	30.1	594.3	602	256.1	2:51	1.08	0.53	0.03
00:00:44	627.1	190.9	6.2	142	156	1806	652	539	1.06	1.07	30.0	30.1	595.6	602	257.1	2:51	1.08	0.57	0.02
00:01:08	628.2	189.5	6.7	142	146	1734	652	518	1.06	1.07	30.0	30.1	596.8	592	258.2	2:52	1.08	0.49	0.02
00:01:27	629.2	189.4	5.5	142	135	1802	652	540	1.06	1.07	30.0	30.2	597.4	592	259.2	2:52	1.08	0.47	0.02
00:01:43	630.1	245.7	4.2	142	123	1813	652	554	1.06	1.07	30.0	30.2	597.8	592	260.1	2:52	1.08	0.40	0.02
00:02:06	631.1	264.4	4.4	142	152	1811	652	551	1.06	1.07	30.0	30.2	598.1	592	261.1	2:53	1.08	0.39	0.02
00:02:35	632.2	190.5	4.5	142	157	1842	652	546	1.06	1.07	30.0	30.2	598.3	592	262.2	2:53	1.08	0.45	0.02
00:03:03	633.1	116.9	5.6	142	166	1833	652	570	1.06	1.07	30.0	30.3	599.0	592	263.1	2:53	1.08	0.54	0.02
00:03:48	634.0	69.0	7.5	142	158	1810	653	538	1.06	1.07	30.0	30.4	600.7	592	264.0	2:54	1.08	0.70	0.02
00:04:20	635.1	156.5	7.6	142	172	1818	653	553	1.06	1.07	30.0	30.4	601.7	592	265.1	2:55	1.08	0.62	0.02
00:04:45	636.1	196.5	5.3	142	169	1743	652	634	1.06	1.07	30.0	30.4	602.6	592	266.1	2:55	1.08	0.48	0.02
00:05:10	637.0	168.1	3.1	142	138	1809	652	618	1.06	1.07	30.0	30.4	603.6	592	267.0	2:55	1.08	0.45	0.02
00:05:40	638.0	137.9	3.0	142	134	1814	652	585	1.06	1.07	30.0	30.5	604.9	592	268.0	2:55	1.08	0.42	0.02
00:06:17	639.1	128.0	2.9	142	136	1844	653	557	1.06	1.07	30.0	30.5	605.9	592	269.1	2:56	1.08	0.52	0.02
00:07:07	640.0	68.9	7.2	142	155	1812	653	594	1.06	1.07	30.0	30.5	607.4	592	270.0	2:57	1.08	0.72	0.02
00:07:32	641.1	151.0	5.9	142	148	1828	653	533	1.06	1.07	30.0	30.5	608.1	592	271.1	2:57	1.08	0.51	0.02
00:07:54	642.0	135.1	4.4	142	156	1848	653	500	1.06	1.07	30.1	30.6	608.7	592	272.0	2:57	1.08	0.50	0.02
00:08:31	643.0	198.0	6.2	142	164	1782	653	549	1.06	1.07	30.1	30.6	609.7	592	273.0	2:58	1.08	0.57	0.02
00:09:59	644.1	215.4	3.8	142	154	1837	653	609	1.06	1.07	30.0	30.5	612.0	582	274.1	2:58	1.08	0.53	0.02
00:21:20	645.1	159.3	3.3	143	154	1920	665	545	1.07	1.07	30.2	30.5	615.4	602	275.1	2:59	1.08	0.54	0.02
00:21:48	646.2	155.3	4.5	144	199	1938	669	543	1.07	1.07	30.2	30.4	615.4	592	276.2	2:59	1.08	0.53	0.02
00:22:16	647.1	115.6	5.7	144	168	1856	670	564	1.07	1.07	30.2	30.3	615.4	592	277.1	2:60	1.08	0.58	0.02
[illegible]2:43	648.1	183.2	5.9	144	152	1907	670	559	1.07	1.07	30.2	30.2	615.9	592	278.1	3:00	1.08	0.50	0.02
00:23:08	649.0	111.7	5.4	144	140	1941	670	570	1.07	1.07	30.1	30.1	616.9	592	279.0	3:01	1.08	0.54	0.02
00:23:36	650.1	111.5	6.9	144	152	1933	670	585	1.07	1.07	30.1	30.1	617.9	592	280.1	3:01	1.08	0.57	0.02
00:24:04	651.1	133.4	6.0	144	160	1931	670	585	1.07	1.07	30.1	30.1	619.1	592	281.1	3:02	1.08	0.61	0.02
00:24:38	652.1	118.8	8.6	144	191	1939	670	624	1.07	1.07	30.2	30.1	620.3	592	282.1	3:02	1.09	0.63	0.02
00:25:02	653.0	135.3	6.6	144	165	1933	670	592	1.07	1.07	30.2	30.2	621.1	582	283.0	3:03	1.09	0.50	0.02
00:25:30	654.1	145.1	3.9	144	152	1947	670	556	1.07	1.07	30.2	30.2	622.3	582	284.1	3:03	1.09	0.46	0.02
00:26:01	655.0	127.4	4.1	144	157	1890	670	579	1.07	1.07	30.1	30.2	623.4	582	285.0	3:03	1.09	0.50	0.02
00:26:29	656.0	128.8	4.4	144	157	1942	671	595	1.07	1.07	30.2	30.3	624.3	582	286.0	3:04	1.09	0.55	0.02
00:27:21	657.1	63.1	6.9	144	176	1954	670	610	1.07	1.07	30.1	30.4	625.9	582	287.1	3:05	1.09	0.65	0.02
00:27:48	658.1	142.0	6.2	144	212	1943	671	583	1.07	1.07	30.2	30.4	626.9	582	288.1	3:05	1.09	0.57	0.02
00:28:16	659.0	162.6	5.2	144	145	1937	671	586	1.07	1.07	30.2	30.4	627.9	582	289.0	3:06	1.09	0.57	0.02
00:28:48	660.0	121.0	5.7	144	167	1955	671	654	1.07	1.07	30.1	30.4	629.3	582	290.0	3:06	1.09	0.59	0.02
00:29:15	661.1	151.7	6.4	144	132	1881	671	633	1.07	1.07	30.2	30.4	630.4	572	291.1	3:07	1.09	0.49	0.02
00:29:46	662.1	141.3	6.8	144	158	1911	671	599	1.07	1.07	30.1	30.4	631.6	572	292.1	3:07	1.09	0.59	0.02
00:30:10	663.1	136.4	8.5	144	158	1943	670	605	1.07	1.07	30.1	30.5	632.4	572	293.1	3:08	1.09	0.49	0.02
00:30:38	664.0	100.6	6.5	144	167	1745	669	652	1.07	1.07	30.2	30.5	633.0	572	294.0	3:08	1.09	0.61	0.02
00:31:25	665.1	88.1	10.2	144	172	1679	648	558	1.07	1.07	30.1	30.5	634.0	562	295.1	3:09	1.09	0.69	0.02
00:32:27	666.0	49.1	17.7	144	219	1635	620	521	1.07	1.07	30.1	30.6	635.5	562	296.0	3:10	1.09	0.89	0.03
00:32:55	667.0	145.0	16.6	143	193	1619	615	505	1.07	1.07	30.1	30.7	636.6	562	297.0	3:10	1.09	0.68	0.02
00:33:28	668.1	108.4	15.7	143	192	1665	614	508	1.07	1.07	30.1	30.7	637.5	562	298.1	3:11	1.09	0.71	0.03
00:33:50	669.0	148.1	12.8	144	175	1688	614	488	1.07	1.07	30.1	30.7	638.1	562	299.0	3:11	1.09	0.61	0.03
00:34:27	670.1	103.1	11.5	144	182	1659	614	473	1.07	1.07	30.1	30.7	638.9	563	300.1	3:12	1.09	0.67	0.03
00:35:10	671.1	80.3	12.9	144	194	1657	614	496	1.07	1.07	30.1	30.7	639.8	563	301.1	3:13	1.09	0.75	0.03
00:35:54	672.0	78.0	13.2	144	188	1664	614	502	1.07	1.07	30.1	30.7	641.0	563	302.0	3:13	1.09	0.75	0.03
[illegible]6:49	673.0	65.5	13.8	144	214	1653	614	522	1.07	1.07	30.1	30.7	642.5	553	303.0	3:14	1.09	0.82	0.03
00:49:02	674.2	99.0	6.9	146	108	1669	608	528	1.07	1.07	30.2	30.6	644.4	563	304.2	3:15	1.09	0.66	0.03
00:49:31	675.2	133.0	8.4	148	127	1626	606	498	1.07	1.07	30.3	30.6	645.2	563	305.2	3:16	1.09	0.66	0.05
00:50:11	676.0	101.5	14.1	148	177	1637	606	537	1.07	1.07	30.3	30.5	646.2	563	306.0	3:16	1.09	0.79	0.07

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm	gpm	sg	sg	deg C	deg C	m	bbl	mts	hh:mm	sg		%
00:50:36	677.1	166.1	14.0	147	323	1665	606	508	1.07	1.07	30.3	30.3	646.2	563	307.1	3:17	1.09	0.59	0.07
00:51:19	678.1	81.0	18.1	148	208	1715	607	559	1.07	1.07	30.3	30.2	646.6	563	308.1	3:18	1.09	0.85	0.09
00:52:00	679.0	95.9	21.2	148	214	1705	614	553	1.07	1.07	30.2	30.2	647.7	553	309.0	3:18	1.09	0.85	0.13
00:52:44	680.1	78.8	24.2	147	220	1672	621	521	1.07	1.07	30.2	30.2	649.0	553	310.1	3:19	1.09	0.87	0.12
00:53:36	681.0	86.3	28.2	148	231	1651	622	511	1.07	1.07	30.2	30.1	650.6	553	311.0	3:20	1.09	0.98	0.09
00:53:58	682.0	169.3	26.1	147	205	1745	622	512	1.07	1.07	30.2	30.1	651.4	553	312.0	3:20	1.09	0.72	0.08
00:54:25	683.0	120.7	24.0	147	192	1747	623	492	1.07	1.07	30.2	30.1	652.1	553	313.0	3:21	1.09	0.76	0.07
00:55:27	684.0	62.5	28.5	147	224	1736	625	502	1.07	1.07	30.2	30.2	653.7	553	314.0	3:22	1.09	1.00	0.05
00:55:57	685.1	179.5	29.7	147	222	1722	627	501	1.07	1.07	30.2	30.3	654.4	553	315.1	3:22	1.09	0.79	0.04
00:56:22	686.2	188.2	24.5	148	198	1772	628	501	1.07	1.07	30.3	30.5	655.0	553	316.2	3:23	1.09	0.66	0.04
00:56:47	687.1	143.3	20.8	147	185	1762	628	529	1.07	1.07	30.3	30.5	655.7	553	317.1	3:23	1.09	0.70	0.03
00:57:17	688.1	128.1	23.8	148	195	1697	628	542	1.07	1.07	30.2	30.6	656.5	553	318.1	3:24	1.09	0.78	0.03
00:58:08	689.1	65.0	24.8	148	227	1755	628	604	1.07	1.07	30.2	30.6	657.6	553	319.1	3:24	1.09	0.93	0.03
00:58:36	690.1	165.9	26.4	147	214	1749	628	613	1.07	1.07	30.2	30.7	658.3	553	320.1	3:25	1.09	0.76	0.03
00:59:15	691.1	84.1	25.5	148	217	1752	628	549	1.07	1.07	30.2	30.8	659.5	553	321.1	3:26	1.09	0.87	0.03
01:00:02	692.0	77.8	27.9	147	240	1694	628	562	1.07	1.07	30.2	30.8	660.9	553	322.0	3:26	1.09	0.95	0.03
01:00:29	693.0	126.3	26.1	147	217	1643	628	529	1.07	1.07	30.2	30.9	661.6	553	323.0	3:27	1.09	0.78	0.03
01:00:54	694.1	168.0	23.3	148	184	1743	628	497	1.07	1.07	30.2	30.9	662.3	553	324.1	3:27	1.09	0.69	0.03
01:01:19	695.1	168.2	20.0	148	177	1759	628	527	1.07	1.07	30.3	31.0	663.0	553	325.1	3:28	1.09	0.70	0.03
01:02:18	696.0	60.1	20.8	148	154	1768	629	504	1.07	1.07	30.3	31.0	664.5	553	326.0	3:29	1.09	0.93	0.03
01:04:01	697.0	65.4	32.3	148	218	1772	629	588	1.07	1.07	30.2	31.0	666.5	553	327.0	3:30	1.09	1.17	0.03
01:04:31	698.0	91.4	26.9	148	162	1700	629	569	1.07	1.07	30.3	30.9	667.1	543	328.0	3:31	1.09	0.79	0.02
01:05:06	699.1	124.1	17.1	148	139	1759	629	529	1.07	1.07	30.3	30.9	668.3	553	329.1	3:31	1.09	0.73	0.02
01:05:37	700.0	99.2	14.5	148	152	1768	630	520	1.07	1.07	30.3	30.9	669.2	553	330.0	3:32	1.09	0.70	0.02
01:06:11	701.1	118.1	11.8	148	144	1779	630	584	1.07	1.07	30.3	30.9	670.1	543	331.1	3:32	1.09	0.72	0.02
01:06:48	702.1	105.1	14.2	148	130	1768	629	580	1.07	1.07	30.3	30.9	671.0	543	332.1	3:33	1.08	0.74	0.02
01:18:49	703.0	48.5	14.4	148	126	1773	629	529	1.07	1.07	30.3	31.0	673.3	553	333.0	3:34	1.08	0.85	0.02
01:19:20	704.0	120.5	12.3	149	146	1731	619	550	1.07	1.07	30.5	30.8	673.3	553	334.0	3:35	1.08	0.64	0.02
01:19:42	705.0	188.4	15.4	149	157	1745	620	518	1.07	1.07	30.5	30.8	673.3	553	335.0	3:35	1.08	0.68	0.02
01:20:26	706.1	106.3	25.3	149	213	1690	621	541	1.07	1.07	30.5	30.5	673.3	553	336.1	3:36	1.08	0.82	0.02
01:20:51	707.1	133.3	22.4	149	195	1725	620	520	1.07	1.07	30.5	30.4	673.3	543	337.1	3:36	1.08	0.74	0.02
01:21:18	708.2	179.4	20.7	149	191	1742	620	532	1.07	1.07	30.5	30.3	673.3	543	338.2	3:37	1.08	0.73	0.02
01:21:43	709.1	141.8	29.2	149	232	1740	620	540	1.07	1.07	30.5	30.3	673.6	543	339.1	3:37	1.08	0.83	0.02
01:22:02	710.1	217.0	35.6	149	261	1730	621	551	1.07	1.07	30.5	30.3	673.9	543	340.1	3:37	1.08	0.73	0.02
01:22:23	711.2	163.7	30.4	149	217	1739	621	541	1.07	1.07	30.5	30.2	674.3	543	341.2	3:38	1.08	0.65	0.02
01:22:53	712.1	95.1	24.0	149	224	1740	620	562	1.07	1.07	30.4	30.2	674.9	543	342.1	3:38	1.08	0.78	0.02
01:23:50	713.1	56.8	14.6	149	220	1729	620	613	1.07	1.07	30.4	30.2	676.5	543	343.1	3:39	1.08	0.83	0.02
01:24:27	714.0	74.6	13.5	150	202	1753	621	595	1.07	1.07	30.4	30.3	677.6	543	344.0	3:40	1.08	0.75	0.02
01:25:07	715.0	85.7	13.7	150	162	1737	621	577	1.07	1.07	30.4	30.3	678.5	543	345.0	3:40	1.08	0.76	0.02
01:25:41	716.0	99.6	14.6	149	161	1743	621	556	1.07	1.07	30.4	30.4	679.2	543	346.0	3:41	1.08	0.75	0.02
01:26:18	717.1	97.7	15.7	149	157	1729	621	528	1.07	1.07	30.4	30.5	679.8	533	347.1	3:41	1.08	0.74	0.03
01:27:38	718.1	107.3	21.9	149	189	1731	621	557	1.07	1.07	30.4	30.8	682.0	533	348.1	3:43	1.08	0.89	0.03
01:28:19	719.1	119.7	15.6	149	177	1742	621	586	1.07	1.07	30.4	30.8	682.9	533	349.1	3:43	1.08	0.72	0.03
01:28:47	720.0	109.5	12.9	149	193	1745	621	578	1.07	1.07	30.4	30.9	683.5	533	350.0	3:44	1.08	0.67	0.03
01:32:16	721.0	14.3	18.9	149	162	1644	613	596	1.07	1.07	30.4	30.9	689.0	533	351.0	3:47	1.08	1.22	0.03
01:33:49	722.1	83.2	26.7	149	235	1643	602	486	1.07	1.07	30.4	31.1	691.2	533	352.1	3:49	1.08	0.95	0.03
01:35:22	723.0	30.2	19.6	149	186	1631	602	504	1.07	1.07	30.4	31.1	693.7	533	353.0	3:50	1.08	1.02	0.03
01:36:42	724.1	52.5	15.9	149	182	1649	602	536	1.07	1.07	30.5	31.2	695.5	533	354.1	3:52	1.08	0.97	0.03
01:38:25	725.0	33.4	22.7	149	189	1631	602	522	1.07	1.07	30.5	31.2	696.3	533	355.0	3:53	1.08	1.11	0.02
01:39:25	726.0	55.5	18.6	149	170	1642	602	587	1.07	1.07	30.5	31.2	697.7	543	356.0	3:54	1.08	0.87	0.03
01:40:36	727.0	50.3	16.0	149	166	1645	602	559	1.07	1.07	30.5	31.2	699.5	543	357.0	3:56	1.08	0.91	0.03
01:42:05	728.0	45.7	13.2	149	155	1608	602	533	1.07	1.07	30.5	31.3	701.4	543	358.0	3:57	1.08	0.93	0.03
01:43:49	729.0	42.2	12.2	149	152	1627	602	552	1.07	1.07	30.6	31.3	702.9	543	359.0	3:59	1.08	0.93	0.02

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
[illegible]m:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
01:44:29	730.1	127.4	13.1	149	150	1632	602	507	1.07	1.07	30.6	31.3	703.0	543	360.1	3:60	1.08	0.74	0.02
01:45:07	731.1	72.0	11.5	149	166	1574	602	502	1.07	1.07	30.6	31.3	703.0	543	361.1	4:00	1.08	0.74	0.02
01:46:35	732.0	35.8	9.3	151	137	1635	602	593	1.07	1.07	30.7	31.3	703.0	543	362.0	4:02	1.08	0.88	0.02
02:04:51	733.0	121.7	8.0	148	136	1657	613	488	1.07	1.07	30.6	31.3	718.2	533	363.0	4:02	1.08	0.68	0.02
02:05:43	734.1	73.5	12.8	147	166	1680	617	527	1.08	1.07	30.6	31.3	719.4	533	364.1	4:03	1.08	0.75	0.02
02:06:24	735.1	113.5	19.3	147	205	1659	617	608	1.08	1.07	30.6	31.3	720.2	533	365.1	4:04	1.08	0.84	0.02
02:09:19	736.0	17.7	24.7	147	172	1656	617	623	1.08	1.07	30.6	31.2	720.9	533	366.0	4:07	1.09	1.27	0.02
02:10:31	737.0	93.9	26.0	147	190	1662	617	472	1.08	1.07	30.7	31.2	721.4	533	367.0	4:08	1.09	1.01	0.02
02:11:08	738.1	111.1	17.5	147	141	1657	617	470	1.07	1.07	30.7	31.2	721.8	533	368.1	4:08	1.09	0.75	0.02
02:12:10	739.1	51.0	13.0	148	125	1611	618	587	1.08	1.07	30.7	31.2	722.6	533	369.1	4:09	1.09	0.84	0.02
02:13:29	740.1	62.1	9.4	147	130	1665	619	550	1.08	1.07	30.7	31.2	723.3	533	370.1	4:11	1.09	0.83	0.02
02:14:38	741.1	110.8	18.9	147	185	1673	618	486	1.08	1.07	30.8	31.0	724.0	533	371.1	4:12	1.09	0.91	0.02
02:15:05	742.1	143.7	18.9	147	173	1617	618	438	1.08	1.07	30.8	31.0	724.3	533	372.1	4:12	1.09	0.68	0.02
02:15:26	743.0	160.8	16.4	147	139	1672	618	462	1.08	1.07	30.8	31.0	724.5	533	373.0	4:13	1.09	0.64	0.02
02:15:57	744.2	160.1	16.2	147	156	1682	618	479	1.08	1.07	30.8	30.8	724.8	533	374.2	4:13	1.09	0.65	0.02
02:16:34	745.0	74.4	17.6	147	149	1693	618	495	1.08	1.07	30.8	30.9	725.3	533	375.0	4:14	1.09	0.79	0.02
02:18:05	746.1	97.1	27.3	147	209	1675	618	567	1.08	1.07	30.8	31.2	726.5	533	376.1	4:15	1.09	1.09	0.02
02:18:37	747.1	115.0	26.6	147	207	1645	618	545	1.08	1.07	30.8	31.2	726.9	543	377.1	4:16	1.09	0.79	0.02
02:19:10	748.0	120.7	24.0	147	213	1684	618	585	1.08	1.07	30.8	31.2	727.3	543	378.0	4:16	1.09	0.82	0.02
02:19:44	749.1	89.1	17.6	147	149	1697	618	585	1.08	1.07	30.8	31.2	727.6	543	379.1	4:17	1.09	0.71	0.02
02:28:04	750.0	7.8	20.6	147	140	1671	618	544	1.08	1.07	30.9	31.1	732.1	543	380.0	4:25	1.09	1.48	0.02
02:35:54	751.1	74.4	25.3	147	167	1655	617	551	1.08	1.07	30.9	31.0	732.1	553	381.1	4:32	1.09	1.47	0.02
02:38:27	752.1	24.1	21.1	147	176	1639	618	501	1.07	1.07	30.9	31.0	732.1	553	382.1	4:35	1.09	1.18	0.02
[illegible]1:00	753.0	60.4	18.2	147	158	1651	618	537	1.08	1.07	30.9	31.0	732.4	553	383.0	4:37	1.09	1.08	0.02
02:42:24	754.0	53.1	13.0	148	159	1655	618	543	1.07	1.07	30.9	30.9	733.9	553	384.0	4:38	1.09	0.90	0.02
02:44:38	755.1	32.8	6.5	148	120	1634	618	571	1.08	1.07	30.9	31.0	735.9	563	385.1	4:41	1.09	0.87	0.02
02:45:53	756.0	55.3	11.6	147	163	1623	618	534	1.08	1.07	30.9	31.0	736.0	563	386.0	4:42	1.09	0.87	0.02
02:46:27	757.1	121.4	12.3	147	158	1644	618	515	1.08	1.07	30.9	31.0	736.1	563	387.1	4:42	1.09	0.69	0.02
02:47:07	758.1	70.3	12.9	147	129	1591	618	493	1.08	1.07	30.9	31.0	736.8	563	388.1	4:43	1.09	0.76	0.02
02:48:19	759.0	123.9	20.4	147	171	1629	618	537	1.08	1.07	30.9	31.0	738.8	563	389.0	4:44	1.09	0.97	0.02
02:48:53	760.0	102.2	13.3	147	122	1617	618	482	1.08	1.07	30.9	31.0	738.8	563	390.0	4:45	1.09	0.69	0.02
03:19:33	761.3	22.1	12.5	147	121	1635	618	506	1.08	1.07	30.9	31.0	751.5	583	391.3	4:49	1.08	1.16	0.02
03:19:56	762.1	165.6	13.9	145	210	1814	651	573	1.08	1.08	30.8	31.1	751.8	583	392.1	4:49	1.08	0.97	0.02
03:20:28	763.1	136.1	11.3	145	157	1838	649	622	1.08	1.08	30.7	31.1	751.9	583	393.1	4:50	1.08	0.64	0.02
03:20:50	764.0	128.8	10.5	145	148	1828	650	546	1.08	1.08	30.8	31.1	752.0	583	394.0	4:50	1.08	0.60	0.02
03:21:18	765.2	158.5	10.3	145	135	1841	650	552	1.08	1.08	30.8	31.1	752.0	583	395.2	4:51	1.08	0.62	0.02
03:23:17	766.1	28.3	18.1	145	149	1836	650	612	1.08	1.08	30.8	31.1	752.5	583	396.1	4:52	1.08	1.09	0.02
03:24:04	767.0	88.8	18.3	145	184	1846	650	619	1.08	1.08	30.8	31.1	753.1	583	397.0	4:53	1.08	0.81	0.02
03:24:44	768.0	77.3	10.5	145	134	1821	650	579	1.08	1.08	30.8	31.0	753.5	583	398.0	4:54	1.08	0.69	0.02
03:25:37	769.0	59.1	7.8	145	134	1854	650	548	1.08	1.08	30.8	31.0	753.9	583	399.0	4:55	1.08	0.72	0.02
03:26:32	770.2	101.8	6.6	145	137	1791	650	583	1.08	1.08	30.8	31.0	754.5	584	400.2	4:55	1.08	0.71	0.02
03:27:09	771.1	92.4	9.1	145	163	1861	650	593	1.08	1.08	30.9	31.0	754.8	584	401.1	4:56	1.08	0.71	0.02
03:27:41	772.1	107.0	11.3	145	163	1851	650	620	1.08	1.08	30.9	31.0	755.0	584	402.1	4:57	1.08	0.66	0.02
03:28:11	773.0	133.7	13.8	145	170	1840	650	585	1.08	1.08	30.8	31.0	755.3	584	403.0	4:57	1.08	0.70	0.02
03:28:39	774.0	144.7	15.0	145	167	1854	650	550	1.08	1.08	30.9	31.0	755.8	584	404.0	4:58	1.08	0.69	0.02
03:29:07	775.0	167.1	16.3	145	238	1866	650	558	1.08	1.08	30.9	31.0	756.3	584	405.0	4:58	1.08	0.70	0.02
03:29:35	776.0	130.3	17.2	145	225	1804	650	542	1.08	1.08	30.9	31.0	756.8	584	406.0	4:58	1.08	0.71	0.02
03:30:00	777.1	174.4	15.9	145	168	1891	650	519	1.08	1.08	30.9	31.0	757.2	584	407.1	4:59	1.08	0.64	0.02
[illegible]0:31	778.2	163.0	15.2	145	159	1859	650	542	1.08	1.08	30.9	31.0	757.7	584	408.2	4:59	1.08	0.67	0.02
[illegible]0:56	779.1	131.3	15.5	145	178	1880	650	605	1.08	1.08	30.9	31.0	758.1	584	409.1	4:60	1.08	0.66	0.02
03:31:33	780.1	105.9	14.5	145	172	1862	650	685	1.08	1.08	30.9	31.0	758.9	584	410.1	5:00	1.08	0.73	0.02
03:32:10	781.1	88.2	13.8	145	192	1869	650	681	1.08	1.08	30.9	31.0	759.8	584	411.1	5:01	1.08	0.77	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT gpm	MUD DENSITY IN sg	MUD DENSITY OUT sg	MUD TEMP IN deg C	MUD TEMP OUT deg C	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
03:32:41	782.1	127.0	12.7	145	153	1885	650	644	1.08	1.08	31.0	31.0	760.3	584	412.1	5:02	1.08	0.67	0.02
03:33:17	783.2	99.4	12.3	145	160	1826	650	610	1.08	1.08	30.9	31.0	760.4	584	413.2	5:02	1.08	0.71	0.02
03:33:45	784.1	123.6	12.0	145	173	1886	650	653	1.08	1.08	30.9	31.0	760.6	584	414.1	5:03	1.08	0.70	0.02
03:34:20	785.0	95.3	12.7	145	169	1883	650	677	1.08	1.08	30.9	31.0	760.7	584	415.0	5:03	1.08	0.72	0.02
03:34:57	786.0	107.0	11.9	145	148	1885	650	643	1.08	1.08	31.0	31.1	760.8	584	416.0	5:04	1.08	0.73	0.02
03:35:35	787.1	87.8	13.2	145	165	1888	650	623	1.08	1.08	31.0	31.1	760.9	584	417.1	5:04	1.08	0.73	0.02
03:36:49	788.0	38.0	18.9	145	197	1854	650	615	1.08	1.08	31.0	31.1	761.0	594	418.0	5:06	1.08	0.97	0.02
03:37:51	789.0	51.2	25.2	145	218	1885	650	564	1.08	1.08	31.0	31.1	761.0	594	419.0	5:07	1.08	1.03	0.02
03:39:22	790.1	36.8	26.1	145	229	1877	650	599	1.08	1.08	31.0	31.1	761.0	594	420.1	5:08	1.08	1.09	0.02
03:54:19	791.2	32.7	19.4	146	159	1814	650	635	1.08	1.08	31.0	30.9	761.0	594	421.2	5:12	1.08	1.22	0.02
03:54:57	792.1	107.3	17.1	147	179	1781	642	693	1.08	1.08	31.1	30.7	761.0	594	422.1	5:13	1.08	0.77	0.02
03:56:42	793.1	24.8	11.9	147	135	1744	635	593	1.08	1.08	31.0	30.7	761.0	594	423.1	5:14	1.08	0.94	0.02
03:57:35	794.0	95.8	11.2	147	149	1742	634	572	1.08	1.08	31.0	30.8	761.0	594	424.0	5:15	1.08	0.79	0.02
03:58:07	795.0	101.6	14.8	147	184	1753	634	561	1.08	1.08	31.0	30.9	761.0	594	425.0	5:16	1.08	0.72	0.02
03:58:44	796.0	93.3	16.4	147	201	1754	634	595	1.08	1.08	31.0	30.9	761.0	594	426.0	5:16	1.08	0.83	0.02
03:59:31	797.1	87.3	19.6	147	198	1742	635	620	1.08	1.08	31.0	31.0	761.0	594	427.1	5:17	1.08	0.83	0.02
04:00:42	798.1	41.1	25.1	147	205	1736	635	664	1.08	1.08	31.0	31.0	761.0	594	428.1	5:18	1.08	1.03	0.02
04:01:13	799.1	159.5	23.3	147	207	1746	634	590	1.08	1.08	31.0	30.9	761.0	594	429.1	5:19	1.08	0.78	0.02
04:01:47	800.0	99.7	21.9	147	225	1753	634	663	1.08	1.08	31.0	30.9	761.0	604	430.0	5:19	1.08	0.82	0.02
04:02:12	801.0	158.2	21.2	147	192	1739	634	638	1.08	1.08	31.0	30.9	761.0	604	431.0	5:20	1.08	0.72	0.02
04:02:47	802.1	147.7	20.3	147	177	1763	634	558	1.08	1.08	30.9	30.9	761.2	604	432.1	5:20	1.08	0.75	0.02
04:03:23	803.1	88.6	20.5	147	182	1704	634	648	1.08	1.08	30.9	30.9	761.6	604	433.1	5:21	1.08	0.82	0.02
04:04:16	804.0	53.4	18.5	147	175	1742	634	607	1.08	1.08	30.9	30.9	762.9	614	434.0	5:22	1.08	0.88	0.02
04:05:00	805.0	98.7	20.3	146	226	1760	634	638	1.08	1.08	30.9	30.9	764.2	624	435.0	5:23	1.08	0.87	0.02
04:05:49	806.0	98.2	22.3	146	226	1763	634	596	1.08	1.08	30.8	30.9	765.0	624	436.0	5:23	1.08	0.85	0.02
04:06:36	807.1	103.0	24.2	146	231	1763	634	586	1.08	1.08	30.9	30.9	765.8	634	437.1	5:24	1.08	0.89	0.02
04:07:09	808.0	121.3	23.5	146	209	1668	634	569	1.08	1.08	30.8	30.9	766.0	634	438.0	5:25	1.08	0.81	0.02
04:07:53	809.0	73.9	23.3	146	212	1746	634	544	1.08	1.08	30.8	30.9	766.4	634	439.0	5:25	1.08	0.88	0.02
04:08:43	810.1	68.1	24.1	146	213	1735	634	520	1.08	1.08	30.8	31.0	767.2	634	440.1	5:26	1.08	0.92	0.02
04:10:14	811.0	34.7	22.9	147	191	1746	634	515	1.08	1.08	30.8	31.0	768.9	634	441.0	5:28	1.08	1.06	0.02
04:11:56	812.1	36.0	25.8	146	244	1754	634	559	1.08	1.08	30.8	31.0	771.0	634	442.1	5:29	1.08	1.13	0.02
04:14:09	813.0	23.8	22.4	147	194	1756	635	525	1.09	1.08	30.8	31.0	774.4	634	443.0	5:32	1.08	1.16	0.02
04:16:55	814.0	24.3	23.6	147	210	1767	635	594	1.09	1.08	30.8	31.1	779.4	634	444.0	5:34	1.08	1.22	0.02
04:20:10	815.0	21.0	22.7	147	195	1762	635	562	1.09	1.08	30.9	31.1	784.5	634	445.0	5:38	1.08	1.26	0.02
04:22:30	816.0	28.6	26.3	147	213	1763	635	536	1.09	1.08	30.9	31.0	787.4	634	446.0	5:40	1.08	1.21	0.02
04:25:25	817.0	22.3	24.6	147	203	1774	635	561	1.09	1.08	30.9	31.0	789.7	624	447.0	5:43	1.08	1.26	0.02
04:27:38	818.0	25.0	19.2	147	179	1787	636	552	1.08	1.08	31.0	31.0	790.4	624	448.0	5:45	1.08	1.08	0.02
04:29:34	819.1	29.4	20.2	147	187	1762	636	615	1.08	1.08	31.0	31.0	790.5	624	449.1	5:47	1.08	1.08	0.02
04:41:08	820.1	54.6	13.6	147	134	1783	636	540	1.08	1.08	31.0	31.0	790.6	634	450.1	5:49	1.08	0.98	0.02
04:41:55	821.0	72.9	21.3	143	208	1743	633	541	1.08	1.08	31.1	30.9	790.7	634	451.0	5:49	1.08	1.01	0.02
04:42:23	822.1	122.7	22.2	147	206	1772	632	534	1.09	1.08	31.0	30.7	790.8	634	452.1	5:50	1.08	0.75	0.02
04:43:15	823.1	71.9	25.1	148	231	1768	631	575	1.09	1.08	31.0	30.7	791.4	624	453.1	5:51	1.08	0.96	0.02
04:44:49	824.0	38.7	28.6	148	223	1758	630	537	1.08	1.08	31.0	30.6	792.5	624	454.0	5:52	1.08	1.14	0.02
04:45:42	825.0	75.6	20.6	148	203	1784	631	607	1.08	1.08	31.0	30.6	792.9	624	455.0	5:53	1.08	0.89	0.02
04:46:20	826.0	93.1	18.9	148	190	1785	631	569	1.08	1.08	31.0	30.6	793.6	624	456.0	5:54	1.08	0.79	0.02
04:47:06	827.1	78.0	20.6	148	196	1794	631	507	1.08	1.08	31.0	30.7	794.4	614	457.1	5:55	1.08	0.86	0.02
04:47:36	828.0	106.2	21.9	148	185	1774	631	482	1.08	1.08	31.0	30.7	795.1	614	458.0	5:55	1.08	0.78	0.02
04:48:48	829.1	38.5	27.0	148	246	1779	631	582	1.08	1.08	30.9	30.8	796.7	614	459.1	5:56	1.08	1.04	0.02
04:50:47	830.0	24.2	30.9	148	251	1804	632	510	1.08	1.08	31.0	30.9	799.0	614	460.0	5:58	1.08	1.20	0.02
04:55:05	831.0	15.5	18.9	148	172	1837	631	523	1.08	1.08	30.9	31.0	802.2	614	461.0	6:03	1.05	1.29	0.02
04:57:14	832.0	32.2	28.6	148	230	1866	631	522	1.08	1.08	30.9	31.1	803.8	614	462.0	6:05	1.05	1.25	0.02
05:00:32	833.0	28.1	24.5	148	187	1850	631	581	1.08	1.08	30.9	31.1	806.4	614	463.0	6:08	1.05	1.30	0.02

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
hh:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
05:04:44	834.0	16.3	22.3	148	175	1866	631	560	1.08	1.08	31.0	31.1	809.6	614	464.0	6:12	1.06	1.34	0.02
05:07:15	835.0	21.8	24.3	148	192	1827	631	526	1.08	1.08	31.0	31.1	811.4	614	465.0	6:14	1.06	1.24	0.02
05:10:04	836.0	19.4	25.3	148	205	1836	631	600	1.08	1.08	31.0	31.2	813.6	614	466.0	6:17	1.06	1.26	0.02
05:13:10	837.0	24.3	23.9	148	182	1821	631	519	1.08	1.08	31.1	31.2	815.9	624	467.0	6:20	1.07	1.28	0.02
05:15:47	838.0	22.8	26.5	148	204	1841	631	546	1.08	1.08	31.1	31.2	817.9	614	468.0	6:23	1.07	1.25	0.02
05:17:41	839.0	29.9	25.4	148	204	1821	631	560	1.08	1.08	31.1	31.3	819.3	614	469.0	6:25	1.07	1.17	0.02
05:20:17	840.0	23.0	25.6	148	187	1816	631	553	1.08	1.08	31.2	31.3	821.3	614	470.0	6:27	1.07	1.24	0.02
05:22:57	841.0	21.7	25.5	148	187	1850	631	588	1.08	1.08	31.2	31.5	823.3	624	471.0	6:30	1.07	1.25	0.02
05:25:26	842.0	30.3	25.3	148	201	1845	631	604	1.09	1.08	31.2	31.5	825.2	624	472.0	6:32	1.08	1.21	0.02
05:27:36	843.0	30.0	24.7	148	194	1821	631	532	1.08	1.08	31.2	31.5	826.8	624	473.0	6:34	1.08	1.20	0.02
05:29:32	844.0	35.7	24.7	148	184	1862	632	556	1.09	1.08	31.2	31.6	828.3	624	474.0	6:36	1.08	1.18	0.02
05:32:45	845.1	22.3	25.1	148	184	1864	632	625	1.08	1.08	31.2	31.6	830.4	624	475.1	6:39	1.08	1.26	0.01
05:35:50	846.0	15.0	26.1	148	181	1845	631	596	1.08	1.08	31.3	31.7	831.1	624	476.0	6:43	1.08	1.31	0.02
05:38:42	847.0	22.4	26.4	148	185	1849	632	496	1.08	1.08	31.4	31.7	832.1	624	477.0	6:45	1.08	1.27	0.02
05:39:22	848.0	100.4	19.1	148	177	1858	631	506	1.08	1.08	31.4	31.8	832.3	624	478.0	6:46	1.08	0.81	0.02
05:57:45	849.0	68.8	10.2	148	146	1813	629	568	1.08	1.08	31.5	31.8	836.5	644	479.0	6:49	1.06	0.95	0.01
05:58:19	850.1	119.9	10.6	147	159	1776	621	596	1.08	1.08	31.7	31.5	836.7	644	480.1	6:50	1.06	0.67	0.01
05:58:54	851.0	116.2	10.2	147	164	1733	620	592	1.08	1.08	31.7	31.4	837.0	644	481.0	6:50	1.06	0.68	0.01
05:59:28	852.1	119.1	12.0	147	179	1826	620	614	1.08	1.08	31.7	31.2	837.2	644	482.1	6:51	1.06	0.71	0.01
06:00:05	853.1	98.5	12.4	147	170	1837	623	530	1.08	1.08	31.7	31.1	837.4	634	483.1	6:52	1.06	0.73	0.02
06:00:33	854.2	130.5	13.1	147	173	1850	627	553	1.08	1.08	31.7	31.1	837.6	634	484.2	6:52	1.06	0.65	0.02
06:01:01	855.1	105.6	12.4	147	183	1833	629	548	1.08	1.08	31.7	31.0	837.7	634	485.1	6:52	1.06	0.69	0.02
06:01:29	856.1	147.8	14.0	147	163	1851	629	505	1.08	1.08	31.7	31.0	837.9	634	486.1	6:53	1.06	0.68	0.02
2:04	857.1	109.6	15.6	147	181	1807	629	546	1.08	1.08	31.7	31.1	838.1	634	487.1	6:54	1.06	0.73	0.02
06:02:34	858.1	116.6	15.4	147	163	1789	630	537	1.08	1.08	31.7	31.1	838.3	634	488.1	6:54	1.06	0.70	0.02
06:03:02	859.0	115.2	14.5	147	195	1868	630	615	1.08	1.08	31.7	31.1	838.5	634	489.0	6:54	1.06	0.73	0.02
06:03:37	860.0	94.0	14.5	147	178	1858	630	634	1.08	1.08	31.7	31.2	838.7	634	490.0	6:55	1.06	0.76	0.02
06:04:08	861.2	128.5	14.1	147	168	1865	630	564	1.08	1.08	31.7	31.4	838.9	634	491.2	6:56	1.06	0.65	0.02
06:04:36	862.1	124.3	14.8	146	185	1870	630	599	1.08	1.08	31.7	31.4	839.1	634	492.1	6:56	1.06	0.70	0.02
06:05:08	863.1	102.2	15.4	147	204	1875	630	527	1.08	1.08	31.7	31.6	839.3	634	493.1	6:57	1.06	0.73	0.02
06:05:36	864.0	125.1	15.0	147	188	1862	630	600	1.08	1.08	31.7	31.6	839.4	634	494.0	6:57	1.06	0.72	0.02
06:06:17	865.1	113.1	15.7	147	195	1846	630	651	1.08	1.08	31.7	31.6	839.7	634	495.1	6:58	1.06	0.80	0.02
06:07:04	866.3	106.7	19.2	147	208	1870	630	648	1.08	1.08	31.7	31.7	840.0	634	496.3	6:59	1.06	0.79	0.02
06:07:29	867.0	121.6	16.8	147	197	1860	630	677	1.08	1.08	31.7	31.7	840.1	634	497.0	6:59	1.06	0.69	0.02
06:08:12	868.1	100.8	17.7	147	176	1857	630	567	1.08	1.08	31.6	31.7	840.4	634	498.1	6:60	1.06	0.83	0.02
06:08:43	869.1	93.5	16.8	147	182	1867	630	541	1.08	1.08	31.7	31.8	840.6	634	499.1	7:00	1.07	0.72	0.02
06:09:17	870.1	109.1	15.9	147	178	1847	630	513	1.08	1.08	31.7	31.8	840.8	635	500.1	7:01	1.07	0.74	0.02
06:09:52	871.0	95.7	15.2	147	191	1829	630	591	1.08	1.08	31.6	31.9	841.0	635	501.0	7:01	1.07	0.76	0.02
06:10:29	872.0	119.0	15.9	147	198	1868	630	627	1.08	1.08	31.7	31.9	841.3	635	502.0	7:02	1.07	0.79	0.02
06:11:09	873.2	115.9	16.6	147	198	1873	631	635	1.08	1.08	31.6	31.9	841.5	625	503.2	7:03	1.07	0.71	0.02
06:11:46	874.2	105.2	15.2	147	181	1875	631	692	1.08	1.08	31.7	31.9	841.7	635	504.2	7:03	1.07	0.76	0.02
06:12:27	875.0	80.9	15.7	147	181	1870	631	595	1.08	1.08	31.7	31.9	842.0	635	505.0	7:04	1.07	0.80	0.02
06:13:48	876.1	58.0	12.4	147	173	1872	631	586	1.08	1.08	31.6	31.9	842.5	625	506.1	7:05	1.07	0.90	0.02
06:14:45	877.0	66.2	15.6	147	192	1870	631	553	1.08	1.08	31.7	31.9	842.9	625	507.0	7:06	1.07	0.88	0.02
06:28:37	878.1	19.2	14.7	147	163	1883	633	550	1.08	1.08	31.7	32.0	846.1	635	508.1	7:08	1.08	1.07	0.01
06:29:27	879.1	82.4	23.4	147	247	1950	639	548	1.08	1.08	31.9	31.8	846.4	635	509.1	7:09	1.08	0.92	0.01
06:29:49	880.0	180.2	21.3	147	220	1913	639	567	1.08	1.08	31.9	31.6	846.5	635	510.0	7:10	1.08	0.69	0.01
06:30:08	881.0	190.7	18.4	147	181	1939	639	517	1.09	1.08	31.9	31.5	846.6	635	511.0	7:10	1.08	0.62	0.01
30:27	882.0	172.0	14.2	147	154	1938	639	486	1.08	1.08	31.8	31.5	846.8	635	512.0	7:10	1.08	0.57	0.01
31:48	883.1	29.9	21.2	147	161	1941	639	479	1.08	1.08	31.9	31.4	847.3	625	513.1	7:12	1.08	0.72	0.01
06:34:45	884.1	129.9	20.9	147	170	1947	640	575	1.08	1.08	31.9	31.5	848.3	625	514.1	7:14	1.08	1.05	0.04
06:35:14	885.0	106.0	10.4	147	123	1953	641	543	1.08	1.08	31.8	31.6	848.4	625	515.0	7:15	1.08	0.64	0.05

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
06:37:24	886.0	89.0	6.2	147	126	1938	641	588	1.08	1.08	31.8	31.8	848.5	625	516.0	7:17	1.08	0.84	0.06
06:38:24	887.1	50.2	6.7	147	134	1941	642	584	1.08	1.08	31.8	31.9	848.5	625	517.1	7:18	1.08	0.73	0.06
06:38:48	888.1	150.9	8.3	147	145	1923	642	529	1.08	1.08	31.8	31.9	848.5	625	518.1	7:18	1.08	0.58	0.06
06:39:19	889.1	109.6	11.0	147	172	1943	641	607	1.08	1.08	31.8	32.0	848.5	625	519.1	7:19	1.08	0.69	0.06
06:40:03	890.0	69.9	13.7	147	168	1937	641	582	1.08	1.08	31.8	32.0	848.5	625	520.0	7:20	1.08	0.79	0.06
06:40:37	891.1	121.1	15.3	147	171	1863	641	516	1.08	1.08	31.8	32.1	848.5	625	521.1	7:20	1.08	0.69	0.06
06:41:02	892.1	125.0	13.5	147	178	1924	641	506	1.08	1.08	31.8	32.1	848.5	625	522.1	7:21	1.08	0.64	0.06
06:41:32	893.1	108.1	11.8	147	161	1929	641	599	1.08	1.08	31.8	32.1	848.5	625	523.1	7:21	1.08	0.66	0.06
06:41:57	894.0	156.1	12.3	147	156	1922	641	645	1.08	1.08	31.8	32.2	848.5	625	524.0	7:21	1.08	0.64	0.06
06:42:29	895.0	99.8	11.7	147	162	1932	641	638	1.08	1.08	31.8	32.2	848.5	625	525.0	7:22	1.08	0.66	0.06
06:42:57	896.2	161.2	10.6	147	164	1943	641	643	1.09	1.08	31.8	32.2	848.5	625	526.2	7:22	1.08	0.62	0.06
06:43:22	897.0	159.9	8.7	147	138	1935	641	614	1.09	1.08	31.8	32.2	848.5	635	527.0	7:23	1.08	0.58	0.06
06:43:55	898.0	131.9	7.2	147	125	1918	641	572	1.09	1.08	31.8	32.2	848.6	635	528.0	7:23	1.08	0.61	0.06
06:44:32	899.0	87.8	7.9	147	147	1871	641	656	1.09	1.08	31.8	32.2	849.2	635	529.0	7:24	1.08	0.64	0.05
06:45:28	900.1	72.1	11.7	147	163	1935	642	562	1.09	1.08	31.8	32.2	850.5	635	530.1	7:25	1.08	0.82	0.02
06:46:15	901.0	66.2	14.6	147	163	1919	642	596	1.09	1.08	31.8	32.3	851.7	635	531.0	7:26	1.08	0.82	0.03
06:47:24	902.1	108.4	21.9	147	194	1931	642	544	1.09	1.08	31.8	32.3	853.6	635	532.1	7:27	1.08	0.93	0.02
06:47:44	903.0	175.6	18.7	147	204	1847	642	541	1.09	1.08	31.9	32.3	854.2	635	533.0	7:27	1.08	0.62	0.02
06:48:05	904.2	208.5	14.8	147	166	1888	642	525	1.09	1.08	31.8	32.3	855.0	635	534.2	7:28	1.08	0.57	0.02
06:48:27	905.1	152.3	10.5	147	181	1941	643	552	1.09	1.08	31.8	32.3	855.7	635	535.1	7:28	1.08	0.56	0.02
06:48:53	906.0	123.7	6.7	147	136	1937	643	559	1.09	1.08	31.8	32.3	856.5	635	536.0	7:28	1.08	0.56	0.02
07:11:56	907.1	110.4	8.6	147	121	1930	644	591	1.09	1.08	31.9	32.3	877.8	615	537.1	7:31	1.10	0.94	0.02
07:12:32	908.2	145.2	8.4	143	147	1903	651	618	1.09	1.08	32.1	32.6	877.8	615	538.2	7:31	1.10	0.60	0.02
07:13:00	909.1	164.6	7.9	143	162	1901	651	604	1.09	1.08	32.1	32.6	877.8	615	539.1	7:32	1.10	0.59	0.02
07:13:28	910.0	142.5	7.3	143	141	1911	651	537	1.09	1.08	32.1	32.5	877.8	615	540.0	7:32	1.10	0.57	0.02
07:13:53	911.1	136.6	6.8	143	149	1936	651	480	1.09	1.08	32.1	32.5	877.8	615	541.1	7:32	1.10	0.52	0.02
07:14:18	912.0	147.5	6.5	143	146	1911	651	493	1.09	1.08	32.1	32.5	877.8	615	542.0	7:33	1.10	0.55	0.02
07:14:44	913.1	158.2	6.4	143	158	1910	651	540	1.09	1.08	32.0	32.5	877.9	615	543.1	7:33	1.10	0.55	0.02
07:15:10	914.1	214.9	6.2	143	167	1715	650	594	1.09	1.08	32.1	32.6	878.4	615	544.1	7:34	1.10	0.53	0.02
07:15:39	915.1	134.2	8.5	143	167	1758	646	599	1.09	1.08	32.1	32.6	879.0	615	545.1	7:34	1.10	0.62	0.02
07:16:03	916.2	130.8	10.3	143	194	1780	636	537	1.09	1.08	32.1	32.6	879.3	615	546.2	7:35	1.10	0.55	0.02
07:16:34	917.1	148.6	10.7	143	192	1759	624	553	1.09	1.08	32.1	32.6	880.3	615	547.1	7:35	1.10	0.65	0.02
07:17:02	918.1	129.2	10.9	143	206	1766	616	562	1.09	1.08	32.1	32.6	881.1	615	548.1	7:36	1.10	0.62	0.02
07:17:32	919.1	146.3	10.9	143	188	1747	615	602	1.09	1.08	32.1	32.6	882.1	615	549.1	7:36	1.10	0.64	0.02
07:17:57	920.1	143.5	9.9	143	208	1777	615	652	1.09	1.08	32.1	32.6	882.7	615	550.1	7:37	1.10	0.59	0.02
07:18:25	921.0	120.0	10.7	143	210	1757	615	645	1.09	1.08	32.1	32.6	882.8	615	551.0	7:37	1.10	0.67	0.02
07:19:00	922.2	116.6	10.6	143	201	1689	615	687	1.09	1.08	32.1	32.6	883.0	615	552.2	7:38	1.10	0.65	0.02
07:19:27	923.1	120.0	11.0	143	210	1755	616	639	1.09	1.08	32.1	32.6	883.1	605	553.1	7:38	1.10	0.62	0.02
07:19:52	924.0	126.5	9.5	143	175	1740	616	525	1.09	1.08	32.2	32.6	883.1	605	554.0	7:38	1.10	0.59	0.02
07:20:23	925.1	127.3	9.5	143	170	1722	616	420	1.09	1.08	32.1	32.6	883.2	605	555.1	7:39	1.10	0.60	0.02
07:20:54	926.1	119.4	8.6	143	196	1475	613	458	1.09	1.08	32.2	32.5	883.3	605	556.1	7:40	1.10	0.61	0.02
07:21:23	927.0	107.0	8.0	143	175	1482	597	449	1.09	1.08	32.2	32.6	883.7	605	557.0	7:40	1.10	0.61	0.02
07:21:58	928.1	107.2	8.1	143	178	1495	573	406	1.09	1.08	32.2	32.5	884.3	605	558.1	7:41	1.10	0.62	0.02
07:22:54	929.1	77.2	12.0	143	187	1376	561	349	1.09	1.08	32.2	32.5	884.9	605	559.1	7:42	1.10	0.79	0.02
07:23:32	930.1	140.6	12.3	143	201	1290	542	469	1.09	1.08	32.2	32.5	885.1	605	560.1	7:42	1.10	0.71	0.02
07:24:41	931.0	44.6	6.3	143	158	1428	522	456	1.09	1.08	32.2	32.6	885.4	605	561.0	7:43	1.10	0.71	0.02
07:26:24	932.2	74.7	4.5	143	141	1464	557	495	1.09	1.08	32.2	32.5	886.9	605	562.2	7:45	1.10	0.67	0.02
07:27:06	933.0	97.6	7.0	144	177	1571	565	600	1.09	1.08	32.3	32.6	887.9	605	563.0	7:45	1.10	0.65	0.02
07:27:41	934.0	96.0	6.5	143	167	1583	573	550	1.09	1.08	32.3	32.6	888.8	605	564.0	7:46	1.10	0.61	0.02
07:28:17	935.0	98.9	6.3	143	145	1581	583	439	1.09	1.08	32.3	32.6	889.7	605	565.0	7:47	1.10	0.60	0.02
07:29:04	936.0	70.5	7.9	143	157	1573	585	508	1.09	1.08	32.3	32.6	890.8	595	566.0	7:47	1.10	0.69	0.02
07:38:06	937.1	176.3	9.3	145	284	1614	589	466	1.09	1.08	32.3	32.5	899.5	615	567.1	7:48	1.10	0.68	0.01

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
07:38:33	938.0	129.6	10.3	146	275	1636	589	446	1.09	1.08	32.3	32.5	900.0	605	568.0	7:49	1.10	0.60	0.01
07:38:58	939.0	108.2	9.2	146	199	1542	588	530	1.09	1.08	32.3	32.5	900.3	605	569.0	7:49	1.10	0.60	0.02
07:39:29	940.0	93.5	7.9	146	173	1616	588	552	1.09	1.08	32.4	32.4	900.7	605	570.0	7:50	1.10	0.63	0.02
07:40:02	941.2	107.6	9.8	146	204	1638	588	545	1.09	1.08	32.3	32.3	901.1	605	571.2	7:50	1.10	0.64	0.02
07:40:38	942.0	83.8	11.6	146	204	1621	588	560	1.09	1.08	32.3	32.3	901.9	605	572.0	7:51	1.10	0.70	0.02
07:41:39	943.0	50.2	19.1	146	221	1612	588	519	1.09	1.08	32.3	32.3	903.9	595	573.0	7:52	1.10	0.91	0.02
07:43:09	944.0	101.8	15.5	146	211	1618	588	471	1.09	1.08	32.3	32.3	905.7	595	574.0	7:53	1.10	0.86	0.02
07:43:57	945.0	78.7	4.7	146	172	1624	588	535	1.09	1.08	32.3	32.4	906.4	595	575.0	7:54	1.10	0.62	0.02
07:44:31	946.1	115.6	4.3	146	188	1621	588	469	1.09	1.08	32.3	32.4	906.7	595	576.1	7:54	1.10	0.56	0.02
07:45:05	947.0	100.3	7.9	146	200	1636	589	581	1.09	1.08	32.3	32.4	906.7	595	577.0	7:55	1.10	0.65	0.02
07:45:41	948.0	113.0	6.7	147	189	1620	589	506	1.09	1.08	32.3	32.5	906.7	595	578.0	7:56	1.10	0.62	0.02
07:46:13	949.0	101.4	8.7	147	192	1562	589	552	1.09	1.08	32.3	32.5	906.7	595	579.0	7:56	1.10	0.63	0.02
07:46:47	950.2	168.4	8.4	146	167	1670	589	470	1.09	1.08	32.3	32.5	906.7	595	580.2	7:57	1.10	0.58	0.02
07:47:12	951.0	126.6	8.4	147	185	1705	590	514	1.09	1.08	32.3	32.5	906.7	595	581.0	7:57	1.10	0.59	0.02
07:47:50	952.0	108.9	10.1	147	206	1687	595	597	1.09	1.08	32.3	32.5	906.7	595	582.0	7:58	1.10	0.71	0.02
07:48:36	953.1	119.7	11.6	146	196	1679	601	554	1.09	1.08	32.3	32.5	906.7	595	583.1	7:59	1.10	0.70	0.02
07:49:10	954.1	90.8	11.2	147	190	1675	603	536	1.09	1.08	32.3	32.5	906.7	595	584.1	7:59	1.10	0.70	0.02
07:49:57	955.2	157.3	14.1	146	197	1666	603	556	1.09	1.08	32.3	32.5	906.7	595	585.2	7:60	1.10	0.75	0.02
07:50:32	956.2	106.0	12.0	146	205	1671	603	548	1.09	1.08	32.3	32.5	906.7	595	586.2	8:00	1.10	0.70	0.02
07:53:33	957.0	11.5	15.1	146	152	1607	598	502	1.09	1.08	32.4	32.5	906.7	595	587.0	8:03	1.10	1.11	0.02
07:55:43	958.1	84.0	11.5	147	153	1361	536	373	1.09	1.08	32.4	32.6	906.7	595	588.1	8:06	1.10	0.72	0.02
07:56:46	959.0	57.1	5.9	147	145	1338	534	381	1.09	1.08	32.4	32.6	906.7	595	589.0	8:07	1.10	0.71	0.02
07:57:30	960.1	85.1	5.0	147	137	1320	534	397	1.09	1.08	32.4	32.6	906.7	595	590.1	8:07	1.10	0.59	0.02
8:33	961.1	45.4	3.7	147	120	1335	534	360	1.09	1.08	32.4	32.7	906.7	595	591.1	8:08	1.10	0.62	0.02
08:06:12	963.0	4.3	9.6	147	159	1347	535	397	1.09	1.08	32.4	32.6	906.7	575	593.0	8:14	1.10	1.17	0.02
08:08:18	964.1	65.1	9.1	146	165	1326	535	481	1.09	1.08	32.5	32.6	908.1	575	594.1	8:16	1.10	0.79	0.02
08:10:16	965.1	57.2	2.7	147	143	1336	536	489	1.09	1.08	32.5	32.7	910.9	585	595.1	8:17	1.10	0.54	0.02
08:20:28	966.0	102.9	10.8	146	185	1674	606	490	1.09	1.08	32.6	32.6	922.3	595	596.0	8:18	1.10	0.80	0.02
08:21:12	967.0	89.8	17.1	147	229	1828	636	617	1.09	1.08	32.7	32.5	923.8	595	597.0	8:19	1.10	0.79	0.02
08:21:41	968.3	135.0	14.9	147	232	1827	636	598	1.09	1.08	32.7	32.4	924.8	585	598.3	8:19	1.10	0.67	0.02
08:22:06	969.0	105.5	14.3	147	220	1841	636	614	1.09	1.08	32.7	32.4	925.6	585	599.0	8:20	1.10	0.64	0.02
08:23:24	970.0	41.9	10.1	147	171	1801	636	517	1.09	1.08	32.7	32.3	927.6	586	600.0	8:21	1.10	0.82	0.02
08:25:53	971.0	19.2	12.1	147	186	1798	636	543	1.09	1.08	32.7	32.4	930.8	586	601.0	8:24	1.10	1.02	0.02
08:28:01	972.1	25.8	13.3	147	198	1720	615	582	1.09	1.08	32.6	32.6	932.6	586	602.1	8:26	1.10	0.95	0.02
08:28:44	973.1	92.5	15.3	147	243	1674	606	533	1.09	1.08	32.6	32.8	933.5	586	603.1	8:26	1.10	0.78	0.02
08:30:26	974.0	28.2	16.9	147	202	1675	602	555	1.09	1.08	32.6	32.9	935.5	586	604.0	8:28	1.10	1.02	0.02
08:32:31	975.0	32.9	17.9	147	205	1684	601	477	1.09	1.08	32.6	32.9	936.1	586	605.0	8:30	1.10	1.05	0.02
08:34:36	976.0	25.1	11.7	148	199	1664	601	533	1.09	1.08	32.6	33.0	936.1	596	606.0	8:32	1.10	0.96	0.02
08:36:13	977.0	40.1	13.6	147	236	1689	601	581	1.09	1.08	32.6	32.9	936.5	596	607.0	8:34	1.10	0.95	0.02
08:37:21	978.1	69.4	23.2	147	251	1659	601	460	1.09	1.08	32.6	32.9	938.8	596	608.1	8:35	1.10	0.96	0.02
08:39:50	979.0	19.3	25.3	147	208	1699	600	469	1.09	1.08	32.7	32.9	943.0	596	609.0	8:37	1.10	1.19	0.02
08:40:37	980.0	65.8	16.6	147	209	1640	600	523	1.09	1.08	32.7	32.9	943.0	596	610.0	8:38	1.10	0.81	0.02
08:41:27	981.0	65.1	11.6	148	174	1687	601	479	1.09	1.08	32.7	32.8	943.5	596	611.0	8:39	1.10	0.77	0.02
08:42:57	982.0	40.8	6.6	148	147	1694	600	462	1.09	1.08	32.7	32.8	944.8	596	612.0	8:40	1.10	0.78	0.02
08:43:46	983.0	79.3	7.1	148	159	1686	600	475	1.09	1.08	32.7	32.9	946.0	596	613.0	8:41	1.10	0.69	0.02
08:44:49	984.1	64.5	5.7	148	141	1650	600	439	1.09	1.08	32.7	32.9	947.6	596	614.1	8:42	1.10	0.68	0.02
08:46:06	985.1	61.6	3.9	148	173	1702	600	528	1.09	1.08	32.7	32.9	949.6	596	615.1	8:43	1.10	0.69	0.02
08:47:49	986.0	31.8	8.4	148	184	1696	600	550	1.09	1.08	32.8	33.0	952.3	596	616.0	8:45	1.10	0.89	0.02
18:42	987.1	109.5	8.0	148	158	1700	600	478	1.09	1.08	32.8	33.0	953.6	596	617.1	8:46	1.10	0.71	0.02
08:49:30	988.1	82.7	8.6	148	165	1702	600	495	1.09	1.08	32.8	33.0	954.6	596	618.1	8:47	1.10	0.71	0.02
08:50:14	989.0	79.4	8.3	148	172	1703	601	460	1.09	1.08	32.8	33.0	955.5	596	619.0	8:48	1.10	0.69	0.02
08:51:23	990.0	40.3	11.5	148	181	1656	600	464	1.09	1.08	32.8	33.0	956.7	596	620.0	8:49	1.10	0.83	0.02
08:53:47	991.0	20.9	7.1	148	154	1692	599	498	1.09	1.08	32.8	33.0	957.1	596	621.0	8:51	1.10	0.88	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT	MUD DENSITY IN sg	MUD DENSITY OUT	MUD TEMP IN deg C	MUD TEMP OUT	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
08:56:36	992.0	35.3	11.6	148	189	1689	600	562	1.09	1.08	32.9	33.0	959.0	596	622.0	8:54	1.10	1.07	0.02
08:59:04	993.0	23.3	14.9	147	187	1717	600	587	1.09	1.08	32.9	32.9	961.4	596	623.0	8:56	1.10	1.06	0.02
09:01:09	994.0	38.9	12.8	148	187	1739	600	486	1.09	1.08	32.9	32.9	962.5	606	624.0	8:58	1.10	0.98	0.02
09:10:38	995.0	55.0	12.4	148	175	1800	613	492	1.09	1.08	32.9	32.9	963.8	616	625.0	8:60	1.10	0.89	0.02
09:11:30	996.1	139.9	15.8	149	220	1888	641	509	1.09	1.08	33.0	32.7	964.6	616	626.1	9:01	1.10	0.79	0.02
09:12:01	997.0	108.5	13.2	149	194	1803	639	496	1.09	1.08	32.9	32.6	964.7	606	627.0	9:01	1.10	0.66	0.02
09:12:47	998.0	76.0	6.8	149	185	1897	633	483	1.09	1.08	33.0	32.5	965.0	606	628.0	9:02	1.10	0.62	0.02
09:15:11	999.1	20.3	16.8	149	197	1889	632	507	1.09	1.08	33.0	32.3	965.1	606	629.1	9:04	1.10	1.10	0.02
09:17:54	1000.1	40.1	17.2	149	193	1876	632	526	1.09	1.08	33.0	32.6	965.1	606	630.1	9:07	1.10	1.08	0.02
09:19:37	1001.0	35.0	19.6	149	228	1888	632	561	1.09	1.08	33.0	32.8	966.4	606	631.0	9:08	1.10	1.05	0.02
09:20:34	1002.1	65.5	23.3	149	249	1897	632	475	1.09	1.08	32.9	32.9	967.7	606	632.1	9:09	1.10	0.90	0.02
09:21:53	1003.0	40.5	19.5	149	219	1896	632	477	1.09	1.08	32.9	32.9	969.2	606	633.0	9:11	1.10	0.97	0.02
09:24:03	1004.0	22.2	21.2	149	236	1881	632	518	1.09	1.08	32.9	32.9	970.7	606	634.0	9:13	1.10	1.12	0.02
09:25:31	1005.0	53.7	20.5	149	257	1900	633	600	1.09	1.08	32.9	33.0	971.3	606	635.0	9:14	1.10	1.01	0.02
09:26:52	1006.0	40.5	21.8	149	243	1891	633	536	1.09	1.08	32.9	33.0	971.9	606	636.0	9:16	1.10	1.01	0.02
09:28:48	1007.1	39.1	20.3	149	229	1904	633	472	1.09	1.08	32.8	33.0	973.4	606	637.1	9:18	1.10	1.04	0.02
09:30:23	1008.0	39.9	21.7	149	295	1877	633	509	1.09	1.08	32.8	33.0	974.2	606	638.0	9:19	1.10	1.05	0.02
09:31:35	1009.0	60.8	20.7	148	362	1933	633	525	1.09	1.08	32.8	33.0	974.7	616	639.0	9:20	1.10	0.96	0.02
09:33:25	1010.1	35.5	20.1	149	267	1930	633	540	1.09	1.08	32.8	33.1	975.6	616	640.1	9:22	1.10	1.03	0.02
09:35:05	1011.0	41.7	16.7	149	274	1912	633	587	1.09	1.08	32.8	33.1	976.5	616	641.0	9:24	1.10	1.00	0.02
09:36:54	1012.0	34.5	18.9	148	310	1907	633	567	1.09	1.08	32.9	33.2	977.9	616	642.0	9:26	1.10	1.04	0.02
09:38:49	1013.0	32.8	17.3	149	242	1922	633	516	1.09	1.08	32.9	33.1	978.8	626	643.0	9:28	1.10	1.00	0.02
09:40:44	1014.0	35.5	13.2	149	213	1925	633	547	1.09	1.08	32.9	33.2	980.2	626	644.0	9:30	1.10	0.97	0.02
09:42:27	1015.1	37.2	18.0	149	241	1940	634	503	1.09	1.08	32.9	33.2	981.9	626	645.1	9:31	1.10	1.00	0.02
09:44:20	1016.0	27.4	17.4	149	235	1911	634	520	1.09	1.08	33.0	33.3	983.6	626	646.0	9:33	1.10	1.04	0.02
Drill to 1017m. Run wireline logs. Set 9.625" casing.																			
RIH with NB#5, HTC ATM 22 8.5", 14,10,10																			
23rd February 1993																			
15:11:41	1018.0	17.3	13.6	103	90	1913	398	354	1.07	1.08	29.7	28.1	1017.1	635	1.0	0:04	1.15	1.12	0.01
15:44:43	1019.9	19.4	13.7	103	89	1907	361	323	1.07	1.09	29.7	28.2	1018.3	653	2.9	0:14	1.07	1.12	0.01
16:52:06	1020.0	14.8	19.5	104	64	1913	361	323	1.07	1.06	29.5	28.3	1019.9	617	3.0	0:14	1.15	1.14	0.01
16:55:04	1021.0	13.6	14.2	103	84	1970	309	311	1.07	1.05	29.5	24.6	1019.9	614	4.0	0:17	1.14	1.14	0.01
16:58:34	1022.0	21.4	17.8	104	124	1982	361	315	1.07	1.05	29.5	22.9	1019.9	610	5.0	0:20	1.14	1.16	0.01
17:00:40	1023.0	30.7	29.8	109	168	1981	368	321	1.07	1.05	29.4	24.0	1019.9	606	6.0	0:23	1.15	1.19	0.01
17:02:24	1024.0	34.0	28.7	109	138	1909	362	315	1.07	1.05	29.3	25.7	1019.9	606	7.0	0:24	1.14	1.14	0.01
17:04:19	1025.0	31.2	29.1	109	146	1934	361	314	1.07	1.05	29.1	27.0	1020.0	604	8.0	0:26	1.14	1.17	0.01
17:06:03	1026.1	34.2	31.1	109	155	1914	362	311	1.07	1.05	29.0	27.6	1020.0	603	9.1	0:28	1.14	1.14	0.01
17:07:46	1027.0	34.1	29.5	109	148	1925	363	314	1.07	1.05	28.8	28.1	1020.0	602	10.0	0:30	1.14	1.15	0.01
17:09:56	1028.0	25.6	31.2	109	148	1919	363	315	1.07	1.05	28.7	28.5	1020.0	602	11.0	0:32	1.14	1.23	0.01
17:11:40	1029.1	57.7	30.2	109	152	1945	366	322	1.07	1.05	28.5	29.0	1020.0	601	12.1	0:34	1.14	1.16	0.01
17:13:20	1030.0	38.0	29.8	109	152	1935	367	321	1.07	1.05	28.4	29.2	1020.0	600	13.0	0:35	1.14	1.15	0.01
17:15:03	1031.0	33.0	29.5	109	150	1948	365	322	1.07	1.06	28.3	29.1	1020.0	599	14.0	0:37	1.14	1.15	0.01
17:15:50	1032.0	67.4	28.1	109	146	1913	372	319	1.07	1.06	28.3	28.8	1020.0	599	15.0	0:38	1.14	0.91	0.01
17:17:15	1033.0	47.6	28.8	109	134	1952	365	317	1.07	1.05	28.2	29.0	1020.0	600	16.0	0:39	1.14	1.07	0.01
17:18:46	1034.0	37.4	24.5	109	122	1952	362	313	1.07	1.05	28.2	29.4	1020.0	607	17.0	0:41	1.14	1.05	0.01
17:19:52	1035.1	61.0	26.3	109	149	1934	364	313	1.07	1.05	28.2	29.6	1020.0	611	18.1	0:42	1.14	0.97	0.01
17:21:01	1036.1	52.2	31.2	109	163	1973	364	313	1.07	1.04	28.2	29.6	1020.0	613	19.1	0:43	1.14	1.06	0.01
17:22:13	1037.1	52.1	30.1	109	153	1970	362	315	1.07	1.04	28.2	29.6	1020.0	613	20.1	0:44	1.14	1.05	0.01
17:23:21	1038.0	60.5	30.6	109	155	1955	365	316	1.07	1.04	28.2	29.6	1020.0	615	21.0	0:45	1.14	1.04	0.01
17:24:36	1039.1	54.4	27.8	109	146	1980	361	309	1.07	1.05	28.2	29.6	1020.1	614	22.1	0:47	1.14	1.03	0.01
17:25:29	1040.0	72.7	29.1	109	155	1985	367	316	1.07	1.05	28.3	29.7	1020.3	616	23.0	0:47	1.14	0.96	0.01
17:27:19	1041.0	37.2	30.7	109	155	1964	366	318	1.07	1.05	28.3	29.8	1020.9	614	24.0	0:49	1.14	1.16	0.01
17:29:05	1042.0	28.0	29.5	109	147	1977	365	316	1.07	1.05	28.4	29.9	1021.1	615	25.0	0:51	1.14	1.16	0.01

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
hh:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
17:46:03	1043.1	21.3	28.4	109	155	2002	362	317	1.07	1.06	28.7	29.3	1028.1	612	26.1	0:53	1.14	1.21	0.01
17:46:46	1044.1	79.4	24.4	110	149	1982	364	319	1.07	1.06	28.8	28.9	1028.4	614	27.1	0:54	1.15	0.84	0.01
17:47:36	1045.1	74.3	20.6	110	138	2011	368	320	1.07	1.06	28.8	28.9	1028.8	612	28.1	0:55	1.14	0.85	0.01
17:48:30	1046.1	66.9	21.0	110	142	2012	365	316	1.07	1.06	28.9	28.8	1029.2	610	29.1	0:56	1.14	0.85	0.01
17:49:20	1047.0	63.8	21.1	110	131	2013	367	317	1.07	1.06	28.9	28.9	1029.6	611	30.0	0:57	1.14	0.85	0.01
17:50:12	1048.0	63.4	15.9	110	119	2011	366	319	1.07	1.06	28.9	28.9	1030.1	610	31.0	0:57	1.14	0.79	0.01
17:51:57	1049.0	26.0	11.5	110	98	1993	362	314	1.07	1.07	28.9	28.9	1030.9	609	32.0	0:59	1.15	0.90	0.02
17:57:15	1050.0	32.4	27.9	110	127	2018	365	392	1.07	1.06	29.0	28.6	1034.2	607	33.0	1:04	1.15	1.46	0.02
17:58:43	1051.0	35.7	27.7	110	133	1996	369	325	1.07	1.07	29.0	29.1	1034.9	608	34.0	1:06	1.15	1.09	0.02
18:01:28	1052.1	75.2	28.0	110	136	2004	366	316	1.07	1.07	29.0	30.0	1036.2	609	35.1	1:09	1.15	0.94	0.07
18:02:12	1053.0	99.1	24.9	110	133	2031	381	325	1.07	1.07	29.0	30.1	1036.5	608	36.0	1:09	1.14	0.86	0.07
18:02:50	1054.1	91.0	22.6	110	124	2034	371	319	1.07	1.07	29.0	30.1	1036.8	609	37.1	1:10	1.14	0.78	0.06
18:03:24	1055.0	102.0	18.5	110	111	2039	368	322	1.07	1.07	29.0	30.2	1037.1	609	38.0	1:11	1.14	0.73	0.06
18:04:21	1056.1	58.1	13.3	110	106	2041	370	322	1.07	1.08	29.0	30.2	1037.5	609	39.1	1:12	1.14	0.77	0.04
18:05:23	1057.0	59.1	14.2	110	110	2015	368	320	1.07	1.08	29.0	30.3	1038.0	610	40.0	1:13	1.14	0.83	0.02
18:06:31	1058.0	49.4	17.8	110	129	2055	368	322	1.07	1.07	29.0	30.3	1038.5	609	41.0	1:14	1.14	0.89	0.02
18:07:30	1059.0	64.8	17.1	110	119	2051	370	328	1.07	1.08	29.0	30.4	1039.0	609	42.0	1:15	1.14	0.85	0.02
18:08:39	1060.0	49.8	13.7	110	109	2018	366	322	1.07	1.07	29.1	30.4	1039.6	609	43.0	1:16	1.14	0.84	0.02
18:09:39	1061.1	66.8	11.7	110	101	2055	364	320	1.07	1.07	29.1	30.4	1040.0	609	44.1	1:17	1.14	0.74	0.02
18:10:53	1062.0	40.6	10.3	110	107	2049	365	319	1.07	1.07	29.1	30.4	1040.6	609	45.0	1:18	1.14	0.79	0.02
18:11:54	1063.0	63.6	9.0	110	95	2014	369	317	1.07	1.07	29.1	30.5	1041.1	608	46.0	1:19	1.15	0.72	0.01
18:13:00	1064.0	63.4	10.4	110	101	2039	366	318	1.07	1.07	29.1	30.5	1041.6	609	47.0	1:20	1.14	0.77	0.01
18:14:53	1065.0	23.5	11.4	110	101	2050	366	324	1.07	1.08	29.2	30.5	1042.5	609	48.0	1:22	1.14	0.92	0.01
18:15:58	1066.1	71.9	18.3	110	121	2020	366	321	1.07	1.10	29.3	30.5	1042.8	609	49.1	1:23	1.14	0.88	0.02
18:17:51	1067.0	28.5	21.2	110	139	2046	365	321	1.07	1.10	29.3	30.4	1043.7	607	50.0	1:25	1.15	1.08	0.02
18:19:23	1068.0	40.6	25.6	110	161	2023	364	322	1.07	1.10	29.3	30.4	1045.4	608	51.0	1:27	1.14	1.07	0.02
18:22:49	1069.0	29.8	23.1	108	161	2040	373	329	1.07	1.09	29.4	30.5	1048.8	606	52.0	1:29	1.14	1.10	0.01
18:26:19	1070.0	16.5	24.0	108	133	2019	363	322	1.07	1.09	29.5	30.7	1049.3	608	53.0	1:32	1.14	1.26	0.01
18:31:34	1071.1	12.6	26.7	108	133	2006	363	320	1.07	1.09	29.6	30.7	1050.5	605	54.1	1:37	1.14	1.42	0.02
18:47:49	1072.0	17.4	29.2	105	142	2010	356	314	1.07	1.09	30.1	30.4	1059.3	607	55.0	1:45	1.15	1.44	0.01
18:52:15	1073.0	18.2	29.1	112	137	2002	369	326	1.07	1.10	30.1	29.8	1061.5	586	56.0	1:50	1.15	1.42	0.02
18:54:48	1074.0	17.5	29.6	112	145	2021	396	341	1.07	1.09	30.1	29.5	1062.7	560	57.0	1:52	1.15	1.35	0.02
18:57:53	1075.0	22.6	30.4	112	145	2041	388	346	1.07	1.09	30.1	29.7	1063.9	529	58.0	1:56	1.15	1.33	0.02
19:01:41	1076.0	16.5	30.9	112	137	2022	382	344	1.07	1.09	30.0	30.2	1065.3	500	59.0	1:59	1.15	1.40	0.02
19:05:09	1077.0	15.7	31.6	112	140	2015	385	343	1.07	1.08	30.0	30.4	1066.6	506	60.0	2:03	1.15	1.39	0.02
19:07:57	1078.0	20.2	32.4	112	149	2010	382	339	1.07	1.08	30.0	30.5	1067.6	508	61.0	2:06	1.15	1.31	0.01
19:11:27	1079.0	15.0	33.4	112	151	2002	377	335	1.07	1.08	30.0	30.7	1068.9	513	62.0	2:09	1.15	1.41	0.01
19:13:23	1080.0	30.7	32.6	112	157	1984	386	340	1.07	1.08	30.0	30.8	1069.6	515	63.0	2:11	1.15	1.22	0.01
19:15:02	1081.0	84.4	29.6	112	155	2001	380	334	1.07	1.08	30.0	30.8	1070.2	518	64.0	2:13	1.15	1.14	0.01
19:15:55	1082.0	77.9	31.7	112	164	1981	379	327	1.07	1.08	30.0	30.8	1070.5	519	65.0	2:14	1.15	0.99	0.01
19:16:50	1083.1	80.2	27.5	110	192	2007	379	334	1.07	1.08	30.0	30.8	1070.8	519	66.1	2:14	1.15	0.89	0.01
19:18:18	1084.0	29.9	24.7	112	140	2005	384	335	1.07	1.08	30.0	30.8	1071.4	522	67.0	2:16	1.15	1.06	0.01
19:19:14	1085.1	60.2	25.6	112	131	2004	371	325	1.07	1.08	30.0	30.8	1071.7	522	68.1	2:17	1.15	0.92	0.01
19:20:11	1086.0	52.7	22.5	112	128	1993	372	324	1.07	1.08	30.0	30.8	1072.0	523	69.0	2:18	1.14	0.91	0.01
19:21:20	1087.0	61.3	22.4	112	140	2011	376	327	1.07	1.08	30.1	30.8	1072.4	525	70.0	2:19	1.15	0.95	0.01
19:23:08	1088.0	28.4	25.1	112	129	1993	369	324	1.07	1.08	30.1	30.8	1073.1	526	71.0	2:21	1.14	1.12	0.02
19:23:55	1089.0	85.2	27.7	112	140	2015	374	320	1.07	1.08	30.1	30.8	1073.3	527	72.0	2:22	1.15	0.92	0.02
19:25:20	1090.0	36.5	27.4	112	134	2006	370	321	1.07	1.08	30.1	30.8	1073.8	529	73.0	2:23	1.15	1.07	0.02
19:27:03	1091.0	45.0	29.8	112	162	2009	371	324	1.07	1.08	30.1	30.9	1074.0	531	74.0	2:25	1.15	1.16	0.02
19:27:53	1092.0	91.7	27.7	112	140	2016	374	326	1.07	1.08	30.2	30.9	1074.3	533	75.0	2:26	1.14	0.91	0.02
19:28:45	1093.0	72.9	24.5	112	137	2023	379	329	1.07	1.08	30.2	30.9	1074.5	532	76.0	2:26	1.14	0.91	0.02
19:29:57	1094.0	52.5	24.9	112	150	2026	373	326	1.07	1.08	30.2	30.9	1074.9	533	77.0	2:28	1.15	1.00	0.02
19:31:52	1095.1	30.4	25.6	112	133	2008	375	330	1.07	1.08	30.2	30.9	1075.3	537	78.1	2:30	1.14	1.13	0.01

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
19:34:00	1096.0	33.5	31.3	111	153	2017	373	333	1.07	1.08	30.2	30.9	1075.8	538	79.0	2:32	1.15	1.24	0.01
19:35:37	1097.0	33.2	30.4	110	141	2028	372	332	1.07	1.08	30.2	30.8	1076.4	540	80.0	2:33	1.14	1.15	0.01
19:38:25	1098.0	22.1	33.3	110	153	2017	370	326	1.07	1.08	30.2	30.8	1077.0	542	81.0	2:36	1.14	1.34	0.02
19:41:46	1099.0	19.7	32.9	110	167	2027	368	320	1.07	1.08	30.3	30.8	1078.2	544	82.0	2:39	1.14	1.38	0.02
19:45:12	1100.0	25.4	33.3	109	181	2026	369	325	1.07	1.10	30.3	30.8	1079.0	549	83.0	2:43	1.15	1.38	0.02
19:47:48	1101.1	46.0	31.9	108	172	2015	377	330	1.07	1.10	30.3	30.8	1080.3	551	84.1	2:45	1.15	1.23	0.03
20:00:48	1102.1	72.0	11.4	100	175	1957	337	324	1.07	1.09	30.3	30.7	1089.4	576	85.1	2:46	1.15	0.97	0.01
20:05:07	1104.0	50.0	10.6	116	170	2004	376	527	1.07	0.88	30.3	30.2	1079.0	571	87.3	2:51	1.15	0.78	0.03
20:05:07	1106.3	50.0	13.3	116	136	2042	386	527	1.07	0.88	30.3	30.2	1079.0	571	89.3	2:51	1.15	0.78	0.03
20:06:07	1107.0	31.0	12.2	112	104	1965	397	333	1.07	1.09	30.3	30.2	1080.1	571	90.0	2:52	1.15	0.87	0.03
20:06:56	1108.0	27.9	16.9	112	116	1994	377	333	1.07	1.09	30.3	30.2	1080.7	571	91.0	2:52	1.15	1.03	0.03
20:09:35	1109.1	38.4	21.1	112	129	1995	399	339	1.07	1.09	30.2	30.3	1087.0	570	92.1	2:55	1.15	1.08	0.02
20:10:29	1110.1	71.1	20.6	112	118	2013	381	346	1.07	1.08	30.3	30.4	1087.7	571	93.1	2:56	1.15	0.87	0.02
20:11:50	1111.0	49.5	17.7	111	143	2021	376	334	1.07	1.08	30.3	30.5	1088.6	571	94.0	2:57	1.15	0.94	0.02
20:13:24	1112.0	35.0	28.9	112	147	2003	373	332	1.07	1.08	30.3	30.6	1089.7	573	95.0	2:59	1.15	1.13	0.02
20:14:46	1113.0	42.5	27.9	113	143	2024	376	333	1.07	1.08	30.3	30.7	1090.7	573	96.0	3:00	1.15	1.06	0.02
20:15:39	1114.1	75.6	29.2	113	153	2024	382	333	1.07	1.09	30.2	30.8	1091.3	575	97.1	3:01	1.15	0.93	0.02
20:16:39	1115.0	58.0	29.5	113	160	2008	384	342	1.07	1.09	30.2	30.8	1092.0	575	98.0	3:02	1.15	1.01	0.02
20:17:32	1116.1	81.8	26.7	113	150	2029	379	334	1.07	1.08	30.2	30.8	1092.6	576	99.1	3:03	1.15	0.91	0.02
20:18:22	1117.0	63.1	26.7	113	147	2035	374	329	1.07	1.08	30.3	30.8	1093.2	574	100.0	3:04	1.15	0.93	0.02
20:19:24	1118.1	76.4	29.2	113	163	2030	376	328	1.07	1.08	30.3	30.8	1093.8	574	101.1	3:05	1.15	1.00	0.02
20:20:17	1119.0	64.6	28.0	113	160	2015	376	332	1.07	1.08	30.3	30.9	1094.5	574	102.0	3:06	1.15	0.96	0.02
20:21:31	1120.1	43.9	28.2	113	149	2028	376	329	1.07	1.08	30.2	30.9	1095.3	573	103.1	3:07	1.15	1.03	0.02
20:23:20	1121.1	31.6	30.5	113	162	2031	370	325	1.07	1.08	30.3	31.0	1096.6	574	104.1	3:09	1.15	1.17	0.02
20:24:51	1122.0	43.8	27.9	113	159	2026	376	334	1.07	1.08	30.3	31.1	1097.6	575	105.0	3:10	1.15	1.11	0.02
20:26:08	1123.0	42.3	28.1	113	174	2028	372	330	1.07	1.08	30.3	31.1	1098.5	585	106.0	3:11	1.15	1.04	0.02
20:27:01	1124.0	73.0	28.2	113	159	2018	376	326	1.07	1.08	30.3	31.1	1099.1	585	107.0	3:12	1.15	0.95	0.01
20:27:52	1125.0	80.4	27.7	113	154	2037	383	336	1.07	1.08	30.3	31.1	1099.7	584	108.0	3:13	1.15	0.94	0.01
20:28:45	1126.0	65.8	27.6	113	144	2040	380	342	1.07	1.08	30.3	31.1	1100.3	587	109.0	3:14	1.15	0.92	0.01
20:29:40	1127.0	62.1	28.1	113	171	2031	368	322	1.07	1.09	30.3	31.1	1100.9	587	110.0	3:15	1.15	0.97	0.01
20:30:51	1128.1	78.5	27.6	113	156	2033	374	323	1.07	1.09	30.3	31.1	1101.7	586	111.1	3:16	1.15	0.93	0.02
20:31:41	1129.0	74.8	24.9	113	153	2035	375	328	1.07	1.09	30.3	31.1	1102.3	583	112.0	3:17	1.15	0.90	0.02
20:32:56	1130.1	52.9	23.7	113	143	2046	375	330	1.07	1.09	30.4	31.1	1103.3	583	113.1	3:18	1.15	0.95	0.02
20:43:38	1131.0	55.2	21.2	113	133	2005	378	334	1.07	1.09	30.4	31.0	1110.5	605	114.0	3:19	1.15	0.89	0.01
20:44:34	1132.1	71.5	19.8	112	138	1943	369	327	1.07	1.09	30.4	30.7	1111.2	605	115.1	3:20	1.15	0.87	0.01
20:45:32	1133.1	54.1	22.2	112	144	1987	371	329	1.07	1.09	30.4	30.6	1112.0	598	116.1	3:21	1.15	0.92	0.02
20:46:38	1134.1	56.4	26.4	112	166	1995	387	347	1.07	1.09	30.4	30.4	1112.9	598	117.1	3:22	1.15	0.97	0.02
20:47:41	1135.1	45.8	27.3	112	165	1997	394	357	1.07	1.10	30.5	30.2	1113.8	598	118.1	3:23	1.15	1.00	0.03
20:48:39	1136.0	59.4	29.2	112	161	1968	372	335	1.07	1.09	30.5	30.1	1114.6	596	119.0	3:24	1.15	0.98	0.03
20:50:15	1137.0	52.7	29.4	113	163	1990	385	337	1.07	1.10	30.5	30.1	1115.9	596	120.0	3:26	1.15	1.10	0.03
20:51:16	1138.0	63.7	22.3	114	132	1983	379	330	1.07	1.10	30.5	30.1	1116.7	596	121.0	3:27	1.15	0.91	0.03
20:52:37	1139.0	37.5	22.6	114	158	1978	383	347	1.07	1.10	30.5	30.2	1117.8	596	122.0	3:28	1.15	1.01	0.03
20:53:40	1140.0	72.4	26.2	114	165	1995	381	345	1.07	1.11	30.5	30.2	1118.7	594	123.0	3:29	1.15	0.98	0.03
20:54:27	1141.0	92.1	27.3	113	187	2001	378	337	1.07	1.10	30.5	30.3	1119.3	594	124.0	3:30	1.15	0.91	0.03
20:55:17	1142.0	76.0	26.4	113	158	1961	377	329	1.07	1.10	30.5	30.4	1120.0	594	125.0	3:31	1.15	0.93	0.04
20:56:02	1143.1	71.5	26.2	114	169	1981	381	335	1.07	1.10	30.5	30.5	1120.6	595	126.1	3:31	1.15	0.87	0.04
20:56:49	1144.0	75.2	27.4	114	162	1994	380	336	1.07	1.10	30.5	30.5	1121.2	585	127.0	3:32	1.15	0.93	0.04
20:57:48	1145.0	58.6	26.2	114	138	1996	376	331	1.07	1.10	30.5	30.6	1122.0	584	128.0	3:33	1.15	0.96	0.04
21:01:27	1146.0	31.8	30.0	114	135	1981	371	329	1.07	1.10	30.5	30.7	1124.9	583	129.0	3:37	1.15	1.35	0.03
21:02:41	1147.0	61.6	24.3	114	134	1962	376	323	1.07	1.10	30.5	30.8	1125.9	582	130.0	3:38	1.15	0.99	0.03
21:03:40	1148.0	69.8	25.6	114	145	1986	380	335	1.07	1.10	30.5	30.8	1126.7	582	131.0	3:39	1.15	0.95	0.03
21:04:27	1149.0	82.9	27.3	114	155	1990	384	341	1.07	1.10	30.5	30.8	1127.3	582	132.0	3:40	1.15	0.91	0.03
21:05:29	1150.0	51.0	28.3	114	151	1989	376	333	1.07	1.10	30.6	30.8	1127.7	584	133.0	3:41	1.15	1.00	0.03

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT gpm	MUD DENSITY IN sg	MUD DENSITY OUT sg	MUD TEMP IN deg C	MUD TEMP OUT deg C	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
21:06:23	1151.0	67.9	28.5	114	164	1964	382	336	1.07	1.10	30.6	30.9	1128.5	583	134.0	3:42	1.15	0.96	0.04
21:07:31	1152.0	49.5	27.7	114	159	1990	374	329	1.07	1.10	30.5	30.9	1129.7	584	135.0	3:43	1.15	1.01	0.04
21:09:09	1153.0	36.3	29.1	114	168	1977	378	340	1.07	1.09	30.6	31.0	1130.6	579	136.0	3:44	1.15	1.14	0.04
21:10:12	1154.0	62.3	25.9	114	161	1989	330	335	1.07	1.09	30.6	31.0	1130.6	579	137.0	3:46	1.15	0.96	0.04
21:11:08	1155.0	54.5	23.1	114	141	1456	297	318	1.07	1.09	30.6	31.1	1130.6	569	138.0	3:46	1.15	0.91	0.04
21:12:23	1156.0	47.2	20.9	114	138	1245	277	313	1.07	1.08	30.6	31.1	1130.6	574	139.0	3:48	1.15	0.96	0.04
21:13:57	1157.0	37.7	21.3	114	133	1234	276	310	1.07	1.09	30.6	31.0	1130.6	574	140.0	3:49	1.15	1.02	0.04
21:15:27	1158.0	42.8	20.6	114	142	1232	279	307	1.07	1.09	30.6	31.0	1130.6	573	141.0	3:51	1.15	1.00	0.04
21:17:17	1159.0	41.8	21.3	114	143	1229	285	311	1.07	1.09	30.6	30.9	1131.3	574	142.0	3:53	1.15	0.99	0.03
21:30:08	1160.0	52.2	23.3	112	147	1510	315	317	1.08	1.09	30.7	30.6	1140.5	575	143.0	3:54	1.15	1.00	0.03
21:31:10	1161.1	62.6	27.3	111	158	1983	379	332	1.08	1.10	30.8	30.0	1141.4	574	144.1	3:55	1.15	0.94	0.04
21:31:53	1162.1	74.1	26.4	111	151	1990	376	334	1.08	1.10	30.8	29.9	1142.0	574	145.1	3:56	1.15	0.87	0.03
21:32:39	1163.0	70.2	26.6	111	151	2066	386	337	1.08	1.10	30.8	29.8	1142.7	573	146.0	3:56	1.15	0.90	0.03
21:34:44	1164.1	52.2	27.5	111	154	2084	381	339	1.08	1.10	30.8	29.9	1144.4	574	147.1	3:59	1.15	1.13	0.04
21:35:34	1165.0	68.5	25.7	111	161	2045	389	356	1.08	1.10	30.8	30.0	1145.2	568	148.0	3:59	1.16	0.92	0.05
21:36:25	1166.0	64.5	26.8	111	158	2086	384	349	1.08	1.10	30.8	30.1	1146.0	568	149.0	4:00	1.15	0.92	0.05
21:37:26	1167.0	52.8	27.2	111	157	2089	386	341	1.08	1.10	30.8	30.2	1146.8	577	150.0	4:01	1.15	0.98	0.04
21:39:30	1168.0	25.9	29.8	111	157	2080	374	339	1.08	1.10	30.7	30.4	1148.5	568	151.0	4:03	1.15	1.19	0.03
21:40:51	1169.0	47.0	26.9	111	151	2083	377	342	1.08	1.10	30.7	30.5	1149.8	568	152.0	4:05	1.15	1.05	0.03
21:41:57	1170.0	54.3	27.0	111	162	2079	387	343	1.08	1.10	30.7	30.7	1150.7	568	153.0	4:06	1.15	0.98	0.03
21:43:27	1171.0	34.5	28.5	111	161	2072	377	345	1.08	1.10	30.7	30.8	1152.0	567	154.0	4:07	1.15	1.10	0.04
21:46:03	1172.0	22.9	29.4	111	159	2073	379	342	1.08	1.10	30.7	30.9	1154.2	568	155.0	4:10	1.15	1.26	0.04
2[illegible]7:42	1173.0	39.8	26.6	111	149	2083	376	341	1.08	1.10	30.7	31.0	1155.6	567	156.0	4:11	1.15	1.10	0.04
2[illegible]0:46	1174.0	14.5	28.5	111	165	2106	373	333	1.08	1.10	30.7	31.1	1158.2	565	157.0	4:15	1.15	1.30	0.03
21:54:47	1175.0	14.5	28.2	111	165	2102	369	329	1.08	1.10	30.7	31.2	1159.6	565	158.0	4:19	1.15	1.38	0.02
21:58:11	1176.0	15.7	28.4	111	156	2120	367	330	1.08	1.09	30.7	31.2	1159.6	566	159.0	4:22	1.15	1.32	0.02
22:01:31	1177.1	40.7	29.4	111	162	2123	380	338	1.08	1.09	30.8	31.2	1159.6	557	160.1	4:25	1.15	1.33	0.02
22:05:02	1178.0	17.7	29.3	111	159	2130	369	326	1.08	1.10	30.9	31.1	1159.6	554	161.0	4:29	1.15	1.35	0.02
22:08:35	1179.0	15.5	30.0	111	163	2117	372	330	1.08	1.10	30.9	31.1	1159.6	554	162.0	4:32	1.16	1.34	0.02
22:10:40	1180.0	42.4	28.2	111	142	2098	369	325	1.08	1.11	30.9	31.2	1160.9	555	163.0	4:34	1.15	1.15	0.04
22:13:53	1181.0	15.9	28.8	111	158	2108	371	331	1.08	1.11	31.0	31.2	1163.3	554	164.0	4:38	1.15	1.33	0.03
22:17:13	1182.0	17.7	29.7	111	156	2116	371	328	1.08	1.11	31.0	31.3	1165.9	554	165.0	4:41	1.15	1.34	0.02
22:21:00	1183.0	18.0	28.2	111	155	2121	372	332	1.08	1.11	31.0	31.4	1168.2	555	166.0	4:45	1.15	1.33	0.02
22:25:06	1184.0	13.5	28.1	111	144	2081	369	328	1.08	1.10	31.0	31.5	1171.5	566	167.0	4:49	1.15	1.37	0.02
22:29:48	1185.0	15.1	28.6	111	154	2046	374	330	1.08	1.09	31.1	31.5	1173.4	555	168.0	4:54	1.15	1.41	0.02
22:34:26	1186.0	13.5	28.7	111	157	2083	368	330	1.08	1.09	31.2	31.6	1174.4	556	169.0	4:58	1.15	1.42	0.02
22:38:24	1187.1	19.5	28.4	111	154	2071	371	331	1.08	1.10	31.2	31.7	1175.4	555	170.1	5:02	1.15	1.35	0.02
22:42:04	1188.0	18.2	29.1	111	160	2085	365	323	1.08	1.10	31.3	31.6	1176.3	555	171.0	5:06	1.16	1.36	0.02
22:57:48	1189.0	15.8	29.4	110	168	1987	367	324	1.08	1.09	31.4	31.7	1180.4	564	172.0	5:09	1.16	1.34	0.01
22:59:57	1190.0	30.0	29.6	113	160	2005	370	331	1.08	1.09	31.4	31.3	1180.9	564	173.0	5:11	1.16	1.20	0.02
23:02:17	1191.0	37.1	29.4	113	165	2020	375	334	1.07	1.08	31.5	31.1	1181.5	566	174.0	5:13	1.16	1.24	0.02
23:05:25	1192.1	17.6	30.6	113	175	1964	379	330	1.07	1.09	31.5	31.0	1182.3	566	175.1	5:16	1.16	1.29	0.02
23:09:15	1193.0	14.8	29.4	113	169	2025	368	330	1.08	1.08	31.4	31.4	1183.4	566	176.0	5:20	1.16	1.38	0.02
23:13:01	1194.0	14.9	27.9	113	164	2052	369	324	1.08	1.08	31.4	31.6	1184.4	564	177.0	5:24	1.16	1.35	0.02
23:16:37	1195.0	18.2	27.5	113	165	1555	366	322	1.07	1.08	31.4	31.6	1185.4	563	178.0	5:28	1.16	1.35	0.02
23:20:24	1196.1	25.0	27.0	113	163	1446	267	315	1.08	1.08	31.4	31.6	1186.4	564	179.1	5:31	1.16	1.27	0.02
23:23:48	1197.0	17.6	27.4	113	156	2084	270	324	1.08	1.08	31.4	31.6	1187.4	565	180.0	5:35	1.15	1.32	0.02
23:27:48	1198.0	13.0	29.3	113	164	2106	384	333	1.07	1.09	31.4	31.5	1188.6	564	181.0	5:39	1.16	1.37	0.02
[illegible]:17	1199.0	16.6	26.5	114	156	2103	386	332	1.07	1.09	31.4	31.5	1189.6	564	182.0	5:42	1.15	1.31	0.02
23:35:11	1200.0	14.9	28.1	113	156	2107	394	325	1.07	1.08	31.5	31.7	1190.7	553	183.0	5:46	1.15	1.37	0.02
23:39:33	1201.0	15.1	26.9	114	151	2115	399	327	1.07	1.08	31.5	31.8	1191.7	554	184.0	5:50	1.15	1.38	0.02
23:43:59	1202.0	12.4	25.5	114	152	2102	401	333	1.07	1.08	31.5	31.8	1192.9	558	185.0	5:55	1.13	1.41	0.02
23:48:15	1203.0	12.7	25.3	114	144	2112	407	332	1.07	1.07	31.6	31.9	1194.0	558	186.0	5:59	1.12	1.36	0.01

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
23:52:09	1204.0	19.0	24.7	114	141	2127	410	328	1.08	1.07	31.6	31.9	1195.0	557	187.0	6:03	1.13	1.34	0.02
23:56:19	1205.0	13.3	24.4	113	140	2102	411	369	1.07	1.08	31.7	32.0	1196.5	558	188.0	6:07	1.13	1.35	0.02
23rd February 1993																			
00:01:28	1206.0	13.4	25.3	113	147	2112	413	416	1.08	1.08	31.7	32.0	1198.5	558	189.0	6:12	1.13	1.41	0.02
00:05:48	1207.0	13.8	24.7	113	153	2103	413	414	1.08	1.08	31.8	32.0	1199.9	558	190.0	6:17	1.13	1.36	0.02
00:10:19	1208.0	12.6	24.7	113	142	2093	413	417	1.07	1.07	31.9	32.0	1200.7	557	191.0	6:21	1.13	1.38	0.02
00:14:38	1209.0	16.6	24.2	113	150	2116	414	426	1.07	1.08	31.9	32.0	1202.0	558	192.0	6:26	1.13	1.36	0.02
00:18:29	1210.0	16.7	25.8	113	148	2116	413	415	1.07	1.08	31.9	32.1	1203.0	557	193.0	6:29	1.13	1.35	0.02
00:24:02	1211.0	10.0	26.4	114	144	2144	413	409	1.07	1.09	32.0	32.1	1204.5	555	194.0	6:35	1.13	1.46	0.02
00:28:25	1212.0	12.4	26.6	115	145	2130	414	409	1.07	1.08	32.0	32.2	1205.3	555	195.0	6:39	1.13	1.41	0.02
00:33:35	1213.0	11.0	26.5	115	143	2171	414	408	1.07	1.08	32.1	32.3	1206.4	556	196.0	6:45	1.13	1.44	0.02
00:38:20	1214.0	12.5	27.5	115	152	2182	414	418	1.07	1.08	32.1	32.4	1207.4	557	197.0	6:49	1.13	1.44	0.02
00:43:15	1215.0	11.0	26.1	115	140	2165	414	421	1.07	1.08	32.2	32.4	1208.4	554	198.0	6:54	1.13	1.43	0.02
00:47:35	1216.0	13.3	26.4	115	137	2154	414	408	1.07	1.08	32.2	32.5	1209.4	554	199.0	6:59	1.13	1.40	0.02
00:52:29	1217.0	12.4	27.4	115	139	2160	414	408	1.07	1.08	32.3	32.6	1210.4	555	200.0	7:03	1.13	1.45	0.02
01:10:26	1218.0	7.4	27.3	115	144	2139	414	403	1.07	1.08	32.3	32.6	1213.1	554	201.0	7:09	1.13	1.49	0.02
01:14:39	1219.0	14.1	30.4	116	159	2164	414	285	1.07	1.08	32.5	32.4	1214.0	554	202.0	7:14	1.13	1.45	0.02
01:20:17	1220.0	17.5	26.9	116	148	2088	408	289	1.07	1.08	32.5	32.5	1215.0	555	203.0	7:19	1.13	1.49	0.02
01:23:50	1221.0	21.6	25.2	116	137	2025	401	272	1.07	1.08	32.5	32.6	1215.8	556	204.0	7:23	1.13	1.33	0.02
01:28:15	1222.0	11.7	25.4	116	144	2046	401	278	1.08	1.08	32.5	32.7	1216.6	545	205.0	7:27	1.13	1.40	0.02
01:33:21	1223.0	19.0	25.5	116	138	2047	401	273	1.08	1.08	32.5	32.8	1217.5	546	206.0	7:32	1.13	1.42	0.02
01:38:05	1224.0	14.4	25.3	116	139	2068	401	286	1.08	1.08	32.6	32.9	1218.0	545	207.0	7:37	1.13	1.37	0.02
01:44:08	1225.0	10.5	24.5	116	133	2044	401	276	1.08	1.09	32.6	33.0	1218.0	545	208.0	7:43	1.13	1.46	0.02
01:48:30	1226.0	24.5	27.0	116	148	2081	400	268	1.08	1.11	32.7	33.0	1218.7	544	209.0	7:47	1.13	1.41	0.02
01:54:30	1227.0	8.8	26.2	116	143	2094	400	279	1.08	1.13	32.7	33.0	1219.8	544	210.0	7:53	1.13	1.49	0.02
01:59:10	1228.1	12.2	26.4	116	149	2091	400	287	1.08	1.14	32.8	33.1	1220.8	546	211.1	7:58	1.13	1.41	0.02
02:03:51	1229.0	12.9	25.3	116	134	2093	401	269	1.08	1.14	32.9	33.2	1221.9	546	212.0	8:03	1.13	1.41	0.02
02:09:23	1230.1	11.9	26.0	116	141	2086	401	267	1.08	1.14	32.9	33.3	1223.1	548	213.1	8:08	1.13	1.43	0.02
02:14:05	1231.0	14.0	26.7	116	144	2085	400	269	1.08	1.14	33.0	33.2	1224.0	547	214.0	8:13	1.13	1.43	0.02
02:19:30	1232.0	13.1	26.3	116	144	2096	400	273	1.08	1.13	33.1	33.4	1224.7	547	215.0	8:18	1.13	1.46	0.02
02:24:52	1233.0	11.3	26.4	116	139	2095	401	281	1.08	1.15	33.2	33.4	1225.8	539	216.0	8:24	1.13	1.45	0.02
02:30:13	1234.1	11.7	25.8	116	136	2106	401	273	1.08	1.15	33.3	33.5	1226.7	528	217.1	8:29	1.13	1.44	0.02
02:35:42	1235.0	11.6	26.4	116	133	2133	401	271	1.08	1.14	33.3	33.6	1227.8	537	218.0	8:35	1.13	1.47	0.02
02:40:11	1236.0	13.4	26.3	116	139	2111	401	287	1.08	1.13	33.4	33.7	1228.6	537	219.0	8:39	1.13	1.41	0.02
02:46:05	1237.1	10.0	26.3	116	135	2115	401	377	1.08	1.13	33.5	33.7	1229.8	536	220.1	8:45	1.13	1.47	0.02
02:50:52	1238.0	12.7	26.8	116	140	2104	401	376	1.08	1.14	33.5	33.9	1230.6	536	221.0	8:50	1.13	1.43	0.02
03:13:13	1239.0	17.0	29.1	116	155	2149	405	383	1.08	1.14	33.7	33.2	1231.9	536	222.0	8:53	1.13	1.38	0.01
03:17:33	1240.0	30.8	29.6	116	143	2163	406	366	1.08	1.12	33.7	32.0	1232.7	525	223.0	8:58	1.13	1.44	0.01
03:21:56	1241.0	14.6	31.5	116	151	2193	406	368	1.08	1.12	33.7	32.5	1233.5	526	224.0	9:02	1.13	1.47	0.02
03:26:47	1242.0	12.2	31.5	116	148	2184	407	376	1.08	1.12	33.5	33.1	1234.4	525	225.0	9:07	1.13	1.50	0.02
03:31:34	1243.0	15.3	30.3	116	148	2191	407	377	1.08	1.11	33.4	33.6	1235.2	526	226.0	9:12	1.13	1.48	0.02
03:36:52	1244.0	10.7	30.1	116	154	2204	407	366	1.08	1.11	33.4	34.0	1236.6	517	227.0	9:17	1.13	1.52	0.02
03:41:43	1245.0	10.5	30.3	116	149	2190	407	373	1.08	1.11	33.4	34.2	1237.1	521	228.0	9:22	1.13	1.49	0.02
03:46:31	1246.0	13.1	28.5	116	142	2176	407	377	1.08	1.11	33.5	34.4	1238.2	522	229.0	9:27	1.13	1.46	0.02
04:00:26	1247.0	13.0	27.2	116	133	2139	406	361	1.08	1.11	33.6	34.5	1239.6	530	230.0	9:31	1.13	1.44	0.01
04:04:01	1248.1	17.3	26.6	114	149	2040	398	413	1.08	1.11	33.9	34.2	1240.4	528	231.1	9:35	1.13	1.33	0.02
04:11:12	1249.1	11.8	26.0	114	138	2059	398	388	1.08	1.11	34.1	34.0	1242.1	527	232.1	9:42	1.13	1.44	0.02
04:14:33	1250.0	52.1	24.3	114	143	2079	398	380	1.08	1.10	34.3	34.0	1242.9	527	233.0	9:46	1.13	1.30	0.02
04:19:11	1251.0	12.4	26.6	114	147	2086	398	379	1.08	1.09	34.3	34.1	1244.1	528	234.0	9:50	1.13	1.42	0.02
04:24:06	1252.0	12.5	28.8	114	160	2096	398	383	1.08	1.09	34.3	34.2	1245.3	527	235.0	9:55	1.13	1.46	0.02
04:27:58	1253.0	18.4	27.1	114	153	2113	398	365	1.08	1.09	34.3	34.2	1246.2	526	236.0	9:59	1.13	1.33	0.02
04:30:41	1254.0	18.1	24.9	114	141	2158	398	384	1.08	1.09	34.3	34.2	1246.9	526	237.0	10:02	1.13	1.25	0.02
04:33:15	1255.0	23.5	25.9	114	156	2155	398	374	1.08	1.09	34.3	34.2	1247.5	526	238.0	10:04	1.13	1.22	0.03

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT- mts	-BIT- hh:mm	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
04:39:05	1256.0	11.3	27.6	114	150	2170	398	376	1.08	1.09	34.4	34.4	1248.7	525	239.0	10:10	1.13	1.50	0.04
04:44:06	1257.0	13.3	26.5	114	147	2166	398	377	1.08	1.09	34.5	34.3	1249.7	524	240.0	10:15	1.13	1.42	0.03
04:50:00	1258.1	11.2	26.9	114	146	2143	398	354	1.08	1.09	34.5	34.4	1251.0	525	241.1	10:21	1.13	1.47	0.04
04:55:11	1259.1	13.3	27.7	114	149	2173	398	359	1.08	1.09	34.5	34.5	1252.0	522	242.1	10:26	1.13	1.48	0.03
05:00:59	1260.0	10.6	26.3	114	144	2190	398	364	1.08	1.10	34.5	34.6	1254.0	522	243.0	10:32	1.13	1.47	0.04
05:07:58	1261.0	8.9	27.7	114	142	2181	398	361	1.08	1.10	34.5	34.7	1255.4	524	244.0	10:39	1.13	1.54	0.07
05:12:55	1262.0	12.5	27.8	114	148	2184	398	347	1.08	1.10	34.5	34.8	1256.3	518	245.0	10:44	1.13	1.45	0.06
05:19:00	1263.0	11.1	29.0	114	147	2179	398	351	1.08	1.10	34.6	34.9	1257.4	517	246.0	10:50	1.13	1.49	0.04
05:24:52	1264.0	9.8	29.2	114	149	2184	398	358	1.09	1.10	34.6	35.0	1258.4	518	247.0	10:56	1.14	1.52	0.04
05:29:12	1265.0	13.9	29.5	114	154	2201	399	356	1.09	1.11	34.7	35.1	1259.2	519	248.0	11:00	1.14	1.45	0.04
05:33:57	1266.0	16.2	29.4	114	147	2210	398	356	1.09	1.12	34.8	35.2	1259.9	519	249.0	11:05	1.14	1.47	0.03
05:38:01	1267.0	11.7	29.4	114	155	2202	399	367	1.09	1.13	34.8	35.2	1260.5	518	250.0	11:09	1.14	1.41	0.03
05:43:34	1268.0	13.7	29.2	114	147	2210	399	356	1.09	1.13	34.9	35.2	1261.4	517	251.0	11:15	1.14	1.49	0.03
05:48:29	1269.0	14.4	29.7	114	150	2183	399	361	1.09	1.12	35.0	35.3	1262.2	516	252.0	11:19	1.14	1.47	0.02
05:52:26	1270.0	11.9	29.4	114	150	2176	399	347	1.09	1.11	35.0	35.4	1262.9	515	253.0	11:23	1.14	1.41	0.02
05:56:09	1271.0	17.2	29.2	114	142	2205	399	364	1.09	1.11	35.1	35.5	1263.5	515	254.0	11:27	1.14	1.39	0.02
05:59:51	1272.0	17.6	29.1	114	147	2223	399	371	1.09	1.11	35.2	35.4	1264.1	515	255.0	11:31	1.14	1.39	0.02
06:03:45	1273.0	17.3	29.5	114	151	2191	399	359	1.08	1.10	35.2	35.4	1265.1	514	256.0	11:35	1.14	1.40	0.02
06:07:33	1274.0	15.6	29.0	114	153	2230	399	386	1.09	1.10	35.3	35.4	1265.7	509	257.0	11:39	1.14	1.39	0.03
06:11:43	1275.0	13.9	29.5	114	144	2251	399	355	1.08	1.10	35.3	35.4	1266.7	508	258.0	11:43	1.14	1.42	0.04
06:15:37	1276.0	25.5	29.6	114	144	2223	399	360	1.08	1.10	35.4	35.5	1267.4	508	259.0	11:47	1.14	1.41	0.04
06:32:56	1277.0	32.4	25.0	115	148	2259	405	90	1.09	1.10	35.4	35.0	1269.6	511	260.0	11:49	1.14	1.21	0.04
0[illegible]5:22	1278.0	25.1	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	511	261.0	11:52	1.14	1.23	0.04
[illegible]5:22	1280.0	15.0	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	513	263.0	11:58	1.14	1.40	0.04
06:35:22	1282.0	16.0	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	513	265.0	12:04	1.14	1.42	0.04
06:35:22	1284.0	16.0	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	514	267.0	12:10	1.14	1.41	0.04
06:35:22	1286.0	15.2	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	515	269.0	12:16	1.14	1.43	0.04
06:35:22	1287.0	15.2	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	513	270.0	12:22	1.14	1.41	0.04
06:35:22	1289.0	15.0	27.7	115	156	2260	408	11	1.09	1.11	35.4	34.7	1270.1	513	272.0	12:28	1.14	1.43	0.04
07:39:00	1291.0	14.8	29.7	115	147	2222	399	415	1.09	1.12	33.1	33.4	1284.0	505	274.0	12:35	1.14	1.41	0.04
07:39:00	1293.0	14.8	29.7	115	147	2222	399	415	1.09	1.12	33.1	33.4	1284.0	506	276.0	12:45	1.14	1.41	0.04
07:42:27	1294.0	20.4	30.4	115	162	2239	402	417	1.09	1.12	35.6	36.0	1285.0	507	277.0	12:48	1.14	1.37	0.04
07:43:54	1295.0	53.7	26.1	115	148	2231	402	447	1.09	1.13	35.7	36.0	1285.5	505	278.0	12:50	1.14	1.03	0.04
07:45:58	1296.0	28.4	25.0	115	138	2207	402	438	1.09	1.13	35.7	36.1	1286.1	504	279.0	12:52	1.14	1.18	0.04
07:55:05	1297.0	16.3	31.3	115	129	2202	402	440	1.09	1.14	35.8	36.1	1288.9	504	280.0	13:01	1.14	1.66	0.04
08:00:18	1298.0	12.1	30.1	115	134	2195	402	446	1.09	1.16	35.8	36.0	1290.5	504	281.0	13:06	1.14	1.49	0.06
08:02:35	1299.0	26.6	28.3	115	147	2199	402	434	1.09	1.16	35.9	36.1	1291.3	503	282.0	13:09	1.14	1.23	0.06
08:04:56	1300.0	22.4	24.3	115	135	2196	402	434	1.09	1.15	35.9	36.2	1292.0	515	283.0	13:11	1.14	1.18	0.06
08:11:27	1301.0	10.0	31.5	115	133	2194	402	434	1.09	1.15	35.9	36.2	1293.4	516	284.0	13:17	1.14	1.58	0.04
08:14:53	1302.0	25.5	29.4	115	148	2193	402	408	1.09	1.15	36.0	36.2	1295.0	514	285.0	13:21	1.14	1.36	0.04
08:33:56	1303.0	17.8	29.9	114	142	2198	404	439	1.09	1.11	35.9	35.4	1296.6	506	286.0	13:22	1.14	1.28	0.03
08:34:49	1304.0	14.6	29.7	114	154	2234	403	453	1.09	1.10	35.9	35.0	1296.7	495	287.0	13:23	1.14	1.34	0.03
08:37:29	1305.0	16.7	24.5	114	134	2188	404	406	1.09	1.10	35.9	35.0	1297.3	502	288.0	13:26	1.14	1.37	0.03
08:38:51	1306.0	17.7	26.6	114	144	2215	404	425	1.09	1.10	35.9	35.0	1297.7	501	289.0	13:27	1.14	1.35	0.03
08:42:16	1307.1	19.5	28.6	114	149	2222	403	432	1.09	1.10	35.9	35.1	1298.6	502	290.1	13:31	1.14	1.33	0.03
08:45:33	1308.0	18.4	27.8	114	153	2215	404	447	1.09	1.11	35.8	35.3	1299.5	504	291.0	13:34	1.14	1.32	0.04
08:49:03	1309.0	14.6	29.0	115	153	2221	403	437	1.09	1.11	35.8	35.6	1300.5	514	292.0	13:38	1.14	1.36	0.04
08:53:13	1310.0	14.6	27.6	115	150	2212	404	444	1.09	1.11	35.7	35.8	1301.6	525	293.0	13:42	1.14	1.38	0.03
[illegible]7:14	1311.0	14.7	27.0	115	149	2220	403	450	1.09	1.12	35.6	35.8	1302.7	524	294.0	13:46	1.14	1.37	0.03
09:01:14	1312.0	15.1	27.2	115	148	2207	404	449	1.09	1.13	35.6	35.9	1303.8	534	295.0	13:50	1.14	1.38	0.04
09:05:43	1313.0	11.7	28.4	115	147	2213	403	428	1.09	1.13	35.6	35.8	1305.1	534	296.0	13:54	1.14	1.42	0.04
09:11:01	1314.0	8.6	27.9	115	149	2223	403	429	1.09	1.13	35.6	35.7	1306.4	543	297.0	13:60	1.14	1.47	0.04
09:12:32	1315.0	66.5	24.0	115	154	2205	404	458	1.09	1.14	35.6	35.7	1306.8	544	298.0	14:01	1.14	1.01	0.04

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TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg	deg C		m	bbl	mts	hh:mm	sg		%
09:13:38	1316.0	54.0	21.9	115	161	2197	404	441	1.09	1.14	35.6	35.6	1307.1	544	299.0	14:02	1.14	0.95	0.04
09:16:44	1317.0	15.7	29.8	115	162	2219	404	436	1.09	1.14	35.6	35.6	1308.0	543	300.0	14:05	1.14	1.34	0.04
09:19:26	1318.0	29.4	28.3	115	161	2211	404	451	1.09	1.15	35.6	35.5	1308.8	556	301.0	14:08	1.14	1.29	0.04
09:21:57	1319.1	28.9	27.2	115	142	2198	404	426	1.09	1.15	35.6	35.5	1309.4	556	302.1	14:11	1.14	1.23	0.04
09:24:08	1320.0	31.9	26.1	115	151	2199	403	463	1.09	1.15	35.6	35.5	1309.9	555	303.0	14:13	1.14	1.20	0.04
09:26:23	1321.0	26.4	27.0	115	169	2225	404	461	1.09	1.15	35.6	35.4	1310.4	554	304.0	14:15	1.14	1.22	0.04
09:29:44	1322.0	20.9	27.1	115	158	2220	403	447	1.09	1.15	35.6	35.4	1311.2	566	305.0	14:18	1.14	1.32	0.04
09:32:02	1323.0	26.6	26.6	115	162	2213	404	445	1.09	1.16	35.6	35.4	1312.0	567	306.0	14:21	1.14	1.22	0.04
09:36:03	1324.0	15.8	27.4	115	148	2218	403	444	1.09	1.16	35.6	35.4	1312.9	565	307.0	14:25	1.14	1.37	0.04
09:38:21	1325.0	25.9	27.5	115	160	2212	404	445	1.09	1.16	35.6	35.3	1313.1	572	308.0	14:27	1.14	1.21	0.04
09:40:29	1326.1	35.7	26.0	115	159	2232	404	437	1.09	1.16	35.5	35.2	1313.6	572	309.1	14:29	1.14	1.15	0.04
09:42:46	1327.1	40.4	26.4	115	161	2217	403	438	1.09	1.15	35.5	35.1	1313.9	573	310.1	14:31	1.14	1.18	0.04
09:45:32	1328.0	19.4	27.3	115	156	2230	404	437	1.09	1.16	35.5	35.1	1315.4	575	311.0	14:34	1.14	1.28	0.05
09:48:58	1329.0	18.1	27.0	115	149	2214	404	441	1.09	1.16	35.5	35.1	1316.9	576	312.0	14:38	1.14	1.34	0.06
09:52:05	1330.0	20.9	26.8	115	155	2223	404	449	1.09	1.14	35.5	35.2	1317.9	575	313.0	14:41	1.14	1.31	0.06
09:55:35	1331.0	18.8	27.6	115	156	2226	404	445	1.09	1.14	35.4	35.1	1319.3	586	314.0	14:44	1.14	1.32	0.05
09:58:17	1332.0	33.3	27.6	115	157	2240	404	435	1.09	1.14	35.4	35.0	1320.5	585	315.0	14:47	1.14	1.27	0.05
09:59:56	1333.1	41.3	26.6	115	164	2207	404	446	1.09	1.13	35.4	35.0	1321.1	594	316.1	14:48	1.14	1.12	0.05
10:14:06	1334.0	13.7	27.5	115	156	2215	406	443	1.09	1.11	35.4	34.9	1324.1	604	317.0	14:52	1.14	1.32	0.06
10:17:08	1335.1	25.8	29.2	114	167	2223	407	433	1.09	1.10	35.3	34.7	1325.3	603	318.1	14:55	1.14	1.29	0.14
10:19:50	1336.0	18.8	28.9	114	163	2227	405	203	1.09	1.10	35.2	34.6	1326.5	604	319.0	14:58	1.14	1.29	0.20
10:23:34	1337.0	16.5	31.2	114	168	2217	405	144	1.09	1.10	35.2	34.6	1328.0	605	320.0	15:01	1.14	1.42	0.18
10:26:26	1338.0	39.9	31.4	114	170	2233	404	605	1.09	1.10	35.1	34.7	1328.7	604	321.0	15:04	1.14	1.33	0.15
10:27:47	1339.0	45.1	29.4	114	166	2200	404	464	1.09	1.10	35.1	34.7	1329.1	604	322.0	15:06	1.14	1.09	0.13
10:29:12	1340.0	45.8	29.4	114	158	2228	405	459	1.09	1.10	35.1	34.8	1329.5	603	323.0	15:07	1.14	1.10	0.12
10:30:40	1341.0	44.8	28.1	114	151	2198	404	399	1.08	1.10	35.1	34.9	1330.0	606	324.0	15:08	1.14	1.10	0.10
10:32:12	1342.0	38.0	28.0	114	154	2205	405	473	1.09	1.11	35.0	34.9	1330.4	607	325.0	15:10	1.14	1.12	0.10
10:33:31	1343.0	48.4	27.6	114	156	2193	405	431	1.08	1.11	35.0	34.9	1330.8	607	326.0	15:11	1.14	1.08	0.10
10:34:48	1344.0	48.0	29.8	114	166	2174	405	494	1.08	1.11	35.0	34.8	1331.2	606	327.0	15:13	1.14	1.09	0.10
10:36:12	1345.0	39.8	30.5	114	164	2203	404	503	1.08	1.12	35.0	34.8	1331.6	607	328.0	15:14	1.14	1.13	0.09
10:37:27	1346.0	52.4	27.6	114	162	2183	405	498	1.09	1.12	35.0	34.9	1332.2	608	329.0	15:15	1.14	1.06	0.09
10:38:29	1347.0	62.1	28.6	114	160	2205	405	520	1.08	1.12	35.0	35.0	1333.1	606	330.0	15:16	1.14	1.02	0.10
10:39:44	1348.0	49.5	27.7	114	167	2211	404	457	1.09	1.12	35.0	35.0	1333.4	605	331.0	15:18	1.14	1.05	0.10
10:40:43	1349.0	68.7	28.8	114	170	2190	405	494	1.08	1.12	35.0	35.0	1333.4	607	332.0	15:19	1.14	1.01	0.10
10:42:00	1350.0	71.1	29.5	114	195	2218	405	400	1.08	1.12	35.0	35.0	1333.4	605	333.0	15:20	1.14	1.07	0.10
10:42:55	1351.0	57.3	28.3	114	178	2216	404	381	1.08	1.11	34.9	35.0	1333.4	594	334.0	15:21	1.14	0.97	0.10
10:44:15	1352.0	39.9	27.9	114	176	2211	404	402	1.09	1.11	35.0	35.0	1333.4	595	335.0	15:22	1.14	1.08	0.10
10:45:24	1353.0	56.8	27.6	114	178	2202	405	414	1.08	1.11	35.0	35.0	1333.4	594	336.0	15:23	1.14	1.03	0.10
10:46:44	1354.0	40.4	29.1	114	186	2210	405	387	1.08	1.12	34.9	35.1	1333.4	593	337.0	15:25	1.14	1.09	0.10
10:47:59	1355.0	51.2	29.0	114	170	2187	406	427	1.08	1.11	34.9	35.1	1333.6	601	338.0	15:26	1.14	1.07	0.10
10:49:30	1356.1	41.0	30.1	114	258	2208	405	415	1.08	1.11	34.9	35.1	1334.0	602	339.1	15:27	1.14	1.12	0.10
10:50:57	1357.1	53.4	28.8	114	183	2207	404	390	1.08	1.11	34.9	35.1	1334.5	604	340.1	15:29	1.14	1.10	0.10
10:52:21	1358.0	41.6	29.2	114	188	2186	404	430	1.08	1.11	34.9	35.1	1334.9	603	341.0	15:30	1.14	1.11	0.11
10:53:55	1359.0	43.9	27.2	114	164	2209	404	423	1.08	1.12	34.9	35.1	1335.4	604	342.0	15:32	1.14	1.08	0.11
10:55:02	1360.0	53.2	28.9	114	183	2219	405	436	1.08	1.12	34.9	35.1	1335.8	603	343.0	15:33	1.14	1.02	0.11
10:55:51	1361.1	76.5	27.9	114	196	2200	404	456	1.08	1.12	34.9	35.1	1336.0	602	344.1	15:34	1.14	0.93	0.10
10:57:13	1362.0	45.5	29.5	114	181	2210	404	446	1.08	1.12	34.9	35.1	1336.4	603	345.0	15:35	1.14	1.10	0.10
11:08:50	1363.0	43.8	28.7	115	170	2204	406	380	1.08	1.12	34.8	35.1	1339.9	602	346.0	15:37	1.14	1.13	0.04
11:10:05	1364.1	51.5	30.3	115	260	2232	409	364	1.08	1.12	34.9	35.1	1340.7	602	347.1	15:38	1.14	1.04	0.05
11:12:41	1365.1	19.7	29.0	115	199	2226	409	364	1.08	1.12	34.9	35.1	1342.5	601	348.1	15:40	1.14	1.29	0.05
11:15:27	1366.0	26.9	28.1	115	230	2243	409	341	1.08	1.13	34.8	34.9	1344.4	601	349.0	15:43	1.14	1.29	0.05
11:18:10	1367.0	21.4	30.7	115	223	2239	408	354	1.08	1.13	34.8	34.8	1346.5	601	350.0	15:46	1.14	1.32	0.06
11:21:15	1368.1	21.6	30.4	115	226	2202	404	456	1.09	1.13	34.8	34.9	1349.0	604	351.1	15:49	1.14	1.35	0.06

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT	MUD DENSITY IN sg	MUD DENSITY OUT	MUD TEMP IN deg C	MUD TEMP OUT	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
11:23:49	1369.1	30.2	28.6	115	184	2201	404	447	1.08	1.13	34.8	35.1	1351.4	601	352.1	15:52	1.14	1.22	0.05
11:25:13	1370.0	51.8	28.8	115	204	2207	404	456	1.08	1.13	34.8	35.2	1352.5	599	353.0	15:53	1.14	1.10	0.05
11:26:38	1371.0	42.0	28.4	115	222	2214	404	462	1.09	1.13	34.8	35.3	1353.6	597	354.0	15:54	1.14	1.10	0.05
11:27:58	1372.0	49.4	27.8	115	230	2217	405	508	1.08	1.13	34.8	35.3	1354.5	596	355.0	15:56	1.14	1.09	0.04
11:29:13	1373.0	48.4	25.8	115	192	2214	404	504	1.09	1.13	34.8	35.3	1355.4	598	356.0	15:57	1.14	1.03	0.04
11:30:27	1374.0	52.3	24.4	115	205	2185	404	371	1.08	1.13	34.8	35.3	1356.2	597	357.0	15:58	1.14	1.01	0.04
11:31:39	1375.1	59.2	25.1	115	239	2187	405	439	1.09	1.12	34.8	35.3	1357.0	596	358.1	15:59	1.14	1.00	0.05
11:32:54	1376.0	49.9	28.5	115	211	2187	404	420	1.08	1.12	34.8	35.4	1357.8	596	359.0	16:01	1.14	1.07	0.05
11:34:05	1377.0	45.2	30.3	115	268	2157	405	371	1.08	1.11	34.8	35.5	1358.5	596	360.0	16:02	1.14	1.07	0.06
11:35:27	1378.0	41.0	30.3	114	306	2183	404	437	1.09	1.11	34.8	35.4	1359.7	607	361.0	16:03	1.14	1.12	0.05
11:36:51	1379.0	48.4	27.5	111	287	2159	404	480	1.09	1.12	34.8	35.5	1361.0	605	362.0	16:05	1.14	1.04	0.05
11:41:00	1380.0	43.8	21.4	105	262	2166	403	448	1.09	1.11	34.8	35.5	1362.3	605	363.0	16:06	1.14	0.92	0.04
11:45:23	1381.0	23.4	7.5	92	227	2165	404	416	1.09	1.11	34.9	35.6	1362.3	602	364.0	16:09	1.14	0.84	0.04
11:52:28	1382.0	26.6	6.2	92	206	2144	404	446	1.09	1.11	34.9	35.8	1366.0	605	365.0	16:11	1.14	0.78	0.06
11:54:39	1383.1	34.3	15.3	111	207	2148	404	430	1.09	1.11	35.0	36.1	1366.8	606	366.1	16:13	1.14	1.00	0.06
11:55:51	1384.0	46.3	16.4	112	223	2162	404	421	1.09	1.11	35.0	36.1	1367.3	607	367.0	16:14	1.14	0.90	0.06
11:57:59	1385.0	20.3	17.7	112	155	2159	405	375	1.09	1.11	35.0	36.1	1367.6	606	368.0	16:16	1.14	1.06	0.06
12:00:54	1386.1	37.0	26.9	112	212	2171	404	371	1.09	1.11	35.1	36.1	1368.3	603	369.1	16:19	1.14	1.26	0.07
12:02:15	1387.0	45.3	21.9	112	221	2144	405	364	1.08	1.12	35.1	35.9	1368.9	602	370.0	16:21	1.14	1.00	0.07
12:08:10	1388.0	31.1	10.5	105	226	2125	405	428	1.09	1.13	35.2	35.8	1373.0	603	371.0	16:23	1.14	0.91	0.07
12:09:35	1389.0	41.3	7.9	113	272	2155	404	469	1.08	1.13	35.2	35.9	1374.0	604	372.0	16:24	1.14	0.79	0.07
12:10:50	1390.0	50.2	9.6	109	220	2131	404	423	1.09	1.13	35.2	35.9	1374.9	602	373.0	16:25	1.14	0.78	0.07
1[illegible]:15	1391.0	39.4	8.6	114	180	2156	404	397	1.09	1.13	35.2	36.0	1376.0	605	374.0	16:27	1.14	0.80	0.06
1[illegible]4:53	1392.1	33.3	5.8	104	222	2161	406	404	1.09	1.11	35.4	35.6	1380.6	622	375.1	16:29	1.14	0.79	0.02
12:37:16	1393.0	32.8	8.0	103	234	2175	407	441	1.09	1.11	35.4	35.2	1381.4	624	376.0	16:31	1.14	0.93	0.02
12:38:56	1394.0	30.8	24.2	108	243	2163	408	471	1.09	1.11	35.4	34.5	1381.6	615	377.0	16:33	1.14	1.08	0.03
12:40:49	1395.1	31.8	24.3	112	249	2187	408	402	1.09	1.11	35.3	34.5	1381.6	613	378.1	16:35	1.14	1.11	0.03
12:43:09	1396.0	26.0	21.6	112	245	2178	408	490	1.08	1.11	35.4	34.7	1381.8	614	379.0	16:37	1.14	1.12	0.03
12:44:26	1397.0	61.4	19.4	112	286	2171	408	437	1.08	1.11	35.3	34.8	1382.3	615	380.0	16:39	1.14	0.96	0.04
12:46:34	1398.0	22.6	22.8	111	311	2180	408	442	1.09	1.11	35.3	34.9	1383.5	618	381.0	16:41	1.14	1.12	0.04
12:47:53	1399.1	48.5	23.8	110	321	2188	408	444	1.09	1.11	35.3	35.0	1384.4	606	382.1	16:42	1.14	0.99	0.04
12:49:11	1400.1	48.1	22.6	110	252	2172	408	463	1.09	1.11	35.3	35.1	1384.9	603	383.1	16:43	1.14	0.98	0.04
12:50:42	1401.0	36.0	16.3	107	252	2188	407	442	1.09	1.11	35.3	35.2	1385.3	604	384.0	16:45	1.14	0.92	0.04
12:51:56	1402.0	55.8	17.7	112	227	2201	409	464	1.09	1.11	35.3	35.3	1385.8	605	385.0	16:46	1.14	0.95	0.04
12:53:06	1403.1	61.9	24.4	112	228	2169	408	456	1.09	1.11	35.2	35.4	1386.5	602	386.1	16:47	1.14	0.94	0.04
12:54:31	1404.0	40.2	23.4	107	265	2191	408	437	1.08	1.11	35.2	35.4	1387.2	603	387.0	16:49	1.14	1.02	0.04
12:56:27	1405.0	36.6	24.0	110	311	2180	408	460	1.08	1.11	35.2	35.5	1387.3	602	388.0	16:51	1.14	1.12	0.04
12:57:42	1406.1	46.3	24.9	109	285	2176	408	438	1.08	1.11	35.2	35.6	1387.3	606	389.1	16:52	1.14	0.99	0.04
13:02:01	1407.1	31.3	22.9	102	305	2173	408	444	1.08	1.11	35.2	35.6	1389.5	604	390.1	16:53	1.14	1.01	0.04
13:03:21	1408.0	38.2	19.8	105	284	2173	408	441	1.09	1.11	35.2	35.8	1390.4	603	391.0	16:55	1.14	0.98	0.03
13:04:49	1409.1	52.5	21.0	111	295	2189	408	442	1.09	1.11	35.2	35.8	1391.0	602	392.1	16:56	1.14	0.97	0.03
13:06:07	1410.0	44.9	20.8	112	266	2191	408	411	1.08	1.11	35.2	35.9	1391.2	601	393.0	16:57	1.14	0.96	0.03
13:07:34	1411.0	35.3	19.1	112	243	2169	408	448	1.09	1.11	35.3	35.9	1391.2	604	394.0	16:59	1.14	0.99	0.03
13:08:54	1412.0	40.3	19.4	112	265	2190	409	461	1.09	1.11	35.3	35.9	1391.2	601	395.0	17:00	1.14	0.97	0.03
13:10:25	1413.1	38.0	19.3	109	255	2190	408	457	1.09	1.10	35.3	36.0	1391.2	603	396.1	17:02	1.14	0.96	0.03
13:12:05	1414.1	32.8	19.1	112	269	2163	408	435	1.08	1.10	35.3	36.0	1391.2	604	397.1	17:03	1.14	1.02	0.03
13:15:13	1415.0	17.0	21.9	113	232	2184	409	420	1.08	1.11	35.3	36.0	1391.5	605	398.0	17:07	1.14	1.24	0.04
13:19:01	1416.0	13.7	23.1	112	230	2185	408	432	1.09	1.11	35.4	35.9	1394.0	604	399.0	17:10	1.14	1.29	0.05
[illegible]:38	1417.0	14.0	24.5	113	228	2208	408	426	1.09	1.11	35.5	35.9	1395.9	602	400.0	17:15	1.14	1.36	0.06
13:27:55	1418.0	18.4	25.3	113	235	2203	408	427	1.09	1.12	35.6	35.8	1397.8	601	401.0	17:19	1.14	1.36	0.07
13:31:40	1419.0	16.5	26.5	113	232	2223	409	408	1.09	1.12	35.6	35.9	1400.3	604	402.0	17:23	1.14	1.35	0.08
13:36:11	1420.0	13.4	27.2	113	235	2209	408	407	1.09	1.11	35.7	36.0	1403.7	605	403.0	17:27	1.14	1.41	0.06
13:58:25	1421.0	13.8	25.5	112	199	2199	408	400	1.09	1.11	35.8	36.0	1413.1	601	404.0	17:32	1.14	1.34	0.07

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT	MUD DENSITY IN sg	MUD DENSITY OUT	MUD TEMP IN deg C	TEMP OUT	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
14:01:26	1422.0	17.8	26.1	110	187	2146	404	413	1.09	1.09	35.9	35.9	1414.4	597	405.0	17:35	1.14	1.28	0.07
14:04:21	1423.0	22.5	29.1	111	186	2156	404	399	1.09	1.09	36.0	35.8	1415.3	598	406.0	17:37	1.14	1.31	0.06
14:07:13	1424.0	21.4	28.9	110	174	2142	404	425	1.09	1.09	36.0	35.7	1415.9	596	407.0	17:40	1.14	1.28	0.06
14:09:33	1425.1	33.9	28.5	110	226	2155	403	444	1.09	1.09	36.0	35.7	1416.4	595	408.1	17:43	1.14	1.22	0.06
14:12:16	1426.1	19.7	29.2	110	223	2149	404	448	1.09	1.09	36.0	35.8	1417.0	596	409.1	17:45	1.14	1.27	0.06
14:15:01	1427.0	29.9	28.4	109	233	2162	403	414	1.09	1.09	36.0	36.0	1417.6	594	410.0	17:48	1.14	1.27	0.06
14:17:03	1428.0	32.4	26.8	110	239	2151	403	417	1.09	1.09	36.0	36.1	1418.1	596	411.0	17:50	1.14	1.17	0.06
14:18:40	1429.1	36.4	23.3	111	198	2127	403	404	1.09	1.09	36.0	36.1	1418.5	593	412.1	17:52	1.14	1.06	0.06
14:19:46	1430.1	54.8	27.0	110	224	2147	404	368	1.09	1.09	36.0	36.1	1418.7	595	413.1	17:53	1.14	1.01	0.05
14:21:57	1431.1	23.8	27.6	111	193	2150	404	382	1.09	1.09	36.0	36.2	1419.2	588	414.1	17:55	1.14	1.19	0.05
14:22:59	1432.1	62.7	26.1	111	170	2154	404	396	1.09	1.09	36.0	36.2	1419.5	585	415.1	17:56	1.14	0.98	0.05
14:24:17	1433.1	49.8	24.5	111	193	2157	404	390	1.09	1.09	36.0	36.3	1419.7	596	416.1	17:57	1.14	0.99	0.05
14:25:29	1434.0	49.9	25.7	111	170	2119	403	391	1.09	1.09	36.1	36.2	1420.0	584	417.0	17:59	1.14	1.01	0.04
14:27:15	1435.0	34.4	28.3	110	199	2158	403	417	1.09	1.10	36.1	36.2	1420.4	591	418.0	18:00	1.14	1.15	0.04
14:28:34	1436.0	44.6	25.5	111	159	2133	404	432	1.09	1.10	36.1	36.3	1420.6	594	419.0	18:02	1.14	1.03	0.04
14:32:05	1437.0	15.7	30.3	111	178	2159	404	427	1.08	1.11	36.1	36.2	1420.8	593	420.0	18:05	1.14	1.38	0.04
14:36:13	1438.1	15.4	29.4	111	173	2174	404	439	1.08	1.11	36.1	36.3	1420.8	595	421.1	18:09	1.14	1.39	0.04
14:40:26	1439.0	14.4	28.7	111	163	2160	404	433	1.09	1.13	36.2	36.3	1420.8	594	422.0	18:14	1.14	1.40	0.04
14:44:11	1440.0	14.5	30.0	111	165	2164	404	387	1.08	1.14	36.2	36.2	1421.7	595	423.0	18:17	1.14	1.39	0.06
14:48:49	1441.0	14.2	28.5	111	149	2160	404	421	1.09	1.16	36.2	36.2	1423.0	596	424.0	18:22	1.14	1.43	0.07
14:53:08	1442.0	14.8	28.9	111	156	2143	404	419	1.09	1.17	36.2	36.3	1424.1	595	425.0	18:26	1.14	1.40	0.07
14:56:57	1443.0	16.6	28.6	111	162	2151	404	438	1.09	1.18	36.3	36.3	1425.7	597	426.0	18:30	1.14	1.38	0.08
15:01:16	1444.0	18.0	28.1	111	152	2141	404	426	1.09	1.19	36.3	36.4	1427.1	596	427.0	18:34	1.14	1.39	0.09
15:05:35	1445.0	16.2	29.7	111	171	2151	404	420	1.09	1.20	36.3	36.5	1429.7	595	428.0	18:39	1.14	1.43	0.07
15:09:20	1446.0	14.9	29.5	110	174	2148	404	441	1.09	1.19	36.4	36.5	1432.1	597	429.0	18:42	1.14	1.38	0.06
15:13:01	1447.0	14.7	28.8	111	178	2157	404	434	1.09	1.20	36.4	36.5	1434.7	598	430.0	18:46	1.14	1.37	0.05
15:16:17	1448.0	17.1	28.3	111	176	2185	405	480	1.09	1.21	36.4	36.5	1436.4	596	431.0	18:49	1.14	1.33	0.05
15:20:05	1449.0	14.1	29.0	111	164	2181	404	449	1.09	1.21	36.5	36.5	1437.4	588	432.0	18:53	1.14	1.38	0.05
15:42:18	1450.0	20.1	27.5	111	166	2202	409	327	1.09	1.21	36.6	36.4	1441.0	593	433.0	18:58	1.14	1.37	0.06
15:45:09	1451.0	23.2	27.2	111	169	2185	408	346	1.09	1.21	36.6	36.3	1441.8	592	434.0	19:01	1.14	1.27	0.06
15:48:35	1452.0	13.4	27.7	111	169	2204	408	381	1.09	1.21	36.6	36.2	1442.7	588	435.0	19:04	1.14	1.32	0.06
15:52:42	1453.1	14.1	28.1	111	172	2222	408	439	1.09	1.22	36.6	36.4	1443.9	594	436.1	19:08	1.14	1.36	0.07
15:56:49	1454.0	13.2	28.5	111	172	2202	408	436	1.09	1.23	36.6	36.6	1445.0	593	437.0	19:12	1.14	1.39	0.08
16:00:43	1455.0	17.0	28.7	111	168	2195	409	421	1.08	1.23	36.6	36.6	1446.1	593	438.0	19:16	1.14	1.36	0.08
16:04:41	1456.0	15.0	29.2	111	183	2204	408	404	1.09	1.23	36.6	36.7	1447.2	581	439.0	19:20	1.14	1.39	0.08
16:09:00	1457.0	13.5	28.9	111	189	2228	408	355	1.09	1.23	36.6	36.9	1448.4	585	440.0	19:24	1.14	1.41	0.06
16:12:42	1458.0	18.3	28.4	111	181	2216	409	409	1.09	1.22	36.7	36.8	1449.4	581	441.0	19:28	1.14	1.36	0.05
16:16:37	1459.0	18.8	27.8	111	181	2218	409	424	1.09	1.22	36.7	36.7	1450.6	585	442.0	19:32	1.14	1.35	0.06
16:18:22	1460.0	28.7	27.2	110	222	2211	409	457	1.09	1.22	36.7	36.7	1451.3	584	443.0	19:34	1.14	1.12	0.07
16:19:56	1461.0	39.7	25.0	110	220	2217	408	433	1.09	1.22	36.7	36.8	1451.7	581	444.0	19:35	1.14	1.05	0.08
16:21:36	1462.0	32.5	24.4	111	207	2226	408	434	1.09	1.22	36.8	36.8	1452.1	584	445.0	19:37	1.14	1.08	0.08
16:24:27	1463.0	28.4	27.9	111	175	2202	408	430	1.09	1.22	36.8	36.9	1452.7	585	446.0	19:40	1.14	1.28	0.08
16:25:43	1464.0	48.4	25.3	111	194	2192	408	406	1.09	1.22	36.8	37.0	1453.0	582	447.0	19:41	1.14	1.02	0.07
16:26:52	1465.0	53.9	25.9	111	186	2159	408	416	1.09	1.22	36.8	37.0	1453.3	581	448.0	19:42	1.14	1.01	0.07
16:28:10	1466.1	47.2	26.8	110	205	2183	408	418	1.09	1.21	36.8	36.9	1453.6	582	449.1	19:44	1.14	1.01	0.07
16:29:24	1467.0	46.0	23.7	110	185	2170	408	387	1.09	1.21	36.8	36.9	1453.8	589	450.0	19:45	1.14	0.99	0.06
16:30:39	1468.0	47.0	24.5	111	217	2196	408	356	1.09	1.21	36.8	36.9	1454.1	587	451.0	19:46	1.14	1.00	0.06
16:31:54	1469.1	52.3	26.0	111	186	2196	408	344	1.09	1.21	36.8	36.9	1454.4	583	452.1	19:47	1.14	1.02	0.07
16:34:31	1470.0	16.3	28.3	111	186	2196	409	370	1.09	1.21	36.8	37.0	1455.0	583	453.0	19:50	1.14	1.26	0.06
16:38:15	1471.0	21.0	28.2	111	151	2194	408	433	1.09	1.21	36.9	37.0	1456.3	583	454.0	19:54	1.14	1.34	0.06
16:39:23	1472.0	51.4	27.1	111	170	2208	408	435	1.09	1.21	36.9	37.1	1456.5	585	455.0	19:55	1.14	1.01	0.06
16:40:38	1473.0	53.0	24.9	111	154	2185	408	423	1.09	1.24	36.9	37.0	1456.9	586	456.0	19:56	1.14	1.01	0.06
16:41:59	1474.0	43.2	23.9	111	147	2203	408	481	1.09	1.24	36.9	37.0	1457.1	589	457.0	19:57	1.14	1.02	0.06

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT- mts	-BIT- hh:mm	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
16:43:11	1475.0	50.6	22.8	111	152	2206	408	399	1.09	1.23	36.9	37.0	1457.3	586	458.0	19:59	1.14	0.97	0.06
16:44:14	1476.0	55.7	25.9	111	152	2181	409	436	1.09	1.22	36.9	37.0	1457.3	588	459.0	19:60	1.14	0.97	0.06
16:45:34	1477.0	40.5	25.9	111	174	2201	408	404	1.09	1.22	36.9	36.9	1457.6	586	460.0	20:01	1.14	1.05	0.07
16:46:45	1478.0	52.5	26.1	110	175	2205	408	413	1.09	1.22	36.9	36.9	1458.0	587	461.0	20:02	1.14	1.00	0.07
17:03:37	1479.5	50.7	22.7	110	152	2179	409	395	1.09	1.21	36.9	36.9	1462.0	609	462.5	20:04	1.14	1.00	0.04
17:03:40	1480.3	49.0	24.0	106	177	2265	415	401	1.09	1.19	37.0	36.9	1462.0	600	463.3	20:04	1.14	1.01	0.04
17:06:04	1481.1	46.2	23.5	108	168	2295	419	444	1.09	1.18	37.1	36.8	1462.9	596	464.1	20:05	1.14	0.97	0.08
17:07:37	1482.0	35.9	24.8	111	205	2270	419	493	1.09	1.17	37.0	36.4	1463.9	597	465.0	20:07	1.14	1.07	0.07
17:08:52	1483.0	54.0	24.7	112	162	2295	419	460	1.09	1.17	37.0	36.3	1465.0	599	466.0	20:08	1.14	1.01	0.08
17:10:08	1484.0	46.8	24.1	112	172	2293	418	430	1.09	1.17	37.0	36.2	1466.0	594	467.0	20:09	1.14	1.02	0.07
17:11:21	1485.0	57.4	24.8	112	163	2269	418	480	1.09	1.17	37.0	36.2	1466.9	582	468.0	20:11	1.14	1.00	0.07
17:12:33	1486.0	56.1	23.6	112	179	2285	418	412	1.09	1.17	37.0	36.3	1467.9	585	469.0	20:12	1.14	0.99	0.07
17:13:41	1487.0	52.8	24.4	112	165	2282	417	419	1.09	1.18	37.0	36.4	1468.8	586	470.0	20:13	1.14	0.99	0.08
17:14:53	1488.0	48.7	25.5	112	210	2235	414	453	1.09	1.17	37.0	36.5	1469.5	585	471.0	20:14	1.14	1.00	0.07
17:17:14	1489.0	22.0	26.4	112	175	2248	414	457	1.09	1.17	37.0	36.6	1470.1	589	472.0	20:17	1.14	1.21	0.07
17:21:58	1490.0	10.6	26.2	112	162	2236	414	424	1.09	1.17	36.9	36.7	1472.2	582	473.0	20:21	1.14	1.38	0.08
17:23:10	1491.0	49.2	25.3	112	184	2248	414	422	1.09	1.16	36.9	36.8	1473.0	582	474.0	20:22	1.14	1.02	0.09
17:24:31	1492.0	43.3	24.6	112	180	2258	414	420	1.09	1.16	36.9	36.8	1474.1	580	475.0	20:24	1.14	1.02	0.10
17:25:52	1493.0	40.3	26.2	112	183	2223	414	425	1.09	1.16	36.9	36.8	1475.2	582	476.0	20:25	1.14	1.05	0.10
17:27:12	1494.0	44.5	21.2	112	169	2241	414	391	1.09	1.16	36.9	36.9	1476.3	588	477.0	20:26	1.14	0.98	0.10
17:28:21	1495.0	49.0	23.4	112	186	2220	414	389	1.09	1.16	36.9	37.0	1477.3	582	478.0	20:28	1.14	0.95	0.10
17:29:30	1496.0	46.5	23.1	110	190	2241	414	461	1.09	1.16	36.9	37.0	1478.1	580	479.0	20:29	1.14	0.96	0.11
17:30:37	1497.0	61.7	23.1	112	219	2255	414	442	1.09	1.17	36.9	37.1	1478.9	589	480.0	20:30	1.14	0.97	0.10
[illegible]1:53	1498.0	44.3	25.6	111	211	2227	415	439	1.09	1.18	36.9	37.2	1479.0	587	481.0	20:31	1.14	1.02	0.10
17:34:29	1499.0	20.6	23.8	112	166	2248	415	433	1.09	1.16	36.9	37.3	1479.0	578	482.0	20:34	1.14	1.19	0.10
17:36:50	1500.0	35.7	27.0	109	245	2242	415	427	1.09	1.14	36.9	37.3	1479.0	584	483.0	20:36	1.14	1.18	0.10
17:38:33	1501.0	30.7	23.4	103	224	2242	414	475	1.09	1.14	36.9	37.2	1479.0	571	484.0	20:38	1.14	1.05	0.10
17:46:55	1502.0	6.7	26.2	112	145	2232	414	425	1.09	1.15	37.0	37.2	1484.4	571	485.0	20:46	1.14	1.56	0.10
17:50:51	1503.0	20.5	24.2	111	201	2223	415	418	1.09	1.17	37.0	37.3	1487.7	572	486.0	20:50	1.14	1.31	0.10
17:58:27	1504.4	25.6	25.3	107	253	2219	415	416	1.09	1.15	37.1	37.3	1490.3	579	487.4	20:53	1.14	0.90	0.06
17:59:41	1505.0	42.7	11.8	111	208	2204	415	440	1.09	1.15	37.2	37.4	1490.6	572	488.0	20:54	1.14	0.81	0.06
18:01:26	1506.0	39.4	21.8	112	170	2233	415	439	1.09	1.16	37.2	37.5	1492.0	570	489.0	20:56	1.14	1.07	0.07
18:03:11	1507.0	30.3	24.4	111	243	2224	414	470	1.09	1.17	37.2	37.5	1493.1	574	490.0	20:58	1.14	1.09	0.08
18:04:36	1508.0	41.1	19.8	112	160	2233	414	465	1.09	1.17	37.2	37.5	1494.3	576	491.0	20:59	1.14	0.98	0.09
18:27:46	1509.0	10.5	22.8	110	173	2203	410	434	1.09	1.16	37.4	37.0	1496.4	571	492.0	21:08	1.14	1.37	0.04
18:33:02	1510.0	11.1	23.4	114	163	2210	410	416	1.09	1.13	37.4	37.2	1498.6	566	493.0	21:14	1.14	1.37	0.04
18:37:27	1511.0	12.7	22.5	114	175	2208	410	498	1.09	1.13	37.4	37.3	1500.4	564	494.0	21:18	1.14	1.32	0.04
18:42:45	1512.0	9.7	23.6	114	159	2210	410	476	1.09	1.14	37.4	37.3	1502.6	563	495.0	21:23	1.14	1.38	0.05
18:47:46	1513.0	13.2	23.3	113	171	2201	411	448	1.09	1.14	37.4	37.5	1504.6	569	496.0	21:28	1.14	1.36	0.07
18:52:36	1514.1	14.9	23.6	114	163	2214	410	460	1.09	1.17	37.4	37.6	1506.6	565	497.1	21:33	1.14	1.34	0.05
18:56:46	1515.0	12.8	23.8	114	160	2224	411	483	1.09	1.17	37.5	37.7	1508.2	560	498.0	21:37	1.14	1.34	0.08
19:01:19	1516.0	13.2	23.7	114	159	2212	410	459	1.09	1.18	37.5	37.6	1509.1	574	499.0	21:42	1.14	1.34	0.10
19:06:43	1517.0	11.3	24.7	114	160	2223	411	460	1.09	1.15	37.6	37.6	1510.0	567	500.0	21:47	1.14	1.41	0.09
19:12:11	1518.0	8.3	23.8	114	152	2222	411	476	1.09	1.14	37.6	37.6	1511.3	564	501.0	21:53	1.14	1.40	0.11
19:18:19	1519.0	11.0	24.6	114	152	2235	411	480	1.09	1.14	37.7	37.5	1512.3	565	502.0	21:59	1.14	1.44	0.13
19:23:14	1520.0	12.8	25.8	114	161	2224	411	464	1.09	1.16	37.7	37.7	1513.6	565	503.0	22:04	1.14	1.40	0.07
19:26:43	1521.0	16.8	26.0	114	162	2209	411	453	1.09	1.14	37.7	37.6	1514.3	564	504.0	22:07	1.14	1.32	0.07
19:32:27	1522.0	8.9	25.9	114	167	2245	411	429	1.09	1.14	37.7	37.7	1515.2	567	505.0	22:13	1.14	1.44	0.07
[illegible]:24	1523.0	9.4	26.1	114	160	2231	410	439	1.09	1.13	37.7	37.6	1516.6	564	506.0	22:20	1.14	1.50	0.07
19:47:14	1524.0	8.1	26.4	114	158	2222	410	443	1.09	1.14	37.8	37.7	1517.9	560	507.0	22:28	1.14	1.54	0.07
19:56:50	1525.0	11.0	25.2	114	140	2216	411	435	1.09	1.14	37.8	37.9	1519.5	561	508.0	22:37	1.14	1.58	0.06
20:02:35	1526.0	12.0	29.7	114	156	2226	411	450	1.09	1.13	37.9	37.8	1520.8	564	509.0	22:43	1.14	1.52	0.08
20:08:39	1527.0	9.2	29.6	114	153	2225	411	438	1.09	1.14	37.9	37.9	1522.0	566	510.0	22:49	1.14	1.52	0.08

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT gpm	MUD DENSITY IN sg	MUD DENSITY OUT sg	MUD TEMP IN deg C	MUD TEMP OUT deg C	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
20:15:26	1528.0	7.0	30.9	114	155	2230	411	447	1.09	1.13	37.9	37.9	1522.9	569	511.0	22:56	1.14	1.58	0.05
20:21:44	1529.0	10.0	30.2	114	151	2250	411	434	1.09	1.13	38.0	38.0	1523.7	566	512.0	23:02	1.14	1.55	0.04
20:30:12	1530.0	9.2	30.1	114	154	2246	412	403	1.09	1.12	38.0	38.1	1524.9	560	513.0	23:11	1.14	1.52	0.03
20:44:28	1531.0	7.2	30.0	114	141	2240	411	375	1.09	1.12	38.1	38.0	1526.8	563	514.0	23:25	1.14	1.60	0.04
20:51:33	1532.0	7.6	30.1	114	132	2215	411	353	1.09	1.12	38.1	38.2	1527.7	562	515.0	23:32	1.14	1.61	0.03
20:56:49	1533.0	13.9	29.4	114	141	2222	411	429	1.09	1.12	38.2	38.1	1528.4	566	516.0	23:37	1.14	1.48	0.03
20:59:26	1534.0	28.9	27.7	114	150	2226	412	456	1.09	1.11	38.2	38.1	1528.8	560	517.0	23:40	1.14	1.25	0.03
21:02:03	1535.0	23.8	27.7	114	143	2213	411	411	1.09	1.11	38.2	38.2	1529.2	564	518.0	23:43	1.14	1.25	0.03
21:28:56	1536.0	15.5	28.7	112	137	2250	414	411	1.09	1.11	38.4	38.5	1531.6	573	519.0	23:45	1.14	1.29	0.02
21:31:37	1537.0	31.0	28.5	110	153	2293	419	454	1.09	1.11	38.5	38.4	1532.0	563	520.0	23:48	1.14	1.26	0.03
21:33:55	1538.0	23.1	28.8	110	148	2276	420	432	1.09	1.11	38.5	37.9	1532.3	561	521.0	23:50	1.14	1.22	0.03
21:37:55	1539.1	24.5	29.2	110	156	2294	419	404	1.09	1.11	38.6	38.0	1532.9	555	522.1	23:54	1.14	1.39	0.04
21:40:41	1540.0	19.3	29.0	110	153	2301	419	420	1.09	1.11	38.5	38.0	1533.2	551	523.0	23:57	1.14	1.28	0.05
21:43:05	1541.1	23.0	29.0	110	176	2302	419	464	1.09	1.11	38.5	38.1	1533.6	555	524.1	23:59	1.14	1.21	0.08
21:47:11	1542.0	15.5	30.0	111	164	2286	419	484	1.09	1.11	38.5	38.2	1534.1	554	525.0	24:03	1.14	1.41	0.11
21:50:07	1543.0	25.4	29.1	110	201	2303	420	453	1.09	1.11	38.5	38.3	1534.5	551	526.0	24:06	1.14	1.30	0.09
21:52:33	1544.0	20.0	25.5	110	195	2286	419	459	1.09	1.10	38.5	38.4	1534.8	554	527.0	24:09	1.14	1.20	0.07
21:55:44	1545.0	20.3	29.1	110	172	2293	419	450	1.09	1.11	38.5	38.5	1535.3	555	528.0	24:12	1.14	1.33	0.05
21:58:36	1546.0	21.1	27.3	110	179	2281	419	455	1.09	1.12	38.4	38.4	1535.7	552	529.0	24:15	1.14	1.27	0.04
22:00:43	1547.0	29.4	27.7	110	173	2277	420	462	1.09	1.12	38.5	38.4	1535.8	551	530.0	24:17	1.14	1.20	0.03
22:03:31	1548.0	19.9	28.8	111	171	2298	419	402	1.09	1.13	38.5	38.3	1536.4	552	531.0	24:20	1.14	1.28	0.03
22:05:30	1549.0	35.2	27.2	110	174	2295	419	438	1.09	1.13	38.5	38.2	1537.5	549	532.0	24:22	1.14	1.17	0.05
22:07:51	1550.1	23.7	29.9	110	184	2297	419	440	1.09	1.12	38.5	38.3	1538.2	557	533.1	24:24	1.14	1.24	0.06
22:09:47	1551.0	29.1	29.1	110	203	2286	420	469	1.09	1.13	38.5	38.4	1538.6	543	534.0	24:26	1.14	1.18	0.07
22:11:16	1552.0	39.6	27.5	110	184	2307	419	490	1.09	1.12	38.5	38.4	1539.1	543	535.0	24:27	1.14	1.10	0.09
22:12:32	1553.0	47.8	26.7	111	194	2284	420	449	1.09	1.12	38.5	38.4	1539.6	543	536.0	24:29	1.14	1.04	0.09
22:13:56	1554.0	42.4	27.6	112	191	2306	419	443	1.09	1.12	38.5	38.4	1540.0	555	537.0	24:30	1.14	1.07	0.09
22:15:11	1555.0	44.5	26.4	112	192	2298	419	392	1.09	1.11	38.5	38.4	1540.5	556	538.0	24:31	1.14	1.03	0.08
22:16:43	1556.0	39.3	28.1	112	177	2300	419	385	1.09	1.13	38.5	38.4	1541.0	559	539.0	24:33	1.14	1.10	0.06
22:18:03	1557.0	39.2	28.4	112	191	2302	419	396	1.09	1.13	38.5	38.4	1541.4	556	540.0	24:34	1.14	1.07	0.06
22:20:24	1558.0	24.0	28.4	112	197	2302	420	427	1.09	1.13	38.5	38.4	1541.9	568	541.0	24:37	1.14	1.24	0.06
22:22:51	1559.0	32.9	26.7	112	199	2292	419	439	1.09	1.12	38.5	38.4	1542.6	566	542.0	24:39	1.14	1.19	0.05
22:25:09	1560.0	24.5	25.0	112	187	2303	419	387	1.09	1.12	38.5	38.4	1543.6	567	543.0	24:41	1.14	1.19	0.05
22:27:17	1561.0	28.2	29.2	112	201	2297	419	385	1.09	1.10	38.5	38.3	1544.6	569	544.0	24:43	1.14	1.21	0.05
22:29:28	1562.0	24.9	27.9	112	195	2298	420	421	1.09	1.10	38.5	38.4	1545.3	560	545.0	24:46	1.14	1.20	0.05
22:31:16	1563.1	45.6	24.3	112	201	2306	419	387	1.09	1.11	38.5	38.4	1546.0	566	546.1	24:47	1.14	1.08	0.05
22:33:14	1564.0	28.8	28.3	112	205	2290	419	431	1.09	1.12	38.6	38.5	1546.3	567	547.0	24:49	1.14	1.18	0.05
22:45:41	1565.0	13.5	28.8	110	169	2278	418	424	1.09	1.12	38.6	38.4	1549.5	569	548.0	24:53	1.14	1.36	0.03
22:47:28	1566.0	38.8	29.3	103	193	2209	410	401	1.09	1.13	38.6	38.2	1550.3	564	549.0	24:55	1.14	1.13	0.04
22:50:15	1567.0	19.3	30.2	109	202	2184	407	388	1.09	1.14	38.6	37.9	1551.7	562	550.0	24:58	1.14	1.29	0.04
22:52:03	1568.0	31.6	30.1	111	194	2200	408	420	1.09	1.14	38.6	37.7	1552.9	555	551.0	24:59	1.14	1.17	0.03
22:53:59	1569.0	29.4	28.4	111	210	2175	408	410	1.09	1.14	38.6	37.8	1554.3	556	552.0	25:01	1.14	1.18	0.03
22:55:58	1570.0	42.8	28.4	111	190	2196	409	456	1.09	1.16	38.5	37.9	1555.6	555	553.0	25:03	1.14	1.18	0.08
22:57:31	1571.0	31.5	26.1	108	227	2185	408	439	1.09	1.16	38.5	37.9	1556.6	559	554.0	25:05	1.14	1.08	0.09
22:59:41	1572.0	24.0	28.1	111	202	2194	408	361	1.09	1.17	38.5	37.9	1557.6	552	555.0	25:07	1.14	1.20	0.09
23:02:59	1573.0	13.8	29.1	111	177	2192	408	390	1.09	1.18	38.4	38.0	1558.9	552	556.0	25:10	1.14	1.33	0.08
23:11:28	1574.1	8.6	31.1	111	163	2193	409	437	1.09	1.18	38.4	38.2	1562.5	550	557.1	25:19	1.14	1.63	0.06
23:13:57	1575.0	45.4	29.9	111	188	2175	408	383	1.09	1.20	38.4	38.3	1563.8	552	558.0	25:21	1.14	1.26	0.07
23:15:29	1576.0	38.2	29.9	111	196	2201	408	444	1.09	1.20	38.4	38.4	1564.4	558	559.0	25:23	1.14	1.12	0.06
23:16:53	1577.1	54.1	28.8	111	189	2203	408	476	1.09	1.20	38.4	38.5	1564.8	552	560.1	25:24	1.14	1.08	0.06
23:19:32	1578.0	15.2	29.1	111	197	2185	408	461	1.09	1.20	38.4	38.5	1564.9	550	561.0	25:27	1.14	1.28	0.06
23:21:19	1579.0	43.1	29.9	111	193	2171	408	417	1.09	1.22	38.4	38.5	1564.9	559	562.0	25:29	1.14	1.14	0.06
23:23:21	1580.1	30.8	30.3	111	187	2198	409	472	1.09	1.21	38.4	38.4	1565.1	557	563.1	25:31	1.14	1.21	0.06

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-		ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
23:24:55	1581.0	48.1	29.0	111	208	2175	409	465	1.09	1.19	38.4	38.4	1565.9	558	564.0	25:32	1.14	1.12	0.06
23:26:17	1582.0	42.2	27.9	111	214	2229	408	447	1.09	1.19	38.4	38.5	1566.5	554	565.0	25:34	1.14	1.08	0.06
23:32:01	1583.0	10.0	30.9	111	189	2241	408	421	1.09	1.20	38.5	38.5	1569.0	551	566.0	25:39	1.14	1.51	0.07
23:34:19	1584.0	37.9	27.8	111	211	2426	410	416	1.09	1.20	38.5	38.5	1570.2	551	567.0	25:42	1.14	1.20	0.07
23:49:35	1585.0	28.9	18.0	112	126	2307	421	388	1.09	1.20	38.5	38.3	1573.5	552	568.0	25:44	1.15	1.16	0.03
23:51:50	1586.0	23.5	23.1	111	223	2198	413	426	1.09	1.20	38.6	37.9	1573.7	559	569.0	25:46	1.16	1.14	0.04
23:53:35	1587.0	38.3	21.2	111	232	2200	409	449	1.09	1.20	38.5	37.7	1573.8	552	570.0	25:48	1.16	1.05	0.04
23:55:03	1588.1	42.3	22.6	111	227	2189	409	428	1.09	1.20	38.5	37.7	1574.0	550	571.1	25:49	1.16	0.99	0.04
23:57:05	1589.0	32.5	21.7	112	218	2199	409	377	1.09	1.21	38.5	37.8	1574.3	554	572.0	25:51	1.16	1.09	0.04
23:59:20	1590.1	38.8	24.5	111	227	2192	409	442	1.09	1.92	38.5	38.1	1575.8	556	573.1	25:54	1.16	1.16	0.07
24th February 1993																			
00:00:51	1591.0	31.9	29.0	112	219	2203	409	456	1.09	1.24	38.5	38.2	1576.8	551	574.0	25:55	1.16	1.11	0.07
00:03:00	1592.0	25.1	28.1	112	195	2194	409	422	1.09	1.35	38.4	38.3	1577.8	556	575.0	25:57	1.16	1.16	0.07
00:06:01	1593.0	21.0	29.6	112	206	2205	410	410	1.09	1.38	38.4	38.4	1579.0	554	576.0	26:00	1.16	1.25	0.07
00:26:25	1594.0	20.2	26.8	112	196	2190	408	423	1.09	1.39	38.4	38.5	1584.7	553	577.0	26:03	1.15	1.23	0.03
00:27:27	1595.1	60.4	29.4	114	232	2131	404	403	1.09	1.20	38.5	38.9	1584.7	559	578.1	26:04	1.15	1.00	0.03
00:28:51	1596.0	35.0	32.5	114	210	2167	404	354	1.09	1.11	38.4	38.9	1584.8	555	579.0	26:05	1.15	1.14	0.03
00:30:11	1597.0	48.7	28.7	114	207	2170	405	428	1.09	1.11	38.4	38.7	1584.8	550	580.0	26:07	1.15	1.06	0.03
00:31:20	1598.0	52.7	26.7	114	212	2153	405	394	1.09	1.11	38.4	38.6	1584.8	554	581.0	26:08	1.15	1.00	0.03
00:32:38	1599.1	44.4	25.7	114	192	2168	405	377	1.09	1.11	38.4	38.4	1584.8	557	582.1	26:09	1.15	1.00	0.03
00:33:59	1600.0	38.4	27.6	110	257	2157	404	398	1.09	1.11	38.4	38.4	1584.8	554	583.0	26:10	1.15	1.05	0.03
00:42:35	1601.0	15.5	30.2	114	196	2166	404	424	1.09	1.11	38.4	38.5	1588.8	555	584.0	26:19	1.16	1.62	0.11
0[illegible]4:36	1602.0	30.4	29.3	113	296	2162	404	400	1.09	1.11	38.4	38.4	1589.7	555	585.0	26:21	1.16	1.17	0.12
0[illegible]:10	1603.0	27.5	21.1	111	237	2142	404	404	1.09	1.11	38.4	38.5	1592.0	554	586.0	26:23	1.16	1.09	0.09
00:53:58	1604.0	11.2	29.7	115	217	2171	405	450	1.09	1.11	38.4	38.6	1593.5	557	587.0	26:28	1.16	1.46	0.08
01:01:58	1605.0	5.3	31.4	115	177	2155	405	423	1.09	1.11	38.3	38.8	1593.7	554	588.0	26:36	1.16	1.62	0.07
01:06:33	1606.0	22.3	31.0	115	214	2166	405	480	1.09	1.11	38.4	38.5	1593.7	550	589.0	26:41	1.16	1.45	0.07
01:15:45	1607.1	36.5	26.7	114	220	2154	406	463	1.09	1.11	38.4	38.5	1599.6	551	590.1	26:42	1.16	1.11	0.07
01:19:49	1608.0	18.2	28.0	115	190	2194	409	474	1.09	1.11	38.4	38.6	1600.2	554	591.0	26:46	1.16	1.39	0.07
01:22:20	1609.0	31.3	27.7	118	199	2191	409	477	1.09	1.11	38.4	38.6	1600.4	556	592.0	26:49	1.15	1.22	0.06
01:25:18	1610.0	17.2	28.7	118	196	2201	409	531	1.09	1.11	38.4	38.5	1600.6	559	593.0	26:52	1.16	1.31	0.06
01:28:34	1611.0	18.9	29.5	109	209	2193	409	543	1.09	1.11	38.4	38.6	1601.8	556	594.0	26:55	1.16	1.32	0.05
01:33:27	1612.0	20.9	29.8	104	229	2195	409	434	1.09	1.11	38.4	38.7	1603.0	550	595.0	27:00	1.15	1.43	0.04
01:36:35	1613.0	21.2	25.8	111	267	2194	409	442	1.09	1.11	38.5	38.7	1603.6	553	596.0	27:03	1.15	1.25	0.04
01:38:50	1614.0	24.4	23.7	112	303	2199	409	375	1.09	1.11	38.5	38.8	1604.1	552	597.0	27:05	1.15	1.15	0.04
01:41:30	1615.0	35.8	23.4	111	290	2204	409	374	1.09	1.11	38.5	38.7	1604.5	556	598.0	27:08	1.16	1.17	0.04
01:43:01	1616.0	43.6	21.9	111	247	2189	409	438	1.09	1.11	38.5	38.8	1604.7	550	599.0	27:09	1.16	1.02	0.04
01:47:31	1617.0	22.8	25.5	111	262	2206	410	411	1.09	1.11	38.5	38.8	1605.1	553	600.0	27:12	1.15	1.22	0.05
01:59:37	1618.0	17.9	24.9	111	214	2209	410	417	1.09	1.11	38.6	38.7	1607.2	544	601.0	27:18	1.15	1.40	0.03
02:04:10	1619.0	23.8	16.6	108	238	2186	409	413	1.09	1.11	38.6	38.8	1608.3	542	602.0	27:20	1.15	1.03	0.04
02:07:21	1620.0	21.8	21.0	107	256	2216	409	431	1.09	1.11	38.7	38.7	1609.6	546	603.0	27:24	1.15	1.20	0.04
02:09:35	1621.0	25.2	21.1	107	284	2233	409	445	1.09	1.11	38.7	38.7	1610.2	544	604.0	27:26	1.15	1.09	0.04
02:13:47	1622.0	14.3	26.2	108	226	2219	409	436	1.09	1.11	38.7	38.6	1611.3	543	605.0	27:30	1.15	1.34	0.04
02:34:02	1623.0	23.1	18.4	110	297	2225	408	418	1.09	1.11	38.6	38.5	1616.8	545	606.0	27:32	1.15	0.99	0.04
02:40:09	1624.1	10.9	26.3	109	333	2198	408	443	1.09	1.11	38.5	38.6	1617.9	544	607.1	27:37	1.15	1.38	0.03
02:45:09	1625.0	10.9	26.3	109	333	2198	408	443	1.09	1.11	38.5	38.6	1617.9	543	608.0	27:41	1.15	1.38	0.03
Drill to 1625m. POOH due to high torque values																			
RIH with MB#6, 8.5", 14,10,10																			
[illegible] February 1993																			
12:57:49	1626.0	26.0	14.4	92	114	2209	410	330	1.09	1.11	34.2	35.2	1624.4	554	1.0	0:04	1.15	0.97	0.01
13:00:05	1627.0	27.1	19.3	99	136	2209	411	324	1.09	1.11	34.4	35.3	1624.5	553	2.0	0:06	1.15	1.05	0.01
13:01:55	1628.0	42.8	21.8	101	144	2220	411	305	1.09	1.11	34.4	35.3	1624.5	548	3.0	0:08	1.15	1.04	0.01
13:05:55	1629.0	19.8	24.1	109	150	2210	411	330	1.09	1.11	34.5	35.3	1624.6	543	4.0	0:12	1.15	1.30	0.01

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT	MUD DENSITY IN sg	MUD DENSITY OUT	MUD TEMP IN deg C	MUD TEMP OUT	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
13:07:04	1630.0	65.8	26.9	109	164	2204	411	319	1.09	1.11	34.6	35.2	1624.7	540	5.0	0:13	1.15	1.01	0.01
13:08:41	1631.1	36.9	27.2	109	146	2198	411	326	1.09	1.11	34.6	35.2	1624.7	538	6.1	0:15	1.15	1.08	0.01
13:10:17	1632.0	38.8	25.5	109	147	2211	411	345	1.09	1.11	34.7	35.0	1624.8	537	7.0	0:16	1.15	1.08	0.02
13:11:45	1633.0	35.8	30.1	109	155	2192	411	338	1.09	1.11	34.7	34.9	1624.8	538	8.0	0:18	1.15	1.10	0.02
13:13:36	1634.1	37.7	31.4	109	170	2210	411	308	1.09	1.11	34.8	34.8	1624.9	540	9.1	0:20	1.15	1.15	0.02
13:14:42	1635.0	54.0	27.4	109	187	2207	411	375	1.09	1.11	34.8	34.9	1624.9	544	10.0	0:21	1.15	0.99	0.02
13:17:09	1636.0	23.8	31.0	109	167	2222	411	460	1.09	1.11	34.8	35.0	1625.0	547	11.0	0:23	1.15	1.25	0.02
13:19:38	1637.0	22.9	32.2	109	156	2206	411	443	1.09	1.11	34.9	35.1	1625.0	548	12.0	0:26	1.15	1.27	0.02
13:21:09	1638.0	44.1	27.1	109	141	2193	411	421	1.09	1.11	34.9	35.3	1625.1	548	13.0	0:27	1.15	1.06	0.02
13:22:24	1639.0	46.0	30.2	109	157	2211	412	428	1.09	1.11	34.9	35.4	1625.1	547	14.0	0:28	1.15	1.06	0.02
13:24:14	1640.0	39.8	28.1	109	157	2220	412	418	1.09	1.11	34.9	35.5	1625.2	548	15.0	0:30	1.15	1.14	0.02
13:26:50	1641.0	28.3	31.8	109	172	2212	412	415	1.09	1.11	35.0	35.6	1625.2	548	16.0	0:33	1.15	1.28	0.02
13:28:23	1642.0	39.4	29.2	109	172	2203	411	434	1.09	1.11	35.0	35.6	1625.3	549	17.0	0:34	1.15	1.19	0.02
13:32:58	1643.0	9.2	32.8	109	153	2217	412	424	1.09	1.11	35.0	35.7	1626.0	549	18.0	0:39	1.15	1.46	0.04
13:36:21	1644.0	26.7	33.1	109	153	2207	412	409	1.09	1.11	35.1	35.8	1627.6	550	19.0	0:42	1.15	1.36	0.05
13:41:55	1645.0	10.8	32.3	109	154	2211	412	456	1.09	1.11	35.2	35.8	1629.6	551	20.0	0:48	1.15	1.51	0.09
13:45:40	1646.0	19.0	32.3	109	149	2207	412	421	1.09	1.11	35.3	35.7	1632.0	551	21.0	0:52	1.15	1.39	0.09
13:48:13	1647.0	31.1	31.0	109	170	2205	412	461	1.09	1.11	35.3	35.7	1633.5	551	22.0	0:54	1.15	1.25	0.12
13:49:55	1648.0	37.2	27.1	109	169	2190	412	435	1.09	1.11	35.4	35.8	1634.7	550	23.0	0:56	1.15	1.11	0.13
13:51:51	1649.0	29.3	31.3	109	180	2212	412	418	1.09	1.11	35.4	35.9	1635.6	552	24.0	0:58	1.15	1.19	0.14
13:54:02	1650.0	27.7	26.9	109	162	2198	412	459	1.09	1.11	35.4	35.9	1636.6	551	25.0	1:00	1.15	1.17	0.13
14:06:16	1651.0	21.6	28.6	108	164	2169	411	385	1.09	1.11	35.6	35.9	1640.7	562	26.0	1:02	1.15	1.19	0.06
14:07:45	1652.0	38.6	31.3	112	198	2189	409	342	1.09	1.11	35.7	35.7	1641.2	558	27.0	1:04	1.15	1.11	0.08
14:10:13	1653.0	26.9	32.5	114	182	2179	409	421	1.09	1.11	35.7	35.5	1641.9	558	28.0	1:06	1.15	1.28	0.10
14:12:59	1654.0	22.1	27.1	114	169	2182	409	439	1.09	1.11	35.7	35.4	1642.7	556	29.0	1:09	1.15	1.24	0.09
14:16:06	1655.0	18.5	28.8	114	167	2193	410	476	1.09	1.11	35.7	35.6	1643.6	553	30.0	1:12	1.15	1.31	0.06
14:19:26	1656.0	18.3	26.8	114	156	2200	409	447	1.09	1.11	35.7	35.9	1644.6	553	31.0	1:15	1.15	1.30	0.05
14:21:41	1657.0	25.9	31.3	114	175	2191	409	488	1.09	1.11	35.7	36.1	1645.3	553	32.0	1:18	1.15	1.25	0.05
14:23:56	1658.0	28.8	30.5	114	174	2196	410	444	1.09	1.11	35.7	36.2	1645.9	552	33.0	1:20	1.15	1.24	0.05
14:26:32	1659.0	29.8	30.8	114	171	2204	410	420	1.09	1.11	35.7	36.3	1646.7	553	34.0	1:22	1.15	1.28	0.05
14:28:15	1660.0	75.8	30.6	114	162	2208	404	320	1.09	1.11	35.7	36.3	1646.9	553	35.0	1:24	1.13	1.07	0.04
14:29:59	1661.0	45.3	26.9	114	166	2209	404	420	1.09	1.11	35.8	36.3	1647.3	553	36.0	1:25	1.14	1.12	0.05
14:33:49	1662.0	16.4	32.4	114	160	2195	403	449	1.09	1.11	35.8	36.3	1648.1	552	37.0	1:29	1.15	1.40	0.07
14:36:27	1663.0	19.4	31.8	114	173	2192	404	450	1.09	1.11	35.8	36.3	1648.7	552	38.0	1:32	1.14	1.32	0.08
14:45:18	1664.0	8.9	33.8	114	160	2192	404	450	1.09	1.11	35.9	36.4	1650.6	553	39.0	1:40	1.15	1.68	0.06
14:51:12	1665.0	13.4	33.2	114	161	2195	404	503	1.09	1.11	36.0	36.5	1652.7	552	40.0	1:46	1.15	1.56	0.07
14:56:30	1666.0	13.4	34.3	114	159	2188	404	458	1.09	1.11	36.1	36.6	1654.2	553	41.0	1:52	1.15	1.54	0.08
14:58:43	1667.0	28.9	33.0	114	160	2184	405	398	1.09	1.11	36.1	36.7	1654.9	553	42.0	1:54	1.15	1.27	0.08
15:05:24	1668.0	7.7	34.6	114	153	2184	405	371	1.09	1.11	36.2	36.7	1656.8	554	43.0	2:00	1.15	1.61	0.05
15:11:27	1669.0	23.1	33.4	114	153	2176	406	374	1.09	1.11	36.3	36.8	1658.9	554	44.0	2:07	1.15	1.57	0.07
15:13:16	1670.0	31.2	30.1	114	153	2175	406	369	1.09	1.11	36.4	36.9	1660.3	554	45.0	2:08	1.15	1.31	0.07
15:15:06	1671.0	34.1	31.9	114	164	2183	405	465	1.09	1.11	36.4	36.9	1661.4	555	46.0	2:10	1.15	1.20	0.07
15:17:28	1672.0	23.6	31.9	114	153	2183	405	440	1.09	1.11	36.4	36.9	1662.1	555	47.0	2:13	1.15	1.27	0.06
15:28:06	1673.0	6.7	33.8	114	135	2170	405	418	1.09	1.11	36.5	37.0	1664.1	557	48.0	2:23	1.15	1.74	0.04
15:31:45	1674.0	21.8	34.2	114	161	2171	404	353	1.09	1.11	36.6	37.1	1664.6	557	49.0	2:27	1.15	1.43	0.04
15:38:26	1675.0	9.1	34.2	114	156	2163	404	366	1.09	1.11	36.7	37.1	1665.9	557	50.0	2:34	1.15	1.61	0.04
15:46:00	1676.0	7.7	34.7	114	156	2175	404	370	1.09	1.11	36.8	37.2	1667.8	557	51.0	2:41	1.15	1.66	0.03
15:52:33	1677.0	8.6	34.7	114	155	2220	404	387	1.09	1.11	36.8	37.1	1668.4	556	52.0	2:48	1.15	1.61	0.03
15:59:59	1678.0	9.2	33.8	114	151	2221	404	381	1.09	1.11	36.9	37.2	1671.9	556	53.0	2:55	1.15	1.64	0.05
16:07:45	1679.0	7.1	33.9	114	151	2193	404	369	1.09	1.11	36.9	37.3	1672.6	557	54.0	3:03	1.15	1.65	0.03
16:24:16	1680.0	7.1	31.2	110	150	2181	404	348	1.09	1.11	36.9	37.2	1674.4	566	55.0	3:07	1.15	1.64	0.02
16:26:43	1681.0	25.1	29.8	111	156	2185	405	350	1.09	1.11	36.9	36.9	1674.7	556	56.0	3:09	1.15	1.25	0.02
16:29:21	1682.0	27.9	28.7	111	152	2179	405	346	1.09	1.11	36.9	36.8	1675.1	542	57.0	3:12	1.15	1.25	0.02

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT gpm	MUD DENSITY IN sg	MUD DENSITY OUT sg	MUD TEMP IN deg C	MUD TEMP OUT deg C	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
16:33:54	1683.0	10.6	30.9	111	157	2186	405	348	1.09	1.11	36.8	37.0	1675.7	540	58.0	3:16	1.15	1.44	0.02
16:40:19	1684.0	9.1	30.9	111	155	2190	405	323	1.09	1.11	36.8	37.3	1676.5	542	59.0	3:23	1.15	1.53	0.02
16:47:12	1685.1	9.8	32.0	111	151	2208	405	352	1.09	1.11	36.8	37.5	1677.5	543	60.1	3:30	1.15	1.57	0.02
16:50:11	1686.1	29.6	29.4	111	153	2189	405	342	1.09	1.11	36.9	37.5	1677.9	544	61.1	3:33	1.15	1.29	0.02
16:51:56	1687.0	32.3	30.5	111	157	2197	405	340	1.09	1.11	36.9	37.5	1678.1	544	62.0	3:34	1.15	1.17	0.02
16:53:42	1688.1	48.2	25.5	111	147	2187	405	314	1.09	1.11	36.9	37.6	1678.3	545	63.1	3:36	1.15	1.08	0.02
16:56:16	1689.0	20.4	30.3	111	160	2190	405	332	1.09	1.11	36.9	37.6	1678.7	547	64.0	3:39	1.15	1.28	0.02
17:00:06	1690.0	43.9	29.4	111	153	2171	405	288	1.09	1.11	37.0	37.6	1679.2	548	65.0	3:42	1.15	1.37	0.01
17:03:42	1691.0	15.1	30.1	111	152	2181	405	362	1.09	1.11	37.0	37.6	1679.5	548	66.0	3:46	1.15	1.37	0.01
17:08:14	1692.0	14.6	30.4	111	147	2180	405	298	1.09	1.11	37.1	37.6	1680.9	549	67.0	3:51	1.15	1.44	0.05
17:11:59	1693.0	33.1	30.7	111	151	2181	404	386	1.09	1.11	37.1	37.6	1682.5	549	68.0	3:54	1.15	1.38	0.05
17:13:20	1694.0	44.2	27.1	111	156	2195	405	331	1.09	1.11	37.1	37.6	1682.6	549	69.0	3:56	1.15	1.06	0.05
17:20:01	1695.0	8.4	32.1	111	157	2194	405	317	1.09	1.11	37.2	37.7	1683.7	553	70.0	4:02	1.15	1.57	0.03
17:26:38	1696.0	8.9	31.9	112	153	2231	405	325	1.09	1.11	37.2	37.7	1684.6	554	71.0	4:09	1.15	1.57	0.03
17:34:48	1697.0	7.4	32.4	115	149	2233	405	328	1.09	1.11	37.3	37.6	1688.3	556	72.0	4:17	1.15	1.64	0.09
17:41:50	1698.0	8.2	30.7	114	150	2244	405	349	1.09	1.11	37.3	37.7	1690.3	557	73.0	4:24	1.15	1.57	0.05
17:47:25	1699.0	14.4	30.1	114	154	2235	405	338	1.09	1.11	37.3	37.7	1691.1	558	74.0	4:30	1.15	1.50	0.04
17:50:36	1700.0	19.4	29.9	114	158	2239	405	328	1.09	1.11	37.3	37.7	1691.9	558	75.0	4:33	1.15	1.34	0.04
17:58:09	1701.0	7.8	30.4	114	148	2260	405	343	1.09	1.11	37.4	37.8	1694.3	559	76.0	4:40	1.15	1.58	0.04
18:05:13	1702.0	8.0	30.8	114	149	2209	405	361	1.09	1.11	37.4	37.8	1695.3	561	77.0	4:48	1.15	1.58	0.02
18:11:10	1703.0	9.9	30.8	114	152	2222	405	340	1.09	1.11	37.4	37.9	1696.1	562	78.0	4:54	1.15	1.53	0.02
18:16:26	1704.0	12.7	31.0	114	159	2246	405	386	1.09	1.11	37.5	37.9	1696.7	563	79.0	4:59	1.15	1.49	0.02
1[illegible]0:53	1705.0	14.8	31.0	114	163	2248	405	382	1.09	1.11	37.5	37.9	1697.3	563	80.0	5:03	1.15	1.45	0.02
[illegible]9:20	1706.0	6.4	31.3	114	146	2231	405	392	1.09	1.11	37.5	37.9	1698.6	564	81.0	5:12	1.15	1.64	0.04
18:38:35	1707.0	6.5	32.0	114	144	2241	404	381	1.09	1.11	37.6	38.0	1700.5	565	82.0	5:21	1.15	1.67	0.03
18:46:21	1708.0	8.5	34.7	114	151	2237	405	345	1.09	1.11	37.6	37.9	1701.5	565	83.0	5:29	1.15	1.66	0.04
19:02:42	1709.0	11.5	34.0	111	146	2233	405	360	1.09	1.11	37.6	37.7	1703.0	574	84.0	5:35	1.15	1.58	0.02
19:18:51	1710.0	10.8	32.8	110	147	2177	403	261	1.09	1.11	37.4	37.3	1704.2	577	85.0	5:41	1.10	1.56	0.01
19:23:45	1711.0	15.5	32.2	111	146	2205	403	392	1.09	1.11	37.3	37.2	1704.9	572	86.0	5:46	1.10	1.53	0.02
19:31:07	1712.0	13.6	32.3	111	137	2204	405	431	1.09	1.11	37.2	37.5	1705.9	570	87.0	5:53	1.10	1.67	0.02
19:37:04	1713.0	9.7	32.0	111	140	2204	404	439	1.09	1.11	37.2	37.6	1706.7	570	88.0	5:59	1.10	1.61	0.02
19:39:47	1714.0	19.3	29.1	111	149	2198	405	435	1.09	1.11	37.2	37.7	1707.1	570	89.0	6:02	1.10	1.33	0.02
19:45:05	1715.0	10.1	32.9	111	143	2206	404	387	1.09	1.11	37.2	37.8	1707.9	570	90.0	6:07	1.10	1.59	0.02
19:49:05	1716.0	27.5	30.2	111	145	2198	404	368	1.09	1.11	37.2	37.9	1708.4	572	91.0	6:11	1.10	1.46	0.03
19:52:50	1717.0	17.3	29.3	111	145	2208	404	374	1.09	1.11	37.2	37.9	1708.9	572	92.0	6:15	1.10	1.43	0.03
19:56:26	1718.0	15.2	26.6	111	150	2199	403	370	1.09	1.11	37.3	37.9	1709.3	573	93.0	6:19	1.10	1.38	0.02
19:59:59	1719.0	16.0	27.3	111	146	2204	403	337	1.09	1.11	37.3	37.8	1709.8	573	94.0	6:22	1.10	1.38	0.03
20:03:56	1720.0	16.2	28.6	111	145	2200	402	352	1.09	1.11	37.4	37.8	1710.5	573	95.0	6:26	1.10	1.42	0.03
20:05:27	1721.0	49.3	28.2	111	153	2209	403	368	1.09	1.11	37.4	37.9	1710.8	574	96.0	6:28	1.10	1.15	0.03
20:06:45	1722.0	42.9	28.5	111	149	2190	404	365	1.09	1.11	37.4	37.8	1711.0	574	97.0	6:29	1.10	1.11	0.03
20:11:05	1723.0	10.9	29.4	111	144	2202	404	323	1.09	1.11	37.4	37.8	1711.5	575	98.0	6:33	1.10	1.47	0.03
20:16:27	1724.0	9.5	31.0	111	146	2201	404	335	1.09	1.11	37.4	37.8	1712.4	576	99.0	6:39	1.10	1.56	0.03
20:29:10	1725.0	12.6	30.5	111	131	2191	404	279	1.09	1.11	37.5	37.8	1716.1	570	100.0	6:49	1.10	1.58	0.04
20:34:23	1726.0	15.8	30.1	111	142	2184	404	325	1.09	1.11	37.6	37.8	1716.9	575	101.0	6:54	1.10	1.54	0.05
20:41:50	1727.0	5.9	30.9	111	135	2185	403	302	1.09	1.11	37.6	37.9	1718.1	589	102.0	7:02	1.10	1.66	0.05
20:47:18	1728.0	10.6	31.0	111	146	2176	404	329	1.09	1.11	37.6	37.8	1719.2	589	103.0	7:07	1.10	1.57	0.06
20:51:28	1729.0	14.8	30.2	111	147	2177	404	319	1.09	1.11	37.6	37.8	1720.2	582	104.0	7:12	1.10	1.47	0.08
20:54:26	1730.0	25.2	29.5	111	148	2185	404	343	1.09	1.11	37.7	37.9	1720.8	583	105.0	7:15	1.10	1.36	0.06
[illegible]8:21	1731.0	15.9	26.4	111	136	2188	404	338	1.09	1.11	37.7	38.0	1721.7	589	106.0	7:18	1.10	1.39	0.04
21:02:12	1732.0	15.3	28.8	111	142	2183	404	331	1.09	1.11	37.7	38.0	1722.5	586	107.0	7:22	1.10	1.43	0.03
21:05:32	1733.0	36.0	29.0	111	151	2191	404	367	1.09	1.11	37.7	38.0	1723.2	586	108.0	7:26	1.10	1.38	0.03
21:08:39	1734.0	23.6	28.3	111	145	2185	404	323	1.09	1.11	37.7	38.0	1723.9	583	109.0	7:29	1.10	1.36	0.03
21:12:50	1735.0	12.7	29.6	111	139	2189	404	308	1.09	1.11	37.7	38.0	1724.8	583	110.0	7:33	1.10	1.46	0.03

DrillByte Drilling Data Printout COMPANY: BHP PETROLEUM WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW		MUD DENSITY		MUD TEMP		RETURNS	PVT	-BIT-		ECD	DXC	GAS
							IN	OUT	IN	OUT	IN	OUT	DEPTH						
h:mm:sec	m	m/hr	klb		amp	psi	gpm		sg		deg C		m	bbl	mts	hh:mm	sg		%
21:19:03	1736.0	12.9	29.4	111	140	2181	404	338	1.09	1.11	37.7	38.0	1725.9	585	111.0	7:39	1.10	1.58	0.03
21:24:06	1737.0	13.5	30.4	111	150	2186	404	328	1.09	1.11	37.8	38.0	1726.9	584	112.0	7:44	1.10	1.53	0.03
21:28:01	1738.0	16.1	29.2	111	155	2190	404	321	1.09	1.11	37.8	37.9	1727.7	581	113.0	7:48	1.10	1.44	0.03
21:50:55	1739.0	11.6	29.4	111	146	2183	406	382	1.09	1.11	37.9	36.9	1730.7	587	114.0	7:54	1.10	1.52	0.04
21:55:53	1740.0	19.6	31.3	111	154	2216	406	284	1.09	1.11	37.8	36.6	1731.7	589	115.0	7:59	1.10	1.54	0.05
21:58:11	1741.0	37.1	30.8	111	159	2232	406	304	1.09	1.11	37.7	36.9	1732.2	589	116.0	8:02	1.10	1.30	0.07
22:01:28	1742.0	25.5	29.9	111	158	2227	406	302	1.09	1.11	37.6	37.2	1732.8	588	117.0	8:05	1.10	1.40	0.08
22:04:32	1743.0	14.4	30.4	111	152	2204	406	287	1.09	1.11	37.6	37.3	1733.4	589	118.0	8:08	1.10	1.38	0.09
22:07:36	1744.0	41.4	30.8	111	157	2209	406	296	1.09	1.11	37.5	37.4	1734.1	577	119.0	8:11	1.10	1.38	0.08
22:11:02	1745.0	11.3	30.7	111	148	2219	406	300	1.09	1.11	37.5	37.5	1734.7	581	120.0	8:14	1.10	1.42	0.06
22:19:57	1746.0	8.1	32.8	111	145	2211	405	275	1.09	1.11	37.4	37.5	1736.6	575	121.0	8:23	1.10	1.74	0.06
22:25:23	1747.0	11.6	31.2	111	150	2224	406	272	1.09	1.11	37.4	37.6	1737.6	578	122.0	8:29	1.10	1.57	0.05
22:30:07	1748.0	11.0	32.2	111	157	2228	406	283	1.09	1.11	37.4	37.7	1738.5	572	123.0	8:33	1.10	1.54	0.05
22:36:23	1749.0	9.3	32.8	111	150	2236	405	288	1.09	1.11	37.5	37.7	1739.5	571	124.0	8:40	1.10	1.63	0.04
22:42:12	1750.0	10.3	32.6	111	150	2238	406	266	1.09	1.11	37.5	37.7	1741.4	577	125.0	8:46	1.10	1.61	0.06
22:47:33	1751.0	11.7	32.7	111	155	2249	405	292	1.09	1.11	37.6	37.8	1743.0	576	126.0	8:51	1.10	1.59	0.06
22:53:24	1752.0	12.5	31.8	111	151	2235	405	279	1.09	1.11	37.6	37.7	1744.9	579	127.0	8:57	1.10	1.60	0.05
22:57:35	1753.0	12.1	32.1	111	157	2234	406	280	1.09	1.11	37.6	37.7	1745.3	577	128.0	9:01	1.10	1.50	0.04
23:00:14	1754.0	34.5	30.9	111	154	2232	405	276	1.09	1.11	37.6	37.9	1745.7	575	129.0	9:04	1.10	1.35	0.04
23:01:47	1755.0	35.3	29.9	111	155	2239	406	258	1.09	1.11	37.6	37.8	1746.1	573	130.0	9:05	1.10	1.17	0.03
23:03:49	1756.0	28.7	30.7	111	151	2238	405	265	1.09	1.11	37.7	37.8	1746.4	579	131.0	9:07	1.10	1.26	0.03
23:05:39	1757.0	31.8	29.9	111	156	2238	406	264	1.09	1.11	37.7	37.8	1746.7	576	132.0	9:09	1.10	1.22	0.03
23:08:09	1758.0	25.6	29.9	111	153	2253	406	285	1.09	1.11	37.7	37.7	1747.3	570	133.0	9:11	1.10	1.32	0.04
23:11:54	1759.0	23.3	31.6	111	159	2251	406	275	1.09	1.11	37.7	37.8	1747.7	574	134.0	9:15	1.10	1.46	0.04
23:15:03	1760.0	16.5	30.0	111	153	2253	406	283	1.09	1.11	37.7	37.8	1748.2	570	135.0	9:18	1.10	1.39	0.03
23:18:42	1761.0	20.8	31.7	111	159	2250	405	268	1.09	1.11	37.7	37.8	1748.8	575	136.0	9:22	1.10	1.45	0.02
23:21:47	1762.0	20.0	30.2	111	157	2246	405	296	1.09	1.11	37.7	37.8	1749.3	571	137.0	9:25	1.10	1.38	0.02
23:27:25	1763.0	22.7	33.7	111	149	2231	406	273	1.09	1.11	37.8	37.8	1750.2	577	138.0	9:31	1.10	1.61	0.02
23:29:52	1764.0	24.3	29.5	111	156	2257	406	266	1.09	1.11	37.8	37.8	1750.7	572	139.0	9:33	1.10	1.30	0.02
23:31:53	1765.0	29.9	30.8	111	159	2240	406	285	1.09	1.11	37.8	37.8	1751.0	578	140.0	9:35	1.10	1.25	0.02
23:35:11	1766.0	15.0	28.6	111	142	2243	406	285	1.09	1.11	37.8	37.8	1751.5	576	141.0	9:39	1.10	1.38	0.02
23:51:19	1767.0	15.3	30.5	111	151	2236	405	292	1.09	1.11	37.8	37.8	1754.9	581	142.0	9:42	1.10	1.44	0.03
23:53:15	1768.1	30.8	25.2	114	164	2201	400	279	1.09	1.11	37.8	37.4	1755.9	577	143.1	9:44	1.10	1.18	0.06
23:55:58	1769.0	19.3	28.1	114	165	2194	400	288	1.09	1.11	37.8	36.9	1757.2	572	144.0	9:47	1.10	1.33	0.06
23:59:09	1770.0	18.9	26.0	114	152	2193	400	280	1.09	1.11	37.7	36.7	1758.3	576	145.0	9:50	1.10	1.34	0.05
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00:01:35	1771.0	24.3	27.5	114	153	2206	400	275	1.09	1.11	37.7	36.9	1758.9	573	146.0	9:53	1.10	1.28	0.04
00:07:45	1772.0	7.9	28.2	114	145	2188	400	270	1.09	1.11	37.6	37.2	1760.6	577	147.0	9:59	1.10	1.57	0.04
00:11:18	1773.0	20.6	28.5	114	155	2188	400	247	1.09	1.11	37.5	37.4	1761.6	564	148.0	10:02	1.10	1.41	0.03
00:15:03	1774.0	21.7	28.8	114	155	2197	401	277	1.09	1.11	37.5	37.3	1762.3	561	149.0	10:06	1.10	1.43	0.04
00:18:53	1775.0	12.4	28.1	114	152	2187	400	265	1.09	1.11	37.4	37.4	1763.3	560	150.0	10:10	1.10	1.43	0.06
00:21:42	1776.0	20.7	27.3	114	151	2190	400	288	1.09	1.11	37.4	37.5	1764.5	566	151.0	10:13	1.10	1.32	0.05
00:23:47	1777.0	31.6	27.4	114	151	2189	399	300	1.09	1.11	37.4	37.6	1765.4	566	152.0	10:15	1.10	1.24	0.04
00:26:33	1778.0	20.6	25.9	114	151	2203	400	288	1.09	1.11	37.4	37.6	1766.1	568	153.0	10:18	1.10	1.29	0.04
00:28:57	1779.0	26.2	27.3	114	151	2200	400	280	1.09	1.11	37.4	37.5	1766.7	561	154.0	10:20	1.10	1.28	0.03
00:31:26	1780.0	24.3	25.7	114	147	2195	400	289	1.09	1.11	37.4	37.5	1766.9	565	155.0	10:22	1.10	1.25	0.03
00:34:21	1781.1	18.0	27.1	114	151	2207	400	275	1.09	1.11	37.4	37.4	1766.9	567	156.1	10:25	1.10	1.33	0.03
00:37:35	1782.0	17.0	28.2	114	154	2197	400	268	1.09	1.11	37.4	37.5	1767.8	564	157.0	10:29	1.10	1.37	0.06
00:40:30	1783.0	20.9	27.3	114	150	2210	400	310	1.09	1.11	37.4	37.5	1768.9	562	158.0	10:32	1.10	1.33	0.06
00:43:42	1784.0	24.7	27.2	114	149	2210	400	270	1.09	1.11	37.5	37.5	1769.7	564	159.0	10:35	1.10	1.35	0.05
00:45:58	1785.1	28.1	27.1	114	154	2201	400	281	1.09	1.11	37.5	37.6	1770.1	565	160.1	10:37	1.10	1.23	0.04
00:50:32	1786.0	16.0	27.9	114	149	2203	400	283	1.09	1.11	37.5	37.6	1771.5	563	161.0	10:42	1.10	1.36	0.03
00:53:04	1787.0	29.0	27.6	114	165	2207	400	289	1.09	1.11	37.5	37.6	1771.8	568	162.0	10:44	1.10	1.30	0.03

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME h:mm:sec	DEPTH m	ROP m/hr	WOB klb	RPM	TRQ amp	SPP psi	FLOW IN gpm	FLOW OUT	MUD DENSITY IN sg	MUD DENSITY OUT	MUD TEMP IN deg C	MUD TEMP OUT	RETURNS DEPTH m	PVT bbl	-BIT- mts	-BIT- hh:mm	ECD sg	DXC	GAS %
00:55:47	1788.0	21.2	27.2	114	157	2198	400	294	1.09	1.11	37.5	37.6	1772.2	564	163.0	10:47	1.10	1.31	0.03
00:58:57	1789.0	20.5	27.2	114	155	2203	400	273	1.09	1.11	37.5	37.5	1773.1	561	164.0	10:50	1.10	1.35	0.03
01:01:26	1790.0	25.1	25.0	114	141	2218	400	283	1.09	1.11	37.5	37.5	1773.7	566	165.0	10:52	1.10	1.25	0.03
01:03:44	1791.0	22.9	26.5	114	153	2200	400	269	1.09	1.11	37.5	37.5	1774.6	565	166.0	10:55	1.10	1.25	0.04
01:05:46	1792.0	30.4	26.7	114	157	2209	401	267	1.09	1.11	37.5	37.5	1774.9	561	167.0	10:57	1.10	1.21	0.04
01:08:07	1793.0	24.1	27.1	114	157	2223	401	263	1.09	1.11	37.5	37.5	1775.7	567	168.0	10:59	1.10	1.27	0.06
01:10:09	1794.0	28.8	26.5	115	154	2212	400	290	1.09	1.11	37.5	37.5	1776.5	563	169.0	11:01	1.10	1.21	0.05
01:11:57	1795.0	28.1	25.7	114	151	2222	401	305	1.09	1.11	37.5	37.5	1777.3	560	170.0	11:03	1.10	1.17	0.05
01:54:21	1796.0	13.2	25.1	116	144	2197	400	282	1.09	1.11	37.2	37.3	1785.9	566	171.0	11:05	1.10	0.98	0.05
01:57:10	1797.0	24.0	27.1	115	158	2204	400	275	1.09	1.11	37.1	37.0	1786.6	564	172.0	11:08	1.10	1.30	0.05
01:58:51	1798.0	36.5	25.3	115	155	2215	400	285	1.09	1.11	37.1	37.0	1787.0	561	173.0	11:09	1.10	1.15	0.07
02:00:50	1799.0	27.8	25.7	115	153	2197	400	258	1.09	1.11	37.1	37.3	1787.4	567	174.0	11:11	1.10	1.20	0.09
02:03:03	1800.0	25.9	24.5	115	160	2208	400	265	1.09	1.11	37.1	37.5	1788.0	565	175.0	11:13	1.10	1.20	0.11
02:05:29	1801.0	22.9	26.7	115	170	2201	400	272	1.09	1.11	37.1	37.5	1788.5	551	176.0	11:16	1.10	1.28	0.12
02:07:50	1802.0	22.9	23.3	115	167	2210	400	261	1.09	1.11	37.1	37.4	1789.1	568	177.0	11:18	1.10	1.21	0.13
02:10:17	1803.0	23.2	24.5	115	154	2210	400	242	1.09	1.11	37.1	37.3	1789.7	567	178.0	11:21	1.10	1.23	0.13
02:12:32	1804.1	30.6	24.5	115	160	2177	396	255	1.09	1.11	37.1	37.3	1790.2	551	179.1	11:23	1.10	1.20	0.12
02:15:13	1805.0	27.7	25.5	115	154	2168	396	251	1.09	1.11	37.1	37.2	1790.8	554	180.0	11:26	1.10	1.28	0.09
02:18:37	1806.0	21.4	24.3	115	150	2185	396	269	1.09	1.11	37.1	37.2	1791.6	557	181.0	11:29	1.10	1.33	0.06
02:20:42	1807.0	26.7	23.6	115	153	2188	396	259	1.09	1.11	37.1	37.2	1792.1	554	182.0	11:31	1.10	1.18	0.04
02:23:31	1808.0	22.6	24.8	115	154	2172	396	285	1.09	1.11	37.1	37.2	1792.7	555	183.0	11:34	1.10	1.29	0.03
02:25:17	1809.0	33.1	26.5	115	158	2174	396	276	1.09	1.11	37.1	37.2	1793.2	555	184.0	11:36	1.10	1.15	0.03
0[illegible]7:02	1810.0	36.0	24.1	115	159	2192	396	286	1.09	1.11	37.1	37.2	1793.6	555	185.0	11:37	1.10	1.14	0.03
0[illegible]0:02	1811.0	19.0	23.5	115	151	2183	396	266	1.09	1.11	37.1	37.2	1794.3	556	186.0	11:40	1.10	1.22	0.03
02:32:07	1812.0	29.1	24.5	115	161	2180	396	258	1.09	1.11	37.2	37.1	1794.7	552	187.0	11:43	1.10	1.19	0.03
02:34:49	1813.0	27.5	22.9	115	150	2194	396	258	1.09	1.11	37.2	37.0	1795.4	558	188.0	11:45	1.10	1.24	0.05
02:38:38	1814.0	13.9	25.9	115	161	2186	397	258	1.09	1.11	37.1	37.0	1796.1	550	189.0	11:49	1.10	1.39	0.08
02:41:26	1815.0	21.2	25.3	115	167	2182	396	297	1.09	1.11	37.1	37.0	1797.0	551	190.0	11:52	1.10	1.30	0.09
02:44:26	1816.0	20.6	23.2	115	162	2184	396	274	1.09	1.11	37.1	37.0	1798.6	558	191.0	11:55	1.10	1.28	0.09
02:46:44	1817.0	28.4	24.2	115	159	2182	397	234	1.09	1.11	37.1	37.0	1799.6	559	192.0	11:57	1.10	1.21	0.09
02:49:55	1818.0	15.9	26.6	115	158	2187	397	264	1.09	1.11	37.1	37.0	1800.8	559	193.0	12:00	1.10	1.35	0.07
02:52:44	1819.1	22.6	23.0	115	156	2202	396	275	1.09	1.11	37.1	37.0	1802.1	556	194.1	12:03	1.10	1.25	0.06
02:56:21	1820.0	15.1	24.9	115	159	2189	396	270	1.09	1.11	37.1	37.0	1803.5	553	195.0	12:07	1.10	1.35	0.07
02:59:38	1821.0	20.1	24.2	115	163	2204	396	312	1.09	1.11	37.1	37.0	1804.7	550	196.0	12:10	1.10	1.32	0.07
03:01:31	1822.0	36.4	22.1	115	153	2182	396	334	1.09	1.11	37.1	37.0	1805.4	557	197.0	12:12	1.10	1.13	0.07
03:04:14	1823.0	28.6	24.6	115	164	2192	396	331	1.09	1.11	37.0	37.0	1806.2	556	198.0	12:15	1.10	1.27	0.06
03:06:53	1824.0	28.2	24.9	115	159	2192	396	346	1.09	1.11	37.0	37.0	1807.4	545	199.0	12:17	1.10	1.26	0.06
03:21:22	1825.0	23.0	24.3	114	160	2248	401	320	1.09	1.11	36.9	36.8	1812.5	558	200.0	12:20	1.10	1.19	0.05
03:24:20	1826.0	40.0	25.8	114	173	2243	402	368	1.09	1.11	36.8	36.2	1813.3	551	201.0	12:23	1.10	1.32	0.05
03:26:03	1827.0	33.3	24.6	115	162	2267	402	360	1.09	1.11	36.8	36.3	1813.8	552	202.0	12:25	1.10	1.14	0.05
03:27:50	1828.0	27.6	25.0	115	164	2259	402	352	1.09	1.11	36.7	36.5	1814.4	554	203.0	12:27	1.10	1.16	0.05
03:30:32	1829.0	26.0	24.9	114	175	2264	402	348	1.09	1.11	36.7	36.7	1815.1	552	204.0	12:29	1.10	1.26	0.05
03:32:15	1830.0	33.3	23.3	114	165	2247	402	346	1.09	1.11	36.6	36.9	1815.6	558	205.0	12:31	1.10	1.13	0.06
03:35:22	1831.0	26.9	25.3	114	161	2252	402	340	1.09	1.11	36.6	37.0	1816.5	550	206.0	12:34	1.10	1.31	0.07
03:37:21	1832.0	29.6	24.4	114	165	2250	402	369	1.09	1.10	36.5	37.0	1817.1	551	207.0	12:36	1.10	1.18	0.06
03:39:27	1833.0	24.9	24.8	114	164	2241	402	369	1.09	1.10	36.5	37.1	1817.7	552	208.0	12:38	1.10	1.20	0.06
03:41:31	1834.0	29.8	23.5	114	169	2233	400	336	1.09	1.10	36.5	37.1	1818.3	556	209.0	12:40	1.10	1.17	0.05
03:44:07	1835.0	25.3	23.3	114	163	2190	397	329	1.09	1.10	36.5	37.0	1819.0	556	210.0	12:43	1.10	1.24	0.05
[illegible]:15	1836.0	27.3	24.5	114	165	2183	396	333	1.09	1.10	36.5	36.9	1819.6	555	211.0	12:45	1.10	1.20	0.05
03:49:04	1837.0	29.9	22.9	114	161	2181	396	351	1.09	1.10	36.5	36.9	1820.4	558	212.0	12:48	1.10	1.18	0.06
03:51:47	1838.0	27.8	21.9	114	159	2141	392	352	1.09	1.10	36.5	36.9	1821.1	551	213.0	12:51	1.10	1.23	0.06
03:53:37	1839.0	36.2	22.5	114	168	2112	389	320	1.09	1.10	36.5	36.9	1821.7	552	214.0	12:52	1.10	1.16	0.06
03:56:40	1840.0	17.1	22.8	114	164	2109	389	310	1.09	1.10	36.5	36.9	1822.5	554	215.0	12:55	1.10	1.27	0.06

DrillByte Drilling Data Printout   COMPANY: BHP PETROLEUM   WELL: ERIC THE RED-1

TIME	DEPTH	ROP	WOB	RPM	TRQ	SPP	FLOW IN	FLOW OUT	MUD DENSITY IN	MUD DENSITY OUT	MUD TEMP IN	MUD TEMP OUT	RETURNS DEPTH	PVT	-BIT-	-BIT-	ECD	DXC	GAS
h:mm:sec	m	m/hr	klb		amp	psi	gpm			sg		deg C	m	bbl	mts	hh:mm	sg		%
03:59:06	1841.0	29.1	23.8	114	167	2120	389	339	1.09	1.10	36.5	36.9	1823.1	552	216.0	12:58	1.10	1.22	0.05
04:01:30	1842.0	29.9	20.4	114	154	2107	389	313	1.09	1.10	36.5	36.9	1823.8	558	217.0	13:00	1.10	1.17	0.04
04:05:00	1843.0	14.8	25.2	114	162	2115	389	303	1.09	1.10	36.5	36.9	1824.7	550	218.0	13:04	1.10	1.35	0.04
04:07:39	1844.0	22.2	21.8	114	154	2106	389	319	1.09	1.10	36.4	36.8	1825.1	551	219.0	13:06	1.10	1.31	0.04
04:10:21	1845.0	20.6	20.5	114	150	2095	388	323	1.09	1.10	36.4	36.8	1826.4	552	220.0	13:09	1.10	1.20	0.07
04:12:51	1846.0	32.8	21.7	114	155	2107	388	336	1.09	1.10	36.4	36.8	1827.7	556	221.0	13:12	1.10	1.20	0.08
04:14:40	1847.0	30.8	22.5	114	162	2092	388	335	1.09	1.10	36.4	36.9	1828.4	556	222.0	13:13	1.10	1.12	0.08
04:17:01	1848.0	26.0	23.4	114	167	2106	389	340	1.09	1.10	36.4	36.8	1829.5	555	223.0	13:16	1.10	1.22	0.07
04:19:50	1849.0	29.1	22.3	114	157	2116	389	308	1.09	1.10	36.4	36.8	1830.5	558	224.0	13:19	1.10	1.22	0.06
04:22:28	1850.0	25.0	21.2	114	155	2106	389	303	1.09	1.10	36.4	36.8	1831.5	551	225.0	13:21	1.10	1.21	0.07
04:24:49	1851.0	29.7	21.7	114	152	2095	388	384	1.09	1.10	36.4	36.9	1832.6	552	226.0	13:24	1.10	1.19	0.06
04:28:30	1852.0	13.9	24.6	114	155	2103	389	365	1.09	1.10	36.4	37.0	1834.2	554	227.0	13:27	1.10	1.35	0.08
04:30:26	1853.0	25.8	21.3	114	154	2111	389	345	1.10	1.10	36.4	36.8	1834.8	552	228.0	13:29	1.10	1.13	0.09
04:33:18	1854.0	17.3	25.2	114	165	2099	390	348	1.10	1.10	36.4	36.9	1836.0	558	229.0	13:32	1.10	1.29	0.07
04:48:57	1855.1	20.1	24.1	115	161	2146	390	327	1.09	1.10	36.3	36.2	1841.1	550	230.1	13:35	1.10	1.31	0.05
04:51:31	1856.0	26.7	23.9	115	155	2147	391	349	1.09	1.10	36.3	35.7	1841.8	551	231.0	13:38	1.10	1.25	0.06
04:54:35	1857.0	16.3	24.1	115	154	2150	391	344	1.09	1.10	36.3	36.0	1842.9	552	232.0	13:41	1.10	1.30	0.04
04:57:20	1858.1	38.0	24.6	115	164	2150	392	380	1.09	1.10	36.2	36.4	1843.9	546	233.1	13:44	1.10	1.27	0.05
04:59:25	1859.1	27.8	22.5	115	160	2150	394	396	1.09	1.10	36.2	36.5	1844.6	546	234.1	13:46	1.10	1.17	0.06
05:01:20	1860.0	33.7	22.4	115	161	1974	378	337	1.10	1.10	36.2	36.6	1845.3	545	235.0	13:48	1.10	1.15	0.07
05:03:16	1861.0	31.3	23.2	115	171	2022	377	329	1.09	1.10	36.2	36.6	1846.0	548	236.0	13:50	1.10	1.16	0.07
05:05:30	1862.0	24.2	23.6	115	158	2020	381	304	1.10	1.10	36.2	36.6	1846.7	541	237.0	13:52	1.10	1.20	0.07
05:08:10	1863.0	28.4	24.3	115	175	2021	381	353	1.10	1.10	36.2	36.5	1847.6	542	238.0	13:55	1.10	1.26	0.07
05:10:42	1864.0	28.3	24.9	115	172	2024	381	366	1.10	1.10	36.2	36.5	1848.5	544	239.0	13:57	1.10	1.26	0.07
05:14:17	1865.0	15.7	24.5	115	164	2094	386	359	1.10	1.10	36.2	36.5	1849.8	542	240.0	14:01	1.10	1.33	0.07
05:17:50	1866.0	20.0	24.2	115	170	2214	403	434	1.10	1.10	36.3	36.5	1851.1	548	241.0	14:04	1.10	1.34	0.06
05:20:49	1867.1	24.4	24.9	115	175	2218	402	394	1.10	1.10	36.3	36.5	1852.2	540	242.1	14:07	1.10	1.30	0.07
05:24:05	1868.0	15.4	25.5	115	170	2213	401	405	1.10	1.10	36.3	36.6	1853.4	541	243.0	14:10	1.10	1.34	0.06
05:27:35	1869.0	13.0	24.1	115	164	2208	401	380	1.10	1.10	36.3	36.7	1854.2	542	244.0	14:14	1.10	1.35	0.04
05:29:39	1870.0	24.5	25.2	115	163	2202	402	354	1.10	1.10	36.3	36.8	1854.8	546	245.0	14:16	1.10	1.35	0.04
05:32:25	1871.0	20.9	26.1	115	175	2209	402	420	1.10	1.10	36.4	36.8	1856.0	546	246.0	14:19	1.10	1.30	0.04
05:35:20	1872.0	19.9	25.1	116	165	2205	403	409	1.10	1.10	36.4	36.7	1857.1	546	247.0	14:22	1.10	1.30	0.05
05:38:14	1873.1	30.2	24.4	116	145	2218	403	416	1.09	1.10	36.4	36.8	1858.2	544	248.1	14:25	1.10	1.27	0.06
05:41:41	1874.0	16.3	25.0	116	131	2205	402	378	1.10	1.10	36.5	36.7	1859.6	545	249.0	14:28	1.10	1.35	0.07
05:46:46	1875.0	9.9	25.8	116	128	2189	402	413	1.09	1.10	36.5	36.7	1861.6	544	250.0	14:33	1.10	1.48	0.09

Reached Total Depth

APPENDIX VII: Bit Hydraulics Printouts

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Sun Feb 21 00:02:22 1993

INPUT DATA

ydraulics Model	POWER LAW	Casing Shoe Depth	355.0 m	Jet 1	18 in/32
Depth	629.2 m	Weakest Fmtn Depth	355.0 m	Jet 2	16 in/32
Vertical Depth	629.1 m	Mud Density	1.06 sg	Jet 3	13 in/32
Flow Rate	652 gpm	300 rpm viscometer	33	Total Fluid Area	0.5745 in^2
Average ROP	176.8 m/hr	600 rpm viscometer	48		
Cuttings Density	2.60 spc g	Plastic Viscosity	15.00 cP		
Cuttings Diameter	0.200 in	Yield Point	18.00 #/100ft^2		
Cuttings Shape	SPHERICAL	Power Law k	1.17465 #sec^n/100ft^2		
Cuttings Thickness	0.000 in	Power Law n	0.54057		

CALCULATED RESULTS

Section Top	Section Length	Hole Size	Pipe OD	Pipe ID	Volumes & Capacities Hole	Pipe	Annulus	Mud Velocity Pipe	Annulus	Critical	Flow Regime
m	m	in	in	in	bbl	bbl	bbl	m/min	m/min	m/min	
Surface	98.5	19.750	5.000	4.276	122	6	115	266.4	13.4	72.4	LAMINAR
100.0	255.0	12.347	5.000	4.276	124	15	103	266.4	38.3	94.8	LAMINAR
355.0	5.8	12.250	5.000	4.276	3	0	2	266.4	39.0	95.2	LAMINAR
360.8	134.7	12.250	5.000	3.000	64	4	54	541.2	39.0	95.2	LAMINAR
495.5	133.7	12.250	8.000	2.875	64	4	37	589.3	56.6	116.6	LAMINAR

Hydrostatic Pressure	946 psi		
Annular Volume	310 bbl	2423 strokes	20 mins
Pipe Capacity	28 bbl	221 strokes	2 mins
Circulating Volume	339 bbl	2645 strokes	22 mins
Pipe Displacement	39 bbl		
Total Hole Volume	377 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	552	572	592	612	632	652	672	692	712	732	752
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	94.0	97.4	100.8	104.2	107.6	111.0	114.4	117.8	121.2	124.6	128.0
Impact Force	lbf :	779.8	837.3	896.9	958.5	1022.2	1087.9	1155.7	1225.5	1297.4	1371.3	1447.2
Hydraulic Power	hhp :	242.0	269.2	298.5	329.8	363.2	398.7	436.6	476.7	519.3	564.3	611.8
Bit Loss	psi :	752	807	865	924	986	1049	1114	1182	1251	1322	1395
% Bit Loss	:	55.0	56.3	57.4	58.5	59.4	60.3	61.2	61.9	62.6	63.3	63.9
Pipe Loss	psi :	364	385	406	428	451	473	496	520	544	568	593
Annular Loss	psi :	11	11	11	12	12	12	12	12	12	13	13
ttings Loss	psi :	229	220	211	204	196	190	183	177	172	166	161
rface Loss	psi :	11	12	13	13	14	15	16	17	18	19	20
otal Loss	psi :	1367	1435	1506	1581	1658	1739	1822	1908	1997	2088	2182
Circ Pressure	psi :	1186	1177	1169	1161	1154	1147	1141	1136	1130	1125	1120
ECD @ TD	sg :	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
ECD @ Shoe	sg :	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
ECD @ Weakest Depth	sg :	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
ECD @ TD (cuttings)	sg :	1.33	1.32	1.31	1.30	1.29	1.29	1.28	1.27	1.27	1.26	1.26

Recommended Minimum Flow to maintain cuttings transport in top section is 142 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 1344 gpm

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Mon Feb 22 01:29:14 1993

INPUT DATA

Hydraulics Model	POWER LAW	Casing Shoe Depth	355.0 m	Jet 1	18 in/32		
Depth	1017.0 m	Weakest Fmtn Depth	355.0 m	Jet 2	16 in/32		
Vertical Depth	1017.0 m	Mud Density	1.10 sg	Jet 3	13 in/32		
Flow Rate	640 gpm	300 rpm viscometer	37	Total Fluid Area	0.5745 in^2		
Average ROP	66.6 m/hr	600 rpm viscometer	53				
Cuttings Density	2.60 spc g	Plastic Viscosity	15.00 cP				
Cuttings Diameter	0.200 in	Yield Point	22.00 #/100ft^2				
Cuttings Shape	SPHERICAL	Power Law k	1.78874 #sec^n/100ft^2				
Cuttings Thickness	0.050 in	Power Law n	0.49099				

CALCULATED RESULTS

Section Top	Section Length	Hole Size	Pipe OD	Pipe ID	Volumes & Capacities Hole	Pipe	Annulus	Mud Velocity Pipe	Annulus	Critical	Flow Regime
m	m	in	in	in	bbl	bbl	bbl	m/min	m/min	m/min	
Surface	98.5	19.750	5.000	4.276	122	6	115	261.5	13.1	84.8	LAMINAR
100.0	255.0	12.347	5.000	4.276	124	15	103	261.5	37.6	107.4	LAMINAR
355.0	393.6	12.250	5.000	4.276	188	23	157	261.5	38.3	107.9	LAMINAR
748.6	134.7	12.250	5.000	3.000	64	4	54	531.2	38.3	107.9	LAMINAR
883.3	133.7	12.250	8.000	2.875	64	4	37	578.4	55.6	129.0	LAMINAR

Hydrostatic Pressure	1588 psi		
Annular Volume	465 bbl	3628 strokes	30 mins
Pipe Capacity	51 bbl	398 strokes	3 mins
Circulating Volume	516 bbl	4025 strokes	34 mins
Pipe Displacement	47 bbl		
Total Hole Volume	563 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	540	560	580	600	620	640	660	680	700	720	740
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	91.9	95.3	98.7	102.1	105.5	108.9	112.3	115.8	119.2	122.6	126.0
Impact Force	lbf :	774.4	832.9	893.4	956.1	1020.9	1087.8	1156.9	1228.0	1301.3	1376.8	1454.3
Hydraulic Power	hhp :	235.1	262.2	291.3	322.5	355.8	391.4	429.2	469.4	512.1	557.2	605.0
Bit Loss	psi :	747	803	861	922	984	1049	1115	1184	1255	1327	1402
% Bit Loss	:	56.3	57.2	58.1	58.8	59.5	60.2	60.8	61.4	61.9	62.4	62.9
Pipe Loss	psi :	427	452	477	503	529	556	583	611	639	668	697
Annular Loss	psi :	21	21	21	22	22	22	23	23	23	24	24
Cuttings Loss	psi :	121	116	112	108	104	100	97	94	91	88	86
Surface Loss	psi :	11	12	13	13	14	15	16	17	18	19	20
Total Loss	psi :	1326	1403	1484	1567	1653	1742	1834	1929	2026	2126	2228
Circ Pressure	psi :	1730	1725	1721	1718	1714	1711	1708	1705	1703	1700	1698
ECD @ TD	sg :	1.11	1.11	1.11	1.11	1.12	1.12	1.12	1.12	1.12	1.12	1.12
ECD @ Shoe	sg :	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
ECD @ Weakest Depth	sg :	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
ECD @ TD (cuttings)	sg :	1.20	1.19	1.19	1.19	1.19	1.18	1.18	1.18	1.18	1.18	1.18

Recommended Minimum Flow to maintain cuttings transport in top section is 99 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 1486 gpm

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Wed Feb 24 00:33:49 1993

INPUT DATA

Hydraulics Model	POWER LAW	Casing Shoe Depth	1007.0 m	Jet 1	14 in/32
Depth	1206.0 m	Weakest Fmtn Depth	1007.0 m	Jet 2	10 in/32
Vertical Depth	1205.9 m	Mud Density	1.07 sg	Jet 3	10 in/32
Flow Rate	413 gpm	300 rpm viscometer	35	Total Fluid Area	0.3037 in^2
Average ROP	30.1 m/hr	600 rpm viscometer	50		
Cuttings Density	2.60 spc g	Plastic Viscosity	15.00 cP		
Cuttings Diameter	0.200 in	Yield Point	20.00 #/100ft^2		
Cuttings Shape	SPHERICAL	Power Law k	1.46273 #sec^n/100ft^2		
Cuttings Thickness	0.000 in	Power Law n	0.51457		

CALCULATED RESULTS

Section Top	Length	Hole Size	Pipe OD	Pipe ID	Volumes & Capacities Hole	Pipe	Annulus	Mud Velocity Pipe	Annulus	Critical	Flow Regime
m	m	in	in	in	bbl	bbl	bbl	m/min	m/min	m/min	
Surface	98.5	19.750	5.000	4.276	122	6	115	168.7	8.5	79.2	LAMINAR
100.0	788.6	8.681	5.000	4.276	189	46	126	168.7	61.6	130.3	LAMINAR
888.6	118.4	8.681	5.000	3.000	28	3	19	342.8	61.6	130.3	LAMINAR
1007.0	16.3	8.500	5.000	3.000	4	0	2	342.8	65.7	132.7	LAMINAR
1023.3	164.9	8.500	6.500	2.813	38	4	16	389.9	102.8	160.9	LAMINAR
1188.2	17.8	8.500	6.750	2.813	4	0	2	389.9	115.6	168.6	LAMINAR

Hydrostatic Pressure	1833 psi		
Annular Volume	279 bbl	2178 strokes	28 mins
Pipe Capacity	60 bbl	470 strokes	6 mins
Circulating Volume	339 bbl	2648 strokes	34 mins
Pipe Displacement	47 bbl		
Total Hole Volume	386 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	363	373	383	393	403	413	423	433	443	453	463
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	116.9	120.1	123.3	126.5	129.8	133.0	136.2	139.4	142.6	145.9	149.1
Impact Force	lbf :	643.8	679.8	716.7	754.7	793.6	833.4	874.3	916.1	958.9	1002.7	1047.4
Hydraulic Power	hhp :	248.5	269.6	291.9	315.3	340.0	366.0	393.2	421.8	451.7	482.9	515.6
Bit Loss	psi :	1174	1240	1307	1376	1447	1520	1594	1671	1749	1828	1910
% Bit Loss	:	72.9	73.4	73.9	74.4	74.8	75.2	75.6	76.0	76.4	76.7	77.0
Pipe Loss	psi :	284	296	308	321	334	347	360	374	388	401	415
Annular Loss	psi :	90	91	92	93	94	96	97	98	99	100	101
Cuttings Loss	psi :	59	57	56	54	53	51	50	49	47	46	45
Surface Loss	psi :	5	5	6	6	6	7	7	7	7	8	8
Total Loss	psi :	1612	1689	1769	1851	1935	2020	2108	2198	2290	2384	2480
Circ Pressure	psi :	1981	1981	1980	1980	1980	1979	1979	1979	1979	1979	1979
ECD @ TD	sg :	1.12	1.12	1.12	1.12	1.13	1.13	1.13	1.13	1.13	1.13	1.13
ECD @ Shoe	sg :	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
ECD @ Weakest Depth	sg :	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11	1.11
ECD @ TD (cuttings)	sg :	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16	1.16

Recommended Minimum Flow to maintain cuttings transport in top section is 96 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 602 gpm

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Thu Feb 25 01:04:29 1993

INPUT DATA

Hydraulics Model	POWER LAW	Casing Shoe Depth	1007.0 m	Jet 1	14 in/32
Depth	1593.0 m	Weakest Fmtn Depth	1007.0 m	Jet 2	10 in/32
Vertical Depth	1593.0 m	Mud Density	1.09 sg	Jet 3	10 in/32
Flow Rate	408 gpm	300 rpm viscometer	42	Total Fluid Area	0.3037 in^2
Average ROP	19.4 m/hr	600 rpm viscometer	60		
Cuttings Density	2.60 sg	Plastic Viscosity	18.00 cP		
Cuttings Diameter	0.200 in	Yield Point	24.00 #/100ft^2		
Cuttings Shape	SPHERICAL	Power Law k	1.75528 #sec^n/100ft^2		
Cuttings Thickness	0.000 in	Power Law n	0.51457		

CALCULATED RESULTS

Section Top	Section Length	Hole Size	Pipe OD	Pipe ID	Volumes & Capacities Hole	Pipe	Annulus	Mud Velocity Pipe	Annulus	Critical	Flow Regime
m	m	in	in	in	bbl	bbl	bbl	m/min	m/min	m/min	
Surface	98.5	19.750	5.000	4.276	122	6	115	166.7	8.4	88.5	LAMINAR
100.0	907.0	8.681	5.000	4.276	218	53	145	166.7	60.8	145.5	LAMINAR
1007.0	268.6	8.500	5.000	4.276	62	16	40	166.7	64.9	148.1	LAMINAR
1275.6	134.7	8.500	5.000	3.000	31	4	20	338.7	64.9	148.2	LAMINAR
1410.3	164.9	8.500	6.500	2.813	38	4	16	385.2	101.6	179.7	LAMINAR
1575.2	17.8	8.500	6.750	2.813	4	0	2	385.2	114.2	188.2	LAMINAR

Hydrostatic Pressure	2467 psi		
Annular Volume	337 bbl	2631 strokes	35 mins
Pipe Capacity	83 bbl	646 strokes	9 mins
Circulating Volume	420 bbl	3277 strokes	43 mins
Pipe Displacement	56 bbl		
Total Hole Volume	475 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	358	368	378	388	398	408	418	428	438	448	458
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	115.3	118.5	121.7	124.9	128.1	131.4	134.6	137.8	141.0	144.2	147.5
Impact Force	lbf :	637.9	674.1	711.2	749.3	788.5	828.6	869.7	911.8	954.9	999.0	1044.1
Hydraulic Power	hhp :	242.8	263.7	285.8	309.1	333.6	359.4	386.5	414.9	444.7	475.8	508.4
Bit Loss	psi :	1163	1229	1297	1366	1438	1511	1586	1663	1741	1822	1904
% Bit Loss	:	68.8	69.3	69.9	70.3	70.8	71.2	71.7	72.1	72.4	72.8	73.2
Pipe Loss	psi :	341	356	371	386	402	418	434	451	467	484	501
Annular Loss	psi :	137	139	140	142	144	146	148	150	151	153	155
Cuttings Loss	psi :	45	44	43	41	40	39	38	37	36	35	35
Surface Loss	psi :	5	5	6	6	6	7	7	7	7	8	8
Total Loss	psi :	1691	1773	1857	1943	2031	2121	2213	2307	2404	2502	260[illegible]
Circ Pressure	psi :	2649	2649	2650	2650	2651	2652	2653	2654	2654	2655	265[illegible]
ECD @ TD	sg :	1.15	1.15	1.15	1.15	1.15	1.15	1.16	1.16	1.16	1.16	1.16
ECD @ Shoe	sg :	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ Weakest Depth	sg :	1.13	1.13	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ TD (cuttings)	sg :	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17

Recommended Minimum Flow to maintain cuttings transport in top section is 79 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 672 gpm

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Fri Feb 26 02:29:15 1993

INPUT DATA

Hydraulics Model	POWER LAW	Casing Shoe Depth	1007.0 m	Jet 1	14 in/32
Depth	1771.0 m	Weakest Fmtn Depth	1007.0 m	Jet 2	10 in/32
Vertical Depth	1770.9 m	Mud Density	1.10 sg	Jet 3	10 in/32
Flow Rate	350 gpm	300 rpm viscometer	38	Total Fluid Area	0.3037 in^2
Average ROP	28.0 m/hr	600 rpm viscometer	54		
Cuttings Density	2.60 spc gr	Plastic Viscosity	16.00 cP		
Cuttings Diameter	0.200 in	Yield Point	22.00 #/100ft^2		
Cuttings Shape	SPHERICAL	Power Law k	1.66454 #sec^n/100ft^2		
Cuttings Thickness	0.100 in	Power Law n	0.50696		

CALCULATED RESULTS

Section Top m	Section Length m	Hole Size in	Pipe OD in	Pipe ID in	Volumes & Capacities Hole bbl	Pipe bbl	Annulus bbl	Mud Velocity Pipe m/min	Annulus m/min	Critical m/min	Flow Regime
Surface	98.5	19.750	5.000	4.276	122	6	115	143.0	7.2	83.5	LAMINAR
100.0	907.0	8.681	5.000	4.276	218	53	145	143.0	52.2	136.0	LAMINAR
1007.0	446.6	8.500	5.000	4.276	103	26	67	143.0	55.6	138.4	LAMINAR
1453.6	134.7	8.500	5.000	3.000	31	4	20	290.5	55.7	138.5	LAMINAR
1588.3	164.9	8.500	6.500	2.813	38	4	16	330.4	87.2	167.3	LAMINAR
1753.2	17.8	8.500	6.750	2.813	4	0	2	330.4	98.0	175.1	LAMINAR

Hydrostatic Pressure	2768 psi		
Annular Volume	364 bbl	2839 strokes	44 mins
Pipe Capacity	93 bbl	727 strokes	11 mins
Circulating Volume	457 bbl	3566 strokes	55 mins
Pipe Displacement	59 bbl		
Total Hole Volume	516 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	300	310	320	330	340	350	360	370	380	390	400
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	96.6	99.8	103.0	106.2	109.5	112.7	115.9	119.1	122.3	125.6	128.8
Impact Force	lbf :	452.1	482.7	514.4	547.0	580.7	615.3	651.0	687.7	725.3	764.0	803.7
Hydraulic Power	hhp :	144.2	159.1	175.0	191.9	209.9	229.0	249.2	270.5	293.1	316.8	341.8
Bit Loss	psi :	824	880	938	998	1059	1122	1187	1254	1323	1393	1466
% Bit Loss	:	63.8	64.4	64.9	65.7	66.4	67.1	67.7	68.3	68.9	69.4	69.9
Pipe Loss	psi :	251	271	293	308	323	338	353	368	384	400	416
Annular Loss	psi :	126	128	130	132	134	136	138	140	142	143	145
Cuttings Loss	psi :	86	83	80	78	75	73	71	68	66	65	63
Surface Loss	psi :	4	4	4	4	5	5	5	5	6	6	6
Total Loss	psi :	1291	1366	1446	1519	1595	1673	1753	1836	1920	2007	2096
Circ Pressure	psi :	2980	2979	2978	2977	2977	2976	2976	2976	2976	2976	2976
ECD @ TD	sg :	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.16	1.16	1.16	1.16
ECD @ Shoe	sg :	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ Weakest Depth	sg :	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ TD (cuttings)	sg :	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18

Recommended Minimum Flow to maintain cuttings transport in top section is 77 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 626 gpm

EXLOG DRILLBYTE EAP : MUD HYDRAULICS ANALYSIS

Data Printed on : Sat Feb 27 02:25:29 1993

INPUT DATA

Hydraulics Model	POWER LAW	Casing Shoe Depth	1007.0 m	Jet 1	14 in/32
Depth	1875.0 m	Weakest Fmtn Depth	1007.0 m	Jet 2	10 in/32
Vertical Depth	1874.9 m	Mud Density	1.10 sg	Jet 3	10 in/32
Flow Rate	395 gpm	300 rpm viscometer	40	Total Fluid Area	0.3037 in^2
Average ROP	17.0 m/hr	600 rpm viscometer	59		
Cuttings Density	2.60 spc g	Plastic Viscosity	19.00 cP		
Cuttings Diameter	0.200 in	Yield Point	21.00 #/100ft^2		
Cuttings Shape	SPHERICAL	Power Law k	1.25729 #sec^n/100ft^2		
Cuttings Thickness	0.100 in	Power Law n	0.56071		

CALCULATED RESULTS

Section Top m	Section Length m	Hole Size in	Pipe OD in	Pipe ID in	Volumes & Capacities Hole bbl	Pipe bbl	Annulus bbl	Mud Velocity Pipe m/min	Annulus m/min	Critical m/min	Flow Regime
Surface	98.5	19.750	5.000	4.276	122	6	115	161.4	8.1	77.0	LAMINAR
100.0	907.0	8.681	5.000	4.276	218	53	145	161.4	58.9	134.7	LAMINAR
1007.0	550.6	8.500	5.000	4.276	127	32	82	161.4	62.8	137.4	LAMINAR
1557.6	134.7	8.500	5.000	3.000	31	4	20	327.9	62.8	137.4	LAMINAR
1692.3	164.9	8.500	6.500	2.813	38	4	16	372.9	98.4	170.7	LAMINAR
1857.2	17.8	8.500	6.750	2.813	4	0	2	372.9	110.6	179.9	LAMINAR

Hydrostatic Pressure	2930 psi		
Annular Volume	379 bbl	2961 strokes	40 mins
Pipe Capacity	99 bbl	774 strokes	11 mins
Circulating Volume	478 bbl	3735 strokes	51 mins
Pipe Displacement	62 bbl		
Total Hole Volume	540 bbl		

HYDRAULICS RESULTS AT VARIOUS FLOW RATES

Flow Rate	gpm :	345	355	365	375	385	395	405	415	425	435	445
Flow Regime at TD	:	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM	LAM
Jet Velocity	m/sec :	111.1	114.3	117.5	120.7	124.0	127.2	130.4	133.6	136.8	140.1	143.3
Impact Force	lbf :	597.9	633.0	669.2	706.4	744.6	783.7	823.9	865.1	907.3	950.5	994.7
Hydraulic Power	hhp :	219.3	238.9	259.7	281.6	304.8	329.1	354.8	381.7	410.0	439.6	470.6
Bit Loss	psi :	1090	1154	1220	1288	1358	1429	1502	1578	1655	1733	1814
% Bit Loss	:	66.1	66.7	67.2	67.7	68.2	68.7	69.1	69.5	69.9	70.3	70.7
Pipe Loss	psi :	367	384	401	419	436	455	473	492	511	530	549
Annular Loss	psi :	139	141	143	146	148	150	152	154	156	158	160
Cuttings Loss	psi :	48	46	45	44	42	41	40	39	38	37	36
Surface Loss	psi :	5	5	5	6	6	6	6	6	7	7	8
Total Loss	psi :	1649	1731	1815	1902	1990	2081	2174	2269	2366	2466	2567
Circ Pressure	psi :	3117	3118	3119	3120	3120	3121	3122	3123	3124	3125	3127
ECD @ TD	sg :	1.15	1.15	1.15	1.15	1.16	1.16	1.16	1.16	1.16	1.16	1.16
ECD @ Shoe	sg :	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ Weakest Depth	sg :	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD @ TD (cuttings)	sg :	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17	1.17

Recommended Minimum Flow to maintain cuttings transport in top section is 101 gpm
Recommended Maximum Flow to maintain laminar flow in lowest section is 643 gpm

APPENDIX VIII: Geological-Engineering Morning Reports

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 1

COMPANY: BHP Petroleum
WELL: ERIC THE RED - 1
DATE: 18.02.93
TIME: 2400 hr
DEPTH: 370m
LAST REPORT DEPTH: - m
RIG OPERATIONS: Run 30" casing.
REPORT BY: S. Ong
REPORT RECEIVED BY: G. Howard (OPTR)

DRILLING REPORT

Bit No. NB#2 Type SECURITY S44GF Size 9.875 in Jets open
On Bit: Distance 254.0 m Hours 3:52 hh:mm ROP 65.6 m/hr WOB 10-15 RPM 120
Pump Press 100 SPM 116 Torque 40-120 amp TBR CP I:# CP B:#

HYDRAULICS REPORT

Mud Density In 0.00 sg Mud Density out 0.00 sg ECD PV/YP
Gels Salinity PPM Cl Solids
Hole Volume Annular Volume Tubing Volume Displaced Volume
Carbide Lag-Calculated Lag Flowrate
DrillPipe Annular Vel (Max. Dia. Sec.) DrillPipe Annular Vel (Open Hole)
Drill Collar Annular Vel (Open Hole) Critical Vel
Pressure Loss System Pressure Loss Bit % Pressure Loss
Nozzle Vel Jet Impact Force HHP

PRESSURE PARAMETERS

Drilling Exponent Flowline Temp
Shale Density Shale Factor
Background Gas - Max. Formation Gas @ Trip Gas - @
Other Gas
Fill Tight Hole
Cavings Est % Average Size

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) -
Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @
Max. Estimated Pore Pressure (Open Hole) @ Estimated Fracture Pressure at TD

COMMENTS

RKB - MSL = 25 m ; RKB- SB = 100 m.
Spud Eric the Red-1 at 0700 hrs w/ RB#1 SEC S3J 26" 3 x 24 jets w/ 36 " HO from 100 m to 116 m.
POOH RB#1 at 116m.
RIH NB#2 SEC S44GF 9.875" w/ open jets to drilled from 116m to 370m. POOH at 370m.
RIH RB#1.1 to open 9.875" to 36" from 116 m to 137 m.
POOH RB#1.1 for 30" casing run.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 2

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 18.2.93 TIME 2400 hrs

DEPTH 370 m (364 m 17.5" hole) LAST REPORT DEPTH 370 m

RIG OPERATIONS Open pilot hole to 17.5" w/ NB#3. Run 13.375" casing w/ shoe set at 355 m.

REPORT BY S. Ong REPORT RECEIVED BY G.Howard (OPTR)

DRILLING REPORT

Bit No. NB#3 Type SECURITY S44G Size 17.500 in Jets 3 x 18

On Bit: Distance 227.0 m Hours 3:00 hh:mm ROP 50.4 WOB 10-30 RPM 155

Pump Press 2900 SPM 200 Torque 50-200 TBR 41850 CP I:# CP B:#

HYDRAULICS REPORT

Mud Density In 0.00 sg Mud Density out 0.00 sg ECD PV/YP

Gels Salinity PPM Cl Solids

Hole Volume Annular Volume Tubing Volume Displaced Volume

Carbide Lag-Calculated Lag Flowrate

DrillPipe Annular Vel (Max. Dia. Sec.) DrillPipe Annular Vel (Open Hole)

Drill Collar Annular Vel (Open Hole) Critical Vel

Pressure Loss System Pressure Loss Bit % Pressure Loss

Nozzle Vel Jet Impact Force HHP

PRESSURE PARAMETERS

Drilling Exponent Flowline Temp

Shale Density Shale Factor

Background Gas Max. Formation Gas @ Trip Gas @

Other Gas

Fill Tight Hole

Cavings Est % Average Size

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance Min. Estimated Fracture Pressure (Open Hole)

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) @

Max. Estimated Pore Pressure (Open Hole) @ Estimated Fracture Pressure at TD

COMMENTS

30" casing shoe set at 136 m. RIH NB#3 to tag cmt @ 133.5 m. Drilled out cmt and shoe.
Open 9.875" pilot hole f/ 137-364 m. POOH NB#3 for 13.375" casing run.
Run and set 13.375" casing shoe at 355 m.

Note : Returns to seabed.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 3

COMPANY: BHP Petroleum
WELL: ERIC THE RED-1
DATE: 19.2.93
TIME: 2400 hrs
DEPTH: 370 m (364 m 17.5" hole)
LAST REPORT DEPTH: 370 m (9.875" hole)
RIG OPERATIONS: Run BOP's and riser. Test BOP's.
REPORT BY: S. Ong
REPORT RECEIVED BY: G.Howard (OPTR)

DRILLING REPORT

Bit No. - Type - Size 0.000 in Jets
On Bit: Distance 0.0 m Hours 00:00 hh:mm ROP WOB RPM
Pump Press SPM Torque TBR CP I:0 CP B:0

HYDRAULICS REPORT

Mud Density In 0.00 sg Mud Density out 0.00 sg ECD PV/YP
Gels Salinity PPM Cl Solids
Hole Volume Annular Volume Tubing Volume Displaced Volume
Carbide Lag-Calculated Lag Flowrate
DrillPipe Annular Vel (Max. Dia. Sec.) DrillPipe Annular Vel (Open Hole)
Drill Collar Annular Vel (Open Hole) Critical Vel
Pressure Loss System Pressure Loss Bit % Pressure Loss
Nozzle Vel Jet Impact Force HHP

PRESSURE PARAMETERS

Drilling Exponent Flowline Temp
Shale Density Shale Factor
Background Gas Max. Formation Gas @ Trip Gas @
Other Gas
Fill Tight Hole
Cavings Est % Average Size

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance
Min. Estimated Fracture Pressure (Open Hole) 1.75 sg
Estimated Pore Pressure 1.03 sg
Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ 355 m
Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ 370 m
Estimated Fracture Pressure at TD 1.80 sg

COMMENTS

Run BOP's and riser. Pressure test BOP's to BHP's specifications.

DRILLBYTE MORNING REPORT NO 4

EXLOG
A Baker Hughes company

COMPANY	BHP Petroleum	WELL	ERIC THE RED-1
DATE	20.2.93	TIME	2400 hrs
DEPTH	633 m	LAST REPORT DEPTH	370 m (9.875" hole)
RIG OPERATIONS	Drilling ahead w/ NB#4.		
REPORT BY	S. Ong	REPORT RECEIVED BY	G.Howard (OPTR)

DRILLING REPORT

Bit No.	NB#4	Type	ATM-11H	Size	12.250 in	Jets	13x16x18
On Bit: Distance	263.0 m	Hours	2:53 hh:mm	ROP	91.2 m/hr	WOB	0 - 10 klbs
RPM	120-140	Pump Press	1700-2000	SPM	610-710 gpm	Torque	100-350
TBR	25540	CP I:#		CP B:#			

HYDRAULICS REPORT

Mud Density In	1.06 sg	Mud Density out	1.06 sg	ECD	1.08 sg	PV/YP	18/32
Gels	3/4	Salinity	-	PPM Cl		Solids	-
Hole Volume	379 bbls	Annular Volume	310 bbls	Tubing Volume	29 bbls	Displaced Volume	40 bbls
Carbide Lag-Calculated Lag	3438 - 2464 strokes	Flowrate	650 gpm				
DrillPipe Annular Vel (Max. Dia. Sec.)	13.4 m/min	DrillPipe Annular Vel (Open Hole)	39.2 m/min				
Drill Collar Annular Vel (Open Hole)	56.9 m/min	Critical Vel	116.6 m/min				
Pressure Loss System	1739 psi	Pressure Loss Bit	1049 psi	% Pressure Loss	60.3		
Nozzle Vel	111 m/sec	Jet Impact Force	1088 lbf	HHP	399 hp		

PRESSURE PARAMETERS

Drilling Exponent	0.5 - 1.09	Flowline Temp	30.2 deg C				
Shale Density	-	Shale Factor	-				
Background Gas	0.02%	Max. Formation Gas	-	@		Trip Gas	- @
Other Gas	-						
Fill	-	Tight Hole	-				
Cavings Est %	-	Average Size	-				

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance		Min. Estimated Fracture Pressure (Open Hole)	1.24 sg		
Estimated Pore Pressure	1.03 sg	Min. Estimated Pore Pressure (Open Hole)	1.03 sg	@	355 m
Max. Estimated Pore Pressure (Open Hole)	1.03 sg	@	370 m	Estimated Fracture Pressure at TD	1.60 sg

COMMENTS

Tag cement top at 319 m. Drilled out cement, F/C at 331 m, cement and shoe at 355 m.
Pump 100 bbls Guar Gum, 100 bbls seawater and displaced hole with mud.
Ream hole from 355 m to 370 m. CBU at 370 m. Pull bit to shoe for L.O.T.
EMW = 1.24 sg

Carbide lag at 588 m and 644 m both indicated an average open hole diameter of 17.2".

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 5

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 21.2.93 TIME 2400 hrs

DEPTH 1017 m LAST REPORT DEPTH 633 m

RIG OPERATIONS Run E-Logs #2 VSP

REPORT BY S. Ong REPORT RECEIVED BY G.Howard (OPTR)

DRILLING REPORT

Bit No. NB#4 Type ATM-11H Size 12.250 in Jets 13x16x18

On Bit: Distance 384.0 m Hours 6:50 hh:mm ROP 56.2 m/hr WOB 5 - 30 klbs RPM 120-140

Pump Press 1700-2000 SPM 600-670 gpm Torque 100-25 TBR 58520 CP I:# - CP B:# -

HYDRAULICS REPORT

Mud Density In 1.10 sg Mud Density out 1.10 sg ECD 1.11 sg PV/YP 15/22

Gels 3/4 Salinity 38000 PPM Cl Solids 6.15 %

Hole Volume 563 bbls Annular Volume 465 bbls Tubing Volume 51 bbls Displaced Volume 47 bbls

Carbide Lag-Calculated Lag 4080 - 3078 strokes @ 848 m Flowrate 640 gpm

DrillPipe Annular Vel (Max. Dia. Sec.) 13.1 m/min DrillPipe Annular Vel (Open Hole) 38.3 m/min

Drill Collar Annular Vel (Open Hole) 55.6 m/min Critical Vel 129.0 m/min

Pressure Loss System 1742 psi Pressure Loss Bit 1049 psi % Pressure Loss 60.2

Nozzle Vel 112.3 m/sec Jet Impact Force 1156.9 lbf HHP 429.2 hp

PRESSURE PARAMETERS

Drilling Exponent 0.5 - 1.3 Flowline Temp 33.3 deg C

Shale Density - Shale Factor -

Background Gas 0.02% Max. Formation Gas - @ Trip Gas - @

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) 1.24 sg

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ 355 m

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ 1017 m Estimated Fracture Pressure at TD 1.60 sg

COMMENTS

CBU at 1017 m and POOH for E-Logs.

NB#4 drilled 647 m in 9.7 on-bottom hrs / 15.72 rotating hrs. Average ROP is 66.6 m/hr. TBR = 840

Run #1 : DLL-MSFL-SDT-SP-GR-CAL-AMS

Run #2 : VSP

Carbide lag at 848 m indicated an average open hole diameter of 15.2" (24.3% overgauge).

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 6

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 22.2.93 TIME 2400 hrs

DEPTH 1017 m LAST REPORT DEPTH 1017 m

RIG OPERATIONS Test BOP's.

REPORT BY S. Ong REPORT RECEIVED BY G.Howard (OPTR)

DRILLING REPORT

Bit No. - Type - Size - in Jets -

On Bit: Distance 0.0 m Hours 0 hh:mm ROP - WOB - RPM -

Pump Press - SPM - Torque - TBR - CP I:$ - CP B:$ -

HYDRAULICS REPORT

Mud Density In 1.07 sg Mud Density out 1.07 sg ECD - PV/YP -

Gels - Salinity - PPM Cl Solids -

Hole Volume - Annular Volume - Tubing Volume - Displaced Volume -

Carbide Lag-Calculated Lag - Flowrate -

DrillPipe Annular Vel (Max. Dia. Sec.) - DrillPipe Annular Vel (Open Hole) -

Drill Collar Annular Vel (Open Hole) - Critical Vel -

Pressure Loss System - Pressure Loss Bit - % Pressure Loss -

Nozzle Vel - Jet Impact Force - HHP -

PRESSURE PARAMETERS

Drilling Exponent - Flowline Temp -

Shale Density - Shale Factor -

Background Gas - Max. Formation Gas - @ Trip Gas - @

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) 1.24 sg

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ 355 m

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ 1017 m Estimated Fracture Pressure at TD 1.60 sg

COMMENTS

Run #3 CST 1010.0 - 373.5 m.

R/D Schlumberger

Retrieve wear bushing.

Run and set 9.625" casing with shoe at 1007 m.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 7

COMPANY: BHP Petroleum WELL: ERIC THE RED-1

DATE: 24.2.93 TIME: 2400 hrs

DEPTH: 1206 m LAST REPORT DEPTH: 1017 m

RIG OPERATIONS: Drilling ahead w/ NB#5.

REPORT BY: S. Ong REPORT RECEIVED BY: J. Dickson (OPTR)

DRILLING REPORT

Bit No. NB#5 Type HTC ATM-22 Size 8.5 in Jets 10x10x14

On Bit: Distance 189 m Hours 6:12 hh:mm ROP 30.5 m/hr WOB 10-30 klbs RPM 110

Pump Press 2100 SPM 410 gpm Torque 100-180 TBR 48713 CP I:# - CP B:# -

HYDRAULICS REPORT

Mud Density In 1.07 sg Mud Density out 1.07 sg ECD 1.13 sg PV/YP 15/20

Gels 3/4 Salinity - PPM Cl Solids - %

Hole Volume 386 bbls Annular Volume 279 bbls Tubing Volume 60 bbls Displaced Volume 47 bbls

Carbide Lag-Calculated Lag - Flowrate 413 gpm

DrillPipe Annular Vel (Max. Dia. Sec.) 8.5 m/min DrillPipe Annular Vel (Open Hole) 65.7 m/min

Drill Collar Annular Vel (Open Hole) 115.6 m/min Critical Vel 168.6 m/min

Pressure Loss System 2020 psi Pressure Loss Bit 1520 psi % Pressure Loss 75.2

Nozzle Vel 133 m/sec Jet Impact Force 833.4 lbf HHP 366 hp

PRESSURE PARAMETERS

Drilling Exponent 0.7 - 1.45 Flowline Temp 31.9 deg C

Shale Density - Shale Factor -

Background Gas 0.02 % Max. Formation Gas - @ Trip Gas - @

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) 1.96 sg

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ 1007 m

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ 1206 m Estimated Fracture Pressure at TD 2.00 sg

COMMENTS

Test BOP's.

RIH NB#5 to drill out cement, F/c, and casing shoe at 1007 m. Ream down to 1017 m and drilled 3 m new hole to 1020 m. Circulate hole clean and condition mud in the hole to 1.08 sg. Pull bit into casing and perform F.I.T. EMW = 1.96 sg

Drill ahead with NB#5.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 8

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 25.2.93 TIME 2400 hrs

DEPTH 1593 m LAST REPORT DEPTH 1206 m

RIG OPERATIONS Drilling ahead w/ NB#5.

REPORT BY S. Ong REPORT RECEIVED BY J. Dickson (OPTR)

DRILLING REPORT

Bit No. NB#5 Type HTC ATM-22 Size 8.500 in Jets 10x10x14

On Bit: Distance 387 m Hours 19:54 hh:mm ROP 19.4 m/hr WOB 20-30 klbs RPM 110

Pump Press 2300 SPM 410 gpm Torque 120-310 TBR 133124 CP I:# - CP B:# -

HYDRAULICS REPORT

Mud Density In 1.09 sg Mud Density out 1.11 sg ECD 1.14 sg PV/YP 18/24

Gels 4 Salinity - PPM Cl Solids - %

Hole Volume 475 bbls Annular Volume 337 bbls Tubing Volume 83 bbls Displaced Volume 56 bbls

Carbide Lag-Calculated Lag - Flowrate 410 gpm

DrillPipe Annular Vel (Max. Dia. Sec.) 8.4 m/min DrillPipe Annular Vel (Open Hole) 64.9 m/min

Drill Collar Annular Vel (Open Hole) 114.2 m/min Critical Vel 188.2 m/min

Pressure Loss System 2143 psi Pressure Loss Bit 1511 psi % Pressure Loss 70.5

Nozzle Vel 131.4 m/sec Jet Impact Force 828.6 lbf HHP 359.4 hp

PRESSURE PARAMETERS

Drilling Exponent 0.8 - 1.61 Flowline Temp 38.5 deg C

Shale Density - Shale Factor -

Background Gas 0.05 % Max. Formation Gas - @ Trip Gas - @

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) 1.96 sg

Estimated Pore Pressure 1.04 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ 1007 m

Max. Estimated Pore Pressure (Open Hole) 1.04 sg @ 1539 m Estimated Fracture Pressure at TD 2.50 sg

COMMENTS

Flow check active pits volume increase at 1238 m (-ve).

Total footage drilled = 576 m in 25.92 hrs. Ave. ROP = 22.2 m/hr.
Total rotating time = 30.48 hrs.
TBR = 181837

DRILLBYTE MORNING REPORT NO 9

EXLOG A Baker Hughes company

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 25.02.93 TIME 24:00 hrs

DEPTH 1771m LAST REPORT DEPTH 1593m

RIG OPERATIONS Drilling ahead.

REPORT BY Matt Sale REPORT RECEIVED BY J.Dickson/J.Boorman (OPTR)

DRILLING REPORT

Bit No. NB#6 Type HTC ATM22 Size 8.500 in Jets 2 x 10, 1 x 14

On Bit: Distance 146 m Hours 9:50 hh:mm ROP 6 - 76 m/hr WOB 15 - 35 klb RPM 110-115

Pump Press 2150 psi SPM 65 Torque 150-250 TBR 66,969 CP I:# - CP B:# -

HYDRAULICS REPORT

Mud Density In 1.09 sg Mud Density out 1.10 sg ECD 1.15 sg PV/YP 16/22

Gels 4/6 Salinity 39000 PPM Cl Solids 6.0%

Hole Volume 516 bbl Annular Volume 364 bbl Tubing Volume 93 bbl Displaced Volume 59 bbl

Carbide Lag-Calculated Lag 2839 stks Flowrate 350 gpm

DrillPipe Annular Vel (Max. Dia. Sec.) 7.2 m/min DrillPipe Annular Vel (Open Hole) 55.7 m/min

Drill Collar Annular Vel (Open Hole) 98.0 m/min Critical Vel 175.1 m/min

Pressure Loss System 2150 psi Pressure Loss Bit 1122 psi % Pressure Loss 52.0%

Nozzle Vel 112.7 m/sec Jet Impact Force 615.3 lbf HHP 229.0 hp

PRESSURE PARAMETERS

Drilling Exponent 0.97 - 174 Flowline Temp 37.5 deg C

Shale Density - Shale Factor -

Background Gas 0.06 % Max. Formation Gas 0.09% @ 1733m Trip Gas 0.04% @ 1625m

Other Gas Nil

Fill Nil Tight Hole See below

Cavings Est % Nil Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance 0.50 sg Min. Estimated Fracture Pressure (Open Hole) 1.96 sg at shoe

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ shoe

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ TD Estimated Fracture Pressure at TD 2.03 sg

COMMENTS

All pore pressure parameters remain normal.
Continue drilling from 1593 - 1625m.
Pump slug & POOH. Tight f/ 1518 - 1470m & 1390 - 1370m of up to 40 klb o/pull,
1170 - 1160m up to 40 klb o/pull, 1160 - 1110m up to 90 klb o/pull, 1110 - 1080m
up to 40 klb o/pull, 1080 - 480m up to 80 klb o/pull.
Dump memory on mwd. B/out bit #5 and m/up NB#6 & RIH.
Wash/ream from 1596 - 1625m.
Drill 1625 - 1771m.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 10

COMPANY BHP Petroleum
WELL ERIC THE RED-1
DATE 26.02.93
TIME 24:00hrs
DEPTH 1875m
LAST REPORT DEPTH 1771m
RIG OPERATIONS Logging.
REPORT BY Matt Sale
REPORT RECEIVED BY J.Dickson/J.Boorman (OPTR)

DRILLING REPORT

Bit No. NB#6 Type HTC ATM22 Size 8.500 in Jets 2 x 10, 1 x 14
On Bit: Distance 250 m Hours 14:36 hh:mm ROP 8 - 40 m/hr WOB 20 - 30 klb RPM 115
Pump Press 2200 psi SPM 73 Torque 160-250 TBR 99,504 CP I:# - CP B:# -

HYDRAULICS REPORT

Mud Density In 1.10 sg Mud Density out 1.10 sg ECD 1.16 sg PV/YP 19/21
Gels 4/6 Salinity 41000 PPM Cl Solids 6.0%
Hole Volume 540 bbl Annular Volume 379 bbl Tubing Volume 99 bbl Displaced Volume 62 bbl
Carbide Lag-Calculated Lag 2961 stk Flowrate 395 gpm
DrillPipe Annular Vel (Max. Dia. Sec.) 8.1 m/min DrillPipe Annular Vel (Open Hole) 62.8 m/min
Drill Collar Annular Vel (Open Hole) 110.6 m/min Critical Vel 179.9 m/min
Pressure Loss System 2200 psi Pressure Loss Bit 1429 psi % Pressure Loss 65
Nozzle Vel 127.2 m/sec Jet Impact Force 783.7 lbf HHP 329.1 hp

PRESSURE PARAMETERS

Drilling Exponent 0.98 - 1.57 Flowline Temp 36.7 deg C
Shale Density - Shale Factor -
Background Gas 0.06% Max. Formation Gas 0.14% @ 1789m Trip Gas WTG=0 @ 1875m
Other Gas Nil
Fill Nil Tight Hole See below
Cavings Est % Nil Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance 0.46 sg Min. Estimated Fracture Pressure (Open Hole) 1.96 at shoe
Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ shoe
Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ TD Estimated Fracture Pressure at TD 2.049 sg

COMMENTS

All pore pressure parameters remain normal.
Cont drill from 1771 - 1875m (TD). Survey at TD = 1.1 deg, az 229.7 deg at 1867m.
Circ hole till shakers clean. Pump slug & POOH for 20 std wiper trip.
Tight hole from 1816 - 1352m w/ max o/pull up to 120 klbs at 1643m.
RIH to bottom - hole good. Circ till shakers clean.
Pump slug - POOH - hole good. Dump memory on mwd tool.
R/up Schlum & run: Log #1 DLL-MSFL-GR-AMS
Log #2 FMS-LDT-CNL-GR-AMF.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 11

COMPANY: BHP PETROLEUM
WELL: ERIC THE RED-1
DATE: 27.01.93
TIME: 24:00HRS
DEPTH: 1875m
LAST REPORT DEPTH: 1875m
RIG OPERATIONS: R/dwn Schlumberger.
REPORT BY: Matt Sale
REPORT RECEIVED BY: J.Dickson/J.Borrman (OPTR)

DRILLING REPORT

Bit No. - Type - Size - in Jets -

On Bit: Distance - m Hours - hh:mm ROP - WOB - RPM -

Pump Press - SPM - Torque - TBR - CP I:$ - CP B:$ -

HYDRAULICS REPORT

Mud Density In 1.10 sg Mud Density out - sg ECD - PV/YP 18/21

Gels 4/6 Salinity 41000 PPM Cl Solids 6.0%

Hole Volume 540 bbl Annular Volume - Tubing Volume - Displaced Volume -

Carbide Lag-Calculated Lag - Flowrate -

DrillPipe Annular Vel (Max. Dia. Sec.) - DrillPipe Annular Vel (Open Hole) -

Drill Collar Annular Vel (Open Hole) - Critical Vel -

Pressure Loss System - Pressure Loss Bit - % Pressure Loss -

Nozzle Vel - Jet Impact Force - HHP -

PRESSURE PARAMETERS

Drilling Exponent - Flowline Temp -

Shale Density - Shale Factor -

Background Gas - Max. Formation Gas - @ - Trip Gas - @ -

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance 0.46 sg Min. Estimated Fracture Pressure (Open Hole) 1.95 sg at shoe

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ shoe

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ TD Estimated Fracture Pressure at TD 2.049 sg

COMMENTS

R/dwn Log#2.
Run Log#3 C-SAT - misrun & r/dwn.
R/up & run Log#4 RFT-GR-TCC-AMS-PEH. R/dwn Log#4.
R/up & run Log#5 C-SAT re-run.
R/up & run Log#6 CST.
R/dwn Schlumberger.

EXLOG
A Baker Hughes company

DRILLBYTE MORNING REPORT NO 12

COMPANY BHP Petroleum WELL ERIC THE RED-1

DATE 28.01.93 TIME 24:00hrs

DEPTH 1875m LAST REPORT DEPTH 1875m

RIG OPERATIONS Plug & Abandon Well.

REPORT BY Matt Sale REPORT RECEIVED BY J.Dicksin/J.Boorman (OPTR)

DRILLING REPORT

Bit No. - Type - Size - in Jets -

On Bit: Distance - m Hours - hh:mm ROP - WOB - RPM -

Pump Press - SPM - Torque - TBR - CP I:0 - CP B:0 -

HYDRAULICS REPORT

Mud Density In - sg Mud Density out - sg ECD - PV/YP -

Gels - Salinity - PPM Cl Solids -

Hole Volume - Annular Volume - Tubing Volume - Displaced Volume -

Carbide Lag-Calculated Lag - Flowrate -

DrillPipe Annular Vel (Max. Dia. Sec.) - DrillPipe Annular Vel (Open Hole) -

Drill Collar Annular Vel (Open Hole) - Critical Vel -

Pressure Loss System - Pressure Loss Bit - % Pressure Loss -

Nozzle Vel - Jet Impact Force - HHP -

PRESSURE PARAMETERS

Drilling Exponent - Flowline Temp -

Shale Density - Shale Factor -

Background Gas - Max. Formation Gas - @ - Trip Gas - @ -

Other Gas -

Fill - Tight Hole -

Cavings Est % - Average Size -

ESTIMATED PORE AND FRACTURE PRESSURE

Kick Tolerance - Min. Estimated Fracture Pressure (Open Hole) 1.03 sg at Shoe

Estimated Pore Pressure 1.03 sg Min. Estimated Pore Pressure (Open Hole) 1.03 sg @ shoe

Max. Estimated Pore Pressure (Open Hole) 1.03 sg @ TD Estimated Fracture Pressure at TD 2.049 sg

COMMENTS

M/up mule shoe & RIH OEDP to 1100m.

Break circ.

Swap to Halco - test lines - pump cmt.

Slowly POOH to 800m.

Circ pipe clean.

RIH to tag cmt at 900m & POOH.

L/out mule shoe.

Appendix 3 Eastman Teleco End of Well Report (MWD)

3

BHP PETROLEUM
ERIC THE RED-1
VICTORIA - OTWAY BASIN
FEBRUARY-MARCH 1993

END OF WELL REPORT

EASTMAN TELECO

FIELD SERVICE ENGINEERS

A. FELL

P. PRINCE

DISCLAIMER

Eastman Teleco does not guarantee the accuracy or correctness of interpretation provided in or from this report. Since all interpretations are opinions based on measurements Teleco shall, under no circumstances, be responsible for consequential damages or any other loss, costs, damages or expenses incurred or expressed and implied warranties related to its service which is governed by Teleco's terms and conditions.

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Section 1

INTRODUCTION

1. INTRODUCTION

Eastman Teleco's Dual Propagation Resistivity Measurement While Drilling services were utilized onboard the BYFORD DOLPHIN for the drilling of BHP Petroleum's ERIC THE RED-1 well in the VIC/P31 Permit, offshore Victoria.

ERIC THE RED-1 was spudded on February 17th 1993 and Eastman Teleco's MWD services were utilized on the well from February 20th from a depth of 364m.

The 12 1/4" hole section was drilled from 364m to 1017m where wireline logs were run and the 9 5/8" casing was set.

The 8 1/2" hole section was drilled from 1017m to 1875m.

Eastman Teleco services were completed on February 26th, 1993. Eastman Teleco depths were measured in meters below the Drill Floor and were based on the drillers pipe tally.

Section 2

GENERAL WELL INFORMATION

2. GENERAL WELL INFORMATION

Oil Company	: BHP PETROLEUM
Oil Company Personnel	: G. Howard, J. Dickson
Well Name	: ERIC THE RED-1
Well Type	: EXPLORATION
Well Permit	: VIC/P31
Area	: OTWAY BASIN
D.F. Elevation	: 25.3m
Water Depth	: 75.0m
Spud Date	: 17th FEBRUARY 1993
Teleco Comencement Date	: 20th FEBRUARY 1993
Teleco Completion Date	: 26th FEBRUARY 1993
Completion Depth	: 1875 m
Drilling Contractor	: DOLPHIN DRILLING
Rig Name	: BYFORD DOLPHIN
Rig Type	: SEMI-SUBMERSIBLE
Teleco Services	: DPR
Teleco Job Number	: ETAU 234
Teleco Personnel	: A. Fell, P. Prince

Section 3

TOOL SUMMARY

3. MWD TOOL SUMMARY

Two tools were used over 3 runs to drill from 364m to 1875m.

Run #	Tool Size	Serial No	Tool Type	DPR Hours	Drilled Interval	Failure Type
1	8 1/4"	8439-01	DPR	23.00	364 - 1017	-
2	6 3/4"	1644-09	DPR	37.50	1017 - 1625	-
3	6 3/4"	1644-09	DPR	20.50	1625 - 1875	-

Interval Drilled: 364 - 1875m - 1511m
Interval Logged: Gamma Ray - 98 %
Resistivity - 98 %

Failure Statistics

Total DPR hours	81.0
DPR failures	0
Mean Time Between Failures	N/A

Section 4

MWD RUN SUMMARIES

RUN SUMMARY

No.1

Hole Size:	12 1/4"
Tool Type & No:	DPR TF4 B8439-01
Time & Date in the Hole:	11:30 hrs 20th February 1993
Time & Date out of Hole:	14:45 hrs 21st February 1993
Depth Range:	364m - 1017m
Circulating Hours for Run:	23.0
Operating Hours for Run:	23.0

Comments.

The Teleco tool was run in an assembly with a HTC ATM 11H bit. The assembly was locked up with a near bit roller reamer, shock sub, string roller reamer, x/o, MWD and a stabilizer located above the Teleco tool.

om 370m to 405m pump number #1 was "jacking off" in a most violent manor. The pump voltage was oscillating rapidly between 100 and 400 amps. This totally obscured the MWD pulse. The cause of the problem was attributed to polymer in the valve seats. Once this was cleared the pump noise disappeared and the MWD signal was able to be decoded.

Drilling parameters while drilling were: WOB 0 to 25 klbs, RPM 145 to 150, Flow rate 560 to 705 g/min giving a Pump Pressure of 1750 to 2060 Psi. Rate of penetration ranged from 30 to 200 m/hr.

The hole was drilled from 364m to 1017m with inclination building from 1.1 degrees at 396m to 1.3 degrees at 542m. It then dropped back to 0.4 degrees at 1001m. The azimuth turned from 309.1 degrees to 221.2 degrees.

RUN SUMMARY
No.2

Hole Size:	8 1/2"
Tool Type & No:	DPR / DHE 1644-09
Time & Date in the Hole:	08:15 hrs 23rd February 1993
Time & Date out of Hole:	07:00 hrs 25th February 1993
Depth Range:	1017m - 1625m
Circulating Hours for Run:	37.5
Operating Hours for Run:	37.5

Comments.

The Teleco tool was run in an assembly with a HTC ATM 22 bit. The assembly was locked up with a near bit roller reamer, an integral blade stabiliser on the MWD and a string roller reamer located above the Teleco tool.

om 1150m the torque became erratic causing some loss of transmitted MWD data. The torque appeared to be emanating from the stabilisers as it appeared in the MWD valve off whilst rotating off bottom as well as when drilling. This was most evident when drilling through the sandstone formations. On pulling the bit it was discovered that the bit was 1 1/2" under-guage, hence the source of the problem. Bit generated torque was also seen at formation boundaries, particularly when entering a sandstone formation.

Inclination rose slightly from 0.1 degrees at 1150m to 0.7 degrees at 1584m. The azimuth turned from 115.4 degrees to 290.2 degrees over the same interval.

Drilling parameters through the run were: WOB 10 to 30 klbs, RPM 110 to 115, pump flow of 430 to 470 gpm giving a pressure of 2000 to 2250 psi. Rate of penetration ranged from 6 to 100 m/hr.

RUN SUMMARY
No.3

Hole Size: 8 1/2"

Tool Type & No: DPR / DHE 1644-09

Time & Date in the Hole: 08:00 hrs 25th February 1993

Time & Date out of Hole: 13:30 hrs 26th February 1993

Depth Range: 1625m - 1875m

Circulating Hours for Run: 20.50

Operating Hours for Run: 20.50

Comments.

The Teleco tool was re-run in an assembly with a HTC ATM 22 bit. The assembly was locked up with a near bit roller reamer, an integral blade stabiliser on the MWD and a stabiliser located above the Teleco tool.

Drilling continued to a TD of 1875m with the tool performing to ecifications throughout the run.

Inclination rose slightly from 0.4 degrees at 1728m to 1.1 degrees at 1867m. The azimuth turned from 203.0 degrees to 229.7 degrees over the same interval.

Drilling parameters through the run were: WOB 20 to 35 klbs, RPM 110 to 115, pump flow of 340 to 410 gpm giving a pressure of 2100 to 2300 psi. Rate of penetration ranged from 8 to 45 m/hr.

Section 5

MWD TOOL PERFORMANCE REPORT

PERFORMANCE REPORT NO.1

TOOL DHB 8439-01

Equipment Description:	8 1/4" DPR
	Serial No. B8439-01 TF4 X4 Split Phase
Teleco Run No.:	1
Total Circulating Hours:	23.00
Non Operating Hours:	
Resistivity:	0.0
Gamma Ray:	0.0
Directional:	0.0
Interval Drilled:	364m - 1017m

Operational Problems

No operational problems were seen with the tool performing to specifications throughout the run. Formation data loss above 395m was attributed to severe interference to the MWD tool caused by pump number 1 "jacking" off. The cause of this was a build up of polymer in the valve seats.

PERFORMANCE REPORT NO.2

TOOL DHE 1644-09

Equipment Description:	6 3/4" DPR
	Serial No. E1644-09 TF4 X4 Split Phase
Teleco Run No.:	2 - 3
Total Circulating Hours:	58.00
Non Operating Hours:	
Resistivity:	00.00
Gamma Ray:	00.00
Directional:	00.00
Interval Drilled:	1017m - 1875m

Operational Problems

No operational problems were seen with the tool performing to specifications throughout the run. Erratic torque during Run 2 resulted in some loss of RWD data.

Section 6

SENSOR VERIFICATION DATA

6.1 FORMATION EVALUATION SENSOR VERIFICATION DATA

Teleco Run No:	Pre 1	Pre 2	Pre 3
DPR Sub No:	8881	6133	6133
PDBV deg:	9.016	7.474	7.474
PDOV deg:	8.971	7.683	7.641
PDCV +/- deg:	-0.045	0.209	0.167
ATBV dB:	5.813	5.702	5.702
ATOV dB:	5.957	6.110	6.084
ATCV +/- dB:	0.144	0.408	0.167
STEEL m:	1.5	1.5	1.5
TCDV deg C:	20.6	14.8	31.3
GR Detector No:	413-8	393-2	393-2
Background cps:	3.3	4.5	4.1

.2 VERIFICATION MNEMONICS

MNEMONIC		EXPLANATION
PDBV	=	Phase Difference - Shop air-hang calibration temperature corrected for rig verification temperature.
PDOV	=	Phase Difference - Wellsite air-hang verification.
PDCV	=	Phase Difference - Variance.
ATBV	=	Attenuation - Shop air-hang calibration temperature corrected for rig verification temperature.
ATOV	=	Attenuation - Wellsite air-hang verification.
ATCV	=	Attenuation - Variance.
STEEL	=	Distance to nearest steel during wellsite air-hang.
TCDV	=	Teleco Tool Temperature during air-hang verification.

Section 7

SENSOR OFFSETS
and
ENVIRONMENTAL CORRECTIIONS

7.1 SENSOR TO BIT DISTANCE (M)

Teleco Run No	1	2	3
Resistivity	10.06	3.78	2.99
Gamma Ray	11.53	5.51	4.72
Directional	14.17	8.24	7.55

7.2 LOG ENVIRONMENTAL CORRECTIONS:

Gamma Ray: Normalised for Tool Size, Borehole Size, Sensor Type and mud Potassium

Resistivity: Normalised for Tool Size, Borehole Size, Mud Resistivity, Temperature. No correction has been applied for formation dielectric properties.

LOG CORRECTIONS

Date	Time	Depth m	Chloride ppm	Resist.(Rm) ohm.m / deg C	KCL ppb	M.W. sg
20-02-93	09:00	370	40000	0.0771 / 40	3.32	1.03
20-02-93	20:30	470	35000	0.0989 / 32	2.56	1.05
21-02-93	00:55	680	33000	0.1079 / 30	3.13	1.04
21-02-93	08:45	985	35000	0.0954 / 34	3.13	1.08
23-02-93	11:50	1017	38000	0.0832 / 38	3.13	1.08
23-02-93	20:47	1135	33000	0.1003 / 34	3.13	1.08
23-02-93	23:50	1202	37000	0.0865 / 37	3.00	1.08
24-02-93	07:50	1296	35000	0.0863 / 40	2.53	1.09
24-02-93	10:25	1337	40000	0.0784 / 39	3.32	1.09
24-02-93	14:53	1441	40000	0.0748 / 42	3.32	1.09
24-02-93	19:20	1519	44000	0.0670 / 44	3.41	1.09
25-02-93	12:35	1625	40000	0.0759 / 41	3.41	1.10
25-02-93	18:43	1707	40000	0.0704 / 46	3.41	1.10

Section 8

LOG MNEMONICS

8. TELECO FORMATION EVALUATION LOG INFORMATION

8.1 LOG MNEMONICS

GRAM = Natural Gamma Ray [RWD] (MWD-API)
GRAX = Natural Gamma Ray [MWD] (MWD-API)
TCDM = MWD Tool Temperature [RWD] (Deg C)
TCDX = MWD Tool Temperature [MWD] (Deg C)
RPCX = Resistivity Phase Difference, Corrected [MWD] (Ohmm)
RACX = Resistivity Amplitude Ratio, Corrected [MWD] (Ohmm)
RPCM = Resistivity Phase Difference, Corrected [RWD] (Ohmm)
RACM = Resistivity Amplitude Ratio, Corrected [RWD] (Ohmm)
RPDM = Resistivity Phase Difference, Dielectric Corrected [MWD]
RADM = Resistivity Amplitude Ratio, Dielectric Corrected [RWD].....
PDEM = Phase Difference, Elapsed Time Since Drilled [RWD] (Min)
PDDM = Phase Difference, Data Density Integrated.
WBCS = Surface Weight On Bit (1000 Lbs)
ROPS = Rate of Penetration (m//hr)
RPMS = Surface Revolutions Per Minute.

8.2 SUB ASSEMBLY MNEMONICS:

DPR = Dual Propagation Resistivity Sub
DIR = Directional MWD Collar

Section 9

MWD SURVEY LISTING

DIRECTIONAL SURVEYS

COMPANY .... BHP PETROLEUM
WELL .... ERIC THE RED-1
FIELD VIC/P31
COUNTY ..... OTWAY BASIN
STATE ...... VICTORIA
COUNTRY .... AUSTRALIA

WELL LOCATION : LATITUDE LONGITUDE
LAT : 39° 00' 45.44" SOUTH
LONG : 143° 10' 51.45" EAST

DRILLING COMPANY : DOLPHIN DRILLING RIG : BYFORD

PERMANENT DEPTH DATUM : M.S.L.T. ELEV. : 75M
SURVEYS MEAS. FROM : ROTARY TABLE, LOCATED 25.3M ABOVE PERM. DATUM.

SPUD DATE .... 17TH FEB 1993 PROP. AZIMUTH ...... N.A.
MWD STARTED .. 20TH FEB 1993 TOTAL DEPTH 1875M
MWD ENDED .... 26TH FEB 1993 TELECO JOB ID .. ETAU 234

COORD. GRID SYSTEM :
GRID ORIGIN : GRID CORR. : 0
MAGNETIC DECL. CORR. : 11.01 GRID DECL. CORR. : 11.01

MINIMUM CURVATURE METHOD USED FOR SURVEY CALCULATIONS.
VERTICAL WELL : CLOSURE CALCULATED AT EACH SURVEY STATION.
INITIAL TIE-IN TO SEABED.

COMPANY PERSONNEL ..... G. HOWARD
J. DICKSON
DIRECTIONAL COMPANY ... N.A.
DIRECTIONAL DRILLER ... N.A.
TELECO PERSONNEL ...... A. FELL
P. PRINCE

REMARKS :

EASTMAN TELECO
A Baker Hughes company

TELECO DIRECTIONAL SURVEY LISTING

Company........................ BHP PETROLEUM
Well........................... ERIC THE RED-1
Survey Calc. Method.......... Minimum Curvature
Vert. Sect. Calc. Method..... Vertical well: Closure calculated at each survey station.
Proposed Azimuth............. N.A.

Teleco Job ID.: ETAU 234
Grid Correction: 0
Mag. Decl. Corr.: 11.01
Grid Decl. Corr.: 11.01

M.DPTH meters	CRS LEN meters	INCLINATION degrees	AZIMUTH degrees	T.V.D. meters	CLOSURE meters	NORTH/SOUTH meters	EAST/WEST meters	DOGLEG SEV. deg/30m
INITIAL TIE-IN COORDINATES								
75.0	-	0.000	0.000	75.00	0.00	0.00	0.00	
396.6	321.6	1.100	309.100	396.58	3.09	1.95	-2.40	0.103
542.0	145.4	1.300	273.300	541.95	5.90	2.92	-5.13	0.157
718.0	176.0	0.800	302.100	717.92	8.96	3.69	-8.16	0.121
891.0	173.0	0.400	210.000	890.91	10.22	3.81	-9.48	0.157
1001.0	110.0	0.400	221.200	1000.91	10.43	3.19	-9.93	0.021
1150.0	149.0	0.100	115.400	1149.91	10.52	2.74	-10.15	0.088
1292.0	142.0	0.300	110.200	1291.91	10.03	2.56	-9.69	0.042
1439.0	147.0	0.400	355.200	1438.91	9.82	2.94	-9.38	0.121
1584.0	145.0	0.700	290.200	1583.90	10.91	3.75	-10.25	0.133
1728.0	144.0	0.400	203.000	1727.90	11.83	3.59	-11.27	0.164
1867.0	139.0	1.100	229.700	1866.88	12.68	2.28	-12.48	0.165
PROJECTED BOTTOM-HOLE LOCATION (Extrapolated from last two survey stations)								
1875.0	8.0	1.140	231.237	1874.88	12.79	2.18	-12.60	

CLOSURE AZIMUTH = 279.814

EASTMAN TELECO
A Baker Hughes company

Section 10

BOTTOM HOLE ASSEMBLY RECORDS

MWD Run #1

ITEM	OD (ins.)	ID (ins.)	LENGTH (m)	REMARKS
BIT	12 1/4	-	0.30	HTC ATM 11H
NB ROLLER REAMER	12 1/4	3	2.46	WITH FLOAT
SHOCK SUB	8	2 13/16	3.85	
STRING R/R	12 1/4	2 7/8	2.36	
X / O	8 1/4	2 3/4	0.50	TSI-23
TELECO MWD	8 3/4	-	12.38	B8439-01 DPR
STABILIZER	12 1/4	2 7/8	1.41	
DC	7 5/8	2 29/32	9.02	
DC	7 5/8	2 15/16	9.13	
DC	7 13/16	3	9.20	
DC	7 3/4	2 13/16	9.15	
DC	7 5/8	2 7/8	9.55	
DC	7 3/4	2 7/8	9.44	
DC	7 5/8	2 15/16	9.04	
DC	7 5/8	2 13/16	9.33	
DC	7 5/8	2 29/32	9.26	
PONY DC	7 13/16	2 13/16	2.74	
JARS	8 1/16	2 7/8	5.61	
DC	7 15/16	2 7/8	9.20	
DC	7 7/8	2 13/16	9.22	
X/O	8 1/8	3 3/8	0.58	
1 X HWDP	5	3	8.84	
DART SUB	6 7/16	2 3/4	0.69	
15 X HWDP	5	3	125.12	
TOTAL BHA			268.38	

BIT RUN #2 HTC ATM 11H, 12 1/4" 18,16,13 JETS.
DRILLED FROM 364m TO 1017m. BIT GRADED 2-2-EC-G-E-1-FC-TD

TELECO MWD DHB 8439-01 DPR TF4, DATA RATE X4SP
TURBINE FLOW RANGE 425 - 900 gpm. VALVE GAP 1.00".

MWD Run #2

ITEM	OD (ins.)	ID (ins.)	LENGTH (m)	REMARKS
BIT	8 1/2	-	0.24	HUGHES ATM22
JUNK SUB	6 1/2	2 3/16	1.03	
NB ROLLER REAMER	8 1/2	1 7/8	1.84	
X / O	6 3/4	2 13/16	0.35	6750-049
TELECO MWD	6 3/4	-	12.83	E1644-09 DPR
STAB	8 3/8	3	1.77	
DC	6 5/16	2 7/8	9.23	
DC	6 5/16	3	9.13	
DC	6 5/16	2 7/8	9.02	
DC	6 5/16	2 7/8	9.02	
DC	6 1/4	2 7/8	9.05	
DC	6 1/4	2 13/16	9.28	
DC	6 1/4	2 15/16	9.16	
DC	6 5/16	2 15/16	9.19	
DC	6 3/8	2 15/16	9.19	
DC	6 1/4	2 7/8	9.35	
DC	6 1/4	2 29/32	9.29	
DC	6 1/4	2 29/32	9.39	
DC	6 5/16	2 7/8	9.36	
DC	6 5/16	2 7/8	9.39	
C	6 1/4	2 7/8	9.02	
PONY DC	6 1/2	2 7/8	3.07	
JARS	6 3/8	2 5/16	5.40	
DC	6 1/4	2 13/16	9.28	
DC	6 1/2	2 29/32	9.07	
1 X HWDP	5	3	8.84	
DIDS	6 7/16	2 3/4	0.69	
14 X HWDP	5	3	125.12	
TOTAL BHA			317.36	

BIT RUN #3 HUGHES ATM22 8 1/2" 1 X 14, 2 X 10 JETS.
DRILLED FROM 1017m TO 1625m. BIT GRADED 8-8-BT-A-F-24-WT-TQ

TELECO MWD DHE 1644-09 DPR TF4, DATA RATE X4SP
TURBINE FLOW RANGE 250 - 500 gpm. VALVE GAP 0.90".

MWD Run #3

ITEM	OD (ins.)	ID (ins.)	LENGTH (m)	REMARKS
BIT	8 1/2	-	0.24	HUGHES ATM22
NB ROLLER REAMER	8 1/2	1 7/8	1.84	
X / O	6 3/4	2 13/16	0.35	6750-049
TELECO MWD	6 3/4	-	12.83	E1644-09 DPR
STAB	8 3/8	3	1.77	
DC	6 5/16	2 7/8	9.23	
DC	6 5/16	3	9.13	
DC	6 5/16	2 7/8	9.02	
DC	6 5/16	2 7/8	9.02	
DC	6 1/4	2 7/8	9.05	
DC	6 1/4	2 13/16	9.28	
DC	6 1/4	2 15/16	9.16	
DC	6 5/16	2 15/16	9.19	
DC	6 3/8	2 15/16	9.19	
DC	6 1/4	2 7/8	9.35	
DC	6 1/4	2 29/32	9.29	
DC	6 1/4	2 29/32	9.39	
DC	6 5/16	2 7/8	9.36	
DC	6 5/16	2 7/8	9.39	
DC	6 1/4	2 7/8	9.02	
PONY DC	6 1/2	2 7/8	3.07	
JARS	6 3/8	2 5/16	5.40	
DC	6 1/4	2 13/16	9.28	
DC	6 1/2	2 29/32	9.07	
1 X HWDP	5	3	8.84	
DIDS	6 7/16	2 3/4	0.69	
14 X HWDP	5	3	125.12	
TOTAL BHA			316.57	

BIT RUN #4 HUGHES ATM22 8 1/2" 1 X 14, 2 X 10 JETS.
DRILLED FROM 1625m TO 1875m. BIT GRADED 5-7-BT-H-E-1-WT-LOG.

TELECO MWD DHE 1644-09 DPR TF4, DATA RATE X4SP
TURBINE FLOW RANGE 250 - 500 gpm. VALVE GAP 0.90".

Section 11

DRILLING DIARY

DRILLING DIARY

Date	Time	Operation
20-02-93		**Teleco Run #1**
	09:30	Pick up 12 1/4" BHA, RIH.
	12:45	Tag firm cmt @ 319m & hard cmt @ 320m. Drill cmt float @ 331m, cmt & shoe @ 355m.
	14:45	Pump 100 bbl Guar Gum, 100 bbl sea-water & displace hole with mud.
	15:15	Ream rathole from 355m to 364m.
	15:15	Drill 12 1/4" hole from 364m to 367m.
	16:00	Circ hole clean.
	17:00	Rack back std, Rig up & run LOT. Press test lines & perform LOT @ 355m with 100 psi = 1.24 EMW.
	17:45	Drill 12 1/4" hole from 367m to 625m.
21-02-93	00:00	Drill 12 1/4" hole from 625m to 1017m. Ream conns
	10:00	Circ hole until clean @ shaker. Work pipe.
	12:15	Pump slug & POOH.
	14:15	Dump memory on MWD & service same.
	14:45	Rig up Schlumberger.
	15:15	Run Log #1 - DLT, MSFL, Sonic, Gamma, AMS.
	18:30	Rig down Log #1.
	19:00	Rig up Log #2.
	19:15	Run Log #2. Sea Sat, TCC, AH64, PEH.
22-02-93	00:00	Cont run Log #2. Rig up Log #3. 6 misfires, 3 lost & 21 back.
	08:00	W.O Loggers.
	09:00	Rig down schlumberger.
	10:00	RIH & retrieve wear bushing. POOH. Lay out same.
	10:30	Make up cement head on stand of HWDP & rack back.
	11:15	Rig up to run 9 5/8" csg.
	12:00	Run 9 5/8" csg.
	17:00	Rig up & circ csg down last 6m to landout.
	17:30	Circ hole @ 400gpm.
	18:15	Swap to Halco & press test lines.
	18:30	Drop Bally pump 5 bbl to shear btm plug. Cmt csg.
	19:30	Set seal assembly.
	19:45	Pump 3 bbl. Close middle pipe rams. Test seal assembly against rams.
	20:15	Test BOP upper pipe rams, all other rams.
23-02-93	00:00	Cont test BOP's, annulus.
	02:00	Pick up 60 000 overpull & shear out of hanger. POOH Service tool, lay out.
	02:45	Test csg & shear rams.
	03:15	RIH & set wear bushing, POOH lay out R/tool.
	03:45	Service break cmt head & lay out same. Rig down bails.
	04:15	Pick up 12 1/4" BHA and lay out same.
		Teleco Run #2
	06:30	Pick up 8 1/2" BHA & RIH.
	08:00	Dump memory in MWD & run surface test.
	08:30	Pick up 18 6 1/2" DC's & jars & cont RIH.
	11:30	Tag firm cmt @ 968m. Make up TD's & wash to float.

DRILLING DIARY

Date	Time	Operation
23-02-93	11:45	Tag float @ 983m, drill through same.
	12:00	Drill cmt & shoe track - clean out rat hole 7 surge for junk on btm.
	15:00	Drill 8 1/2" hole from 1017m to 1020m.
	15:15	Circulate.
	15:30	Pull into shoe & perform LOT. (16.2 ppg) EMW.
	16:45	Drill 8 1/2" hole from 1020m to 1206m.
24-02-93	00:00	Drill 8 1/2" hole from 1206m to 1238m.
	03:00	Flow check hole. Put in crease - hole static.
	03:15	Drill 8 1/2" hole from 1238m to 1593m.
25-02-93	00:00	Drill 8 1/2" hole from 1593m to 1625m.
	03:00	Pump slug & POOH. Tight from 1518m to 1430m, 1390m to 1370m, 30-40 000 lb overpull, 1170m - 1160m, 40 000 lb overpull, 1160m - 1110m, 90 000 lb overpull, 1110m to 1080m, 40 000 lb overpull, 1180m - 1150m, 80 000 lb overpull.
	07:30	Dump MWD memory & run surface test.
		Teleco Run #3
	08:00	Break out bit #4, make up bit #5 & RIH.
	09:15	Service TDS.
	09:45	Continue RIH.
	11:00	Fill pipe & ream from 1567m to 1595m.
	11:30	Repair leak in water cooling line on TDS.
	12:00	Wash and ream from 1596m to 1625m.
	12:45	Drill 8 1/2" hole from 1625m to 1771m.
26-02-93	00:00	Drill 8 1/2" hole from 1771m to TD of 1825m.
	06:00	Pump slug & POOH. 20 std wiper trip, RIH hole good. Intermittant tight hole from 1816m to 1352m. Max overpull 120 000 lb @ 1643m. Rest of tight hole 60 000 il max.
	07:30	Circ hole till shakers clean.
	10:15	Pump slug & POOH. Hole good.
	13:15	Dump MWD memory.
	13:45	Rig up Schlumberger.

SECTION 12

MUD RECORD

MUD REPORTS

TELECO RUN #	1	1	2	2	3
HOLE SIZE ins	12.25	12.25	8.50	8.50	8.50
DATE	20-02	21-02	23-01	24-01	25-02
TIME	24:00	11:00	23:30	17:00	24:00
DEPTH m	633	1017	1200	1470	1781
WEIGHT sg	1.08	1.10	1.08	1.08	1.09
VISCOSITY sec	58	53	48	58	52
PV cp	18	15	14	18	16
YP lb/100 sq ft	22	22	20	24	22
GELS 10s/10min	5/6	3/4	3/4	4/5	4/5
FILTRATE cc/30 min	14	6	7.0	6.0	5.2
HPHT FILTRATE cc/30 min	-	-	-	-	-
CAKE 32nd	1.0	1.0	1.0	1.0	1.0
SOLIDS % by vol	5.0	5.0	5.0	5.0	5.60
WATER CONTENT % by volume	95.0	93.85	95.0	95.0	94.40
SAND % by vol	0.75	1.75	0.50	0.20	Tr
PH	9.5	9.3	10.2	9.0	9.3
CHLORIDES Kppm	33	38	37	42	39
CALCIUM mg/l	240	400	110	190	120
POTASSIUM Kmg/l % WT KCl	33.9 6.50	33.3 6.40	31.6 6.00	36.0 7.00	38.4 7.30

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Appendix 4 Micropalaeontology: Basic Data and Range Charts

MICROPALAEONTOLOGICAL ANALYSIS
ERIC THE RED-1, PERMIT VIC-P-31
OTWAY BASIN

FOR

BHP PETROLEUM PTY LTD

J.P. REXILIUS

SEPTEMBER, 1993

INTERNATIONAL STRATIGRAPHIC CONSULTANTS PTY LTD
A.C.N. 009 183 555

UNIT 2, 10 STATION STREET
P.O. BOX 26
COTTESLOE 6011
WESTERN AUSTRALIA
PHONE 3852571 FAX 3843257

CONTENTS

I. SUMMARY

APPENDIX NO. 1

Summary of micropalaeontological data, Eric The Red-1.

I. SUMMARY

Eric The Red-1 was drilled in offshore petroleum permit Vic-P-31, Otway Basin to a depth of 1875mKB. A total of 3 sidewall core samples from the Tertiary section have been examined for foraminifera and calcareous nannoplankton. All 3 samples are clean sandstones which are barren of foraminifera and nannoplankton.

APPENDIX NO. 1 : SUMMARY OF MICROPALAEONTOLOGICAL DATA, ERIC THE RED-1

DEPTH (mKB)	FORAM YIELD	FORAM PRESERV.	FORAM DIVERSITY	NANNO YIELD	NANNO PRESERV.	NANNO DIVERSITY
SWC30, 373.5	barren	-	-	barren	-	-
SWC28, 388	barren	-	-	barren	-	-
SWC24, 467	barrren	-	-	barren	-	-

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Appendix 5 Palynology: Basic Data and Range Charts

ERIC THE RED #1

MORGAN PALAEO ASSOCIATES: Palynological Consultants
Box 161, Maitland, South Australia, 5573.
phone (088) 32 2795 .. fax (088) 32 2798

C L I E N T: BHP Petroleum Exploration
W E L L: Eric the Red
F I E L D / A R E A: Otway Basin

A N A L Y S T: Roger Morgan   D A T E : March '93
N O T E S: all sample depths are in metres
RW = reworked * = caved CF = comparable to
? = questionable identification X = present outside count
figures are percentages based on 100 specimen count

RANGE CHART OF OCCURRENCES BY LOWEST APPEARANCE - by group -

	267 BOTRYOCOCCUS	268 FUNGAL SETAE	
0373.5 SWC	.	.	0373.5 SWC
0388.0 SWC	4	.	0388.0 SWC
0429.0 SWC	.	.	0429.0 SWC
0467.0 SWC	3	.	0467.0 SWC
0553.5 SWC	6	.	0553.5 SWC
0562.0 SWC	.	.	0562.0 SWC
0569.0 SWC	.	.	0569.0 SWC
0599.0 SWC	.	.	0599.0 SWC
0612.5 SWC	X	.	0612.5 SWC
0642.0 SWC	.	.	0642.0 SWC
0664.5 SWC	1	.	0664.5 SWC
0689.5 SWC	.	.	0689.5 SWC
0720.5 SWC	1	.	0720.5 SWC
0746.0 SWC	.	.	0746.0 SWC
0812.5 SWC	1	.	0812.5 SWC
0876.0 SWC	.	.	0876.0 SWC
0893.5 SWC	1	.	0893.5 SWC
0970.0 SWC	.	.	0970.0 SWC
1010.0 SWC	3	.	1010.0 SWC
1025 CUTTS	5	.	1025 CUTTS
1080 CUTTS	.	.	1080 CUTTS
1097.0 SWC	.	.	1097.0 SWC
1151.0 SWC	52	.	1151.0 SWC
1177.0 SWC	.	.	1177.0 SWC
1180 CUTTS	1	F	1180 CUTTS
1219.5 SWC	16	.	1219.5 SWC
1250.5 SWC	.	.	1250.5 SWC
1275.0 SWC	.	.	1275.0 SWC
1306 CUTTS	4	.	1306 CUTTS
1316.0 SWC	.	.	1316.0 SWC
1328.5 SWC	.	.	1328.5 SWC
1334.0 SWC	5	.	1334.0 SWC
1336.0 SWC	.	.	1336.0 SWC
1364.5 SWC	3	.	1364.5 SWC
1437.0 SWC	X	.	1437.0 SWC
1452 CUTTS	7	.	1452 CUTTS
1515 CUTTS	2	.	1515 CUTTS
1575.0 SWC	3	.	1575.0 SWC
1602.0 SWC	.	.	1602.0 SWC
1630.0 SWC	10	.	1630.0 SWC
1667.0 SWC	.	.	1667.0 SWC
1678.0 SWC	.	.	1678.0 SWC
1703 CUTTS	.	.	1703 CUTTS
1719.0 SWC	X	.	1719.0 SWC
1749.5 SWC	X	.	1749.5 SWC
1754.5 SWC	X	.	1754.5 SWC
1790.0 SWC	.	.	1790.0 SWC
1813.5 SWC	.	.	1813.5 SWC

	1 MICRHYSTRIDIUM	2 SCHIZOSPORIS RETICULATUS	3 VERYHACHIUM	4 CRIBROPERIDINIUM EDWARDSII	5 OLIGOSPHAERIDIUM COMPLEX	6 LEIOSPHAERIDIA	7 APTEA SP	8 CLEISTOSPHAERIDIUM SPP	9 SCHIZOSPORIS PSILATA	10 TRITHYRODINIUM FINE GRANULES	11 HETEROSPHAERIDIUM HETEROCANTHUM	12 KIOKANSIUM POLYPES	13 MICROFASTA EVANSII	14 CANNINGIA SPINOSA	15 CHLAMYDOPHORELLA NYEI	16 CRIBROPERIDINIUM SP	17 EXOCHOSPHAERIDIUM PHRAGMITES	18 FLORENTINIA DEANEI	19 NUMMUS SP	20 OLIGOSPHAERIDIUM PULCHERRIMUM	21 PTEROSPERMELLA AUREOLATA	22 PTEROSPERMELLA AUSTRALIENSIS	23 SPINIFERITES FURCATUS/RAMOSUS	24 FLORENTINIA SP	25 CALLAIOSPHAERIDIUM ASYMMETRICUM	26 CIRCULODINIUM DEFLANDREI	27 CIRCULODINIUM HIRTELLUM	28 CYCLONEPHELIUM COMPACTUM	29 ISABELIDINIUM COOKSONIAE	30 NUMMUS MONOCULATUS	31 ODONTOCHITINA OPERCULATA	32 SUBTILISPHAERA TRENDALLII	33 ASCODINIUM PARVUM	34 ISABELIDINIUM BELFASTENSE	35 PARALECANIELLA	36 APTEA POLYMORPHA	37 HETEROSPHAERIDIUM CONJUNCTUM	38 HETEROSPHAERIDIUM SOLIDA
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
0553.5 SWC	X	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	X	.	.	.	4	.	.	.
0562.0 SWC	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	6	.	.	.	.	.	.	.	.
0599.0 SWC	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	42	.	.	.	.	4	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	X	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	1	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	X	.	.	11	.	.	.	.	.	1	.	.	.	.	1	X	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.
0746.0 SWC	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	1	.	X	.	.	.	.	.	5	.	.	.	.	.	X	.	.	.	.	.	2	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	1	.	.	.	.	.	.	.	19	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	9	.
0893.5 SWC	.	.	X	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	X	X	.	.	.	.	.	.	F
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	9	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	1	.	X	.	.	.	.	.	6	.	.	.	.	X	.	.	.	X	.	.	1	.	.	X	.	.	.	.	.	.	.	.	.	.	.	1
1025 CUTTS	.	.	.	.	.	.	.	.	.	X	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	CF	.	.	.	1
1080 CUTTS	.	.	.	.	.	.	.	.	.	1	10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	1	.	.	.	.	CF	.	.	.	4
1097.0 SWC	.	.	X	.	.	.	.	.	.	.	59	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	X	.	.	.	.	.	.	CF	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.	.	.	1	.	.	.	3	.	.	?	?	1	.	.	.
1316.0 SWC	.	.	.	.	1	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	1	.	.	X	.	.	.	.	X	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	1	.	.	.	.	.	X	2	.	1	.	X	1	.	.	1	1	.	X	.	X	1	X	1	?	1	X	X	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	?	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	X	X	.	.	.	.	.	X	.	.	X	X	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	1	.	.	.	.	.	.	X	X	RW	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	?	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	39 ISABELIDINIUM RECTANGULARIS	40 TRITHYRODINIUM MARSHALLII	41 ISABELIDINIUM BALMEI	42 ISABELIDINIUM BELFASTENSE ROTUNDATA	43 ISABELIDINIUM SP	44 ISABELIDINIUM CRETACEA	45 CANNINGIA FOVEOLATA	46 HYSTRICHODINIUM PULCHRUM	47 ISABELIDINIUM LATUM	48 MADURADINIUM PENTAGONUM	49 ODONTOCHITINA COSTATA	50 ODONTOCHITINA CRIBROPODA	51 TRITHYRODINIUM PUNCTATE	52 TRITHYRODINIUM SUSPECTUM	53 TRITHYRODINIUM THICK PSILATE	54 TRITHYRODINIUM THICK RETICULATUS	55 AMPHIDIADEMA DENTICULATA	56 CHATANGIELLA VICTORIENSIS	57 ODONTOCHITINA PORIFERA
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	.	.	.	.	3	?	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	?	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	X	.	X	.	.	.	.	.	.	.	.	X
0876.0 SWC	.	.	.	.	.	X	.	.	.	.	3	3	.	.	.	.	X	2	1
0893.5 SWC	.	.	.	.	.	4	X	X	X	X	X	X	2	2	1	1	.	.	.
0970.0 SWC	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	?	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	X	.	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	2	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1335.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	58 PTEROSPERMELLA SP	59 HETEROSPHAERIDIUM LATEROBRACHIUS	60 NELSONIELLA ACERAS	61 ODONTOCHITINA STUBBY	62 SPINIDINIUM SP	63 AREOSPHAERIDIUM SP	64 AREOSPHAERIDIUM SUGGESTIUM	65 CANNINGIA RETICULATA CF	66 NELSONIELLA SEMIRETICULATA	67 NELSONIELLA TUBERCULATA	68 TRICHODINIUM	69 XENIKOON AUSTRALIS	70 EXOCHOSPHAERIDIUM SP	71 OLIGOSPHAERIDIUM SP	72 CANNINGINOPSIS BRETONENSIS	73 ISABELIDINIUM KOROJONENSE	74 ISABELIDINIUM PELLUCIDUM	75 AREOLIGERA SENONENSIS	76 AREOLIGERA CORONATA
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.
0562.0 SWC	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	1	X
0569.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	?	1	.
0599.0 SWC	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	2	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	1	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	1	.	.	X	1	X	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	X	X	X	X	X	5	.	.	.	.	.	.	.
0812.5 SWC	.	1	X	X	X	?	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1335.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

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72	CANNINGINOPSIS BRETONENSIS
77	CERATIOPSIS SPECIOSUS
[illegible]	CERATOSPORITES EQUALIS
[illegible]	CEREBROCYSTA SP
56	CHATANGIELLA VICTORIENSIS
15	CHLAMYDOPHORELLA NYEI
181	CIBOTIUMSPORA JURIENSIS
127	CICATRICOSISPORITES AUSTRALIENSIS
147	CICATRICOSISPORITES FOVEOAUSTRALIENSIS
159	CICATRICOSISPORITES HUGHESI
114	CICATRICOSISPORITES LUDBROOKIAE
174	CICATRICOSISPORITES RADIATUS
171	CICATRICOSPORITES WRINKLY AUSTRALIENSIS
160	CINGUTRILETES CLAVUS
26	CIRCULODINIUM DEFLANDREI
27	CIRCULODINIUM HIRTELLUM
167	CLAVIFERA TRIPLEX
8	CLEISTOSPHAERIDIUM SPP
148	CONCAVISSIMISPORITES PENOLAENSIS
109	CONTIGNISPORITES COOKSONIAE
161	CONTIGNISPORITES GLEBULENTUS
194	COPTOSPORA PARADOXA
162	COPTOSPORA PILEOSA
163	COPTOSPORA WRINKLY
80	CORDOSPHAERIDIUM INODES
78	CORDOSPHAERIDIUM SP
98	COROLLINA TOROSUS
164	CORONATISPORA PERFORATA
115	COUPERISPORITES TABULATUS
4	CRIBROPERIDINIUM EDWARDSII
16	CRIBROPERIDINIUM sp
152	CRYBELOSPORITES MAGNIFICA
153	CRYBELOSPORITES MEGASTRIATUS
116	CRYBELOSPORITES STRIATUS
186	CYATHEACIDITES TECTIFERA
99	CYATHIDITES AUSTRALIS
100	CYATHIDITES MINOR
237	CYATHIDITES SPP
	CYCADOPITES FOLLICULARIS
[illegible]	CYCLONEPHELIUM COMPACTUM
128	CYCLOSPORITES HUGHESI
86	DEFLANDREA PHOSPHORITICA
91	DEFLANDREA TRUNCATA
154	DENSOISPORITES VELATUS
118	DICTYOPHYLLIDITES
119	DICTYOTOSPORITES COMPLEX
129	DICTYOTOSPORITES SPECIOSUS
120	DILWYNITES GRANULATUS
238	DILWYNITES TUBERCULATUS
261	DIPORITES SP.

120 DILWYNITES GRANULATUS
238 DILWYNITES TUBERCULATUS
261 DIPORITES SP.

81	DYPHES COLLIFERUM
199	ERICIPITES SCABRATUS
17	EXOCHOSPHAERIDIUM PHRAGMITES
70	EXOCHOSPHAERIDIUM SP
101	FALCISPORITES GRANDIS
102	FALCISPORITES SIMILIS
18	FLORENTINIA DEANEI
24	FLORENTINIA SP
130	FORAMINISPORIS ASYMMETRICUS
103	FORAMINISPORIS DAILYI
139	FORAMINISPORIS WONTHAGGIENSIS
149	FOVEOGLEICHENIIDITES
131	FOVEOTRILETES PARVIRETUS
268	FUNGAL SETAE
200	GAMBIERINA RUDATA
219	GEPHRAPOLLENITES WAHOOENSIS
104	GLEICHENIIDITES
239	HALORAGACIDITES HARRISII
227	HERKOSPORITES ELLIOTTII
37	HETEROSPHAERIDIUM CONJUNCTUM
11	HETEROSPHAERIDIUM HETEROCANTHUM
59	HETEROSPHAERIDIUM LATEROBRACHIUS
38	HETEROSPHAERIDIUM SOLIDA
46	HYSTRICHODINIUM PULCHRUM
87	HYSTRICHOSPHAERIDIUM TUBIFERUM
175	INTERULOBITES INTRAVERRUCATUS
240	INTRATRIPOROPOLLENITES NOTABILIS
41	ISABELIDINIUM BALMEI
34	ISABELIDINIUM BELFASTENSE
42	ISABELIDINIUM BELFASTENSE ROTUNDATA
29	ISABELIDINIUM COOKSONIAE
44	ISABELIDINIUM CRETACEA
73	ISABELIDINIUM KOROJONENSE
47	ISABELIDINIUM LATUM
74	ISABELIDINIUM PELLUCIDUM
39	ISABELIDINIUM RECTANGULARIS
43	ISABELIDINIUM SP
132	ISCHYOSPORITES PUNCTATUS
193	ISCHYOSPORITES SP
155	JANUASPORITES SPINULOSUS
12	KIOKANSIUM POLYPES
140	KLUKISPORITES SCABERIS
262	KUYLISPORITES WATERBOLKII
176	KUYLISPORITES ZIPPERI
177	LAEVIGATOSPORITES OVATUS
6	LEIOSPHAERIDIA
110	LEPTOLEPIDITES MAJOR
121	LEPTOLEPIDITES VERRUCATUS
172	LILIACIDITES KAITANGATAENSIS
201	LILIACIDITES PERORETICULATUS
178	LYCOPIACIDITES ASPERATUS
220	LYGISTIPOLLENITES BALMEI
179	LYGISTIPOLLENITES FLORINII
48	MADURADINIUM PENTAGONUM
259	MALVACIPOLLIS LARGE
241	MALVACIPOLLIS SUBTILIS
79	MANUMIELLA CORONATA
1	MICRHYSTRIDIUM
105	MICROCACHRYIDITES ANTARCTICUS
13	MICROFASTA EVANSII
88	MILLIOUDIDINIUM TENUITABULATUS
202	MUROSPORA FLORIDA
252	MYRTACEIDITES PARVUS
60	NELSONIELLA ACERAS
66	NELSONIELLA SEMIRETICULATA
67	NELSONIELLA TUBERCULATA
212	NEORAISTRICKIA
133	NEVESISPORITES VALLATUS
228	NOTHOFAGIDITES BRACHYSPINULOSUS
253	NOTHOFAGIDITES DEMINUTUS
242	NOTHOFAGIDITES EMARCIDUS
208	NOTHOFAGIDITES ENDURUS
263	NOTHOFAGIDITES FALCATA
243	NOTHOFAGIDITES FLEMINGII
206	NOTHOFAGIDITES SENECTUS
30	NUMMUS MONOCULATUS
19	NUMMUS SP
49	ODONTOCHITINA COSTATA
50	ODONTOCHITINA CRIBROPODA
31	ODONTOCHITINA OPERCULATA
57	ODONTOCHITINA PORIFERA
61	ODONTOCHITINA STUBBY
5	OLIGOSPHAERIDIUM COMPLEX
20	OLIGOSPHAERIDIUM PULCHERRIMUM
71	OLIGOSPHAERIDIUM SP
92	OPERCULODINIUM
82	OPERCULODINIUM CENTROCARPUM
187	ORNAMENTIFERA SENTOSA
106	OSMUNDACIDITES WELLMANII
35	PARALECANIELLA
134	PERINOPOLLENITES ELATOIDES
244	PERIPOROPOLLENITES DEMARCATUS
221	PERIPOROPOLLENITES POLYORATUS

Sample	77 CERATIOPSIS SPECIOSUS	78 CORDOSPHAERIDIUM SP	79 MANUMIELLA CORONATA	80 CORDOSPHAERIDIUM INODES	81 DYPHES COLLIFERUM	82 OPERCULODINIUM CENTROCARPUM	83 APECTODINIUM HOMOMORPHA (SH. SP)	84 AREOSPHAERIDIUM ARCUATUM	85 AREOSPHAERIDIUM AUSTRALICUM	86 DEFLANDREA PHOSPHORITICA	87 HYSTRICHOSPHAERIDIUM TUBIFERUM	88 MILLIOUDIDINIUM TENUITABULATUS	89 VOZZHENNIKOVIA EXTENSA	90 CEREBROCYSTA SP	91 DEFLANDREA TRUNCATA	92 OPERCULODINIUM	93 PHTHANOPERIDINIUM COMATUM	94 SYSTEMATOPHORA PLACACANTHA
0373.5 SWC	.	.	.	.	X	.	.	.	.	.	.	.	.	X	?	1	1	X
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	1	1	1	.	.	.	.	.
0429.0 SWC	.	.	.	1	.	X	1	X	14	1	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	X	1	1	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	95 ARAUCARIACITES AUSTRALIS	96 CALLIALASPORITES TURBATUS	97 CERATOSPORITES EQUALIS	98 COROLLINA TOROSUS	99 CYATHIDITES AUSTRALIS	100 CYATHIDITES MINOR	101 FALCISPORITES GRANDIS	102 FALCISPORITES SIMILIS	103 FORAMINISPORIS DAILYI	104 GLEICHENIIDITES	105 MICROCACHRYIDITES ANTARCTICUS	106 OSMUNDACIDITES WELLMANII	107 RETITRILETES AUSTROCLAVATIDITES	108 CALLIALASPORITES DAMPIERI	109 CONTIGNISPORITES COOKSONIAE	110 LEPTOLEPIDITES MAJOR	111 PODOSPORITES MICROSACCATUS	112 STERIESPORITES ANTIQUASPORITES	113 ARAUCARIACITES FISSUS	114 CICATRICOSISPORITES LUDBROOKIAE
0373.5 SWC	.	.	.	.	5	1	2	9	.	.	2	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	1	.	6	1	.	2	.	1	.	.	2	.	.	.	1	1	.	.
0429.0 SWC	.	.	2	.	.	.	.	2	.	1	1	.	.	.	.	.	3	1	.	.
0467.0 SWC	.	.	1	.	.	.	.	6	.	.	.	.	X	.	.	.	3	X	.	.
0553.5 SWC	1	.	3	.	1	5	4	10	.	1	5	.	3	.	.	.	5	1	.	.
0562.0 SWC	.	.	7	.	15	.	1	14	.	7	2	5	2	.	.	.	.	.	.	.
0569.0 SWC	1	.	1	.	1	8	5	6	.	2	5	3	4	.	.	.	5	3	.	.
0599.0 SWC	.	.	5	.	8	.	.	13	.	7	5	3	2	.	.	.	.	1	.	.
0612.5 SWC	2	.	.	.	5	3	8	8	.	1	4	4	1	.	.	.	1	3	.	.
0642.0 SWC	.	.	.	.	X	.	.	X	.	.	X	X	.	.	.	.	.	.	.	.
0664.5 SWC	2	.	3	.	2	3	7	21	1	2	7	5	2	.	.	.	8	1	.	.
0689.5 SWC	.	.	5	2	6	.	.	37	.	.	4	8	2	.	.	.	.	.	.	.
0720.5 SWC	2	.	3	.	3	3	4	14	.	3	14	2	X	.	.	.	6	X	.	.
0746.0 SWC	.	.	4	3	7	.	.	37	.	2	4	16	5	X	.	.	.	.	.	.
0812.5 SWC	X	.	1	.	3	6	11	15	.	4	9	3	1	.	.	.	6	1	.	.
0876.0 SWC	.	.	1	1	15	.	1	15	.	6	4	11	1	.	.	.	.	.	.	.
0893.5 SWC	1	.	.	2	5	5	6	24	.	1	10	4	1	1	.	.	5	.	.	.
0970.0 SWC	.	.	5	4	23	.	.	35	.	3	.	10	7	.	.	.	.	.	.	.
1010.0 SWC	.	.	3	3	5	4	9	20	X	3	12	4	2	1	.	.	1	.	.	.
1025 CUTTS	.	.	.	5	5	12	1	16	.	6	8	1	3	1	.	.	7	1	.	.
1080 CUTTS	5	.	1	.	21	3	7	14	.	1	4	.	1	2	.	.	.	.	.	.
1097.0 SWC	.	.	1	1	11	.	1	12	.	.	5	4	X	X	.	.	.	.	.	.
1151.0 SWC	X	.	1	X	1	2	.	5	.	1	2	X	1	.	.	.	30	.	.	.
1177.0 SWC	.	.	.	.	9	.	.	48	.	.	26	11	1	.	.	.	.	.	.	.
1180 CUTTS	4	1	.	.	1	9	.	11	.	6	24	X	X	X	.	.	25	.	.	.
1219.5 SWC	2	.	X	X	3	7	6	17	.	1	10	.	1	.	.	.	15	.	.	X
1250.5 SWC	2	.	.	.	58	.	.	15	.	.	9	9	.	.	.	.	.	.	.	.
1275.0 SWC	3	.	1	1	1	3	5	9	.	9	3	1	1	.	.	.	1	1	.	.
1306 CUTTS	2	.	.	2	2	7	7	14	.	6	6	1	1	.	.	.	15	.	.	.
1316.0 SWC	1	.	.	2	27	.	.	28	.	4	7	10	1	.	.	.	.	.	.	.
1328.5 SWC	X	3	X	1	2	12	5	13	.	2	7	1	X	.	X	.	3	.	.	X
1334.0 SWC	2	.	.	X	6	10	15	.	.	7	5	1	X	1	.	1	10	X	.	X
1336.0 SWC	.	.	4	.	20	.	.	30	.	4	4	5	3	.	X	.	.	.	.	.
1364.5 SWC	1	3	1	.	5	12	8	16	X	6	12	2	X	.	.	X	8	1	.	.
1437.0 SWC	X	X	X	.	X	X	X	X	.	X	X	X	.	.	.	.	X	.	.	.
1452 CUTTS	.	X	.	1	5	11	5	18	.	7	17	1	X	.	.	.	7	X	.	X
1515 CUTTS	.	.	2	3	2	12	2	9	.	7	10	2	1	X	.	.	20	1	.	.
1575.0 SWC	4	1	3	5	7	11	12	21	.	1	10	7	4	1	.	.	.	2	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.
1630.0 SWC	1	1	2	.	10	12	8	20	.	1	5	2	5	.	1	.	3	1	.	X
1667.0 SWC	.	.	X	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	X	X	.	X	.	.	X	X	X	.	.	.	.	X	.	.
1703 CUTTS	X	X	X	X	X	X	X	X	.	X	X	X	X	.	.	.	.	.	.	X
1719.0 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	.	X	X	.	.
1749.5 SWC	.	X	X	X	X	X	X	X	.	.	X	X	X	.	X	.	.	.	.	.
1754.5 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	.	.	X	.	X	X
1790.0 SWC	.	.	X	X	X	X	X	X	.	X	X	X	X	X	X	X	X	X	.	.
1813.5 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.

	115 COUPERISPORITES TABULATUS	116 CRYBELOSPORITES STRIATUS	117 CYCADOPITES FOLLICULARIS	118 DICTYOPHYLLIDITES	119 DICTYOTOSPORITES COMPLEX	120 DILWYNITES GRANULATUS	121 LEPTOLEPIDITES VERRUCATUS	122 RETITRILETES NODOSUS	123 REWORKING - PERMIAN	124 REWORKING - TRIASSIC	125 AEQUITRIRADITES SPINULOSUS	126 AEQUITRIRADITES TILCHAENSIS	127 CICATRICOSISPORITES AUSTRALIENSIS	128 CYCLOSPORITES HUGHESI	129 DICTYOTOSPORITES SPECIOSUS	130 FORAMINISPORIS ASYMMETRICUS	131 FOVEOTRILETES PARVIRETUS	132 ISCHYOSPORITES PUNCTATUS	133 NEVESISPORITES VALLATUS
0373.5 SWC	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	13	.	.	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	28	.	.	.	.	.	.	.	.	.	.	1	.	.
0553.5 SWC	.	.	.	.	.	3	.	.	4	.	.	.	X	.	.	X	.	.	.
0562.0 SWC	.	.	.	2	.	.	X	.	X	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	4	.	.	X	.	.	.	.	.	.	X	.	.	.
0599.0 SWC	.	.	.	4	.	.	X	.	X	.	.	.	1	.	.	.	.	.	.
0612.5 SWC	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	1	.	.	5	.	.	1	X	.	.	X	.	.	1	.	1	.
0689.5 SWC	.	.	.	2	.	.	.	.	X	X	.	.	X	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	8	.	.	X	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	2	.	.	1	.	.	X	.	.	2	.	.	?	.	.	.
0812.5 SWC	.	.	.	1	.	5	X	.	1	.	.	.	X	.	1	.	.	.	.
0876.0 SWC	.	.	.	2	.	.	.	.	X	.	.	.	X	.	X	.	.	.	.
0893.5 SWC	.	.	1	.	.	7	1	.	1	.	.	.	X	.	.	X	.	.	.
0970.0 SWC	.	.	.	1	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	10	1	1	X	.	.	.	X	.	.	.	.	.	.
1025 CUTTS	.	.	1	.	.	9	.	.	.	.	.	X	X	.	.	.	.	.	.
1080 CUTTS	.	.	1	.	.	1	.	.	.	.	.	.	1	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	X	X	.	X	.	X	.	1	X	.	.	.	.	.
1151.0 SWC	.	.	X	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.
1180 CUTTS	.	.	.	1	.	7	.	1	.	.	.	.	X	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	19	.	.	.	.	.	.	.	.	.	.	.	1	.
1250.5 SWC	.	.	.	3	.	.	.	.	.	1	.	.	3	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	X	.	.	24	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	11	1	.	.	X	.	.	4	.	.	.	.	.	X
1328.5 SWC	.	.	.	.	.	29	.	.	1	.	.	.	X	.	.	X	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.
1336.0 SWC	.	.	.	7	.	10	1	.	X	X	.	.	4	.	.	.	.	.	1
1364.5 SWC	.	.	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	X	.	.	X	X	.	X	.	.	.	X	.	.	.	.	.	.
1452 CUTTS	.	.	3	.	X	17	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	1	.	X	23	1	.	.	.	.	.	X	.	X	.	.	.	.
1575.0 SWC	.	.	.	1	.	.	X	.	1	.	.	.	.	.	X	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	X	X	2	.	5	1	X	.	.	.	1	2	.	1	2	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	X	.	.	.	.	.	.	.	.	.	X	.	.	X	.	X	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.
1719.0 SWC	.	X	X	.	.	X	X	X	X	.	.	.	X	.	X	.	.	.	.
1749.5 SWC	.	?	X	.	.	.	X	.	X	X	X	X	X	?	X	X	X	X	X
1754.5 SWC	X	X	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	134 PERINOPOLLENITES ELATOIDES	135 POLYCINGULATISPORITES CRENULATUS	136 RETITRILETES CIRCOLUMENUS	137 TRIPOROLETES RADIATUS	138 APPENDICISPORITES DISTOCARINATUS	139 FORAMINISPORIS WONTHAGGIENSIS	140 KLUKISPORITES SCABERIS	141 PHYLLOCLADIDITES EUNUCHUS	142 PHYLLOCLADIDITES MAWSONII	143 PILOSISPORITES NOTENSIS	144 POLYCINGULATISPORITES MOONIENSIS	145 BALMEISPORITES HOLODICTYUS	146 BIRETISPORITES	147 CICATRICOSISPORITES FOVEOAUSTRALIENSIS	148 CONCAVISSIMISPORITES PENOLAENSIS	149 FOVEOGLEICHENIIDITES	150 TRILOBOSPORITES TRIORETICULOSUS	151 BALMEISPORITES TRIDICTYUS	152 CRYBELOSPORITES MAGNIFICA
0373.5 SWC	.	.	.	.	.	.	.	.	8	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	X	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	.	.	.	.	.	8	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	X	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	1	.	X	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	X	.	X	.	X	.	.	6	.	.	1	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	X	.	5	.	.	X	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	X	.	.	.	X	.	X	.	X	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	X	.	.	X	.	.	1	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	1	X	.	X	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	3	.	.	.	.	.	1	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	1	X	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	X	4	X	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	X	.	.	.	1	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	X	.	.	.	39	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	X	.	.	X	1	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	X	.	.	.	.	.	.	X	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	X	.	.	4	1	.	.	X	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	X	X	.	.	16	3	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	X	X	.	.	2	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	X	1	.	.	X	2	.	.	X	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	X	X	.	X	?	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	X	X	.	.	1*	.	.	.	X	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	X	X	.	.	1	1	.	.	X	.	.	.	.	X	.	.
1575.0 SWC	.	.	1	.	.	X	X	.	.	.	.	.	.	.	.	.	1	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	X	.	X	X	1	X	?	.	.	1	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	X	.	X	.	.	.	.	.	.	X	X	.	.	.	X	X
1703 CUTTS	.	.	.	.	X	.	X	.	.	.	.	X	X	X	X	X	X	.	.
1719.0 SWC	.	.	X	X	X	X	X	X	?	X	X	.	.	.	.	.	.	.	.
1749.5 SWC	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	CRYBELOSPORITES MEGASTRIATUS	DENSOISPORITES VELATUS	JANUASPORITES SPINULOSUS	PEROTRILETES JUBATUS/MORGANII	TRIPOROLETES RETICULATUS	TRIPOROLETES SIMPLEX	CICATRICOSISPORITES HUGHESI	CINGUTRILETES CLAVUS	CONTIGNISPORITES GLEBULENTUS	COPTOSPORA PILEOSA	COPTOSPORA WRINKLY	CORONATISPORA PERFORATA	RETITRILETES FACETUS	AMOSOPOLLIS CRUCIFORMIS	CLAVIFERA TRIPLEX	PROTEACIDITES	APPENDICISPORITES TRICORNITATUS	CAMEROZONOSPORITES ROBUSTA	CICATRICOSPORITES WRINKLY AUSTRALIENSIS	LILIACIDITES KAITANGATAENSIS	AUSTRALOPOLLIS OBSCURIS	CICATRICOSISPORITES RADIATUS	INTERULOBITES INTRAVERRUCATUS	KUYLISPORITES ZIPPERI	LAEVIGATOSPORITES OVATUS	LYCOPIACIDITES ASPERATUS	LYGISTIPOLLENITES FLORINII	CALAMOSPORA SP	CIBOTIUMSPORA JURIENSIS	PEROTRILETES SP	TRILOBOSPORITES TRIBOTRYS	VITREISPORITES PALLIDUS	SENECTOTETRADITES VARIRETICULATUS	CYATHEACIDITES TECTIFERA	ORNAMENTIFERA SENTOSA	TRICOLPITES SP	PHIMOPOLLENITES PANNOSUS	CAMEROZONOSPORITES OHAIENSIS
	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	16	.	.	.	.	.	.	.	.	1	.	6	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	26	.	.	.	.	.	.	.	.	4	.	2	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	6	.	.	.	.	.	.	.	.	2	.	5	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	18	.	.	.	.	.	.	.	.	2	.	7	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	X	1	.	.	.	.	.	.	.	.	X	2	9	.	.	.	.	.	.	.	.	3	.	1	.	.	.	.	.	.	.	.	.	.	2
0562.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
0569.0 SWC	.	X	.	.	.	.	.	.	.	X	.	.	.	X	X	14	.	.	.	.	2	.	.	.	2	.	.	.	.	.	.	.	.	.	X	.	.	2
0599.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	3	18	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	6	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	X
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	X	X	.	.	.	.	X	.	.	.	.	X	5	.	.	.	.	X	.	.	.	2	.	.	.	.	.	.	.	.	.	X	.	.	X
0689.5 SWC	.	.	.	X	2	X	.	.	.	.	.	.	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.
0720.5 SWC	.	.	.	X	.	.	.	.	.	.	.	.	.	2	1	4	.	.	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	X	.	.	1
0746.0 SWC	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	5	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	X	.	.	.
0812.5 SWC	.	.	.	.	X	.	.	.	.	.	.	.	.	X	1	13	.	.	.	.	3	X	.	.	1	.	.	.	.	.	.	.	.	.	X	.	.	X
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	X	1	.	.	.	.	X	.	.	.	X	1	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	X
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	X	.	.	.	.	.	.	.	.	5	X	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.
1025 CUTTS	.	X	.	1	.	.	.	X	.	.	.	.	.	3	1	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.
1080 CUTTS	.	.	.	1	.	.	.	.	.	.	.	.	.	15	1	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	X	.	.	.	5	X	X	.	.	.	.	X	.	.	.	1	.	.	.	.	.	.	X	.	.	.	.	.	X
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	12	.	.	X	.	.	.	.	.	.	6	.	.	.	.	.	.	1	.	.	1	1	.	.
1306 CUTTS	.	.	.	1	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	X	.	.	.	.	.	.	.	.	.	1	1	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.
1328.5 SWC	.	.	.	X	X	.	.	.	.	X	.	.	.	.	X	.	.	2	.	.	.	1	.	1	2	X	.	.	.	.	.	.	.	X	.	.	.	.
1334.0 SWC	.	.	.	1	.	.	.	.	.	.	.	.	.	.	X	.	1	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	X	.	.	.	.	.
1336.0 SWC	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	?	1	1	.	.	.	.	.	.
1364.5 SWC	.	X	.	.	.	.	.	.	.	X	.	.	.	.	.	.	X	.	.	1	X	1	X	X	X	3	X	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	X	.	.	.	.	.	.	.	.	.	X	?	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	X	.	1	.	.	.	.	.	X	.	.	.	.	.	*	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	X	X	.	.	.	.	.	.	.	X	X	*	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	1	X	.	X	X	1	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	191 TRICOLPITES GILLII	192 BACULATISPORITES	193 ISCHYOSPORITES SP	194 COPTOSPORA PARADOXA	195 PROTEACIDITES: large	196 AEQUITRIRADITES VERRUCOSUS	197 CADARGASPORITES BACULATUS	198 PEROTRILETES MAJUS	199 ERICIPITES SCABRATUS	200 GAMBIERINA RUDATA	201 LILIACIDITES PERORETICULATUS	202 MUROSPORA FLORIDA	203 POLYPOROPOLLENITES POLYORATUS	204 TRICOLPITES SABULOSUS	205 TRICOLPITES VARIVERRUCATUS	206 NOTHOFAGIDITES SENECTUS	207 TRICOLPITES CONFESSUS	208 NOTHOFAGIDITES ENDURUS	209 PROTEACIDITES PALISADUS
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	4	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	1	.	.	.	X	.	.	.	.	1	.	.	1	.	.	.	X	8	.
0562.0 SWC	.	.	.	.	.	.	.	.	.	7	.	X	.	?	.	6	.	.	.
0569.0 SWC	X	.	.	.	1	.	.	.	X	2	.	.	.	X	.	3	X	8	X
0599.0 SWC	.	.	.	.	.	.	.	.	.	5	.	X	.	.	.	13	X	.	.
0612.5 SWC	.	.	.	.	.	X	.	.	.	X	.	.	.	1	.	.	.	1	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.
0664.5 SWC	X	.	.	.	.	.	.	.	.	.	.	.	.	7	.	1	.	3	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	?	.	.	.	X	.	12	.	.	.
0720.5 SWC	X	.	.	.	1	.	.	.	X	X	.	.	X	7	.	1	X	1	X
0746.0 SWC	.	.	.	.	.	.	.	.	.	1	.	.	.	?	.	9	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	1	.	.	X	.	X	X	.	.
0876.0 SWC	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	2	.	.	.	.	.	.	.	1	?	1	X	X	?	X	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	210 PEROTRILETES LINEARIS	211 PHYLLOCLADIDITES VERRUCATUS	212 NEORAISTRICKIA	213 REWORKING - JURASSIC	214 TETRACOLPORITES VERRUCOSUS	215 TRICOLPITES LONGUS	216 TRICOLPORITES APOXYEXINUS	217 TRICOLPORITES LILLIEI	218 TRIPOROPOLLENITES SECTILIS	219 GEPHYRAPOLLENITES WAHOOENSIS	220 LYGISTIPOLLENITES BALMEI	221 PERIPOROPOLLENITES POLYORATUS	222 STERIESPORITES REGIUM	223 TETRACOLPORITES RETICULATUS	224 TRICOLPITES DETTMANNIAE	225 TRICOLPITES WAIPAWAENSIS	226 CAMEROZONOSPORITES SP	227 HERKOSPORITES ELLIOTTII	228 NOTHOFAGIDITES BRACHYSPINULOSUS
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	2
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	1
0467.0 SWC	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	X
0553.5 SWC	.	2	.	.	X	1	.	X	X	X	1	.	.	.	.	X	.	1	X
0562.0 SWC	.	.	.	X	X	5	.	X	.	.	.	.	.	.	.	.	2	.	.
0569.0 SWC	.	.	.	.	.	.	X	1	X	1	1	1	X	X	1	1	.	.	.
0599.0 SWC	.	.	1	X	X	X	1	2	?	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	229 PILOSISPORITES GRANDIS	230 PROTEACIDITES GRANDIS	231 PROTEACIDITES ORNATUS	232 PROTEACIDITES OTWAYENSIS	233 PROTEACIDITES RETICULOCONCAVUS	234 TRIPOROPOLLENITES AMBIGUUS	235 TRIPUNCTISPORIS PUNCTATUS	236 ANACOLOSIDITES ACUTULLUS	237 CYATHIDITES SPP	238 DILWYNITES TUBERCULATUS	239 HALORAGACIDITES HARRISII	240 INTRATRIPOROPOLLENITES NOTABILIS	241 MALVACIPOLLIS SUBTILIS	242 NOTHOFAGIDITES EMARCIDUS	243 NOTHOFAGIDITES FLEMINGII	244 PERIPOROPOLLENITES DEMARCATUS	245 PROTEACIDITES ASPEROPOLUS	246 PROTEACIDITES OBESOLABRUS	247 PROTEACIDITES PACHYPOLUS	248 PROTEACIDITES SCABORATUS	249 PROTEACIDITES TUBERCULIFORMIS	250 TRICOLPORITES ESTOUTUS	251 VERRUCOSISPORITES KOPUKUENSIS	252 MYRTACEIDITES PARVUS	253 NOTHOFAGIDITES DEMINUTUS	254 POLYCOLPITES ESOBALTEUS	255 PROTEACIDITES ANNULARIS	256 PROTEACIDITES LEIGHTONII	257 BEAUPREADITES VERRUCOSUS	258 CAMEROZONOSPORITES LATROBENSIS	259 MALVACIPOLLIS LARGE	260 TRIORITES MAGNIFICUS	261 DIPORITES SP.	262 KUYLISPORITES WATERBOLKII	263 NOTHOFAGIDITES FALCATA	264 PROTEACIDITES MAPUKUI	265 PROTEACIDITES KOPIENSIS	266 SANTALUMIDITES CAINOZOICUS
0373.5 SWC	.	X	.	.	.	.	X	.	.	.	9	.	1	9	7	5	.	.	X	.	.	X	2	X	X	1	1	.	1	.	1	1	X	2	X	X	X	1
0388.0 SWC	.	X	?	.	.	.	.	.	.	.	28	.	3	2	.	X	.	.	X	.	.	X	3	.	.	.	X	.	1	1	3	?	.	.	.	.	.	.
0429.0 SWC	.	X	?	.	.	.	.	.	8	4	10	1	3	1	X	.	1	.	1	.	X	.	1	2	1	X	1	X	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	1	?	.	.	.	X	1	4	1	7	X	8	1	X	X	?	X	X	1	X	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	?	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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71	OLIGOSPHAERIDIUM SP
92	OPERCULODINIUM
82	OPERCULODINIUM CENTROCARPUM
187	ORNAMENTIFERA SENTOSA
106	OSMUNDACIDITES WELLMANII
35	PARALECANIELLA
134	PERINOPOLLENITES ELATOIDES
244	PERIPOROPOLLENITES DEMARCATUS
221	PERIPOROPOLLENITES POLYORATUS
156	PEROTRILETES JUBATUS/MORGANII
210	PEROTRILETES LINEARIS
198	PEROTRILETES MAJUS
182	PEROTRILETES SP
189	PHIMOPOLLENITES PANNOSUS
93	PHTHANOPERIDINIUM COMATUM
141	PHYLLOCLADIDITES EUNUCHUS
142	PHYLLOCLADIDITES MAWSONII
211	PHYLLOCLADIDITES VERRUCATUS
229	PILOSISPORITES GRANDIS
143	PILOSISPORITES NOTENSIS
111	PODOSPORITES MICROSACCATUS
135	POLYCINGULATISPORITES CRENULATUS
144	POLYCINGULATISPORITES MOONIENSIS
254	POLYCOLPITES ESOBALTEUS
203	POLYPOROPOLLENITES POLYORATUS
168	PROTEACIDITES
255	PROTEACIDITES ANNULARIS
245	PROTEACIDITES ASPEROPOLUS
230	PROTEACIDITES GRANDIS
264	PROTEACIDITES HAPUKUI
265	PROTEACIDITES KOPIENSIS
256	PROTEACIDITES LEIGHTONII
246	PROTEACIDITES OBESOLABRUS
231	PROTEACIDITES ORNATUS
232	PROTEACIDITES OTWAYENSIS
247	PROTEACIDITES PACHYPOLUS
209	PROTEACIDITES PALISADUS
233	PROTEACIDITES RETICULOCONCAVUS
248	PROTEACIDITES SCABORATUS
249	PROTEACIDITES TUBERCULIFORMIS
195	PROTEACIDITES: large
21	PTEROSPERMELLA AUREOLATA
22	PTEROSPERMELLA AUSTRALIENSIS
58	PTEROSPERMELLA SP
107	RETITRILETES AUSTROCLAVATIDITES
136	RETITRILETES CIRCOLUMENUS
165	RETITRILETES FACETUS
122	RETITRILETES NODOSUS
213	REWORKING - JURASSIC
123	REWORKING - PERMIAN
124	REWORKING - TRIASSIC
266	SANTALUMIDITES CAINOZOICUS
9	SCHIZOSPORIS PSILATA
2	SCHIZOSPORIS RETICULATUS
185	SENECTOTETRADITES VARIRETICULATUS
62	SPINIDINIUM SP
23	SPINIFERITES FURCATUS/RAMOSUS
112	STERIESPORITES ANTIQUASPORITES
222	STERIESPORITES REGIUM
32	SUBTILISPHAERA TRENDALLII
94	SYSTEMATOPHORA PLACACANTHA
223	TETRACOLPORITES RETICULATUS
214	TETRACOLPORITES VERRUCOSUS
68	TRICHODINIUM
207	TRICOLPITES CONFESSUS
224	TRICOLPITES DETTMANNIAE
191	TRICOLPITES GILLII
215	TRICOLPITES LONGUS
204	TRICOLPITES SABULOSUS
188	TRICOLPITES SP
205	TRICOLPITES VARIVERRUCATUS
225	TRICOLPITES WAIPAWAENSIS
216	TRICOLPORITES APOXYEXINUS
250	TRICOLPORITES ESTOUTUS
217	TRICOLPORITES LILLIEI
183	TRILOBOSPORITES TRIBOTRYS
150	TRILOBOSPORITES TRIORETICULOSUS
260	TRIORITES MAGNIFICUS
137	TRIPOROLETES RADIATUS
157	TRIPOROLETES RETICULATUS
158	TRIPOROLETES SIMPLEX
234	TRIPOROPOLLENITES AMBIGUUS
218	TRIPOROPOLLENITES SECTILIS
235	TRIPUNCTISPORIS PUNCTATUS
10	TRITHYRODINIUM FINE GRANULES
40	TRITHYRODINIUM MARSHALLII
51	TRITHYRODINIUM PUNCTATE
52	TRITHYRODINIUM SUSPECTUM
53	TRITHYRODINIUM THICK PSILATE
54	TRITHYRODINIUM THICK RETICULATUS
251	VERRUCOSISPORITES KOPUKUENSIS
3	VERYHACHIUM
184	VITREISPORITES PALLIDUS
89	VOZZHENNIKOVIA EXTENSA
69	XENIKOON AUSTRALIS

ERIC THE RED #1

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Box 161, Maitland, South Australia, 5573.
phone (088) 32 2795 .. fax (088) 32 2798

CLIENT: BHP Petroleum Exploration
WELL: Eric the Red
FIELD/AREA: Otway Basin

ANALYST: Roger Morgan DATE: March '93

NOTES: all sample depths are in metres
RW = reworked * = caved CF = comparable to
? = questionable identification X = present outside count
figures are percentages based on 100 specimen count

RANGE CHART OF OCCURRENCES BY LOWEST APPEARANCE (by groups)

	1 MICRHYSTRIDIUM	2 VERYHACHIUM	3 CRIBROPERIDINIUM EDWARDSII	4 OLIGOSPHAERIDIUM COMPLEX	5 APTEA SP	6 CLEISTOSPHAERIDIUM SPP	7 CIRCULODINIUM DEFLANDREI	8 HETEROSPHAERIDIUM CONJUNCTUM	9 HETEROSPHAERIDIUM HETEROCANTHUM	10 ODONTOCHITINA OPERCULATA	11 PALAEOPERIDINIUM CRETACEUM	12 TRITHYRODINIUM FINE GRANULES	13 KIOKANSIUM POLYPES	14 CANNINGIA SPINOSA	15 CHLAMYDOPHORELLA NYEI	16 CRIBROPERIDINIUM SP	17 EXOCHOSPHAERIDIUM PHRAGMITES	18 FLORENTINIA DEANEI	19 OLIGOSPHAERIDIUM PULCHERRIMUM	20 PTEROSPERMELLA AUREOLATA	21 PTEROSPERMELLA AUSTRALIENSIS	22 SPINIFERITES FURCATUS/RAMOSUS	23 FLORENTINIA SP	24 CALLAIOSPHAERIDIUM ASYMMETRICUM	25 CIRCULODINIUM HIRTELLUM	26 CYCLONEPHELIUM COMPACTUM	27 ISABELIDINIUM COOKSONIAE	28 SUBTILISPHAERA TRENDALLII	29 ASCODINIUM PARVUM	30 ISABELIDINIUM BELFASTENSE	31 APTEA POLYMORPHA	32 ISABELIDINIUM RECTANGULARIS	33 HETEROSPHAERIDIUM SOLIDA	34 TRITHYRODINIUM MARSHALLII	35 ISABELIDINIUM BALMEI	36 ISABELIDINIUM BELFASTENSE ROTUNDATA	37 ISABELIDINIUM SP	38 ISABELIDINIUM CRETACEA	39 CANNINGIA FOVEOLATA	40 HYSTRICHODINIUM PULCHRUM	41 ISABELIDINIUM LATUM	42 MADURADINIUM PENTAGONUM	43 ODONTOCHITINA COSTATA	44 ODONTOCHITINA CRIBROPODA	45 TRITHYRODINIUM PUNCTATE	46 TRITHYRODINIUM SUSPECTUM	47 TRITHYRODINIUM THICK PSILATE	48 TRITHYRODINIUM THICK RETICULATUS	49 AMPHIDIADEMA DENTICULATA	50 CHATANGIELLA VICTORIENSIS	51 ODONTOCHITINA PORIFERA	52 PTEROSPERMELLA SP	53 HETEROSPHAERIDIUM LATEROBRACHIUS	54 NELSONIELLA ACERAS	55 ODONTOCHITINA STUBBY	56 SPINIDINIUM SP	57 AREOSPHAERIDIUM SP	58 AREOSPHAERIDIUM SUGGESTIUM	59 CANNINGIA RETICULATA CF	60 NELSONIELLA SEMIRETICULATA	61 NELSONIELLA TUBERCULATA	62 TRICHODINIUM	63 XENIKOON AUSTRALIS	64 EXOCHOSPHAERIDIUM SP	65 OLIGOSPHAERIDIUM SP
0373.5 SWC																						1																																											
0388.0 SWC																						2																																											
0429.0 SWC																						3																																											
0467.0 SWC	1																																																																
0553.5 SWC	X					2	X			X												X																																	X							X			
0562.0 SWC		1																																			4																												
0569.0 SWC									X													X																		1																						X			
0599.0 SWC	X																					3															3	?																											
0612.5 SWC																																																																	
0642.0 SWC																																																																	
0664.5 SWC	X								X																																																						X		
0689.5 SWC	1								1																																	?																		1			X	1	X
0720.5 SWC				1				X	1							1	X		1			1																						X														X	X	X	X	X	5		
0746.0 SWC	2																																																								?								
0812.5 SWC		1		X					5								X					2		X																X		X									X		1	X	X	X									
0876.0 SWC		1						9	19																					2								X					3	3					X	2	1	X													
0893.5 SWC		X							2	X												1											F					4	X	X	X	X	X	X	2	2	1	1																	
0970.0 SWC									9													1																X																											
1010.0 SWC		1		X			X		6							X			X			1										?	1																																
1025 CUTTS							2		4			X																		CF		X	1		1	X	1																												
1080 CUTTS							2		10			1															1			CF		2	4	X																															
1097.0 SWC		X						1	59																																																								
1151.0 SWC							X																																																										
1177.0 SWC									1																																																								
1180 CUTTS					X		X		X																		X				CF	1																																	
1219.5 SWC																																																																	
1250.5 SWC																																																																	
1275.0 SWC																																																																	
1306 CUTTS							1		X							X													?	?																																			
1316.0 SWC				1			X		X	X												1																																									
1328.5 SWC				1			1		X	X			2	1		X	1		1	1		X		X	X	1	?	X																																					
1334.0 SWC																																																																	
1336.0 SWC																							?																																										
1364.5 SWC																																																																	
1437.0 SWC			X	X					X					X	X	X	X	X	X	X	X	X																																											
1452 CUTTS			1						X				X																																																				
1455.0 SWC				X			X																																																										
1515 CUTTS			X									X																																																					
1520.0 SWC	1		X				X	1	X	1	1																																																						
1575.0 SWC					?	1																																																											
1602.0 SWC																																																																	
1630.0 SWC																																																																	
1667.0 SWC																																																																	
1678.0 SWC																																																																	
1703 CUTTS																																																																	
1719.0 SWC	X		X	X																																																													
1749.5 SWC		X																																																															
1754.5 SWC	X	X																																																															
1790.0 SWC																																																																	
1813.5 SWC	X																																																																

	66 CANNINGINOPSIS BRETONENSIS	67 ISABELIDINIUM KOROJONENSE	68 ISABELIDINIUM PELLUCIDUM	69 AREOLIGERA SENONENSIS	70 AREOLIGERA CORONATA	71 CERATIOPSIS SPECIOSUS	72 CORDOSPHAERIDIUM SP	73 MANUMIELLA CORONATA	74 CORDOSPHAERIDIUM INODES	75 DYPHES COLLIFERUM	76 OPERCULODINIUM CENTROCARPUM	77 APECTODINIUM HOMOMORPHA (SH. SP)	78 AREOSPHAERIDIUM ARCUATUM	79 AREOSPHAERIDIUM AUSTRALICUM	80 DEFLANDREA PHOSPHORITICA	81 HYSTRICHOSPHAERIDIUM TUBIFERUM	82 MILLIOUDIDINIUM TENUITABULATUS	83 VOZZHENNIKOVIA EXTENSA	84 CEREBROCYSTA SP	85 DEFLANDREA TRUNCATA	86 OPERCULODINIUM	87 PHTHANOPERIDINIUM COMATUM	88 SYSTEMATOPHORA PLACACANTHA
0373.5 SWC	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	X	?	1	1	X
0388.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	1	1	.	.	.	.	.
0429.0 SWC	.	.	.	.	.	.	.	.	1	.	X	1	X	14	1	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	X	.	.	.	.	X	1	1	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	1	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	2	.	?	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	X	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1455.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1520.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

	89 ARAUCARIACITES AUSTRALIS	90 CALLIALASPORITES TURBATUS	91 CERATOSPORITES EQUALIS	92 COROLLINA TOROSUS	93 CYATHIDITES AUSTRALIS	94 CYATHIDITES MINOR	95 FALCISPORITES GRANDIS	96 FALCISPORITES SIMILIS	97 FORAMINISPORIS DAILYI	98 GLEICHENIIDITES	99 MICROCACHRYIDITES ANTARCTICUS	100 OSMUNDACIDITES WELLMANII	101 RETITRILETES AUSTROCLAVATIDITES	102 CALLIALASPORITES DAMPIERI	103 CONTIGNISPORITES COOKSONIAE	104 LEPTOLEPIDITES MAJOR	105 PODOSPORITES MICROSACCATUS	106 STERIESPORITES ANTIQUASPORITES	107 ARAUCARIACITES FISSUS	108 CICATRICOSISPORITES LUDBROOKIAE	109 COUPERISPORITES TABULATUS	110 CRYBELOSPORITES STRIATUS
0373.5 SWC	.	.	.	.	5	1	2	9	.	.	2	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	.	1	.	6	1	.	2	.	1	.	.	2	.	.	.	1	1	.	.	.	.
0429.0 SWC	.	.	2	.	.	.	.	2	.	1	1	.	.	.	.	.	3	1	.	.	.	.
0467.0 SWC	.	.	1	.	.	.	.	6	.	.	.	.	X	.	.	.	3	X	.	.	.	.
0553.5 SWC	1	.	3	.	1	5	4	10	.	1	5	.	3	.	.	.	5	1	.	.	.	.
0562.0 SWC	.	.	7	.	15	.	1	14	.	7	2	5	2	.	.	.	.	.	.	.	.	.
0569.0 SWC	1	.	1	.	1	9	5	6	.	2	5	3	4	.	.	.	5	3	.	.	.	.
0599.0 SWC	.	.	5	.	8	.	.	13	.	7	5	3	2	.	.	.	.	1	.	.	.	.
0612.5 SWC	2	.	.	.	5	3	8	8	.	1	4	4	1	.	.	.	1	3	.	.	.	.
0642.0 SWC	.	.	.	.	X	.	.	X	.	.	X	X	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	2	.	3	.	2	3	7	21	1	2	7	5	2	.	.	.	8	1	.	.	.	.
0689.5 SWC	.	.	5	2	6	.	.	35	.	.	4	8	2	.	.	.	.	.	.	.	.	.
0720.5 SWC	2	.	3	.	3	3	4	14	.	3	14	2	X	.	.	.	6	X	.	.	.	.
0746.0 SWC	.	.	4	3	7	.	.	37	.	2	4	16	5	X	.	.	.	.	.	.	.	.
0812.5 SWC	X	.	1	.	3	6	11	15	.	4	9	3	1	.	.	.	6	1	.	.	.	.
0876.0 SWC	.	.	1	1	15	.	1	15	.	6	4	11	1	.	.	.	.	.	.	.	.	.
0893.5 SWC	1	.	.	2	5	5	6	25	.	1	10	4	1	1	.	.	5	.	.	.	.	.
0970.0 SWC	.	.	5	4	23	.	.	35	.	3	.	10	7	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	3	3	5	4	9	20	X	3	12	4	2	1	.	.	1	.	.	.	.	.
1025 CUTTS	.	.	.	5	5	12	1	16	.	6	8	1	3	1	.	.	7	1	.	.	.	.
1080 CUTTS	5	.	1	.	20	3	7	14	.	1	4	.	1	2	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	1	1	11	.	1	12	.	.	5	4	X	X	.	.	.	.	.	.	.	.
1151.0 SWC	X	.	1	X	1	2	.	5	.	1	2	X	1	.	.	.	30	.	.	.	.	.
1177.0 SWC	.	.	.	.	9	.	.	48	.	.	26	11	1	.	.	.	.	.	.	.	.	.
1180 CUTTS	4	1	.	.	1	9	.	11	.	6	24	X	X	X	.	.	25	.	.	.	.	.
1219.5 SWC	2	.	X	X	3	7	6	17	.	1	10	.	1	.	.	.	14	.	.	X	.	.
1250.5 SWC	2	.	.	.	58	.	.	15	.	.	9	9	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	3	.	1	1	1	3	5	9	.	9	3	1	1	.	.	.	1	1	.	.	.	.
1306 CUTTS	2	.	.	2	2	7	7	14	.	6	6	1	1	.	.	.	15	.	.	.	.	.
1316.0 SWC	1	.	.	2	27	.	.	28	.	4	7	10	1	.	.	.	.	.	.	.	.	.
1328.5 SWC	X	3	X	1	2	12	5	13	.	2	7	1	X	.	X	.	3	.	.	X	.	.
1334.0 SWC	2	.	.	X	6	10	7	20	.	7	5	1	X	1	.	1	10	X	.	X	.	.
1336.0 SWC	.	.	4	.	20	.	.	30	.	4	4	5	3	.	X	.	.	.	.	.	.	.
1364.5 SWC	1	3	1	.	5	12	8	16	X	6	11	2	X	.	.	X	8	1	.	.	.	.
1437.0 SWC	X	X	X	.	X	X	X	X	.	X	X	X	.	.	.	.	X	.	.	.	.	.
1452 CUTTS	.	X	.	1	5	11	5	18	.	7	17	1	X	.	.	.	7	X	.	X	.	.
1455.0 SWC	1	.	2	2	1	18	3	9	.	8	10	1	2	.	.	.	9	3	.	.	.	.
1515 CUTTS	.	.	2	3	2	12	2	9	.	7	10	2	1	X	.	.	20	1	.	.	.	.
1520.0 SWC	3	.	2	1	1	10	1	11	.	10	13	2	1	.	.	.	7	1	.	.	.	.
1575.0 SWC	4	1	3	5	7	11	12	21	.	1	10	7	4	1	.	.	.	2	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	1	1	2	.	10	12	8	20	.	1	5	2	5	.	1	.	3	1	.	X	.	X
1667.0 SWC	.	.	X	.	.	X	.	X	.	.	X	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	X	X	.	X	.	.	X	X	X	.	.	.	.	X	.	.	.	.
1703 CUTTS	X	X	X	X	X	X	X	X	.	X	X	X	X	.	.	.	.	.	.	X	.	.
1719.0 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	.	X	X	.	.	.	X
1749.5 SWC	.	X	X	X	X	X	X	X	.	.	X	X	X	.	X	.	.	.	.	.	.	?
1754.5 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	X	.	.	X	.	X	X	X	X
1790.0 SWC	.	.	X	X	X	X	X	X	.	X	X	X	X	X	X	X	X	X	.	.	.	.
1813.5 SWC	X	X	X	X	X	X	X	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.

	111 CYCADOPITES FOLLICULARIS	112 DICTYOPHYLLIDITES	113 DICTYOTOSPORITES COMPLEX	114 DILWYNITES GRANULATUS	115 LEPTOLEPIDITES VERRUCATUS	116 RETITRILETES NODOSUS	117 AEQUITRIRADITES SPINULOSUS	118 AEQUITRIRADITES TILCHAENESIS	119 CICATRICOSISPORITES AUSTRALIENSIS	120 CYCLOSPORITES HUGHESI	121 DICTYOTOSPORITES SPECIOSUS	122 FORAMINISPORIS ASYMMETRICUS	123 FOVEOTRILETES PARVIRETUS	124 ISCHYOSPORITES PUNCTATUS	125 NEVESISPORITES VALLATUS	126 PERINOPOLLENITES ELATOIDES	127 POLYCINGULATISPORITES CRENULATUS	128 RETITRILETES CIRCOLUMENUS	129 TRIPOROLETES RADIATUS	130 APPENDICISPORITES DISTOCARINATUS
0373.5 SWC	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0388.0 SWC	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	.	.
0429.0 SWC	.	.	.	14	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	.	28	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.
0553.5 SWC	.	.	.	3	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	.
0562.0 SWC	.	2	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	4	.	.	.	.	.	.	.	X	.	.	.	.	.	X	.	.
0599.0 SWC	.	4	.	.	X	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	1	.	.	5	.	.	.	.	X	.	.	1	.	1	.	.	X	.	X	.
0689.5 SWC	.	2	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	2	.	.	1	.	.	.	2	.	.	?	.	.	.	.	.	.	X	.
0812.5 SWC	.	1	.	5	X	.	.	.	X	.	1	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	2	.	.	.	.	.	.	X	.	X	.	.	.	.	.	.	.	.	.
0893.5 SWC	1	.	.	7	1	.	.	.	X	.	.	X	.	.	.	.	.	X	.	.
0970.0 SWC	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	10	1	1	.	.	X	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	1	.	.	9	.	.	.	X	X	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	1	.	.	1	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	X	X	.	X	.	1	X	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	X	.	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	1	.	7	.	1	.	.	X	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	19	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	X
1250.5 SWC	.	3	.	.	.	.	.	.	3	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
1306 CUTTS	X	.	.	24	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
1316.0 SWC	.	.	.	11	1	.	.	.	4	.	.	.	.	.	X	.	.	.	.	X
1328.5 SWC	.	.	.	29	.	.	.	.	X	.	.	X	.	.	.	.	.	.	.	X
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	X	X
1336.0 SWC	.	7	.	10	1	.	.	.	4	.	.	.	.	.	1	.	.	.	X	X
1364.5 SWC	.	.	.	15	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	1
1437.0 SWC	X	.	.	X	X	.	.	.	X	.	.	.	.	.	.	.	.	.	.	X
1452 CUTTS	3	.	X	16	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X	X
1455.0 SWC	1	.	.	18	.	.	.	.	X	.	.	.	.	.	.	1	.	.	.	2
1515 CUTTS	1	.	X	23	1	.	.	.	X	.	X	.	.	.	.	.	.	.	X	X
1520.0 SWC	2	.	.	11	.	.	.	.	2	.	X	.	.	.	.	1	.	.	1	X
1575.0 SWC	.	1	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	1	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	X	2	.	5	1	X	.	1	2	.	1	2	.	.	.	.	.	X	.	X
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	X	.	.	.	.	.	.	.	X	.	.	X	.	X	.	.	.	.	X	.
1703 CUTTS	.	.	.	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	X
1719.0 SWC	X	.	.	X	X	X	.	.	X	.	X	.	.	.	.	.	.	X	X	X
1749.5 SWC	X	.	.	.	X	.	X	X	X	?	X	X	X	X	X	X	X	X	X	.
1754.5 SWC	X	X	X	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Sample	131 FORAMINISPORIS WONTHAGGIENSIS	132 KLUKISPORITES SCABERIS	133 PHYLLOCLADIDITES EUNUCHUS	134 PHYLLOCLADIDITES MAWSONII	135 PILOSISPORITES NOTENSIS	136 POLYCINGULATISPORITES MOONIENSIS	137 BALMEISPORITES HOLODICTYUS	138 BIRETRISPORITES	139 CICATRICOSISPORITES FOVEOAUSTRALIENSIS	140 CONCAVISSIMISPORITES PENOLAENSIS	141 FOVEOGLEICHENIIDITES	142 TRILOBOSPORITES TRIORETICULOSUS	143 BALMEISPORITES TRIDICTYUS	144 CRYBELOSPORITES MAGNIFICA	145 CRYBELOSPORITES MEGASTRIATUS	146 DENSOISPORITES VELATUS	147 JANUASPORITES SPINULOSUS	148 PEROTRILETES JUBATUS/MORGANII	149 TRIPOROLETES RETICULATUS	150 TRIPOROLETES SIMPLEX	151 CICATRICOSISPORITES HUGHESI	152 CINGUTRILETES CLAVUS	153 CONTIGNISPORITES GLEBULENTUS	154 COPTOSPORA PILEOSA	155 COPTOSPORA WRINKLY	156 CORONATISPORA PERFORATA	157 RETITRILETES FACETUS	158 CAMEROZONOSPORITES ROBUSTA	159 CLAVIFERA TRIPLEX	160 LAEVIGATOSPORITES OVATUS
0373.5 SWC				8																									1	1
0388.0 SWC				2																										4
0429.0 SWC				1																										2
0467.0 SWC																													X	2
0553.5 SWC				8														X	1										2	3
0562.0 SWC					X																								1	
0569.0 SWC				2												X								X					X	2
0599.0 SWC				1																									3	
0612.5 SWC		1		X																										1
0642.0 SWC																														
0664.5 SWC	X			6			1											X	X					X					X	2
0689.5 SWC			1	1														X	2	X										
0720.5 SWC		X		5			X											X											1	
0746.0 SWC			X		X		X												X											
0812.5 SWC				2															X										1	1
0876.0 SWC																													1	
0893.5 SWC	X			1														X	1					X					1	
0970.0 SWC																														
1010.0 SWC				1	X		X												X										X	
1025 CUTTS				3						1						X		1				X							1	
1080 CUTTS				1														1											1	
1097.0 SWC					X																									
1151.0 SWC				1	X																									
1177.0 SWC																													1	
1180 CUTTS			X	4	X																			X					X	1
1219.5 SWC				1																										
1250.5 SWC																														
1275.0 SWC				39																								X	12	6
1306 CUTTS			X	1														1												
1316.0 SWC							X											X											1	
1328.5 SWC			4	1			X											X	X					X				2	X	2
1334.0 SWC			16	3														1											X	1
1336.0 SWC			2																1											
1364.5 SWC			X	2			X									X								X						X
1437.0 SWC	X		X	?														X											?	
1452 CUTTS			*				X									X		1						X				X		
1455.0 SWC		1	2	?								X										1								2
1515 CUTTS			1	1			X					X							X	X									X	
1520.0 SWC			2									X							X			1		X				X	X	7
1575.0 SWC	X	X		1								1															1			
1602.0 SWC																														
1630.0 SWC	X	1	X	?			1											1	X		X	X	1	X	X	X	X			
1667.0 SWC																														
1678.0 SWC	X							X	X				X	X	X	X	X	X	X	X										
1703 CUTTS		X					X	X	X	X	X	X																		
1719.0 SwC	X	X	X	?	X	X																								
1749.5 S'C																														
1754.5 S :																														
1790.0 SwC																														
1813.5 SWC																														

Sample	161 VITREISPORITES PALLIDUS	162 AMOSOPOLLIS CRUCIFORMIS	163 PROTEACIDITES	164 LYCOPIACIDITES ASPERATUS	165 TRIPOROLETES BIRETICULATUS	166 APPENDICISPORITES TRICORNITATUS	167 CICATRICOSPORITES WRINKLY AUSTRALIENSIS	168 LILIACIDITES KAITANGATAENSIS	169 AUSTRALOPOLLIS OBSCURIS	170 CICATRICOSISPORITES RADIATUS	171 INTERULOBITES INTRAVERRUCATUS	172 KUYLISPORITES ZIPPERI	173 LYGISTIPOLLENITES FLORINII	174 CALAMOSPORA SP	175 CIBOTIUMSPORA JURIENSIS	176 PEROTRILETES SP	177 TRILOBOSPORITES TRIBOTRYS	178 SENECTOTETRADITES VARIRETICULATUS	179 CYATHEACIDITES TECTIFERA	180 ORNAMENTIFERA SENTOSA	181 TRICOLPITES SP	182 PHIMOPOLLENITES PANNOSUS	183 CAMEROZONOSPORITES OHAIENSIS	184 TRICOLPITES GILLII	185 BACULATISPORITES	186 ISCHYOSPORITES SP	187 COPTOSPORA PARADOXA	188 PROTEACIDITES: large	189 AEQUITRIRADITES VERRUCOSUS	190 CADARGASPORITES BACULATUS
0373.5 SWC			16										6																	
0388.0 SWC			25										2																	
0429.0 SWC			6										5																	
0467.0 SWC			18										7																	
0553.5 SWC		X	8										1										2	1				X		
0562.0 SWC			15																	1										
0569.0 SWC		X	14						2											X			2	X				1		
0599.0 SWC			17													1														
0612.5 SWC		1	6																				X						X	
0642.0 SWC			X																											
0664.5 SWC			5						X											X			X	X						
0689.5 SWC			15																	1										
0720.5 SWC		2	4	1					1											X			1	X				1		
0746.0 SWC			5													X				X										
0812.5 SWC		X	14						3	X										X			X							
0876.0 SWC			1													1														
0893.5 SWC		X	1						1													1	X	2						
0970.0 SWC																1														
1010.0 SWC		5	3																	X									X	X
1025 CUTTS		3	1																X								X	X		
1080 CUTTS		15		1																										
1097.0 SWC		3																								1				
1151.0 SWC		X																												
1177.0 SWC		X																				1			1					
1180 CUTTS	1	2	X						X														X	X						
1219.5 SWC		2																			X	X								
1250.5 SWC	X																													
1275.0 SWC	1																			1	1									
1306 CUTTS		2																												
1316.0 SWC	X	1							X																					
1328.5 SWC				X						1		1							X											
1334.0 SWC						1		1										X												
1336.0 SWC	1													1	1	?	1													
1364.5 SWC				3		X		1	X	1	X	X	X																	
1437.0 SWC		X				X																								
1452 CUTTS			*			X	X	X																						
1455.0 SWC				1	X																									
1515 CUTTS		X	*																											
1520.0 SWC	3																													
1575.0 SWC																														
1602.0 SWC																														
1630.0 SWC																														
1667.0 SWC																														
1678.0 SWC																														
1703 CUTTS																														
1719.0 SwC																														
1749.5 S'C																														
1754.5 S :																														
1790.0 SwC																														
1813.5 SWC																														

Depth	191 PEROTRILETES MAJUS	192 ERICIPITES SCABRATUS	193 GAMBIERINA RUDATA	194 LILIACIDITES PERORETICULATUS	195 MUROSPORA FLORIDA	196 POLYPOROPOLLENITES POLYVORATUS	197 TRICOLPITES SABULOSUS	198 TRICOLPITES VARIVERRUCATUS	199 NOTHOFAGIDITES SENECTUS	200 TRICOLPITES CONFESSUS	201 NOTHOFAGIDITES ENDURUS	202 PROTEACIDITES PALISADUS	203 PEROTRILETES LINEARIS	204 PHYLLOCLADIDITES VERRUCATUS	205 NEORAISTRICKIA	206 TETRACOLPORITES VERRUCOSUS	207 TRICOLPITES LONGUS	208 TRICOLPORITES APOXYEXINUS	209 TRICOLPORITES LILLIEI	210 TRIPOROPOLLENITES SECTILIS	211 GEPHRAPOLLENITES WAHOOENSIS	212 LYGISTIPOLLENITES BALMEI	213 PERIPOROPOLLENITES POLYORATUS	214 STERIESPORITES REGIUM	215 TETRACOLPORITES RETICULATUS	216 TRICOLPITES DETTMANNIAE	217 TRICOLPITES WAIPAWAENSIS	218 CAMEROZONOSPORITES SP	219 HERKOSPORITES ELLIOTTII	220 NOTHOFAGIDITES BRACHYSPINULOSUS	221 PILOSISPORITES GRANDIS	222 PROTEACIDITES GRANDIS
0373.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	2	.	X
0388.0 SWC	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	X
0429.0 SWC	.	4	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	2	.	.	.	.	.	.	1	.	X
0467.0 SWC	.	2	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	1	.	.	.	.	.	.	X	.	1
0553.5 SWC	.	.	1	.	.	1	.	.	.	X	8	.	.	2	.	X	1	.	X	X	X	1	.	.	.	.	X	.	1	X	?	X
0562.0 SWC	.	.	7	.	X	.	?	.	6	.	.	.	.	.	.	X	5	.	X	.	.	.	.	.	.	.	.	2	.	.	.	.
0569.0 SWC	.	X	2	.	.	.	X	.	3	X	8	X	.	.	.	.	.	X	1	X	1	1	1	X	X	1	1	.	.	.	.	.
0599.0 SWC	.	.	5	.	X	.	.	.	13	X	.	.	.	.	1	X	X	1	2	?	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	X	.	.	.	1	.	.	.	1	.	.	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	X	.	.	.	.	.	X	.	.	.	.	.	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	7	.	1	.	3	.	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	?	.	.	.	X	.	12	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	X	X	.	.	X	7	.	1	2	1	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	1	.	.	.	?	.	9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	1	.	.	X	.	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	1	?	1	X	X	?	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1455.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1520.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1602.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1630.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1667.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1678.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1703 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1719.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1749.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1754.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1790.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1813.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Depth	225 PROTEACIDITES RETICULOCONCAVUS	226 TRIPOROPOLLENITES AMBIGUUS	227 TRIPUNCTISPORIS PUNCTATUS	228 ANACOLOSIDITES ACUTULLUS	229 CYATHIDITES SPP	230 DILWYNITES TUBERCULATUS	231 HALORAGACIDITES HARRISII	232 INTRATRIPOROPOLLENITES NOTABILIS	233 MALVACIPOLLIS SUBTILIS	234 NOTHOFAGIDITES EMARCIDUS	235 NOTHOFAGIDITES FLEMINGII	236 PERIPOROPOLLENITES DEMARCATUS	237 PROTEACIDITES ASPEROPOLUS	238 PROTEACIDITES OBESOLABRUS	239 PROTEACIDITES PACHYPOLUS	240 PROTEACIDITES SCABORATUS	241 PROTEACIDITES TUBERCULIFORMIS	242 TRICOLPORITES ESTOUTUS	243 VERRUCOSISPORITES KOPUKUENSIS	244 MYRTACEIDITES PARVUS	245 NOTHOFAGIDITES DEMINUTUS	246 POLYCOLPITES ESOBALTEUS	247 PROTEACIDITES ANNULARIS	248 PROTEACIDITES LEIGHTONII	249 BEAUPREADITES VERRUCOSUS	250 CAMEROZONOSPORITES LATROBENSIS	251 MALVACIPOLLIS LARGE	252 TRIORITES MAGNIFICUS	253 DIPORITES SP.	254 KUYLISPORITES WATERBOLKII	255 NOTHOFAGIDITES FALCATA	256 PROTEACIDITES HAPUKUI	257 PROTEACIDITES KOPIENSIS	258 SANTALUMIDITES CAINOZOICUS
0373.5 SWC	.	.	X	.	.	.	9	.	1	9	7	5	.	.	X	.	.	X	2	X	X	1	1	.	1	.	1	1	X	2	X	X	X	1
0388.0 SWC	.	.	.	.	.	.	28	.	3	2	.	X	.	.	X	.	.	X	3	.	.	.	X	.	1	1	3	?	.	.	.	.	.	.
0429.0 SWC	.	.	.	.	8	4	11	1	3	1	X	.	1	.	1	.	X	.	1	2	1	X	1	X	.	.	.	.	.	.	.	.	.	.
0467.0 SWC	.	.	X	1	4	1	7	X	8	1	X	X	?	X	X	1	X	X	1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0553.5 SWC	X	X	X	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0562.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0569.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0599.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0612.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0642.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0664.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0689.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0720.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0746.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0812.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0876.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0893.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0970.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1010.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1025 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1080 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1097.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1151.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1177.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1180 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1219.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1250.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1275.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1306 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1316.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1328.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1334.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1336.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1364.5 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1437.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1452 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1455.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1515 CUTTS	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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1575.0 SWC	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
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Appendix 6 Rig Positioning Report

POSITIONING REPORT

FOR

BHP PETROLEUM LTD

RIG MOVE OF THE

DRILLING RIG BYFORD DOLPHIN

LOCATION	**:**	**ERIC THE RED-1**
BLOCK	**:**	**VIC P31**
DATED	**:**	**10th of February - 18th of February, 1993**
REPORT REF	**:**	**2051**

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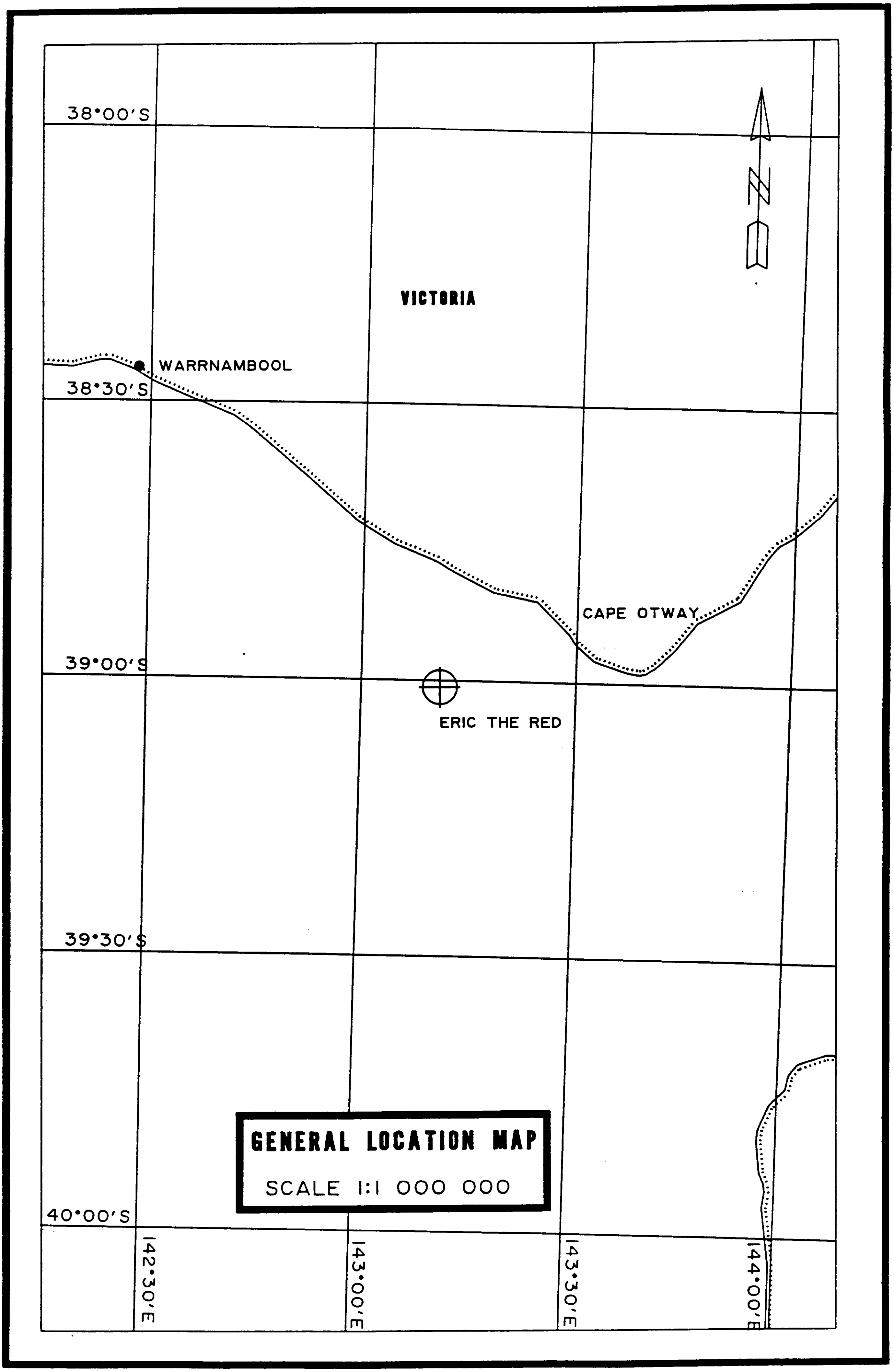


38°00'S
VICTORIA
WARRNAMBOOL
38°30'S
CAPE OTWAY
39°00'S
ERIC THE RED
39°30'S
GENERAL LOCATION MAP
SCALE 1:1 000 000
40°00'S
142°30'E
143°00'E
143°30'E
144°00'E

1. ABSTRACT

This report details the services provided by RACAL SURVEY AUSTRALIA LIMITED (Racal), prior to and during the positioning of the semi-submersible drilling rig "BYFORD DOLPHIN" over the ERIC THE RED-1 location in the Otway Basin, offshore South Australia, for BHP Petroleum Limited (BHPP).

Personnel and equipment mobilised to Portland on the 10th of February, 1993. The BHPP supplied Standby/Survey vessel M.V. "PACIFIC MARLIN" was mobilised with the survey equipment on the 10th of February. On the 11th and 12th of February, a four transponder acoustic net was deployed and calibrated around the ERIC THE RED-1 location. Positioning equipment was set up on the "Byford Dolphin" on the 13th of February, 1993.

The "Byford Dolphin" was positioned over the ERIC THE RED-1 location, on the 16th of February, 1993.

A final Differential GPS position was obtained, after the "Byford Dolphin" had ballasted down to drilling draught, during the evening of the 17th of February, 1993.

Proposed Location

The co-ordinates of the proposed location, ERIC THE RED-1, were provided by BHPP as follows:

Datum AGD 84

Latitude	:	39° 00' 45.40" South
Longitude	:	143° 10' 51.30" East

AMG Zone 54 C.M. 141° E

Easting	:	688 826.0m
Northing	:	5 679 546.0m

Rig Heading	:	230°

Final Differential GPS Position - ERIC THE RED-1

The final DGPS position of the "Byford Dolphin" was derived between 0708 and 0836 hours on the 17th of February, 1993. The final DGPS position was as follows:

Datum AGD 84

Latitude	:	39° 00' 45.44" South
Longitude	:	143° 10' 51.45" East

AMG Zone 54 C.M. 141° E

Easting	:	688 829.7m
Northing	:	5 679 544.8m

Rig Heading	:	225°

The final position is 3.9 metres on a bearing of 106.4° (T) from the intended ERIC THE RED-1 location.

2. REQUIREMENTS

Racal Survey Australia Limited were contracted by BHPP to provide personnel and positioning equipment consisting of a 4 transponder Sonardyne net and interfacing to BHPE's Del Norte 1008 GPS receivers for the rig move of the "Byford Dolphin" onto the ERIC THE RED-1 location. Racal's GNS and Oasis II software were used to provide real-time navigation and acoustic calibration facilities. In addition to the acoustic system, Racal were requested to provide the "SkyFix" Differential GPS as back-up to the Del Norte GPS receivers. Due to technical malfunctions with the Del Norte 1008 differential link, Racal's "SkyFix" system was used as the primary navigation system.

The requirements were as follows:

a. To deploy and calibrate, both in relative and absolute position, a four transponder acoustic array around the ERIC THE RED-1 location.

b. To provide real-time positioning for the semi-submersible drilling rig "Byford Dolphin" during the tow and onto the ERIC THE RED-1 location.

c. To track, using a Golf II Laser system the Anchor Handling Vessels, during anchor deployment operations.

d. To provide a final Differential GPS position of the ERIC THE RED-1 well.

3. SUMMARY OF EVENTS

Racal Survey personnel C. Robinson and K. Eddy departed Perth for Melbourne on the 9th of February, 1993. Racal Engineer, Laurie Etheridge also arrived in Melbourne the same evening. The Racal personnel and the BHPE survey representative, C. Sellers, departed Melbourne for Portland on the 10th of February arriving in Portland at 1000 hours.

Mobilisation of the Standby/Survey Vessel, M.V. "Pacific Marlin", with Racal and BHPE equipment took place on the 10th of February. All Racal equipment was installed and fully operational by 1400 hours. The "Pacific Marlin" departed Portland harbour for the ERIC THE RED-1 site at 1600 hours on the 10th of February, 1993.

The "Pacific Marlin" arrived at the location at 0600 hours on the 11th of February, 1993. A STD-12 velocity profile was completed at 0800 hours. Results are located in Appendix B. Between 0930 and 1039 hours on the 11th of February, 1993, four sonardyne compatts were deployed in the area around the ERIC THE RED-1 location.

Between 1205 and 1730 hours on the 11th of February, 1993, the calibration of the acoustic net was carried out. The sonardyne towfish was recovered at 1730 hours and the "Pacific Marlin" was placed on standby, to resume calibration operations at first light on the 12th of February.

At 0740 hours on the 12th of February, 1993, the sonardyne towfish was re-deployed to continue calibration operations. Calibration operations were completed at 1310 hours and Acoustic/DGPS positioning comparisons were conducted at 1342 hours. The results of the calibration are attached in Appendices C, D and E. At 1417 hours on the 12th of February, 1993, the "Pacific Marlin" departed the ERIC THE RED-1 location for the "Byford Dolphin" at the LA BELLA-1 location. At 1715 hours the "Pacific Marlin" arrived at the LA BELLA location and assumed standby duties for the "Byford Dolphin".

At 0910 hours on the 13th of February, 1993, the "Pacific Marlin" departed the LA BELLA site for Portland. As weather conditions did not facilitate the transfer of personnel to the "Byford Dolphin" it was necessary to transport personnel and equipment to Portland for transfer by helicopter to the rig. The "Pacific Marlin" berthed at Portland harbour at 1600 hours. The equipment and personnel were transferred to Portland airport, and departed for the "Byford Dolphin". The equipment and personnel arrived on board the "Byford Dolphin" at 1810 hours on the 13th of February, 1993.

By 2030 hours on the 13th of February, 1993, the GNS was fully operational and interfaced to the Del Norte GPS receiver. At 0730 hours on the 14th of February, 1993, anchor operations commenced which were completed by 1530 hours on the 15th of February, 1993.

The 5 mile run-in to the ERIC THE RED-1 location commenced at 2130 hours on the 15th of February, 1993. Anchor handling operations commenced at 2240 hours with anchor No. 7 being set on the seabed. Anchor handling operations were completed at 1737 hours on the 16th of February, 1993, with the final anchor No. 9 being set on the bottom. Pre-tensioning operations commenced at 1820 hours. The "Byford Dolphin" moved over the ERIC THE RED-1 location at 2045 hours, and ballasting of the rig commenced at 2045 hours.

Ballasting operations were completed at 0318 hours on the 17th of February, 1993. The DGPS final fix commenced at 0708 hours and was completed at 0834 hours. The Sonardyne compatts were released between 0755 hours and 0827 hours, and retrieved by the "Pacific Marlins" fast standby vessel.

At 1900 hours on the 17th of February, 1993, all personnel departed the rig for Portland, arriving at 2000 hours.

All personnel departed Portland at 0720 hours on the 18th of February, arriving in Melbourne at 0830 hours.

Racal Personnel K. Eddy and C. Robinson departed Melbourne at 0900 hours to arrive in Perth by 1015 (WST) hours.

Nb: All times, except where stated, are Eastern Standard Time (EST).

4. GEODETIC PARAMETERS

The Geodetic parameters used during the project were as follows:

The location co-ordinates and the acoustic positioning systems are defined on Australian Geodetic Datum 84 (AGD 84). It was determined that the difference between AGD 84 and AGD 66 for the ERIC THE RED-1 location was negligible.

The Global Positioning System (G.P.S.) is referenced to World Geodetic System 1984 (WGS 84).

4.1 DATUMS

DATUM	**:**	**AGD 1984**
Spheroid	:	Australian National
Semi-major Axis (a)	:	6 378 160.000m
Semi-minor Axis (b)	:	6 356 774.719m
Eccentricity Squared (e^2)	:	0.006 694 542
Flattening (1/f)	:	298.25

DATUM	**:**	**WGS-84**
Spheroid	:	WGS-84
Semi-major Axis (a)	:	6 378 137.0000m
Semi-minor Axis (b)	:	6 356 752.3142
Eccentricity Squared (e^2)	:	0.006 694 380
Flattening (1/f)	:	298.257 223 563

4.2 PROJECTION : U.T.M.

AMG Zone	:	54°
Central Meridian (C.M.)	:	141° East
Scale factor on the C.M.:	:	0.9996
False Easting	:	500 000m
False Northing	:	10 000 000m
Latitude of Origin	:	0° (Equator)
Unit of Measure	:	International Metre

4.3 DATUM TRANSFORMATION PARAMETERS

The datum transformation parameters used in Racal software to convert WGS 84 co-ordinates to AGD 84 co-ordinates were as follows:

GNS Version R2.06A and R2.06D(PC) Oasis II Version 1.7C.

Dx	=	+	116.00m
Dy	=	+	50.47m
Dz	=	-	141.69m
Rx	=	+	0.230"
Ry	=	+	0.390"
Rz	=	+	0.344"
Scale(k)	=	-	0.0983

4.4 GEOID/SPHEROID SEPARATION

The computed Geoid/Spheroid separation value (N) at the ERIC THE RED-1 location is -1.77m. This value was computed using the Ohio State University OSU91A Geoid Interpretation Program.

5. GLOBAL POSITION SYSTEM (GPS)

5.1 SYSTEM DESCRIPTION

The NAVSTAR GPS (Navigational Satellite Timing and Ranging Global Positioning System) is an USA Military all weather, space based positioning system that transmits signals from a constellation of satellites orbiting the Earth. It is capable of providing suitably equipped users worldwide with accurate three dimensional positions on or near the Earth's surface. The accuracy of the determined positions can vary from a few millimetres to 100 metres depending on the method of data acquistion and processing. System design consists of three integrated parts: the Ground Control Segment, the Space Segment and the User Segment. The Space Segment is still in the process of being installed and as such is not completely operational.

When completed, the operational space segment will consist of 21 production satellites and 3 active spares; the term Space Vehicle (SV) is used as a synonym for satellite. The satellites will be in high orbits, at approximately 20,200km, having an orbit period of 12 hours. They will be arranged in 6 orbital planes, inclined at 55 degrees with near circular orbits.

The final configuration will provide complete 4 satellite (3D) coverage worldwide. With the present launch schedule, 24 hour 3 dimensional coverage will not be available until late 1993.

The current configuration consists of both Block I (testing) and Block II satellites orbiting and transmitting healthy data. The Block I's are SV's 3, 11, 12, and 13. The current Block II satellites are SV's 2, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28 and 32. The amount of coverage that the satellite configuration provides, depends upon the geographical position of the user.

It should be noted that available coverage does not represent actual usable working periods, as the satellites will at times combine to produce poor geometry and therefore poor positioning. This can happen for short periods during the middle of multi-satellite coverage and is a result of the limited satellite constellations presently available. It is essential to ascertain the periods of good coverage prior to commencing any project involving GPS. Predicted satellite availability printouts are contained in Appendix J.

Individual satellites can be set 'unhealthy' from time to time whilst they are manoeuvred into new orbital planes or due to other operational circumstances which are usually predicted. The status of GPS and individual satellites can be obtained from one of the USA based GPS Bulletin Board Services. Prior to a project commencing Racal Australia download by modem the current status and almanac file, usually from the US Coast Guard Bulletin Board. In addition the Racal Survey Ltd office in Great Yarmouth, England monitor the GPS status daily and fax to all Racal operating companies any Notice Advisory to NAVSTAR Users (NANU's) that may affect the operational capabilities of the system.

5.2 OBSERVATIONS

There are two important types of GPS observations (observables):

Pseudorange and Carrier phase.

Carrier phase is sometimes also referred to as carrier beat phase. Pseudorange techniques are generally used for navigation e.g. Deltanav. In high-precision baseline surveying the carrier phase is used. Although the (undifferenced) phase can be used directly, it has become common practice, at least in surveying applications, to process certain linear combinations of the original carrier phase observations (double differences and triple differences).

5.2.1 Pseudoranges

The pseudorange is a measure of the distance between the satellite and the receiver at the epochs of transmission and reception of the signals. The transit time of the signals is measured by comparing (correlating) identical pseudo-random noise (PRN) codes generated by the satellite and by the receiver. A code-tracking loop within the receiver shifts the internal replica of the PRN code in time until maximum correlation occurs. The codes generated at the receiver are derived from the receiver's own clock, and the codes of the satellite transmissions are generated by the satellite system of clocks. It follows that unavoidable timing errors in both the satellite and the receiver clock will cause the measured quantity (pseudorange) to differ from the geometric distance.

In applications offshore where instantaneous positions are required, the pseudorange is the preferred observable. Given the satellite ephemeris (i.e. the position of the satellite at the epoch of transmission), there are seven unknowns: two clock errors, three receiver co-ordinates and the ionospheric and tropospheric delays. The effect of the satellite clock error is negligible for the typical navigation solution, particularly considering that the time errors are indistinguishable from the ionospheric and tropospheric delays. The satellite clocks are constantly monitored and synchronized with GPS time as maintained by the control centre. Actual offsets of the satellite clocks are approximated by polynomials in time and transmitted as part of the navigation message to the user for the correction of the measured pseudoranges. The ionospheric and tropospheric delays can be computed on the basis of ionospheric and tropospheric models, thus there are four unknowns left X, Y, Z and receiver clock error. These can be determined from four pseudoranges measured simultaneously to four GPS satellites.

5.2.2 Carrier Phase

The phase observable is the difference between the phase of the carrier signal of the satellite, measured at the receiver, and the phase of the local oscillator within the receiver at the epoch of measurement. This can be regarded as a biased range measurement of the satellite-receiver distance with the integer number of carrier waves being unknown. The wavelength of the L1 carrier is about 19cm. Because of the fraction of the carrier phase is measured, the term "interferometry" is often used to describe carrier phase techniques.

5.3 DIFFERENTIAL GPS (DGPS)

As the GPS is primarily a USA Defence system it can be expected that the navigation accuracy to the civil user will be degraded to about 100 metres standard deviation (Standard Position Service -SPS) as specified in the USA 1990 Federal Radio Navigation Plan. The means by which the USA Military degrade GPS is with the use of Selective Availability (SA) to control the accuracy of pseudorange measurements. Essentially, the user is given a false pseudorange for each satellite so that the resulting measurement is in error by a controlled amount.

DGPS is a means by which the civil user can overcome Selective Availability. It requires a receiver be located at a precisely known point from which pseudorange corrections for each satellite can be determined and monitored. These pseudorange corrections are then communicated by means of a telecommunications link to users at unknown locations. The DGPS technique has proven to be particularly effective and can improve the accuracy figure to 5 metres or better with or without Selective Availability activated. In the relative mode most of the important systematic errors common to the known station and at the unknown location cancel out to improve the accuracy of the computed position.

5.4 "SKYFIX" DIFFERENTIAL LINK

Racal Survey Australia Limited introduced its "SkyFix" Differential GPS System in Australia in January 1991, using the Inmarsat Pacific and Indian Ocean marine communications satellites as the differential data broadcast link. Extensive performance trials and projects undertaken to date have shown "SkyFix" to meet the best industry expectations in terms of quality of service and accuracy.

The system embodies the successful combination of data capacity, range and coverage with a flexible networked approach that lends itself to comprehensive performance and quality monitoring.

The link capacity of 1200 bits per second allows data from a number of networked reference stations to be sent simultaneously without introducing unacceptable delays between reference station and user. With four reference stations each generating correction data for ranges from eight satellites, an update rate of better than three seconds is achieved by the "SkyFix" system.

Satellite communications systems, particularly at the Inmarsat L-band frequencies of 1.5 GHz are reliable and free of the interference associated with the crowded M.F./H.F. bands. This high data integrity gives users confidence that the corrections will be continuously received without interference.

The "SkyFix" Australian network commenced operation in January 1991, and now comprises reference stations at Dampier, Broome, Perth, Adelaide, Sydney, Cairns and Darwin.

The differential corrections generated at each reference station are brought via landline links to the data hub and control centre in Singapore where the system is monitored for performance and quality. From there a composite message containing full RTCM 104 version 2 formatted data from all reference stations is sent via dual redundant links to satellite earth stations at Sentosa Island, Singapore and O.T.C. Perth, Western Australia for uplink and broadcast over the Inmarsat Pacific and Indian Ocean Region satellites.

The design of reference station networks provides a high quality service to major offshore hydrocarbons prospect areas, each of which, ideally will be within coverage of more than one reference station.

The system is easily expandable to provide new areas of coverage by the addition of further networked reference stations, with the correction data from these automatically included in the system performance and quality control function at the control centres.

Whilst the DGPS service provider has no control over the operation of the GPS system itself, performance can be monitored, quantified and reported to users. The functions of the "SkyFix" data hub and control centre in Singapore are of fundamental importance as its role is to guarantee the best possible system performance.

The "SkyFix" system includes a 24 hour monitoring facility to ensure the validity of data received at the control centre from the DGPS reference stations and that the same data is received over the "SkyFix" satellite data link.

The monitor system that has been developed by Racal Survey is designed to provide maximum system performance information availability whilst providing a rapid indication of performance or fault problems should they occur.

Monitoring and control functions therefore include extensive analysis and archiving of the reference corrections and the comparison of range rate corrections - arriving from different stations within the network. The system also receives the broadcast message from the satellite data link and applies this data to a monitor receiver at the control centre to verify positioning performance. Time series plots of this performance, in latitude, longitude, height, together with PDOP and HDOP figures are generated.

Monitoring the data on the link in this way also allows link performance to be appraised in terms of message success rate and in terms of overall system message delay.

Other functions include satellite status information, data recording, and a procedural approach to providing client information.

The "SkyFix" combination of the Inmarsat satellite communications links using the RTCM 104 Version 2 DGPS data protocol, the reference station, monitoring and user infrastructure has been shown through a growing body of project trials experience to provide a Differentially GPS operating environment consistently capable or providing position accuracies of 5 metres or better.

The "SkyFix" scheme is a homogeneous network within the WGS 84 geodetic reference frame. The original network, prior to the Australian extension included ten primary triangulation stations for which the WGS 84 values were supplied. The vectors established during this build up create a network between the Far East, Australia and Europe. Purely for the purposes of testing the strength and internal consistency the network has been subjected to a least squares adjustment by variation of co-ordinates. In the final analysis two of the primary triangulation stations, Dongara 38 (W.A.) and Matera (Italy), were held fixed. The residual errors pertaining to the remaining eight primaries are listed below. For all stations included in the final analysis the mean semi-major axis of the twenty-nine 95% error ellipsoids is just over 0.6 metres. The total variation about this mean is contained within plus or minus 0.6 metres.

STATION	LATITUDE	LONGITUDE	HEIGHT	MISCLOSURE
Port Stanley (Hong Kong)	0.53m	- 1.56m	- 0.53m	1.73m
TC 58 (Abu Dhabi)	0.76m	- 0.97m	0.83m	1.49m
Station Hill(Broome W.A)	0.35m	0.50m	- 1.23m	1.95m
Gnangara (Perth W.A.)	1.04m	1.00m	- 1.82m	2.32m
Bologna (Italy)	- 0.14m	0.02m	0.39m	0.41m
Brimmond Hill (Scotland)	- 2.85m	0.32m	1.16m	3.09m
Dunnet Head (Scotland)	- 1.59m	1.50m	0.81m	2.04m
Tromso (Norway)	- 1.11m	2.25m	- 0.81m	2.64m

For the Australian extension to the network, two primary geodetic points were used at each site, together with the transportable laser ranging site, Gnangara 73 in Perth. Trimble 4000 SST geodetic receivers were used to simultaneously obtain phase data which was then post processed to derive the vectors between sites. The vector results were entered into "Geolab" 3D adjustment software, to obtain adjusted values for the reference stations.

5.5 Trimble 4000DL GPS Receiver

The Trimble 4000DL GPS receiver is designed for moderate precision static and dynamic positioning applications. The GPS receiver provides time and three-dimensional station co-ordinates at a once-per-second update rate.

The receiver receives the civilian coded signal (C/A) from the GPS NAVSTAR satellites. The receiver automatically acquires and simultaneously tracks GPS satellites and precisely measures carrier and code phase and computes position and velocity.

Latitude, longitude and height values are output on the World Geodetic System (WGS 84) Earth-centred, Earth-fixed co-ordinate system.

The receiver is designed to measure the following observables:

- Coarse/Acquisition (C/A) code pseudoranges
- Rate of change of pseudorange
- Integrated Carrier

C/A code correlation techniques measure the propagation time of the signal from the satellite to the antenna. Latitude, longitude, height and time can be determined from measurements made from at least 4 satellites, by a process similar to triangulation.

To determine speed and heading, the receiver calculates the rate of change of Range (the range-rate) by measuring the Doppler shift of the carrier.

It is capable of receiving and processing differential corrections from other reference sources using the standard format of the Radio.Technical Commission for Maritime Services, Special Committee 104 (RTCM SC-104), Version 1.0 or 2.0 protocols.

The 4000DL has several options available, including internal data logging memory, event marker logging etc. and therefore may be used alone or as part of a more extensive navigation system.

5.6 DGPS OPERATION

During the acoustic net deployment and calibration the DGPS was operated using Trimble's DeltaNavN (DNAVN) 2.70 software in conjunction with a Toshiba T5200/100 computer. DNAVN controlled the Trimble GPS receiver and applied the RTCM 104 Version 2 differential corrections received from the "SkyFix" system to the observed GPS data. The computed DGPS position in WGS 84 was then output to the navigation computer and converted to AGD 84.

6. ACOUSTIC POSITIONING SYSTEM

6.1 SYSTEM DESCRIPTION

Sonardyne high precision acoustic technology incorporates COMPATT (Computing and Telemetering Transponder) and PAN (Programmable Acoustic Navigator). The system is available in low, medium and high frequency versions. This allows selection of the optimum frequency band to suit each requirement. Medium frequency equipment was used during rig move operations.

The microprocessor-controlled intelligent COMPATT makes direct measurements on the seabed to other Sonardyne transponders, and transmits this baseline data back to a ship or submersible via fast acoustic telemetry in order to calculate the relative position of each transponder.

In its interrogator mode the COMPATT will measure ranges to 8 individual transponders with just one single interrogation. This speeds up 'mobile' COMPATT operations such as ROV tracking and pipelaying.

The reply frequency of the COMPATT is selectable from 15 channels by acoustic command. This feature reduces the need for a large transponder stock and increases immunity to 'rogue' frequencies.

Other commands instruct sensors to measure parameters such as water temperature and pressure, and at the end of the mission another command will effect recovery. An automatic 'self-test' facility can be performed without opening the transponder.

The medium frequency version gives the optimum combination of 3km ranges and 20cm accuracy. This suits most sub-sea engineering operations including rig moves, pipelaying, jacket emplacement and ROV positioning.

6.2 ACOUSTIC VELOCITY PROFILE

An Applied Microsystems STD-12 acoustic velocity probe was used to determine the acoustic velocity of the water column at the ERIC THE RED-1 location on the 11th of February, 1993. The probe was deployed over the stern of the "Pacific Marlin". Readings of the temperature and conductivity were recorded against pressure (depth) at 1 metre intervals as it was lowered to and then raised from the seabed.

The probe recorded a maximum depth of 77.80 metres.

A mean velocity of 1513.2 m/sec for the entire water column was obtained using the Chen and Milleros formula.

For the acoustic net calibration the following values from the observed profile were entered into the Oasis II software:

Depth	VP(ms^{-1})
0.61	1517.8
4.97	1518.0
10.86	1518.1
15.43	1518.1
20.16	1518.2
25.68	1518.3
30.59	1517.7
35.41	1516.0
39.96	1512.8
44.91	1509.3
50.16	1509.1
55.01	1508.4
59.71	1507.9
65.42	1507.8
70.40	1507.8
74.68	1507.9
77.80	1508.0

6.3 TRANSPONDER DEPLOYMENT AND CALIBRATION

Sonardyne acoustic transponders were deployed and calibrated from the M.V. "Pacific Marlin" on the 11th and 12th of February, 1993.

The transponders were deployed in a quadrilateral, approximately 700-900 metres from the intended location. Drop positions and telemetered depths were used as the basis of subsequent relative and absolute calibrations.

As a check on the relative/absolute calibration of the Compatts, a 'Box-In' calibration was carried out on all of the Compatts.

The M.V. "Pacific Marlin" steamed in a clover-leaf configuration throughout the array, logging acoustic ranges to each transponder as well as the surface differential GPS. This recorded data enabled relative (to each other) and absolute calibrations to be computed. For this project both Racal's SkyFix DGPS and BHPE's Del Norte 1008 DGPS were used during the calibrations. The actual positions for the compatts were derived from the SkyFix DGPS system.

The 'Box-In' calibration (where the co-ordinates of only one Compatt are derived) is carried out by steaming a circle of radius 2.5 times the water depth, in each direction, again recording simultaneous surface and acoustic data.

The results of the Relative calibration were as follows:

Relative Calibration

12th of February, 1993

Transponder		X(m)	Y(m)	Depth(m)	Mean Range Residual(m)	S.D. (m)
1	503	0.00	0.00	71.81	-0.01	0.56
2	1106	1003.89	0.00	69.78	-0.01	0.58
3	1109	1052.74	-1070.17	72.37	0.02	0.60
4	1010	3.00	-963.99	72.24	-0.00	0.53

Total solution standard error: 0.47 metres.

The result of the Absolute calibration was as follows:

Absolute Calibration

12th of February, 1993
Datum AGD 84 AMG Zone 54 C.M. 141° East
SkyFix DNAVN for Primary Positioning

Transponder		Easting (m)	Northing (m)	Depth (m)
1	503	688 392.52	5 680 081.17	71.81
2	1106	689 393.49	5 680 004.65	69.78
3	1109	689 360.63	5 678 933.87	72.37
4	1010	688 322.04	5 679 119.75	72.24

Standard error of dx mean residual	=	2.90m
Standard error of dy mean residual	=	3.12m
Total solution standard error	=	4.28m

6.4 'BOX-IN' CALIBRATIONS

A check on the Absolute calibration was carried out by 'Box-In' calibrations, of each transponder.

11th of February, 1993
Datum AGD 84 AMG Zone 54 C.M 141° East
Del Norte 1008 for Primary Positioning

Tp	Code	Easting(m)	Northing(m)	RMS
4	1010	688 324.28	5 679 118.32	2.9
		dE -2.24	dN +1.43	
2	1106	689 396.93	5 680 002.14	3.0
		dE -3.44	dN+ 2.51	

12th of February, 1993
Datum AGD 84 AMG Zone 54 C.M. 141° East
SkyFix DGPS for Primary Position

Tp	Code	Easting(m)	Northing(m)	RMS
3	1010	689 360.33	5 678 935.55	2.0
		dE +0.30	dN -1.68	
1	503	688 393.80	5 680 082.12	2.0
		dE -1.28	dN -0.95	

6.5 SEABED CALIBRATION

A seabed calibration was carried out on the 11th of February, 1993, as a check of the Del Norte Absolute/Relative calibrations. TP4 and TP2, coordinated by a Box-in Calibration utilising the Del Norte System, were fixed in the calculation.

Acoustic Net Positions After Seabed Calibration

Transponder	Easting (m)	Northing (m)	Depth (m)
1	5.08	-0.42	65.00
2	1009.03	0.00	70.00
3	1058.54	-1070.65	71.20
4	8.28	-964.48	72.00

Box-in Postitions for Grid on Grid:

No	Easting (m)	Northing (m)
2	689 396.93	5 680 002.14
4	688 324.28	5 679 118.32

Movements Required for Boxed in Transponders:

No	Easting (m)	dEast (m)	Northing (m)	dNorth (m)
2	689 396.93	-0.00	5 680 002.14	-0.00
4	688 324.28	0.00	5 679 118.32	0.00

Solution Standard Error : 0.00

Grid on Grid Transponder Positions:

No	Easting	Northing
1	688 395.98	5 680 079.71
2	689 396.93	5 680 002.14
3	689 363.12	5 678 930.89
4	688 324.28	5 679 118.32

6.6 SUMMARY OF TRANSPONDER POSITIONS

TP1/503		Easting (m)	Northing (m)
1	Seabed/GG	688 395.98	5 680 079.71
2	Del Norte ABS	688 390.79	5 680 078.10
3	DnavN ABS	688 392.52	5 680 081.17
4	DnavN Box-in	688 393.80	5 680 082.12
		Mean 93.27	Mean 80.28
		S.D. 2.19	S.D. 1.76
		Range 5.19	Range 4.02

TP2/1106		Easting (m)	Northing (m)
1	Box-In Del Norte	689 396.93	5 680 002.14
2	Del Norte ABS	689 391.45	5 680 005.99
3	DnavN ABS	689 393.49	5 680 004.65
		Mean 93.96	Mean 4.26
		S.D. 2.77	S.D. 1.95
		Range 5.48	Range 3.85

TP3/1109		Easting (m)	Northing (m)
1	Seabed/GG	689 363.12	5 678 930.89
2	Del Norte ABS	689 363.01	5 678 935.31
3	DnavN Box-In	689 360.33	5 678 935.55
4	DnavN ABS	689 360.63	5 678 933.87
		Mean 61.77	Mean 33.91
		S.D. 1.50	S.D. 2.14
		Range 2.79	Range 4.66

TP4/1010		Easting (m)	Northing (m)
1	Box-In Del Norte	688 324.28	5 679 118.32
2	Del Norte ABS	688 323.81	5 679 117.14
3	DnavN ABS	688 322.04	5 679 119.75
		Mean 23.38	Mean 18.4
		S.D. 1.18	S.D. 1.31
		Range 2.24	Range 2.61

NB
(1) Underlined co-ordinates are those used in rig move setup.
(2) Seabed/GG : - seabed calibration using TP4 and TP2 fixed from box-in's.
(3) DNAVN ABS : - Absolute calibration utilising DNAVN as the positioning system.
(4) DelNorte ABS : - Absolute calibration utilising Del Norte as the Positioning system.
(5) Box-In : - Box-in calibration using DNAV or Del Norte

6.7 FINAL TRANSPONDER CO-ORDINATES

The final set of co-ordinates used during the ERIC THE RED-1 project were as follows:

Datum AGD 84
AMG Zone 54 C.M. 141° East

Transponder		Easting (m)	Northing (m)	Depth (m)
1	503	688 392.52	5 680 081.17	65.0
2	1106	689 393.49	5 680 004.65	70.0
3	1109	689 360.63	5 678 933.87	71.2
4	1010	688 322.04	5 679 119.75	72.0

7. FINAL DRILLSTEM POSITION

7.1 FINAL DIFFERENTIAL GPS POSITION - ERIC THE RED-1

The "Byford Dolphin" was positioned over the ERIC THE RED-1 location on the 16th of February, 1993.

A final position of the "Byford Dolphin" was determined using Racal's "SkyFix" Differential GPS between 0708 and 0834 on the 17th of February, 1993. A total of 455 samples from 10 constellations were observed.

CONSTELLATION	SAMPLES	SATELLITES
A	4	26, 15, 02, 13
B	6	26, 15, 02, 27, 13
C	18	26, 15, 02, 13
D	196	26, 15, 02, 27, 13
E	35	26, 02, 27, 13
F	9	26, 12, 02, 27, 13
G	7	26, 02, 27, 13
H	136	26, 12, 02, 27, 13
I	5	26, 12, 24, 02, 27, 13
J	39	26, 12, 24, 02, 13

Total number of samples used = 455.

The computed Antenna position, with constellations given equal weights, was as follows:

Datum WGS 84

Latitude	:	39° 00' 40.586" South	(s.d. 0.43m)
Longitude	:	143° 10' 55.046" East	(s.d 0.50m)
Spheroidal Height	:	22.45m	(s.d. 1.18m)

Transforming the above WGS 84 co-ordinates to AGD 84 using the parameters in section 4, gives the following co-ordinates:

Datum AGD 84

Latitude	:	39° 00' 45.904" South
Longitude	:	143° 10' 50.093" East
Spheroidal Height	:	39.63m

Applying the antenna to datum offsets to the above co-ordinates gives the following drillstem position, over the ERIC THE RED-1 location.

Datum AGD 84

Latitude	:	39° 00' 45.439" South
Longitude	:	143° 10' 51.451" East

AMG Zone 54 C.M. 141° East

Easting	:	688 829.73m
Northing	:	5 679 544.81m
Rig Heading	:	224.8°

This position is 3.92 metres on a bearing of 106.37° True from the intended ERIC THE RED-1 location.

8. PERSONNEL AND EQUIPMENT

8.1 PERSONNEL

The following personnel were employed on this project:

For : Racal Survey (Australia)

K. Eddy	-	Surveyor
L. Etheridge	-	Navigation/Acoustic Engineer
C. Robinson	-	Surveyor

For : BHPP Limited

C. Sellers	-	Client Representative

8.2 EQUIPMENT

The following equipment was supplied for use on this project:

1 x Trimble 4000DL GPS Receiver, Cable and Antenna

1 x "SkyFix" Demodulator

1 x "SkyFix" Rig Portable

1 x Toshiba T5200/100 Computer (for DNAV-N)

2 x Sonardyne Pan Units

5 x Sonardyne Compatt Transponders

1 x Sonardyne Tow Fish

1 x Sonardyne Deck Winch

1 x Sonardyne Dunking Transducer

2 x HP 9000/320 Series Desktop Computers

1 x HP 9122D Dual Disk Drive

1 x HP 9122C Dual Disk Drive

2 x HP 35731B VDU's

2 x Barco Monitors

1 x HP Quietjet Plus Printer

1 x HP Thinkjet Printer

1 x HP 2673A Thermal Printer

2 x Toshiba T5200/100 Computers (for GNS PC Software)

2 x VGA Monitors

1 x STD-12 Velocity Probe

2 x Arma Brown Gyro Compasses

3 x Interface 80 Units

1 x Star LC-20 Printer

1 x Toshiba 1200 Computer (Velocity Probe)

2 x AC Voltage Stabilisers

1 x Golf Laser

plus all associated software (GNS Ver R2.06A, GNS Ver R2.06D PC, OASIS II Ver 1.7C), cables, manuals, etc.

9. DISTRIBUTION

Copies of this report have been distributed as follows:

BHP Engineering - Wollongong Attn: Mr. S. Dykes	: 1 copy
BHP Petroleum - Melbourne Attn: Mr. R. Willmore	: 2 copies
Racal Survey - Perth	: 1 copy

pp

Ken Eddy
Surveyor

Gareth Jones
Area Surveyor

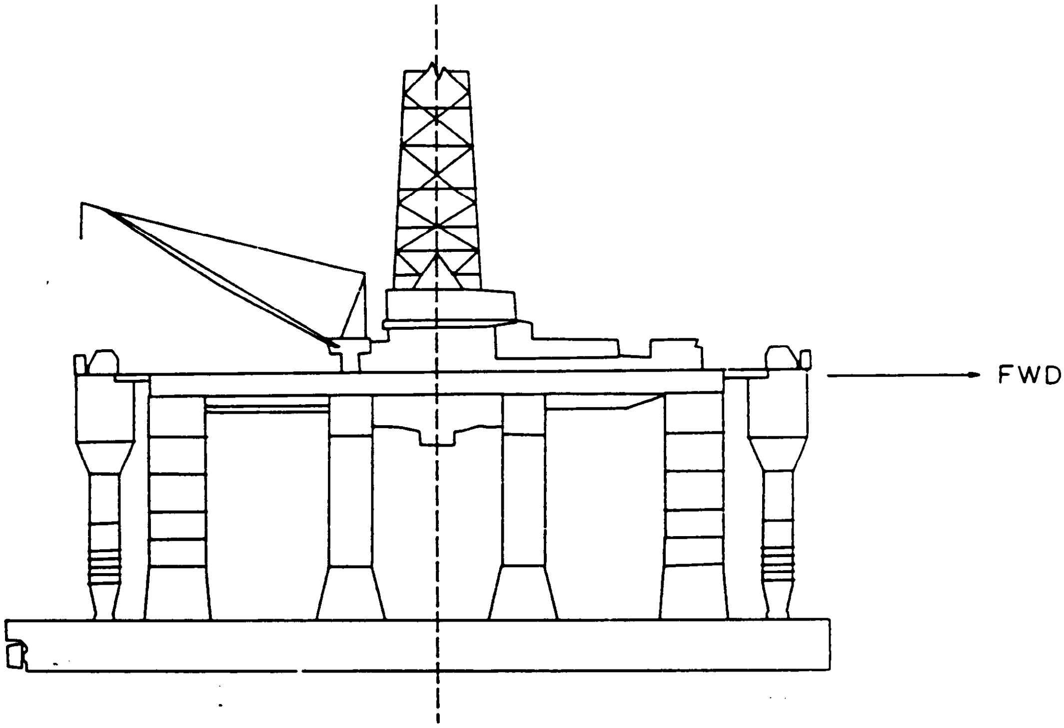
APPENDIX A

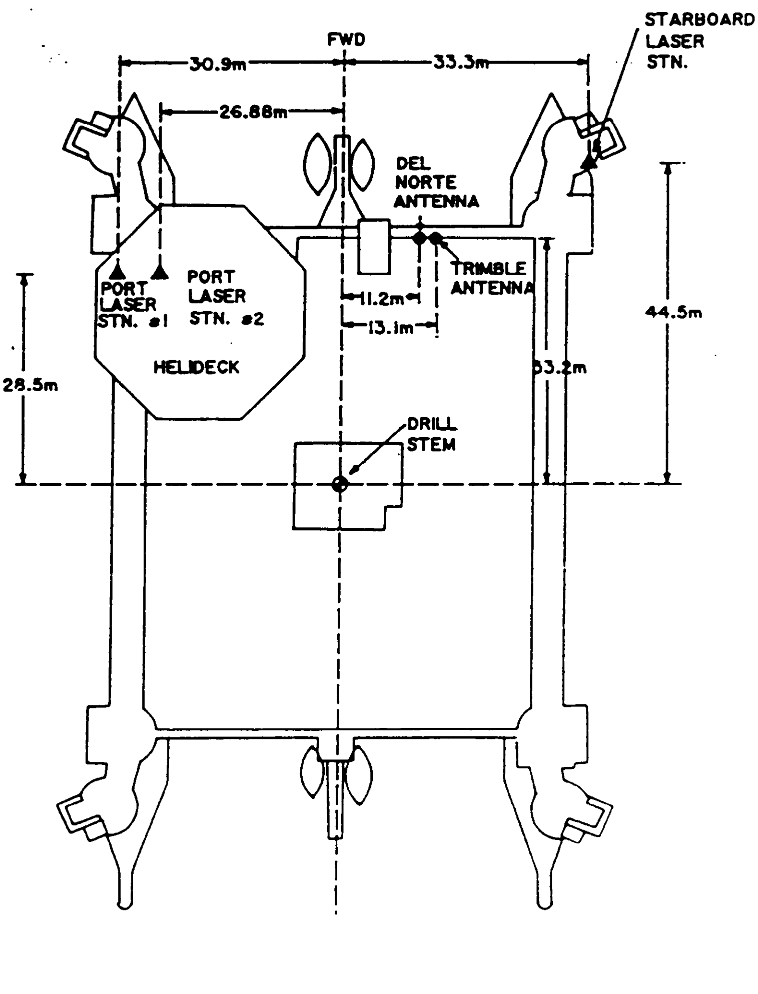
OFFSET DIAGRAMS - BYFORD DOLPHIN AND PACIFIC MARLIN

OFFSET DIAGRAM APPENDIX A

BYFORD DOLPHIN

(NOT TO SCALE)

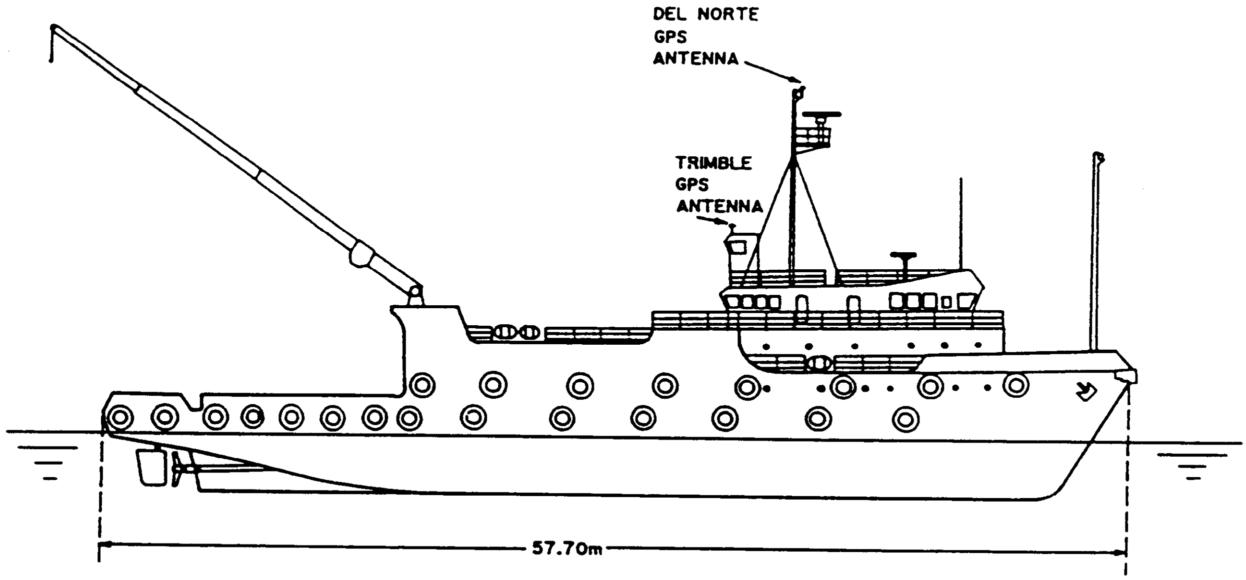


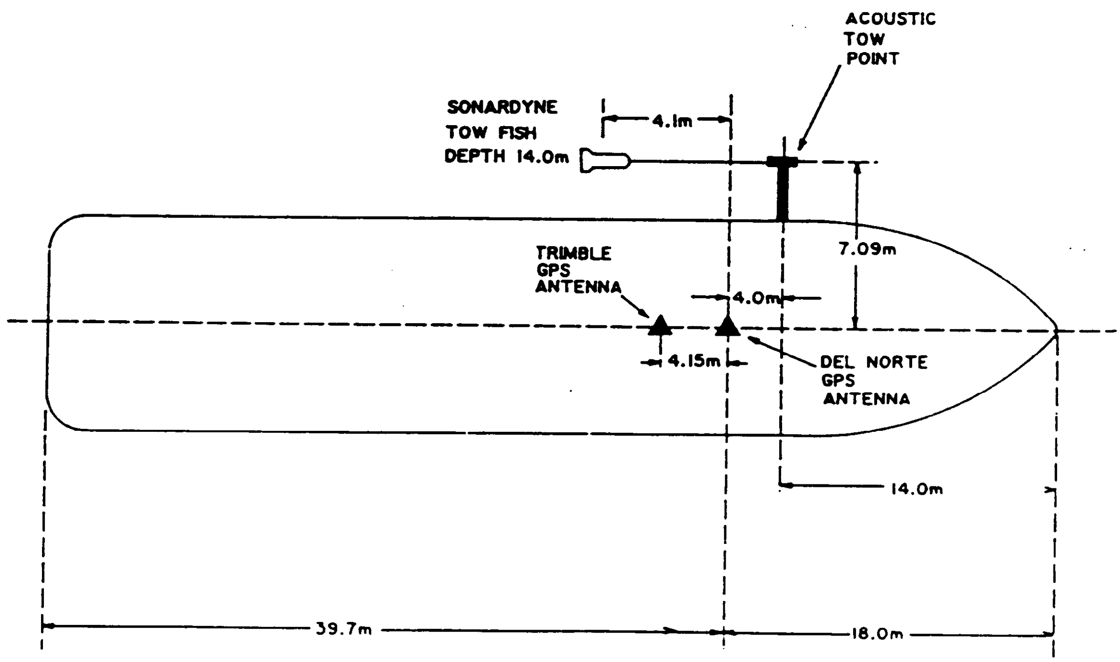


OFFSET DIAGRAM

PACIFIC MARLIN

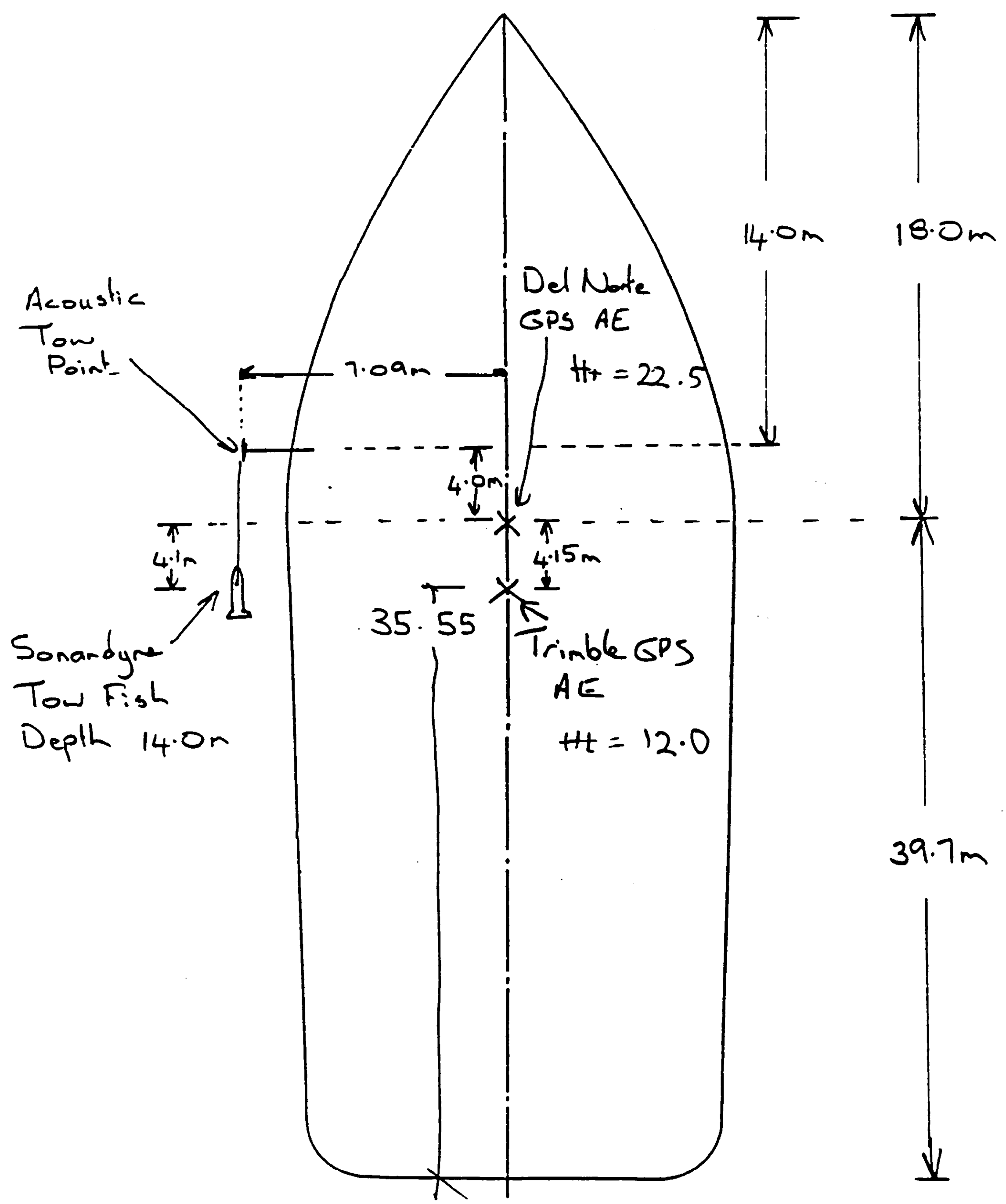
(NOT TO SCALE)





M.V. PACIFIC MARLIN.

NOT TO SCALE!



APPENDIX B

VELOCITY PROFILE PRINTOUT

DHP
BYFORD DOLPHIN R/M
ERIC THE RED-1

Configuration File for APPLIED MICROSYSTEMS LTD. STD [illegible]
SOFT-12.STD version 2.35

You have specified a CGA compatible monitor.

The communication parameters are 2400 baud, COM1:.

The REAL TIME DISPLAY SAMPLE RATE is set at 1 sample every 5 sec.

There is a PRESSURE sensor.

PRESSURE will be displayed in decibars.

There is a CONDUCTIVITY sensor.

There is a TEMPERATURE sensor.

There is no DISSOLVED OXYGEN sensor.

DISSOLVED OXYGEN display units not applicable.

There is no PH sensor.

There is no TRANSMISSOMETER.

There is no REDOX sensor.

Water density will be displayed as Specific Gravity.

Data log time increment is one scan every 60 seconds.

Data log depth increment is one scan every 100 cm.

Sound velocity calculated using Chen & Milleros formula.

Sensor Coefficients

	A	B	C	D
Pressure	-6.086856E+02	2.999532E-02	1.225578E-08	[illegible]
Temperature	4.104309E+01	-1.478494E-03	1.817922E-08	[illegible]
Conductivity	-1.588024E+00	7.944621E-05	1.000000E-0[illegible]	[illegible]

STD-12 DATA PRINTOUT FACILITY File name - eric.rel
Created - 02-11-1993

Time sec.	Temp °C	Depth m.	Cond mS/cm	Salin ppt	Sp Grav	Snd Vel m/s
52[illegible]	18.571	0.61	46.89	35.35	1.025400	1517.8
51	18.572	1.62	46.93	35.38	1.025400	1517.9
533	18.569	2.68	46.93	35.38	1.025400	1517.9
537	18.570	3.96	46.93	35.38	1.025400	1517.9
538	18.573	4.97	46.94	35.39	1.025400	1518.0
539	18.571	6.01	46.93	35.38	1.025400	1518.0
542	18.572	7.20	46.94	35.39	1.025400	1518.0
543	18.575	8.54	46.95	35.39	1.025400	1518.0
545	18.575	9.79	46.94	35.39	1.025400	1518.0
546	18.575	10.86	46.95	35.39	1.025400	1518.1
549	18.572	12.11	46.95	35.39	1.025400	1518.1
550	18.575	13.23	46.95	35.39	1.025400	1518.1
554	18.577	14.24	46.95	35.39	1.025400	1518.1
560	18.578	15.43	46.95	35.39	1.025400	1518.1
561	18.577	16.56	46.95	35.39	1.025400	1518.2
562	18.575	17.90	46.96	35.40	1.025400	1518.2
564	18.575	19.03	46.96	35.39	1.025400	1518.2
566	18.577	20.16	46.96	35.40	1.025400	1518.2
567	18.575	21.17	46.95	35.39	1.025400	1518.2
569	18.575	22.20	46.96	35.39	1.025400	1518.3
571	18.574	23.58	46.96	35.39	1.025400	1518.3
571	18.574	24.67	46.95	35.39	1.025400	1518.3
572	18.573	25.68	46.96	35.39	1.025400	1518.3
574	18.508	26.75	46.80	35.32	1.025400	1518.1
576	18.379	27.91	46.74	35.38	1.025500	1517.8
577	18.354	29.19	46.72	35.38	1.025500	1517.7
57	18.334	30.59	46.69	35.38	1.025500	1517.7
57[illegible]	18.276	32.03	46.53	35.28	1.025400	1517.4
580	18.117	33.06	46.44	35.34	1.025500	1517.1
581	17.889	34.41	46.13	35.28	1.025500	1516.3
582	17.759	35.41	46.05	35.32	1.025600	1516.0
583	17.582	36.67	45.84	35.29	1.025600	1515.5
583	17.479	37.76	45.57	35.15	1.025500	1515.0
584	17.004	38.89	45.23	35.27	1.025700	1513.8
586	16.690	39.96	44.83	35.19	1.025700	1512.8
587	16.102	41.21	44.27	35.21	1.025900	1511.0
588	15.718	42.49	43.97	35.29	1.026000	1509.9
589	15.522	43.87	43.84	35.35	1.026100	1509.4
589	15.465	44.91	43.79	35.35	1.026100	1509.3
590	15.414	46.25	43.76	35.37	1.026200	1509.2
591	15.399	47.65	43.76	35.38	1.026200	1509.1
592	15.393	49.09	43.74	35.37	1.026200	1509.1
593	15.384	50.16	43.74	35.38	1.026200	1509.1
594	15.381	51.19	43.74	35.38	1.026200	1509.2
595	15.360	52.42	43.61	35.28	1.026100	1509.0
595	15.181	53.88	43.51	35.35	1.026200	1508.5

STD-12 DATA PRINTOUT FACILITY File name - eric.rel
Created - 02-11-1993

Tim st.	Temp °C	Depth m.	Cond mS/cm	Salin ppt	Sp Grav	Snd Vel m/s
597	15.119	55.01	43.47	35.37	1.026200	1508.4
599	15.103	56.23	43.37	35.29	1.026200	1508.3
601	14.959	57.30	43.31	35.37	1.026300	1507.9
604	14.963	58.49	43.31	35.37	1.026300	1507.9
605	14.948	59.71	43.30	35.37	1.026300	1507.9
607	14.937	61.09	43.30	35.37	1.026300	1507.9
608	14.932	62.16	43.28	35.36	1.026300	1507.9
611	14.929	63.23	43.29	35.37	1.026300	1507.9
612	14.920	64.39	43.26	35.36	1.026300	1507.9
613	14.894	65.42	43.25	35.37	1.026300	1507.8
618	14.890	66.68	43.25	35.37	1.026300	1507.9
619	14.895	68.05	43.25	35.37	1.026300	1507.9
619	14.894	69.33	43.24	35.36	1.026300	1507.9
21	14.859	70.40	43.23	35.38	1.026300	1507.8
625	14.868	71.41	43.24	35.38	1.026300	1507.9
625	14.866	72.45	43.23	35.37	1.026300	1507.9
626	14.868	73.52	43.23	35.37	1.026300	1507.9
627	14.871	74.68	43.24	35.37	1.026300	1507.9
630	14.861	75.72	43.23	35.37	1.026300	1507.9
631	14.863	76.79	43.23	35.38	1.026300	1507.9
633	14.864	77.80	43.23	35.37	1.026300	1508.0
649	14.864	76.66	43.23	35.38	1.026300	1507.9
650	14.867	75.50	43.23	35.37	1.026300	1507.9
6[illegible]	14.864	74.47	43.23	35.37	1.026300	1507.9
65[illegible]	14.870	73.46	43.24	35.38	1.026300	1507.9
660	14.885	72.45	43.24	35.37	1.026300	1507.9
665	14.873	71.35	43.24	35.37	1.026300	1507.9
668	14.867	70.31	43.23	35.37	1.026300	1507.8
673	14.872	69.12	43.24	35.38	1.026300	1507.8
678	14.881	67.84	43.24	35.37	1.026300	1507.8
680	14.889	66.83	43.25	35.38	1.026300	1507.9
685	14.892	65.82	43.26	35.38	1.026300	1507.9
[illegible]87	14.905	64.78	43.27	35.38	1.026300	1507.9
690	14.922	63.68	43.28	35.38	1.026300	1507.9
693	14.921	62.68	43.29	35.38	1.026300	1507.9
696	14.939	61.67	43.29	35.37	1.026300	1507.9
698	14.924	60.63	43.29	35.38	1.026300	1507.9
702	14.949	59.56	43.31	35.38	1.026300	1507.9
703	14.962	58.55	43.32	35.38	1.026300	1508.0
708	14.985	57.45	43.35	35.38	1.026300	1508.0
709	15.008	56.45	43.38	35.39	1.026300	1508.1
713	15.055	55.35	43.43	35.39	1.026300	1508.2
715	15.087	54.34	43.46	35.39	1.026300	1508.3
717	15.138	53.18	43.51	35.40	1.026200	1508.4
722	15.218	51.99	43.60	35.40	1.026200	1508.7
723	15.305	50.89	43.69	35.41	1.026200	1508.9

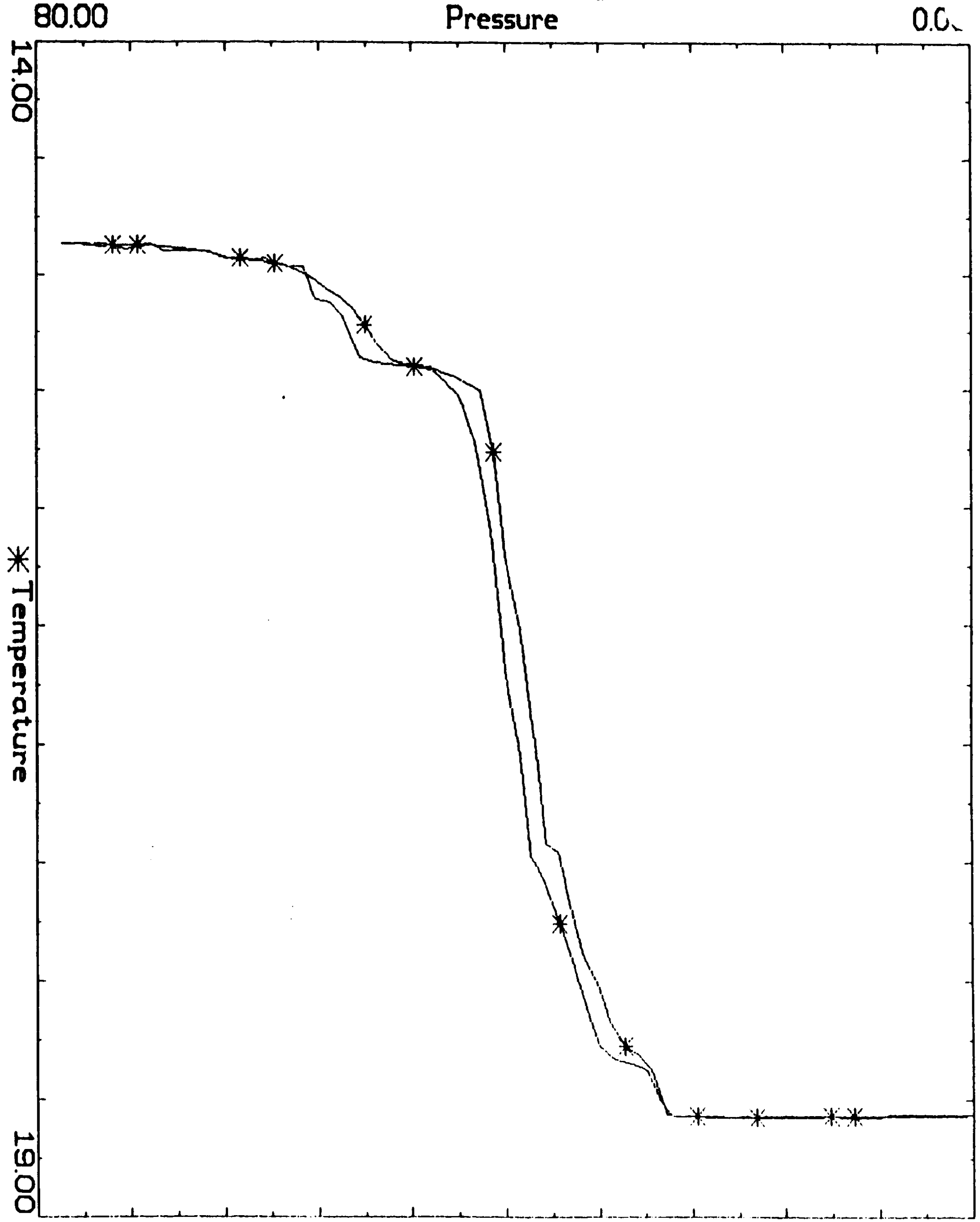
STD-12 DATA PRINTOUT FACILITY   File name - eric.rel
Created - 02-11-1993

Time sec.	Temp °C	Depth ס.	Cond mS/cm	Salin ppt	Sp Grav	Snd Vel m/s
727	15.369	49.67	43.73	35.39	1.026200	1509.1
729	15.386	48.63	43.74	35.38	1.026200	1509.1
732	15.390	47.44	43.75	35.39	1.026200	1509.1
736	15.398	46.28	43.76	35.38	1.026200	1509.1
740	15.423	45.24	43.78	35.39	1.026200	1509.2
742	15.444	44.14	43.81	35.39	1.026200	1509.2
744	15.476	43.07	43.84	35.39	1.026200	1509.3
748	15.501	42.07	43.88	35.40	1.026200	1509.4
750	15.765	41.00	44.17	35.42	1.026100	1510.2
.52	16.197	39.99	44.54	35.37	1.026000	1511.5
756	16.521	38.71	45.01	35.50	1.026000	1512.6
758	16.992	37.52	45.56	35.57	1.026000	1514.1
763	17.421	36.48	45.77	35.37	1.025700	1515.1
764	17.459	35.47	45.83	35.40	1.025700	1515.2
767	17.692	34.38	46.08	35.41	1.025700	1515.9
769	17.887	33.34	46.28	35.41	1.025600	1516.5
773	18.017	32.12	46.44	35.43	1.025600	1516.9
778	18.179	30.99	46.64	35.46	1.025600	1517.3
779	18.277	29.80	46.68	35.41	1.025500	1517.5
7[illegible]	18.313	28.64	46.70	35.40	1.025500	1517.6
785	18.378	27.51	46.84	35.46	1.025500	1517.9
790	18.566	26.23	46.96	35.40	1.025400	1518.3
791	18.569	25.19	46.96	35.40	1.025400	1518.3
797	18.571	24.09	46.96	35.40	1.025400	1518.3
798	18.569	22.63	46.96	35.40	1.025400	1518.3
803	18.574	21.62	46.96	35.40	1.025400	1518.2
806	18.577	20.62	46.96	35.40	1.025400	1518.2
808	18.574	19.40	46.96	35.40	1.025400	1518.2
[illegible]12	18.577	18.39	46.96	35.40	1.025400	1518.2
814	18.572	17.35	46.96	35.40	1.025400	1518.2
817	18.573	16.31	46.96	35.40	1.025400	1518.2
818	18.570	15.25	46.96	35.40	1.025400	1518.1
820	18.572	14.18	46.96	35.40	1.025400	1518.1
822	18.572	15.28	46.96	35.40	1.025400	1518.1
824	18.574	14.27	46.96	35.40	1.025400	1518.1
825	18.571	13.17	46.96	35.40	1.025400	1518.1
825	18.571	12.08	46.96	35.40	1.025400	1518.1
831	18.573	11.04	46.96	35.40	1.025400	1518.1
832	18.570	10.03	46.95	35.40	1.025400	1518.0
838	18.570	8.81	46.95	35.40	1.025400	1518.0
839	18.574	7.81	46.96	35.40	1.025400	1518.0
843	18.567	6.71	46.95	35.40	1.025400	1518.0
844	18.567	5.58	46.95	35.40	1.025400	1518.0
848	18.568	4.45	46.95	35.40	1.025400	1517.9
8[illegible]	18.567	3.41	46.95	35.40	1.025400	1517.9
85[illegible]	18.567	2.29	46.95	35.40	1.025400	1517.9

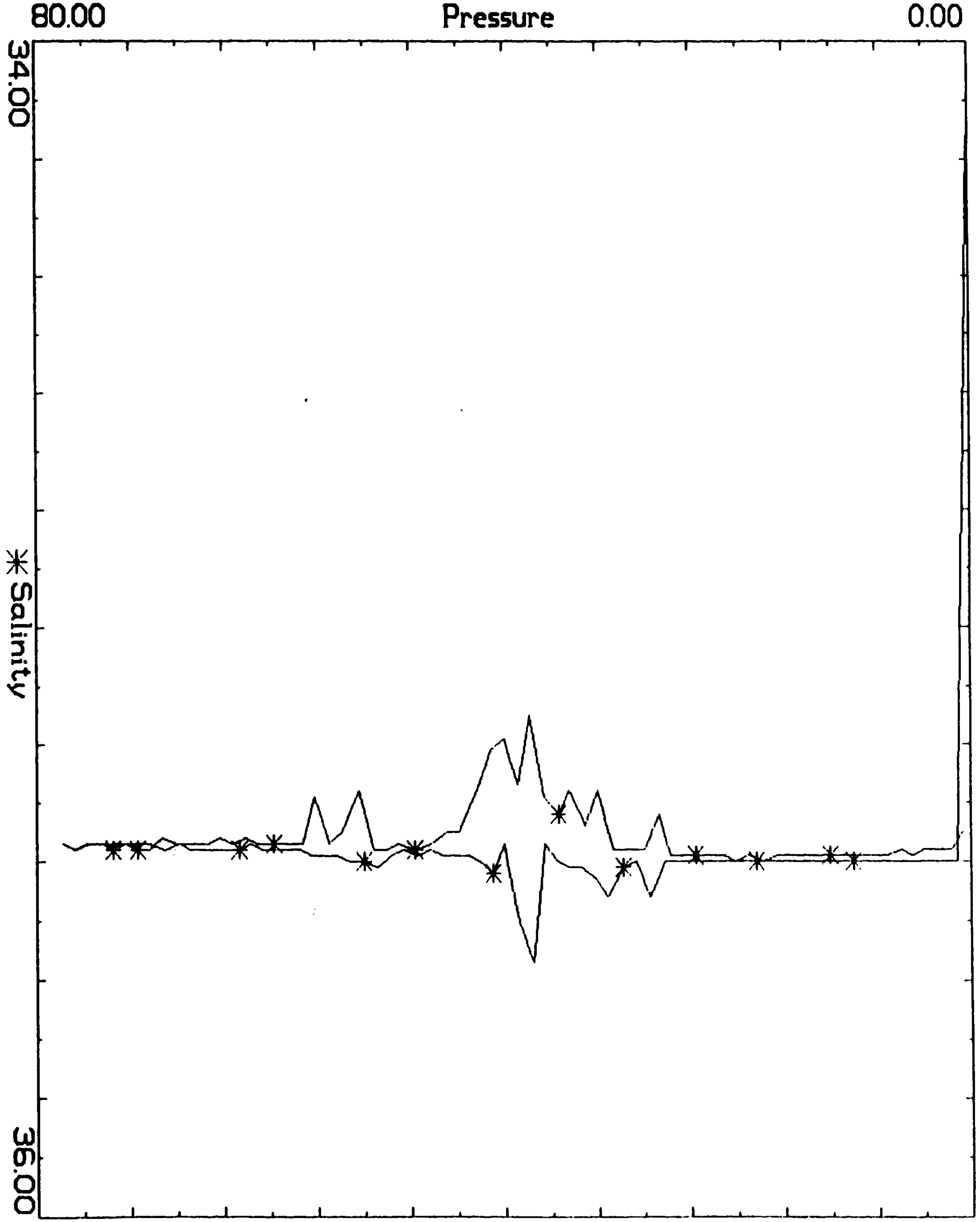
STD-12 DATA PRINTOUT FACILITY   File name - eric.rel
Created - 02-11-1993

Time sec.	Temp °C	Depth d.	Cond mS/cm	Salin ppt	Sp Grav	Snd Vel m/s
857	18.567	1.10	46.95	35.40	1.025400	1517.9
860	18.566	0.03	45.47	34.16	1.024500	1516.5

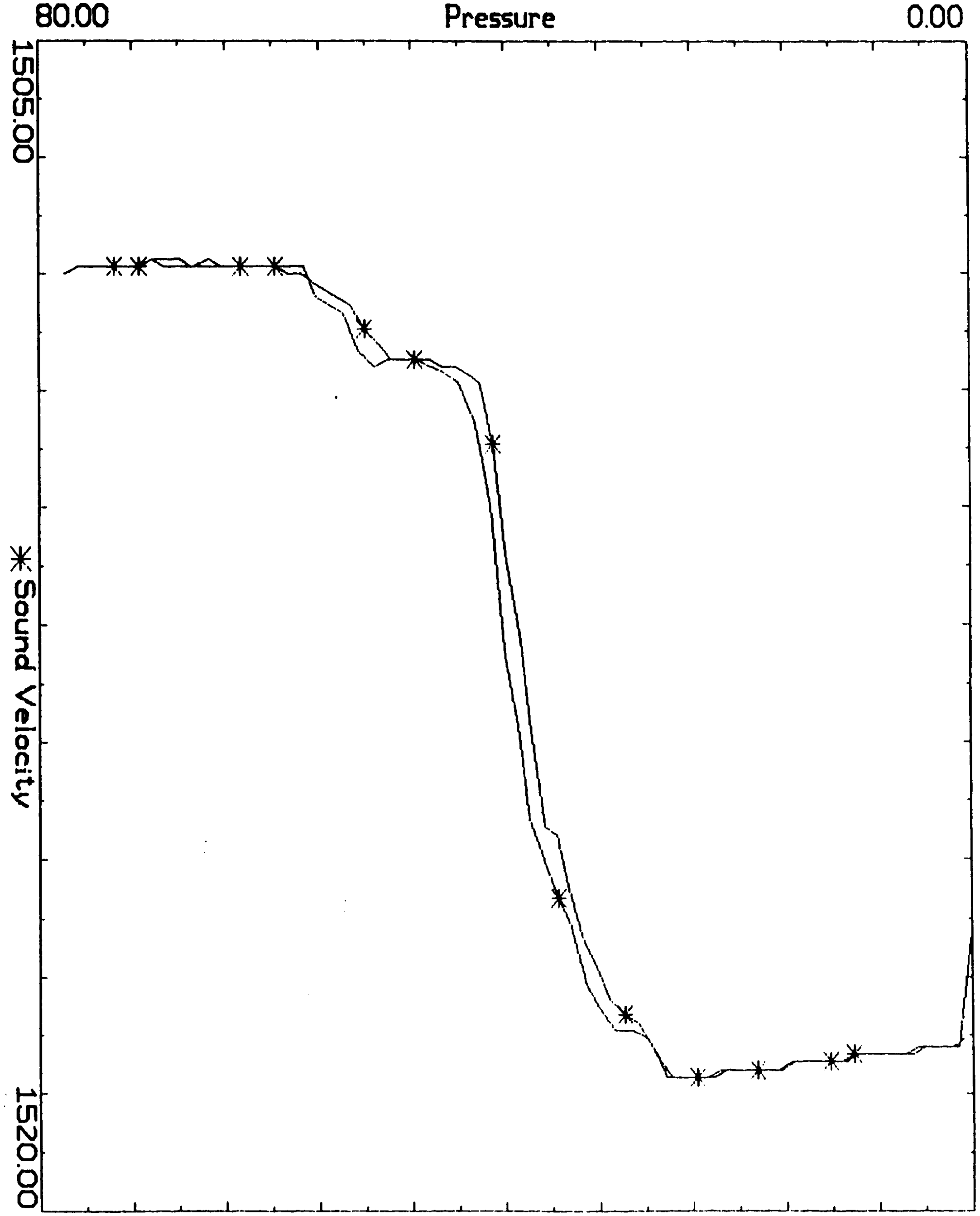
BYFORD D PHIN R/M
ERIC THE RED-1



BYFORD DOI 'IN R/M
ERIC THE RED-1



BYFORD DOLP[illegible] R/M
ERIC THE RED-1



APPENDIX C

ACOUSTIC NET DEPLOYMENT AND

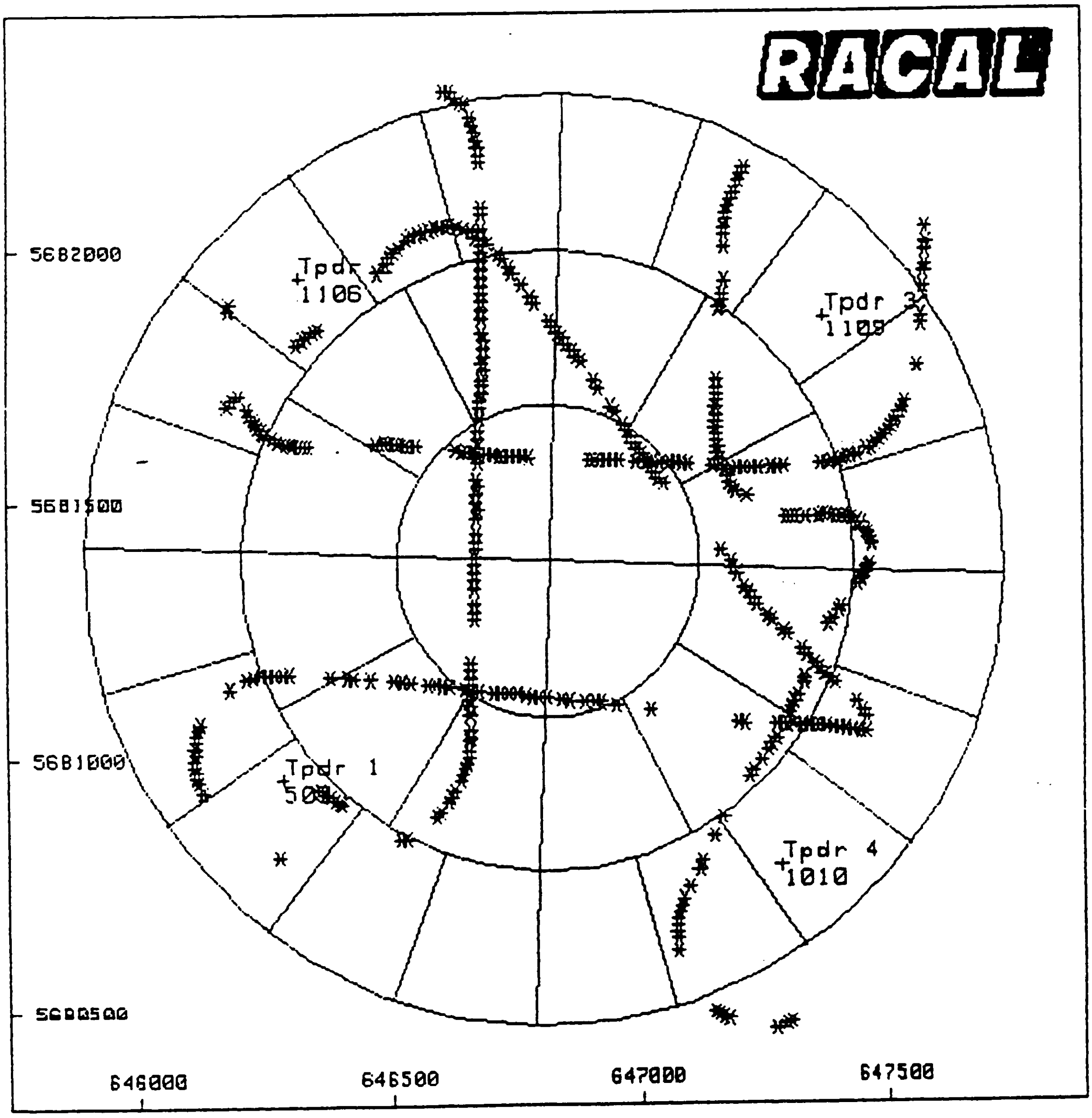
OASIS RELATIVE CALIBRATION PRINTOUTS

RELATIVE CALIBRATION (Calculation)

Speed of Sound Corrections

Tx	Fish	TxDep	Vsnd	Vcor
1	8.3	85.5	1506.1	1.00408
2	8.3	88.9	1505.9	1.00396
3	8.3	87.1	1506.0	1.00402
4	8.3	87.1	1506.0	1.00402

Fix Points for Relative Calibration



Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
1	12	----	-.1	.2	.2	.3
2	13	.4	-.4	.1	-.2	.4
3	14	-.2	.1	0.0	.1	.2
4	15	.1	-.1	.1	-0.0	.1
5	16	0.0	0.0	-.2	-.1	.2
6	17	----	-0.0	0.0	0.0	.1
7	18	.1	-.1	0.0	-.1	.1
8	19	-.3	.3	0.0	.3	.4
9	20	0.0	-.1	.1	.1	.1
10	21	-0.0	0.0	.3	.3	.3
11	22	-.1	.1	.1	.2	.2
13	24	0.0	----	.3	.3	.4
14	25	0.0	----	.2	.2	.3
16	27	0.0	----	.2	.2	.2
17	32	----	.1	.1	.2	.3
18	33	----	.1	.1	.1	.1
19	47	.2	----	.2	.2	.4
20	52	-.8	.7	-.8	0.0	.9
21	54	-0.0	-0.0	----	-0.0	.1
22	55	0.0	.1	----	.1	.1
24	58	-.4	-.4	-.2	-.6	.6
25	59	.1	----	0.0	0.0	.1
26	61	0.0	.2	-.1	.1	.2
27	62	----	0.0	-0.0	0.0	.1
28	63	0.0	-.2	.1	-.2	.2
29	64	.1	.1	0.0	.1	.1
30	65	.1	.2	----	.2	.3
31	66	.1	.1	----	.1	.2
32	67	-0.0	.2	-.1	.2	.2
33	68	-.4	-.5	----	-.7	.9
34	70	0.0	-.5	.3	-.4	.5
36	74	.1	.1	----	.2	.3
37	75	.1	.1	----	.1	.2
38	76	-.1	-.1	----	-.1	.2
39	77	.2	.3	----	.3	.5
40	79	-0.0	-.1	----	-.1	.1
41	80	-.2	-.3	----	-.3	.5
42	81	-.2	-.2	----	-.2	.4
43	84	-0.0	-0.0	----	-0.0	.1
44	86	-0.0	-0.0	----	-0.0	0.0
45	87	0.0	0.0	----	0.0	0.0
46	89	0.0	0.0	----	0.0	0.0
47	94	-.2	-.2	----	-0.0	.3
48	95	-0.0	-0.0	----	-0.0	0.0
49	96	-.1	-.1	----	0.0	.1
50	97	0.0	-.1	.2	-.2	.2
51	98	.2	.1	.1	-.1	.2
52	99	-.4	-.3	0.0	.1	.4
53	100	-.2	-.6	.6	-.4	.7
54	103	-.7	-.4	----	.4	.9
55	110	.4	.1	----	-.3	.5
56	111	.3	.1	----	-.3	.5

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
58	113	-.4	-.2	.1	.2	.4
59	114	-.1	-0.0	----	.1	.1
60	115	.2	.2	-.2	----	.3
61	116	-.3	-0.0	0.0	.2	.3
62	117	.2	-0.0	----	-.2	.2
63	118	.4	-0.0	----	-.3	.5
64	119	0.0	-0.0	----	-0.0	.1
65	120	.1	-0.0	----	-.1	.1
66	122	0.0	-0.0	----	-0.0	0.0
67	140	.1	-.1	----	0.0	.2
68	161	-.2	.1	----	-.2	.3
69	162	.5	-.2	----	.4	.6
70	168	.4	-.1	----	.4	.6
71	169	.2	-0.0	----	.2	.3
72	171	.4	0.0	----	.4	.6
73	172	.3	0.0	----	.3	.4
74	173	.1	0.0	----	.1	.1
75	175	.2	.1	----	.3	.3
76	176	.4	-.1	.2	.2	.3
77	177	.1	0.0	----	.1	.2
78	178	.1	-.1	.2	----	.2
79	179	.5	-.4	.5	----	.8
80	180	.1	-.1	.1	----	.2
81	181	-.9	----	-.5	-.6	1.1
82	182	0.0	-0.0	0.0	----	0.0
83	183	.2	-.1	.3	----	.4
84	185	-.5	.1	-.4	-.2	.5
85	186	.2	.2	----	.3	.4
86	187	-.4	.4	-.6	.2	.6
87	188	.1	.1	-0.0	.1	.1
88	189	-.1	-.1	----	-.1	.1
89	190	-.2	-.2	----	-.3	.4
90	191	0.0	0.0	----	0.0	0.0
92	198	0.0	.1	----	.1	.2
93	199	0.0	0.0	----	0.0	.1
94	200	.1	.3	----	.3	.5
95	202	.3	0.0	.3	0.0	.3
96	203	.1	----	.1	-0.0	.2
97	204	.3	.2	.2	.1	.3
98	205	-0.0	.1	-0.0	.1	.1
99	206	.1	-.4	.2	-.4	.5
100	207	-0.0	-0.0	----	-0.0	0.0
103	211	-.1	-.2	-.1	-.1	.2
104	212	-.1	0.0	-.1	.1	.1
105	213	.4	.5	.4	.3	.6
106	214	-.4	-0.0	-.4	.2	.5
107	215	.1	.1	.1	.1	.2
108	216	-0.0	.2	0.0	.2	.2
109	218	-0.0	.2	----	.2	.2
110	219	-.1	-.1	-.1	-0.0	.1
111	220	-.2	-.1	-.2	----	.3
113	222	-.1	-.1	-.1	-0.0	.1
114	224	0.0	0.0	0.0	----	0.0

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
115	225	-.3	.1	-.3	.3	.4
116	226	-.1	.2	-0.0	.2	.2
117	227	-0.0	.3	.1	.2	.3
118	228	----	.2	.1	.2	.3
119	229	0.0	-0.0	0.0	-0.0	0.0
120	230	----	.3	.2	.2	.4
121	231	-.6	-.3	-.7	.3	.7
122	232	.1	.2	.3	----	.4
124	234	----	.2	.1	.1	.2
125	235	-.1	-.1	-.2	.1	.2
126	237	-.1	.1	0.0	.1	.1
127	238	-.2	.5	.2	.3	.5
128	239	-.4	.4	-0.0	.5	.5
129	240	----	0.0	0.0	0.0	0.0
130	241	-.1	.2	.1	.1	.2
131	242	.1	.1	.2	-.1	.1
132	243	0.0	.1	.1	-0.0	.1
133	244	----	0.0	0.0	-0.0	0.0
135	246	0.0	-.1	-0.0	----	.1
136	247	-.3	.2	-.1	.3	.3
137	248	.2	-.1	----	-.1	.3
138	250	-.4	.1	-.3	.5	.5
139	251	.2	-.4	-.3	----	.5
140	256	----	.2	.3	-.3	.5
141	257	-.1	-0.0	-.1	.2	.2
142	258	0.0	0.0	.1	-.1	.1
143	259	-0.0	-.1	-.1	.1	.1
144	260	-.1	.1	0.0	0.0	.1
145	261	.2	-.2	-0.0	-.1	.2
146	262	----	-.1	-.2	.2	.3
147	264	----	.2	.2	-.2	.4
149	266	-.1	-0.0	-.1	.1	.1
150	267	----	-0.0	-.1	.1	.1
151	268	.3	-0.0	.3	-.4	.4
152	322	----	-0.0	0.0	-0.0	0.0
153	323	----	.1	-.1	0.0	.1
154	339	-.2	-.3	.1	----	.4
155	340	0.0	0.0	-0.0	----	0.0
156	341	.3	.3	-.1	----	.4
157	342	.3	.3	-.1	----	.4
158	343	.4	.4	-.1	----	.6
159	344	-0.0	-0.0	0.0	----	0.0
160	345	.3	.3	-.1	----	.4
161	347	.3	.3	-.1	----	.4
162	348	-.1	-.1	0.0	----	.1
163	350	0.0	0.0	-0.0	----	0.0
164	351	.1	.1	-0.0	----	.1
165	352	.2	.2	0.0	----	.3
166	353	0.0	0.0	0.0	----	0.0
168	355	-.1	-.1	-0.0	----	.1
169	368	-.3	-.2	-.2	----	.4
170	369	.4	.3	.3	----	.6
171	370	-.4	-.3	-.3	----	.5

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
172	371	.1	.1	.1	----	.1
173	372	.1	.1	.1	----	.2
174	373	.3	.2	.2	----	.4
175	374	.1	.1	.1	----	.2
176	375	-.1	-.1	-.1	----	.2
177	382	-0.0	-0.0	-.1	----	.1
178	383	-0.0	-0.0	-0.0	----	0.0
179	384	.2	.1	.2	----	.3
180	385	0.0	0.0	0.0	----	0.0
181	387	-.1	-.1	-.2	----	.2
182	388	-.1	-0.0	-.1	0.0	.1
183	389	.1	0.0	.1	----	.1
184	390	.1	.1	.2	0.0	.2
185	391	.3	.5	.4	.3	.5
186	392	.3	-.3	.1	-.4	.4
187	393	.1	.1	.2	0.0	.2
188	394	-0.0	-.8	-.3	-.7	.8
189	404	----	.3	.2	.3	.4
190	405	----	-.1	-0.0	-.1	.1
191	406	0.0	.3	.2	.2	.3
192	407	----	.1	.1	.1	.2
193	408	.3	0.0	.3	-0.0	.3
194	409	.1	-.5	-.3	-.5	.5
195	412	-.1	.2	0.0	.2	.2
196	413	.3	-.5	-0.0	-.5	.5
197	414	----	-0.0	-0.0	-0.0	0.0
198	415	.2	----	.2	0.0	.3
199	416	-.1	0.0	-.1	----	.2
200	418	-.1	.6	.3	.6	.6
201	419	.1	.1	.2	.1	.2
202	420	-.2	.2	-0.0	.2	.3
203	421	.1	0.0	.1	0.0	.1
204	425	----	-.1	-.2	-.2	.3
205	427	----	-.1	-.2	-.2	.3
206	429	----	-.1	-.2	-.2	.3
207	430	----	-0.0	-.1	-.1	.1
208	431	----	-.2	-.5	-.5	.7
209	432	----	.1	.1	.1	.2
210	434	----	-0.0	-.1	-.1	.2
211	435	----	-.1	-.2	-.2	.3
212	436	----	-.1	-.5	-.5	.7
213	442	----	0.0	-.1	-.1	.1
214	443	----	-.1	.4	.3	.5
215	444	----	0.0	-.1	-.1	.2
216	445	.2	-.3	.5	.3	.5
217	446	.2	-.3	.4	.1	.4
218	447	----	-.1	.3	.2	.4
219	448	----	.1	-.4	-.4	.6
220	449	----	-0.0	0.0	0.0	0.0
221	451	-.1	-0.0	.2	.2	.2
222	452	----	0.0	-0.0	-0.0	0.0
223	453	-.1	0.0	.1	.2	.2
224	454	.1	-0.0	-.1	-.1	.1

Range Residuals for Relative Calibration

No	Obs	Range Residuals					Residual
225	455	-.1	-.1	.2	.2	¦	.3
226	456	0.0	-.2	.3	.2	¦	.3
227	457	----	.3	-.4	-.3	¦	.5
228	458	.1	.1	-.2	-.2	¦	.2
229	459	----	0.0	-.1	-0.0	¦	.1
230	460	----	-.1	.1	.1	¦	.2
231	461	----	0.0	-.1	-0.0	¦	.1
232	462	----	-0.0	0.0	0.0	¦	0.0
233	468	----	-.1	.1	0.0	¦	.2
234	474	----	.1	-.1	-0.0	¦	.2
236	479	----	-.6	.7	-.2	¦	.9
237	481	----	.2	-.2	.1	¦	.3
238	482	----	.2	-.2	.1	¦	.3
239	484	----	.1	-.2	.1	¦	.2
240	485	----	.1	-.2	.1	¦	.3
242	506	----	0.0	-.2	.1	¦	.2
243	545	----	0.0	0.0	-0.0	¦	0.0
244	546	----	-0.0	-.1	.1	¦	.1
245	547	----	.2	.3	-.3	¦	.5
246	549	----	-.1	-.3	.2	¦	.4
247	550	----	-.1	-.2	.2	¦	.3
248	551	-.1	.3	.4	-.2	¦	.4
249	552	----	-.1	-.2	.2	¦	.3
250	553	-0.0	----	-.1	.1	¦	.1
251	554	.1	-.1	-.1	----	¦	.2
252	555	-.1	.2	.1	----	¦	.2
254	562	-0.0	0.0	0.0	----	¦	0.0
255	564	-.3	-.1	-.3	.3	¦	.4
256	565	-.3	.2	0.0	.2	¦	.3
257	566	-.2	.3	.1	.1	¦	.2
259	577	----	-.2	-.2	-.2	¦	.3
260	578	.2	0.0	.3	----	¦	.3
261	579	----	.2	.3	.2	¦	.4
262	580	.2	.1	.3	.1	¦	.3
263	581	-0.0	.6	.6	.6	¦	.7
265	583	-.2	0.0	-.2	----	¦	.3
266	584	.2	-.3	-.1	-.3	¦	.3
267	585	.6	-.4	.3	-.3	¦	.6
268	586	.4	-.2	.3	-.1	¦	.4
269	587	-.2	.2	-0.0	.2	¦	.2
270	588	----	.3	.4	.4	¦	.7
271	589	-.1	.3	.2	.3	¦	.3
272	590	-0.0	-.1	-.2	-.2	¦	.2
273	591	.7	-.5	.3	-.3	¦	.7
275	593	----	.1	.2	.2	¦	.3
276	594	----	.3	.4	.5	¦	.7
277	595	----	.1	.2	.2	¦	.3
279	605	0.0	----	0.0	0.0	¦	0.0
280	606	-.5	.5	-0.0	.4	¦	.6
281	607	-.2	.2	-.1	.1	¦	.3
282	609	-.2	.2	-.3	-.1	¦	.3
283	611	0.0	----	-.3	-.3	¦	.5
284	612	.2	-.1	-.3	-.5	¦	.4

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
286	615	.5	-.6	.5	----	.9
287	616	.3	-.3	.1	-.2	.4
288	617	.1	-.1	.2	.1	.2
289	618	-0.0	-0.0	.1	.1	.1
290	619	0.0	----	-0.0	-0.0	0.0
291	620	-0.0	----	0.0	0.0	0.0
292	622	----	-0.0	.1	.1	.1
293	623	-.2	.2	-.1	.1	.2
294	624	----	.2	-.4	-.3	.5
295	625	----	.1	-.2	-.1	.2
296	626	----	-.2	.4	.3	.5
297	631	----	-.1	.2	.2	.3
298	632	----	-.2	.4	.3	.5
299	633	----	-.1	.2	.1	.2
300	634	----	-0.0	0.0	0.0	0.0
301	635	----	-.1	.2	.1	.2
302	636	----	.3	-.7	-.6	1.0
303	637	----	0.0	-0.0	-0.0	0.0
304	643	.1	----	-.5	-.5	.8
305	644	-0.0	----	.1	.1	.1
306	646	-.3	.3	-.2	.1	.3
307	647	----	-0.0	.2	.2	.3
308	657	-0.0	----	0.0	0.0	0.0
309	658	0.0	----	-.1	-.1	.1
310	660	-0.0	----	-.2	-.2	.3
311	661	-0.0	----	-.1	-.1	.2
312	662	-0.0	----	-.1	-.1	.2
313	663	0.0	----	0.0	0.0	0.0
314	667	0.0	----	.1	.1	.1
315	668	.1	----	.3	.3	.5
316	669	-.1	----	-.3	-.3	.5
317	671	-.1	.1	-0.0	.1	.1
318	673	-0.0	-0.0	-.1	-.1	.1
319	674	0.0	----	.1	.1	.1
320	681	-.4	----	-.2	-.4	.6
321	684	0.0	----	0.0	0.0	0.0
322	688	-.5	----	.1	-.6	.7
323	689	0.0	----	-0.0	0.0	.1
324	692	-.5	.2	----	-.4	.7
325	694	-.3	.3	-.1	-.1	.3
326	695	-.3	-0.0	.2	-.4	.4
327	696	-.6	.5	-.1	-.3	.6
328	697	-.2	.3	-.2	0.0	.3
329	698	.2	-.1	----	.1	.2
330	699	.4	-.3	----	.2	.5
331	700	-.3	.2	----	-.2	.4
332	702	.2	-.2	----	.1	.3
333	714	-0.0	----	0.0	-0.0	.1
334	715	.1	----	-.2	.2	.3
335	716	-0.0	----	.2	-.2	.2
336	717	.1	----	-.6	.6	.9
337	727	-0.0	----	-.9	.9	1.2
338	729	-0.0	----	-.4	.4	.6

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
339	730	0.0	----	.1	-.1	.1
340	780	-0.0	----	0.0	0.0	0.0
341	781	-0.0	----	0.0	0.0	.1
342	783	-0.0	----	.1	.1	.1
343	788	.1	----	-.2	-.3	.4
344	789	-.1	----	.2	.2	.3
345	790	.1	----	-.5	-.5	.7
347	792	0.0	----	-.2	-.2	.2
348	794	0.0	----	-.7	-.7	.9
349	795	-0.0	----	.1	.1	.1
351	799	-0.0	----	-.3	-.3	.4
352	801	-0.0	----	-.2	-.1	.2
353	802	.1	----	.2	.2	.3
354	804	-0.0	----	-.1	-.1	.1
355	805	.1	----	.2	.2	.3
356	806	-0.0	----	-.1	-.1	.1
357	807	.1	----	.1	.1	.2
358	809	-0.0	----	-0.0	-0.0	.1
359	810	.1	----	.1	.1	.2
360	811	-0.0	----	-0.0	-0.0	0.0
361	813	----	-.1	-.1	-.1	.2
362	825	----	-.2	-.2	-.3	.4
363	826	----	-.1	-.1	-.1	.1
364	827	-.6	-.1	-.6	-.1	.6
365	828	.1	-.5	-.3	-.5	.6
366	829	----	-.2	-.1	-.2	.3
367	830	-.1	-0.0	-.1	-0.0	.1
368	831	.3	-.5	-.1	-.5	.5
369	832	.2	0.0	.2	----	.3
370	833	-.2	-.1	-.2	-.1	.2
371	834	.4	-.2	.3	-.3	.4
372	835	-.1	0.0	-0.0	0.0	.1
373	837	----	-.1	-.1	-.1	.2
375	841	-.1	-.1	-.1	----	.2
376	842	----	-.1	-0.0	-0.0	.1
377	845	----	-.1	-.1	-.1	.2
378	846	-.2	-.1	-.2	.1	.2
379	847	-.4	.1	-.3	.3	.4
380	848	-.5	.2	-.3	.5	.6
381	849	-0.0	-.1	-.1	0.0	.1
382	850	-.1	-.4	-.4	----	.6
383	851	.2	-.2	----	-.2	.3
385	855	0.0	0.0	0.0	----	0.0
386	856	0.0	.1	.1	----	.1
387	858	0.0	-.1	-.1	----	.2
388	860	-0.0	.1	.1	----	.2
389	861	0.0	-.1	-.1	----	.1
390	862	.1	.1	.2	-.1	.2
391	863	.2	-.2	0.0	-.2	.2
392	865	.1	-.3	-.2	-0.0	.3
393	866	.1	.2	.3	-.3	.3
394	867	0.0	-0.0	-0.0	----	0.0
396	869	0.0	0.0	0.0	-0.0	0.0

Range Residuals for Relative Calibration

No	Obs	Range Residuals				Residual
397	870	-.2	0.0	-.1	.2	.2
399	872	.3	-.5	-.4	----	.7
400	873	0.0	-0.0	-0.0	----	0.0
401	874	-0.0	0.0	0.0	----	.1
402	875	0.0	-.1	-0.0	----	.1
403	876	.1	-.1	-.1	----	.2
404	877	-.1	.1	.1	----	.2
405	878	-.2	-.1	-.3	.3	.3
406	879	0.0	-0.0	-0.0	----	0.0
407	881	-.1	.2	.2	----	.3
408	882	.4	-.2	.1	-.4	.4
409	883	.1	-.1	0.0	-.1	.1
410	884	.1	-.3	-.3	----	.4
411	886	0.0	-.2	-.2	----	.3
412	898	.1	-.5	.2	-.6	.5
413	899	.2	.6	-.1	.3	.5
415	901	----	.1	-.1	.1	.1
416	902	-0.0	-.1	-0.0	----	.1
417	913	-.1	-.1	.1	----	.2
418	914	-.4	-.5	.3	----	.7
419	915	-0.0	-0.0	0.0	----	0.0
420	992	-.3	0.0	----	-.2	.3
421	993	----	.2	-.3	.2	.4
422	994	-.4	.2	-.2	-.1	.4
423	995	.4	-.4	.3	----	.6
424	996	-.1	.1	-.1	0.0	.2
425	997	.4	-.7	.7	-.3	.8

Means :	0.00	-0.00	-0.00	.01
sds :	.22	.22	.23	.24

Total Solution St.Err.: .36

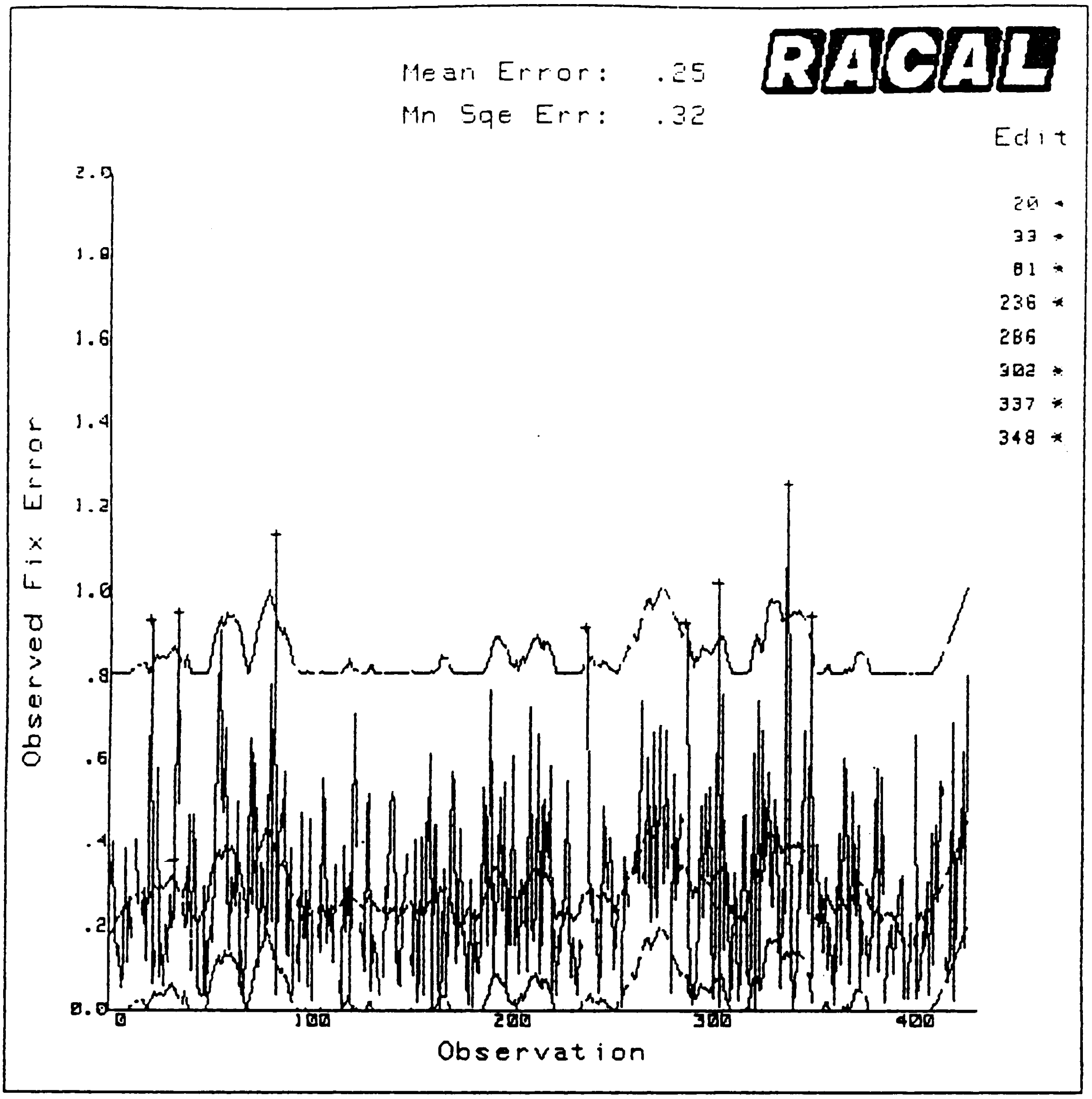
Worst 8 Observations :		
:	337	1.25
:	81	1.13
:	302	1.02
:	33	.95
:	348	.94
:	20	.93
:	286	.92
:	236	.91

Acoustic Net Positions After Relative Calibration

Transponder	X coord	Y coord	Depth
1	0.00	0.00	89.62
2	982.49	-0.00	89.96
3	948.76	-1056.61	88.02
4	-144.32	-1018.92	89.49

(in metres)

Fix Points for Relative Calibration



Statistics for Transponder 1

Interval	Count	Mean	Standard Error
0- 200	15	-.02	.26
200- 400	38	-.03	.30
400- 600	25	-.01	.19
600- 800	51	-.01	.23
800-1000	48	.05	.24
1000-1200	108	0.00	.18
1200-1400	27	-.02	.19

Statistics for Transponder 2

Interval	Count	Mean	Standard Error
0- 200	8	.04	.30
200- 400	52	-.03	.21
400- 600	59	-.01	.20
600- 800	36	.05	.20
800-1000	84	.02	.23
1000-1200	45	.03	.23
1200-1400	45	-.02	.16
1400-1600	14	-.03	.24

Statistics for Transponder 3

Interval	Count	Mean	Standard Error
200- 400	67	-.03	.26
400- 600	72	.03	.23
600- 800	79	.03	.21
800-1000	63	-.02	.19
1000-1200	37	.01	.19
1200-1400	15	-.11	.29
1400-1600	9	.20	.34

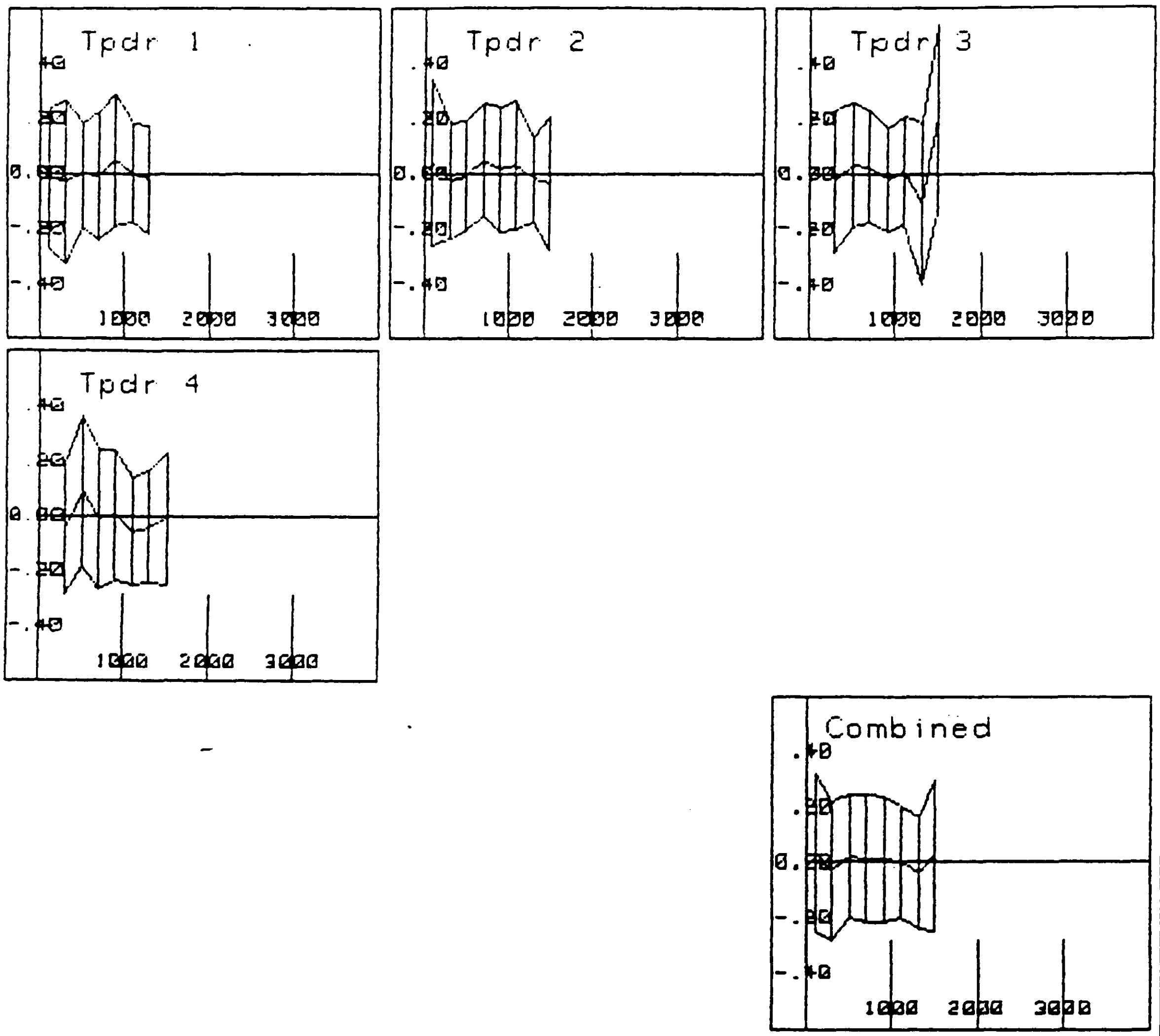
Statistics for Transponder 4

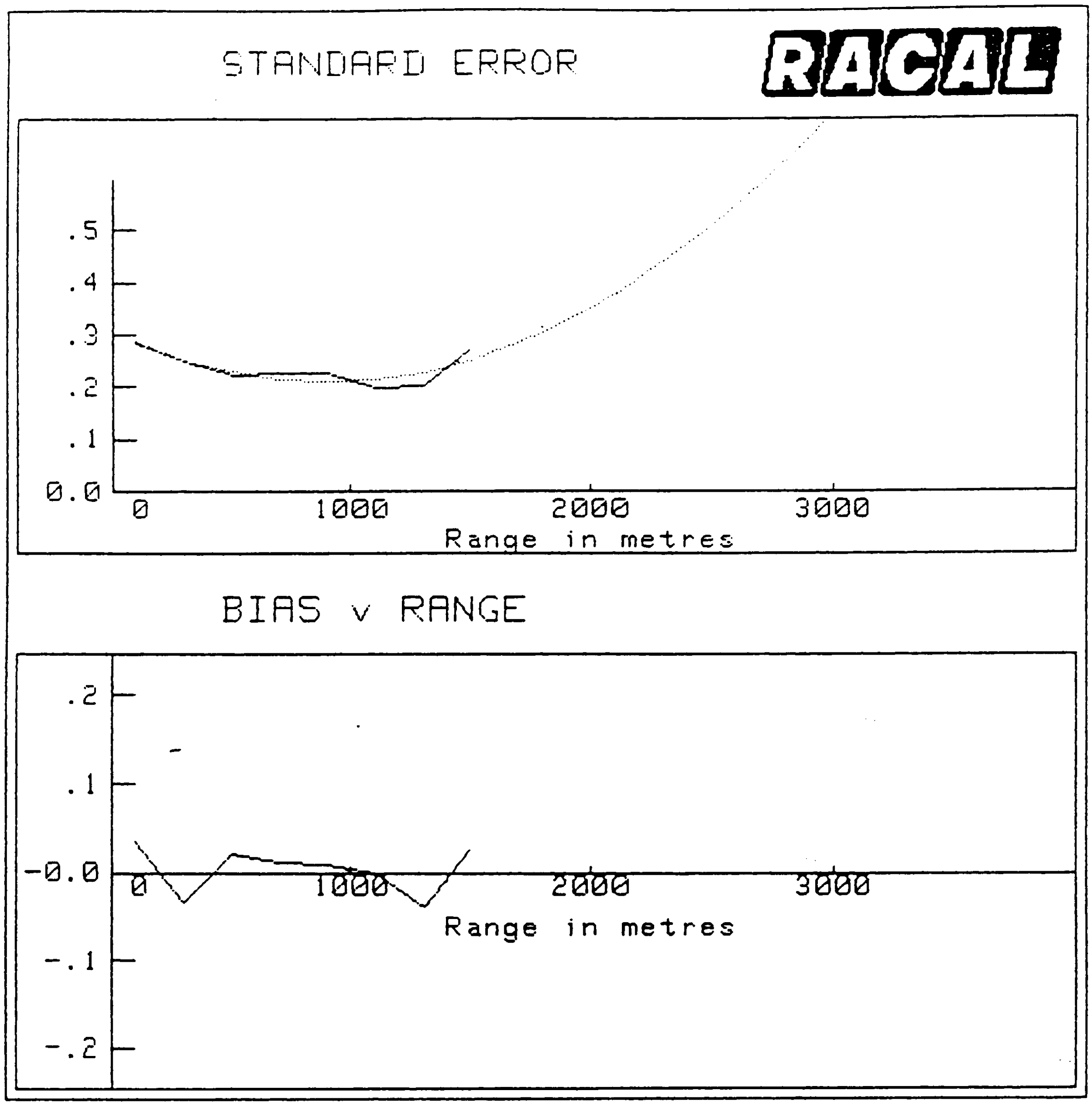
Interval	Count	Mean	Standard Error
200- 400	49	-.05	.24
400- 600	25	.09	.27
600- 800	66	-.01	.25
800-1000	89	.01	.24
1000-1200	37	-.06	.19
1200-1400	34	-.04	.20
1400-1600	19	-.01	.24

Statistics for All Transponders

Interval	Count	Mean	Standard Error
0- 200	27	.04	.28
200- 400	206	-.03	.25
400- 600	181	.02	.22
600- 800	232	.01	.23
800-1000	284	.01	.23
1000-1200	227	-0.00	.20
1200-1400	121	-.04	.20
1400-1600	46	.02	.27

TRANSPONDER STATISTICS




STANDARD ERROR
.5
.4
.3
.2
.1
0.0
0
1000
2000
3000
Range in metres
BIAS v RANGE
.2
.1
-0.0
-.1
-.2
0
1000
2000
3000
Range in metres

APPENDIX D

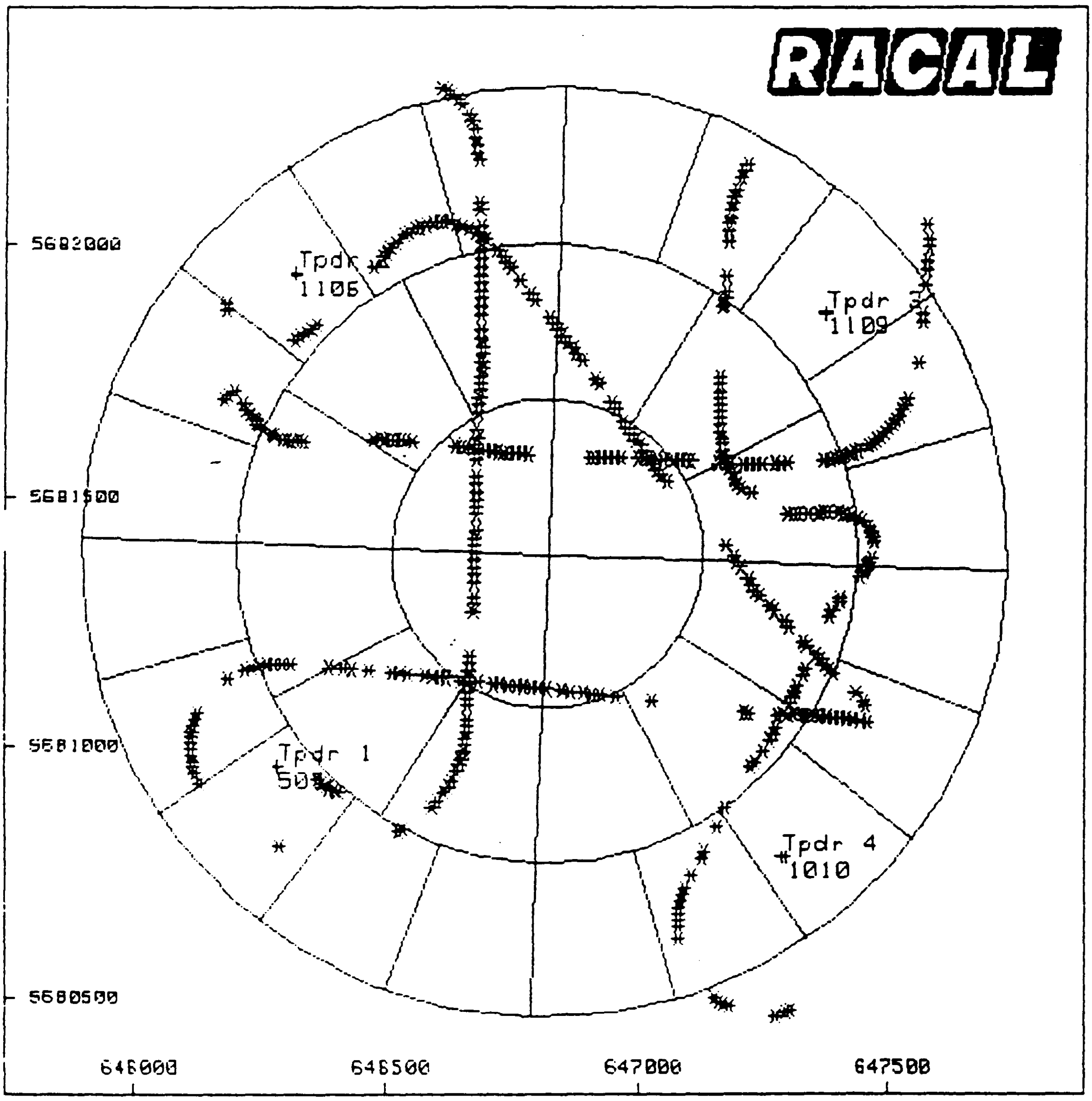
OASIS ACOUSTIC ABSOLUTE CALIBRATION PRINTOUTS

ABSOLUTE CALIBRATION (Calculation)

Speed of Sound Corrections

Tx	Fish	TxDep	Vsnd	Vcor
1	8.3	89.6	1505.9	1.00394
2	8.3	90.0	1505.9	1.00393
3	8.3	88.0	1506.0	1.00399
4	8.3	89.5	1505.9	1.00395

Fix Points for Absolute Calibration



Origin at E 646284.83 N 5680953.07 with axis at -87.99 deg.

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
1	12	-2.64	1.84	3.22
2	13	-3.10	2.27	3.84
3	14	-3.29	1.65	3.68
13	24	-2.40	1.29	2.72
14	25	-3.31	-.78	3.40
15	26	-1.02	.52	1.14
16	27	-1.70	-1.37	2.18
17	32	-2.29	1.35	2.65
18	33	-1.37	.77	1.57
19	47	-1.73	.06	1.73
20	52	-2.52	.16	2.52
21	54	-1.85	1.48	2.37
22	55	-1.36	1.86	2.31
24	58	-.96	1.82	2.06
25	59	-1.67	1.47	2.23
26	61	-.79	.65	1.02
27	62	-.37	.52	.64
28	63	-1.84	-0.00	1.84
29	64	-1.27	.67	1.43
30	65	-.51	.58	.77
32	67	-2.03	1.60	2.58
33	68	-.61	-1.19	1.33
34	70	-.68	1.12	1.31
35	72	-.81	.52	.97
36	74	-.98	1.88	2.11
37	75	-1.33	.64	1.48
38	76	-.61	.69	.92
39	77	-2.56	.18	2.57
40	79	-2.55	.40	2.58
43	84	-.60	.99	1.16
44	86	.10	2.08	2.08
45	87	-.30	1.48	1.51
46	89	-2.25	1.10	2.51
47	94	-1.39	1.53	2.07
48	95	-1.40	1.11	1.78
49	96	-2.04	.86	2.21
50	97	-2.42	1.34	2.77
51	98	-1.36	.85	1.61
52	99	-1.23	.69	1.42
53	100	-1.23	.69	1.41
55	110	-1.15	-.93	1.48
56	111	-.24	-1.27	1.29
57	112	-.57	-1.73	1.82
58	113	2.26	-2.86	3.65
59	114	3.55	-1.88	4.02
63	118	3.57	-1.89	4.04
67	140	3.18	.90	3.31
70	168	.91	1.48	1.74
71	169	1.03	2.52	2.72
72	171	.40	2.93	2.96

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
73	172	-.69	3.49	3.56
74	173	.63	2.87	2.94
75	175	.09	2.54	2.54
76	176	-.27	1.97	1.99
77	177	-.76	.91	1.19
78	178	.46	3.45	3.48
79	179	-1.39	2.33	2.72
80	180	-1.03	2.59	2.78
82	182	-.44	1.61	1.67
83	183	-1.04	2.00	2.25
84	185	-.50	3.00	3.04
85	186	.20	1.75	1.76
86	187	-1.39	2.00	2.43
87	188	-.42	.70	.82
88	189	-.66	3.23	3.29
89	190	-.73	.62	.96
90	191	.11	2.89	2.89
93	199	.14	2.97	2.97
94	200	-1.04	2.39	2.61
95	202	.02	3.28	3.28
96	203	-1.44	.94	1.72
97	204	-1.09	2.47	2.70
98	205	-1.70	1.44	2.23
99	206	-.65	2.75	2.82
100	207	.60	1.95	2.04
101	208	.75	.41	.86
102	209	1.30	.10	1.31
103	211	-.52	2.19	2.25
104	212	.62	1.63	1.74
105	213	-1.10	.87	1.40
106	214	-.81	1.37	1.59
107	215	-.55	1.47	1.57
108	216	-1.14	-.25	1.17
109	218	-.24	.50	.55
110	219	-.28	2.13	2.14
111	220	-1.09	-.11	1.09
112	221	2.36	-1.91	3.03
113	222	1.59	1.05	1.90
114	224	1.15	1.36	1.78
115	225	.01	2.28	2.28
116	226	1.10	1.95	2.24
117	227	.63	1.53	1.66
118	228	.57	1.69	1.79
119	229	.34	1.69	1.72
120	230	.13	1.79	1.79
121	231	-1.36	2.01	2.43
122	232	-.30	2.18	2.20
123	233	1.12	1.86	2.17
124	234	-1.14	1.24	1.68
125	235	-.78	2.38	2.50
126	237	-1.29	2.12	2.48
127	238	-1.46	2.38	2.79
128	239	-.81	2.47	2.60

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
129	240	-.79	1.49	1.69
130	241	-.04	2.65	2.65
131	242	-.47	2.51	2.56
132	243	-1.11	3.09	3.28
133	244	-1.47	2.13	2.59
135	246	-.45	2.27	2.31
136	247	-1.03	1.98	2.23
137	248	-.41	.33	.53
138	250	-.70	1.50	1.65
139	251	-.61	.59	.85
140	256	-1.82	2.31	2.94
141	257	-2.38	1.87	3.03
142	258	-2.80	1.81	3.33
143	259	-3.04	1.11	3.24
144	260	-3.40	.99	3.54
145	261	-3.56	.48	3.60
152	322	.91	-1.45	1.71
153	323	1.42	-2.02	2.47
158	343	1.85	-2.55	3.15
159	344	1.98	-2.13	2.91
160	345	.78	.27	.82
161	347	2.96	1.76	3.44
162	348	2.85	-.77	2.95
163	350	3.07	-.07	3.07
165	352	1.87	.44	1.92
166	353	3.37	.73	3.45
169	368	-.09	2.35	2.35
170	369	3.15	.75	3.24
171	370	3.12	.43	3.14
172	371	3.43	-.41	3.45
173	372	2.25	-.25	2.27
174	373	2.97	-2.01	3.58
175	374	2.33	-.58	2.40
176	375	3.12	-.50	3.16
177	382	2.64	.32	2.66
178	383	3.60	-1.71	3.99
179	384	2.18	-.71	2.29
180	385	2.98	-.56	3.04
181	387	2.50	-1.36	2.85
183	389	3.16	-2.00	3.74
184	390	2.73	-1.64	3.19
185	391	2.51	.11	2.51
186	392	1.84	-.94	2.06
187	393	2.00	.57	2.08
188	394	2.30	.88	2.47
189	404	1.75	.11	1.75
190	405	2.07	-.36	2.11
191	406	.93	.75	1.19
192	407	1.93	.53	2.01
193	408	1.79	-.32	1.81
194	409	3.20	-.49	3.24
195	412	2.77	-1.34	3.08
196	413	2.33	-.27	2.35

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
197	414	1.83	-2.64	3.21
200	418	3.47	-1.86	3.93
209	432	3.08	-.61	3.14
210	434	2.58	-1.45	2.96
212	436	2.03	.20	2.04
213	442	2.64	.87	2.78
216	445	2.20	.61	2.28
217	446	1.52	2.34	2.79
218	447	2.80	1.42	3.14
219	448	2.14	1.22	2.46
220	449	2.13	1.35	2.52
221	451	.89	1.86	2.06
222	452	1.77	-.14	1.77
223	453	.51	2.01	2.07
224	454	1.49	2.00	2.49
225	455	.25	1.50	1.52
226	456	.73	1.93	2.06
227	457	2.28	2.50	3.39
228	458	1.02	2.49	2.69
229	459	1.66	3.05	3.47
230	460	.63	2.75	2.82
231	461	2.06	1.07	2.32
232	462	.53	2.07	2.14
233	468	.65	2.18	2.27
234	474	1.01	1.58	1.87
235	475	.60	3.76	3.81
237	481	1.80	1.08	2.10
238	482	2.54	1.89	3.17
239	484	1.91	.31	1.93
240	485	.89	-1.43	1.68
242	506	-4.10	.17	4.10
243	545	-.56	-1.59	1.69
244	546	-2.57	-2.17	3.36
245	547	-1.87	-3.01	3.54
246	549	-2.87	-1.09	3.07
247	550	-2.07	-1.69	2.67
248	551	-.23	-2.59	2.60
249	552	-1.25	-1.94	2.30
250	553	.31	-3.83	3.84
251	554	-1.04	-2.29	2.52
252	555	-.17	-3.04	3.05
253	557	1.32	-.14	1.33
254	562	-.09	-1.54	1.55
255	564	-1.09	-2.23	2.49
258	567	-1.18	2.98	3.20
259	577	.66	-.62	.91
260	578	-.07	-1.01	1.01
261	579	2.13	-1.28	2.49
262	580	1.14	-1.50	1.88
263	581	1.18	-.98	1.54
264	582	2.69	-2.25	3.51
265	583	.44	-1.62	1.68
266	584	.44	-2.98	3.01

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
267	585	.71	-3.76	3.83
269	587	.88	-3.21	3.32
270	588	1.01	-3.79	3.92
271	589	2.19	-3.00	3.72
272	590	1.10	-3.88	4.03
288	617	2.32	.43	2.36
289	618	1.83	-.61	1.93
290	619	2.38	-1.11	2.62
291	620	1.60	-.66	1.73
292	622	-.91	-2.76	2.91
293	623	-1.12	-1.71	2.04
294	624	-3.07	-1.92	3.62
305	644	.78	-3.81	3.89
306	646	-1.84	-3.31	3.78
309	658	1.07	-3.82	3.97
310	660	-.34	-2.11	2.14
311	661	-2.05	-2.46	3.20
312	662	-1.78	-1.19	2.14
313	663	-1.58	-2.12	2.65
314	667	-.81	-3.02	3.12
315	668	-.45	-2.58	2.62
316	669	.02	-2.27	2.27
317	671	1.37	-1.96	2.39
318	673	1.80	-.88	2.00
319	674	-.42	1.97	2.01
322	688	.61	-3.42	3.48
323	689	1.36	-4.92	5.10
324	692	1.46	-3.45	3.75
325	694	.24	-3.26	3.27
328	697	.39	-4.00	4.02
332	702	2.37	-2.85	3.71
339	730	3.14	1.34	3.42
340	780	-1.31	-1.64	2.10
341	781	-1.84	-3.29	3.77
343	788	-2.26	-.21	2.26
344	789	-2.83	-2.04	3.49
345	790	-1.38	-.14	1.39
346	791	-.97	.90	1.32
347	792	-.58	-.05	.58
348	794	-.28	.10	.30
349	795	-.27	-.59	.64
350	798	-.51	.87	1.01
351	799	.99	-.49	1.10
352	801	-.86	.59	1.04
353	802	.62	-.55	.82
354	804	-.96	.60	1.13
355	805	-.47	.10	.47
356	806	1.25	-.87	1.52
357	807	.42	-1.60	1.66
358	809	1.44	1.08	1.80
359	810	1.27	1.06	1.65
360	811	1.29	.76	1.50
361	813	-.54	1.26	1.37

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
362	825	-.68	-.98	1.20
363	826	-1.24	.23	1.26
364	827	-.86	1.13	1.42
365	828	-.52	1.07	1.19
366	829	-.73	1.96	2.09
367	830	-1.27	2.00	2.37
368	831	-.66	1.73	1.86
369	832	-1.92	1.37	2.36
370	833	-1.26	2.58	2.86
371	834	-1.03	2.81	3.00
372	835	.23	.11	.26
373	837	-.64	-1.11	1.28
374	838	-2.35	-2.47	3.41
375	841	-2.55	-1.83	3.14
376	842	-2.71	-1.49	3.09
377	845	-.50	-1.07	1.18
378	846	-.79	-.93	1.23
379	847	.76	-.96	1.22
380	848	-.03	-2.27	2.27
381	849	.64	-.60	.88
382	850	.55	-1.41	1.52
383	851	.74	-1.37	1.55
384	852	1.45	-1.40	2.02
385	855	1.32	-1.63	2.10
386	856	.77	-1.04	1.29
387	858	.73	-.71	1.02
388	860	.52	-.82	.97
389	861	.90	-.71	1.15
390	862	.39	-1.54	1.59
391	863	-.46	-1.67	1.73
392	865	-1.51	-2.18	2.65
393	866	-.69	-1.96	2.08
394	867	-.41	-2.08	2.12
395	868	-.61	-.40	.73
396	869	-.49	-1.57	1.65
397	870	-1.18	-2.37	2.65
398	871	-2.15	2.37	3.21
399	872	-1.47	-.40	1.53
400	873	-1.87	-1.82	2.61
401	874	-1.34	-.88	1.60
402	875	-1.96	-3.03	3.61
403	876	-1.42	-1.80	2.30
404	877	-1.68	-1.27	2.11
405	878	-2.24	.07	2.24
406	879	-2.74	-1.79	3.27
407	881	-1.79	-2.59	3.15
408	882	-2.35	-1.39	2.73
409	883	-2.28	-3.20	3.93
410	884	-1.53	-2.19	2.67
411	886	-1.68	-3.61	3.98
412	898	-2.78	-3.29	4.31
413	899	-3.08	-2.79	4.15
414	900	-3.18	-2.22	3.88

Fix Residuals For Absoute Calibration

No	Obs	dx	dy	Residual
415	901	-3.02	-2.37	3.83
417	913	.81	-2.47	2.60
418	914	.21	-1.44	1.45
419	915	.81	-2.43	2.56
420	992	1.71	-.89	1.92
421	993	3.94	-1.67	4.28
423	995	.89	3.43	3.55

Xdif Mean: 0.00 with se: 1.70
Xdif Mean: -0.00 with se: 1.87
Total Solution St.Err.= 2.54

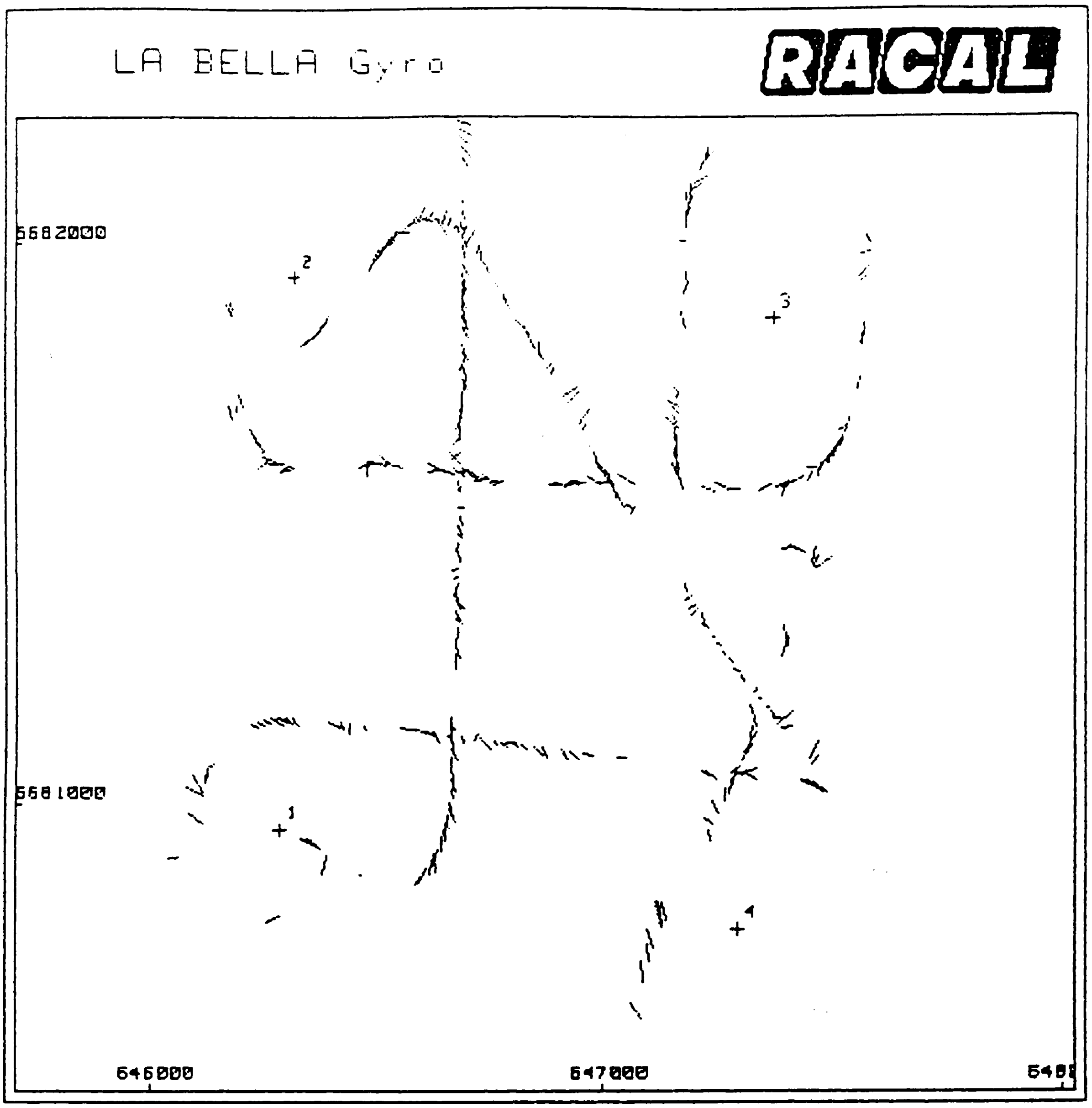
Worst 8 Observations	:	323	5.10
	:	412	4.31
	:	421	4.28
	:	413	4.15
	:	242	4.10
	:	63	4.04
	:	272	4.03
	:	59	4.02

Acoustic Net Positions After Absolute Calibration

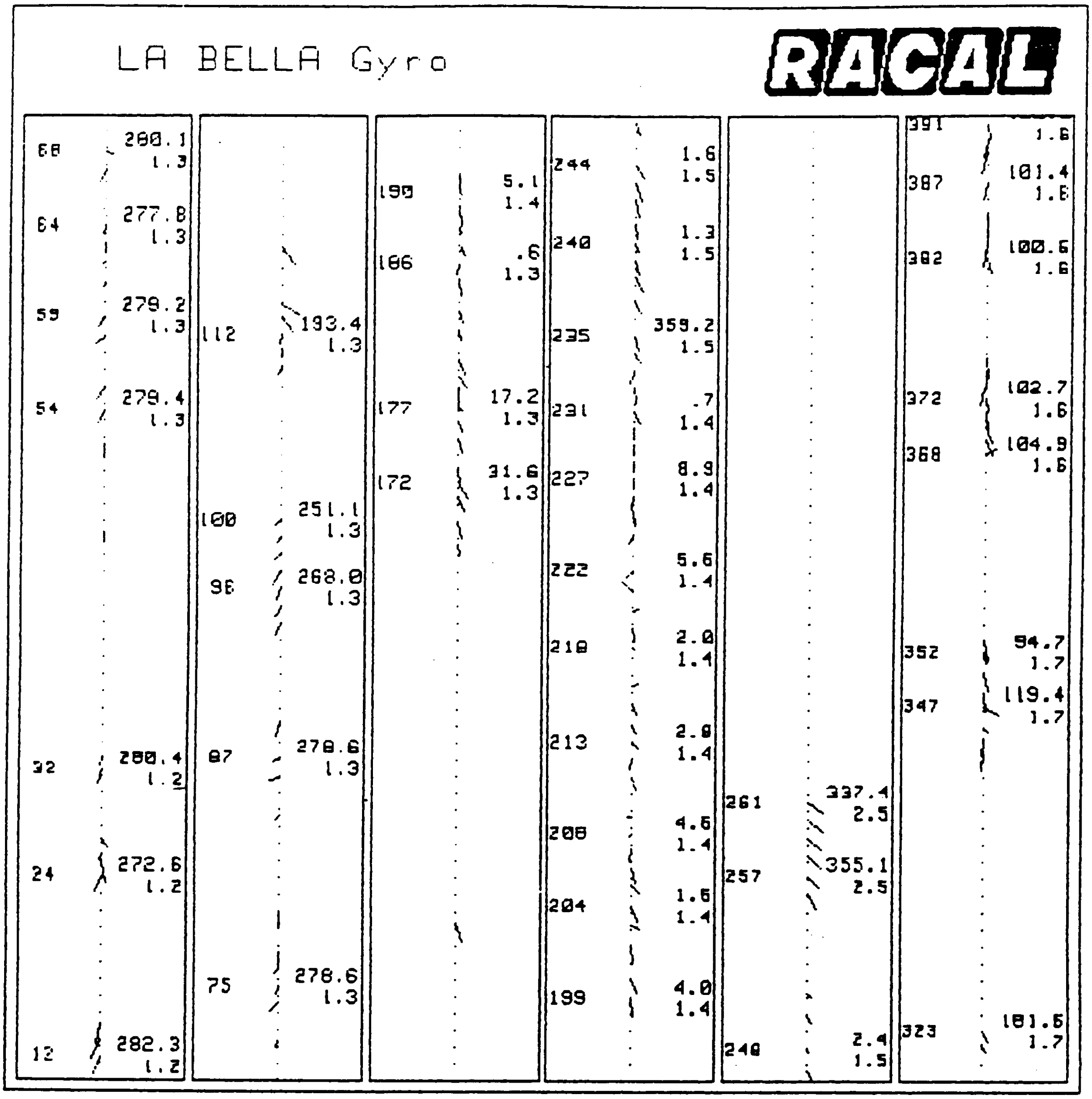
Transponder	Easting	Northing	Depth
1	646284.83	5680953.07	89.62
2	646319.23	5681934.96	89.96
3	647374.01	5681864.26	88.02
4	647298.07	5680773.17	89.49

(in metres)

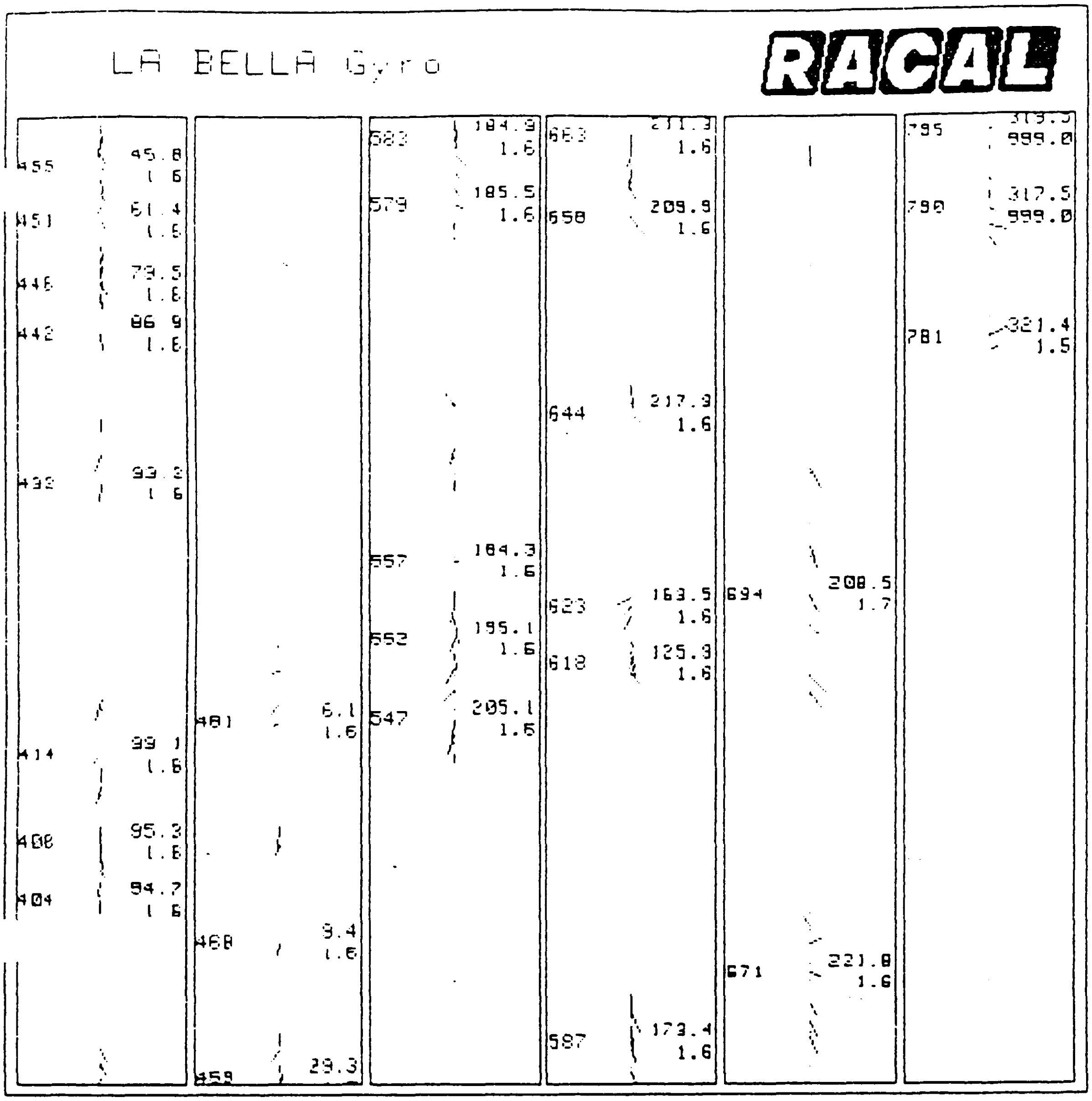
Fix Points for Absolute Calibration



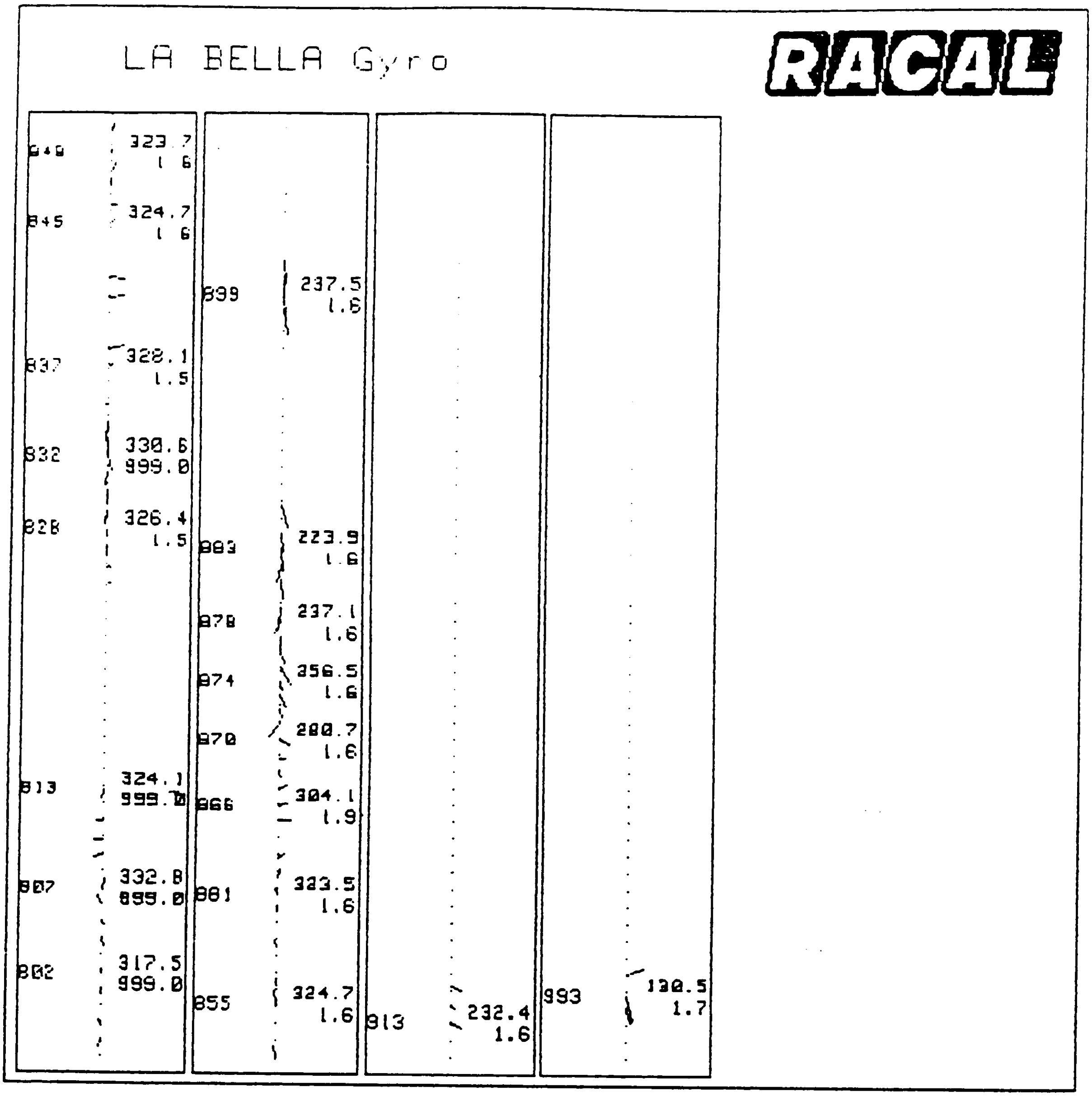
Fix Points for Absolute Calibration



F1. Points for Absolute Calibration



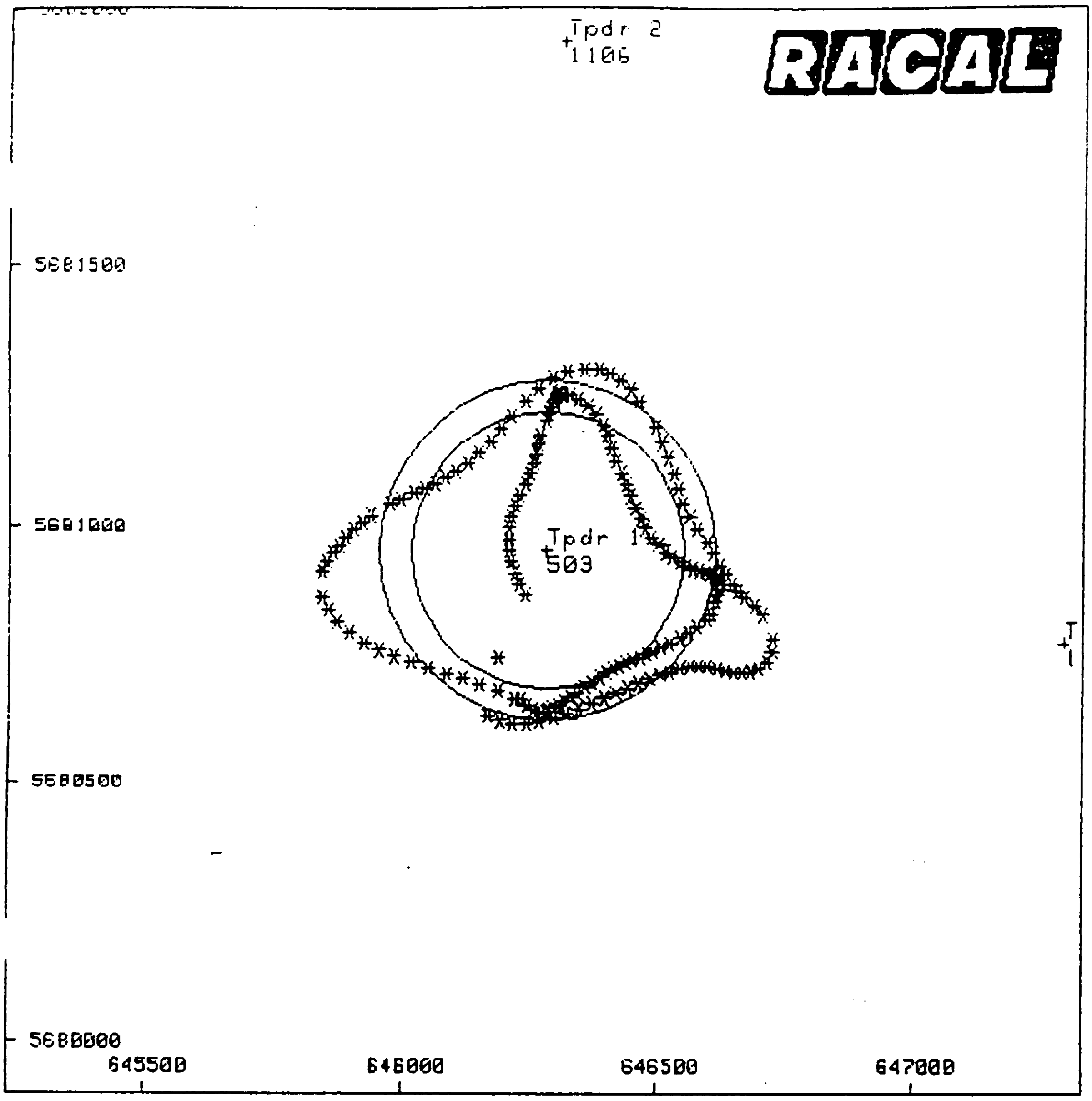
Fix Points for Absolute Calibration



APPENDIX E

OASIS ACOUSTIC 'BOX-IN' PRINTOUTS

Box Tx: 1



Solution Residuals

No	Residual	Plan Range
1	.6	300.68
2	2.0	295.57
3	.5	296.74
4	.1	303.55
5	-.8	314.68
6	-1.5	328.65
7	-.1	346.48
8	-.8	365.48
9	0.0	385.13
10	1.6	404.19
11	1.2	421.32
12	-.1	435.29
13	.1	445.72
14	-.5	450.36
15	-2.7	441.00
16	-4.6	428.44

Solution Residuals

No	Residual	Plan Range
17	-3.4	417.90
18	-4.0	405.95
19	-1.8	394.64
20	-1.6	381.07
21	-2.1	366.36
22	-2.4	349.82
23	-4.8	316.49
24	-1.6	302.29
25	-1.8	284.60
26	-.9	269.22
27	.1	255.17
28	-.8	242.91
29	.7	235.52
30	-0.0	230.34
31	-.3	230.36
32	.7	237.92
33	1.6	251.23
34	.3	267.56
35	-.9	288.55
36	-.3	310.66
37	.3	331.45
38	3.1	348.24
39	3.5	359.23
40	1.6	363.25
41	-.9	360.99
42	-1.4	354.94
43	-1.8	346.93
44	.1	339.25
45	-.9	317.23
46	-1.2	304.28
47	-1.3	294.77
48	-.6	288.02
49	-.2	281.22
50	1.7	281.82
51	2.8	289.62
52	4.0	302.58
53	.5	316.24
54	2.3	329.45
55	3.3	343.55
56	4.1	358.39
57	6.9	375.67
58	6.8	389.77
59	5.6	406.83
60	5.1	428.73
61	4.3	449.80
62	-.6	479.81
63	-3.1	484.18
64	-4.0	480.91
65	-3.5	473.05
66	-5.7	459.72
67	-5.1	447.84
68	-5.1	433.73
69	-5.0	418.88

Solution Residuals

No	Residual	Plan Range
70	-3.9	404.76
71	-1.7	389.16
72	-1.5	375.46
73	.5	363.35
74	1.3	351.99
75	1.4	341.88
76	.9	332.43
77	.6	324.52
78	-1.2	317.61
79	-1.3	312.70
80	-1.3	311.01
81	-2.2	310.11
82	-1.5	313.06
83	-1.3	317.76
84	-1.2	323.29
85	-.1	330.40
86	-.9	336.70
87	-1.3	342.98
88	-1.6	346.69
89	-3.0	346.29
90	-3.1	343.58
91	2.5	234.94
92	1.0	299.59
93	-.6	307.96
94	.4	315.78
95	-1.3	318.35
96	-2.9	318.19
97	-5.7	314.61
98	-5.3	311.12
99	-5.8	305.18
100	-6.7	298.64
101	-4.5	294.68
102	-2.1	290.94
103	-2.8	283.94
104	-2.7	277.84
105	-.3	274.61
106	0.0	271.04
107	-.5	267.53
108	.2	267.56
109	1.1	269.24
110	1.5	270.08
111	3.6	275.97
112	3.4	281.27
113	4.1	286.11
114	4.3	291.84
115	3.7	298.75
116	3.4	306.65
117	3.1	314.70
118	1.2	322.70
119	-0.0	330.55
120	-6.7	336.30
121	-6.4	340.88
122	-2.9	343.41

[illegible]

Solution Residuals

No	Residual	Plan Range
123	-1.1	346.46
124	-2.3	344.69
125	-2.8	342.81
126	-4.3	339.53
127	-4.6	336.70
128	-4.4	332.96
129	-4.4	327.59
130	-3.7	318.76
131	-2.4	310.14
132	-2.8	298.51
133	-1.8	286.27
134	-2.5	273.07
135	-3.8	257.78
136	-3.2	244.12
137	-2.1	230.17
138	-1.3	217.04
139	-1.0	205.16
140	.3	197.12
141	-.3	191.33
142	.7	191.66
143	.5	194.03
144	0.0	198.59
145	.9	208.43
146	.8	219.51
147	1.2	234.96
148	1.9	251.65
149	.8	265.98
150	.6	278.97
151	.5	289.15
152	.4	297.41
153	-.4	300.69
154	-2.1	299.39
155	-4.5	297.74
156	-5.5	297.45
157	-5.8	296.35
158	-5.8	295.39
159	-6.0	292.67
160	-6.1	287.83
161	-4.9	283.90
162	-5.4	276.76
163	-5.5	267.93
164	-5.5	257.64
165	-4.7	246.12
166	-3.1	218.85
167	-2.1	202.52
168	-.8	185.51
169	-.6	167.12
170	1.0	150.28
171	.9	133.28
172	-1.4	116.71
173	3.1	108.54
174	-.2	94.64
175	[illegible]	86.18

Solution Residuals

No	Residual	Plan Range
176	-1.4	78.12
177	-.3	75.64
178	.2	75.84
179	-3.6	74.65
180	-1.8	84.17
181	.8	98.26

Solution

Easting	Northing	Depth
646286.43	5680954.78	89.62

RMS Residual : 2.9

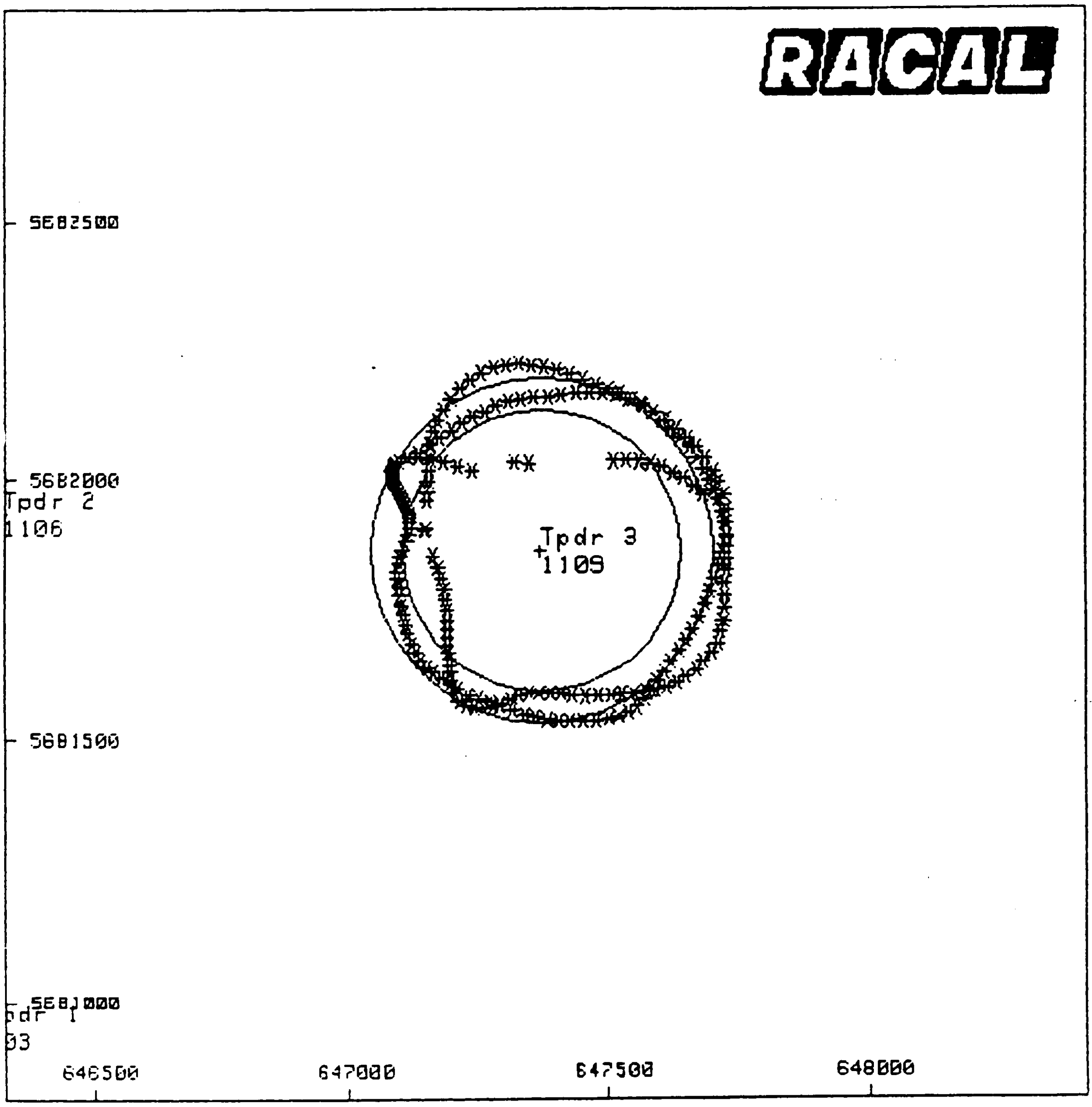
Worst 8 Values:

:	57	6.86
:	58	6.81
:	120	6.72
:	100	6.72
:	121	6.36
:	160	6.09
:	159	5.97
:	99	5.85

Data for Calculation

No	Easting(ref)	Northing(ref)	Plan Range	Gyro	RMS(ref)
205	647194.62	5681680.37	257.30	344.3	0.0
206	647193.65	5681694.64	245.54	347.3	0.0
207	647192.99	5681711.30	236.33	349.7	0.0
208	647192.61	5681729.91	227.42	350.5	0.0
209	647192.03	5681750.44	214.29	349.4	0.0
210	647190.23	5681768.60	207.20	346.4	0.0
211	647187.09	5681789.25	201.42	340.8	0.0
212	647182.34	5681810.62	199.45	335.8	0.0
213	647174.82	5681831.61	201.20	334.8	0.0
214	647165.99	5681853.77	207.48	338.2	0.0

Box Tx: 3



Solution Residuals

No	Residual	Plan Range
1	-4.8	326.44
2	-3.5	317.13
3	-2.9	305.19
4	-2.0	293.97
5	-2.8	280.25
6	-3.0	266.30
7	-3.1	251.09
8	-3.4	234.42
9	-4.8	216.11
10	-24.2	142.47
11	-28.1	148.05
12	1.4	201.43
13	-1.1	224.86
14	-1.3	249.52
15	-.4	274.17
16	-0.0	295.90
17	.9	312.21
18	.6	320.84
19	-1.9	322.72
20	-3.5	322.63
21	-4.0	322.21
22	-4.7	321.51
23	-6.5	319.24
24	-6.0	317.99
25	-6.6	315.31
26	-5.4	313.12
27	-5.1	310.50
28	-4.7	309.48
29	-5.7	305.01
30	-4.8	298.87
31	-5.0	291.80
32	-4.9	285.41
33	-3.5	279.47
34	-1.8	273.32
35	-1.0	267.72
36	-2.6	262.40
37	-2.9	258.76
38	-2.2	257.12
39	.1	256.91
40	1.8	258.90
41	3.0	264.37
42	1.3	267.79
43	1.5	274.00
44	2.4	279.72
45	.7	281.71
46	-0.0	282.89
47	-.4	284.85
48	.8	287.65
49	.6	290.65
50	.7	294.86
51	1.2	299.76
52	2.2	305.50
53	-1.2	308.60

Solution Residuals

No	Residual	Plan Range
54	-.3	312.78
55	-1.5	314.42
56	-2.3	313.36
57	-3.2	311.57
58	-1.7	312.68
59	-1.3	312.19
60	-.5	312.30
61	-2.1	309.54
62	-1.1	309.16
63	-.7	309.45
64	-.7	310.61
65	-.9	312.98
66	0.0	317.70
67	-1.1	321.68
68	-.5	327.43
69	-1.1	330.88
70	-.3	334.93
71	1.4	340.63
72	.2	346.05
73	-.5	351.50
74	-.2	354.99
75	0.0	356.39
76	-.9	354.38
77	-.9	349.62
78	-1.1	343.23
79	1.6	339.31
80	1.2	334.89
81	-.3	330.18
82	.2	329.57
83	1.8	331.28
84	-.1	331.11
85	-.2	332.40
86	.2	334.27
87	-1.0	335.15
88	1.4	340.90
89	.7	346.41
90	.1	352.16
91	-.5	357.30
92	-1.2	362.16
93	-1.3	364.86
94	-1.0	366.50
95	-.7	366.34
96	-.9	364.49
97	-1.4	361.57
98	-2.1	357.66
99	-1.5	354.08
100	-.9	350.23
101	-.4	346.72
102	-.4	342.23
103	-.9	338.75
104	1.2	336.46
105	-0.0	328.98
106	-.6	321.87

Solution Residuals

No	Residual	Plan Range
107	-.7	314.30
108	-1.0	304.67
109	-.4	296.56
110	1.0	292.09
111	.3	289.52
112	-.4	289.17
113	-.1	289.82
114	.1	288.62
115	1.3	285.44
116	.8	284.26
117	-.6	282.94
118	2.1	287.21
119	1.9	291.92
120	2.2	297.74
121	1.7	302.91
122	4.0	231.67
123	3.5	230.41
124	4.6	244.08
125	3.8	249.89
126	3.6	258.94
127	3.6	269.14
128	2.5	280.55
129	2.9	294.51
130	2.9	308.23
131	.9	318.54
132	2.4	328.50
133	1.0	337.28
134	1.4	345.22
135	1.4	352.69
136	.8	357.52
137	.5	359.81
138	.5	359.91
139	.9	358.40
140	.8	354.90
141	.3	350.63
142	.3	345.95
143	.7	341.09
144	1.3	337.65
145	1.2	334.93
146	.3	333.48
147	1.0	335.81
148	.3	337.00
149	.6	339.06
150	-1.6	337.37
151	-.2	338.70
152	-0.0	340.46
153	-.1	343.96
154	-.4	347.34
155	-.6	350.36
156	-1.8	350.35
157	.4	351.92
158	4.4	355.38
159	1.5	358.05

Solution Residuals

No	Residual	Plan Range
160	1.2	358.95
161	-.9	356.97
162	-2.9	356.21
163	-2.3	357.30
164	-1.0	358.26
165	-1.3	358.93
166	.3	361.38
167	-.5	363.95
168	-1.2	369.24
169	-2.8	374.44
170	.4	382.23
171	-.9	384.09
172	-3.0	381.38
173	-1.9	379.77
174	-2.1	376.05
175	-3.3	370.05
176	-2.4	364.71
177	-2.3	357.44
178	-2.8	348.09
179	-2.6	337.96
180	-1.9	327.48
181	-1.7	317.80
182	-1.8	309.62
183	-1.1	302.26
184	-2.4	292.85
185	-1.0	286.27
186	-1.6	278.35
187	-1.6	273.75
188	-.4	274.29
189	.8	277.80
190	-1.2	282.20
191	-1.2	292.02
192	-5.0	301.88
193	-1.3	311.56
194	-.9	321.58
195	-2.7	326.53
196	-3.1	328.49
197	-5.3	325.29
198	-3.4	319.50
199	-1.9	311.04
200	-3.0	299.82
201	-3.1	290.86
202	-2.0	282.06
203	-1.7	273.28
204	-.7	265.14
205	.3	257.30
206	-2.1	245.54
207	-.6	236.33
208	1.8	227.42
209	-.2	214.29
210	.3	207.20
211	.4	201.42
212	1.0	199.45

Solution Residuals

No	Residual	Plan Range
213	0.0	201.20
214	-0.0	207.48

Solution

Easting	Northing	Depth
647373.17	5681865.22	88.02

RMS Residual : 3.4

Worst 8 Values:		
:	11	28.09
:	10	24.23
:	25	6.62
:	23	6.53
:	24	5.99
:	29	5.72
:	26	5.40
:	197	5.34

APPENDIX F

DGPS FINAL POSITION ANALYSIS PRINTOUTS - ERIC THE RED-1

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position A Constellation:(26,15,02,13)
07:08:44 17 Feb 1993 to 07:09:16 17 Feb 1993
No samples: 4 1 to 4
No samples used: Lat/Long 4 Height 3
D.O.P Minimum 2.8 Maximum 2.8
H.D.O.P Minimum 1.3 Maximum 1.3
3D error Minimun 0.0m Maximum 0.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.598 SEC S (S.D. .64m)
Longitude 143 DEG 10 MIN 55.025 SEC E (S.D. .46m)
Height 17.33 m (S.D. 1.79m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position B Constellation:(26,15,02,27,13)
07:09:57 17 Feb 1993 to 07:10:59 17 Feb 1993
No samples: 6 5 to 10
No samples used: Lat/Long 6 Height 6
P.D.O.P Minimum 2.8 Maximum 2.8
H.D.O.P Minimum 1.3 Maximum 1.3
3D error Minimun 0.0m Maximum 0.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.620 SEC S (S.D. 1.49m)
Longitude 143 DEG 10 MIN 55.022 SEC E (S.D. 1.66m)
Height 22.67 m (S.D. 4.54m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position C Constellation:(26,15,02,13)
07:11:39 17 Feb 1993 to 07:14:42 17 Feb 1993
No samples: 18 11 to 28
No samples used: Lat/Long 18 Height 18
P.D.O.P Minimum 2.8 Maximum 3.2
H.D.O.P Minimum 1.3 Maximum 1.7
3D error Minimun 0.0m Maximum 0.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.565 SEC S (S.D. 1.35m)
Longitude 143 DEG 10 MIN 55.079 SEC E (S.D. 2.09m)
Height 24.63 m (S.D. 3.53m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position D Constellation:(26,15,02,27,13)
07:15:23 17 Feb 1993 to 07:49:39 17 Feb 1993
No samples: 196 29 to 224
No samples used: Lat/Long 196 Height 196
P.D.O.P Minimum 2.9 Maximum 3.1
H.D.O.P Minimum 1.3 Maximum 1.4
3D error Minimun 0.0m Maximum 1.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.613 SEC S (S.D. 1.93m)
Longitude 143 DEG 10 MIN 55.015 SEC E (S.D. 1.31m)
Height 18.76 m (S.D. 5.68m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position E Constellation:(26,02,27,13)
07:50:19 17 Feb 1993 to 07:58:19 17 Feb 1993

No samples: 35 225 to 259
No samples used: Lat/Long 35 Height 35
P.D.O.P Minimum 3.8 Maximum 4.4
H.D.O.P Minimum 1.8 Maximum 1.9
3D error Minimum 0.0m Maximum 1.0m
2D error Minimum 0.0m Maximum 1.0m
Latitude 39 DEG 00 MIN 40.593 SEC S (S.D. 1.34m)
Longitude 143 DEG 10 MIN 55.058 SEC E (S.D. 1.10m)
Height 25.40 m (S.D. 3.83m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position F Constellation:(26,12,02,27,13)
07:58:59 17 Feb 1993 to 08:00:36 17 Feb 1993
No samples: 9 260 to 268
No samples used: Lat/Long 9 Height 9
P.D.O.P Minimum 2.5 Maximum 3.8
H.D.O.P Minimum 1.3 Maximum 1.9
3D error Minimum 0.0m Maximum 0.0m
2D error Minimum 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.536 SEC S (S.D. .90m)
Longitude 143 DEG 10 MIN 55.067 SEC E (S.D. 1.07m)
Height 24.02 m (S.D. 2.94m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position G Constellation:(26,02,27,13)
08:01:18 17 Feb 1993 to 08:02:50 17 Feb 1993
No samples: 7 269 to 275
No samples used: Lat/Long 7 Height 7
P.D.O.P Minimum 2.4 Maximum 3.7
H.D.O.P Minimum 1.2 Maximum 1.9
3D error Minimum 0.0m Maximum 1.0m
2D error Minimum 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.616 SEC S (S.D. .99m)
Longitude 143 DEG 10 MIN 54.941 SEC E (S.D. 3.06m)
Height 19.30 m (S.D. 6.06m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position H Constellation:(26,12,02,27,13)
08:03:32 17 Feb 1993 to 08:27:13 17 Feb 1993
No samples: 136 276 to 411
No samples used: Lat/Long 136 Height 136
P.D.O.P Minimum 2.1 Maximum 2.4
H.D.O.P Minimum 1.2 Maximum 1.2
3D error Minimum 0.0m Maximum 0.0m
2D error Minimum 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.595 SEC S (S.D. 2.28m)
Longitude 143 DEG 10 MIN 55.066 SEC E (S.D. 1.53m)
Height 23.71 m (S.D. 2.34m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau
Sub-Final Position I Constellation:(26,12,24,02,27,13)
08:27:55 17 Feb 1993 to 08:28:36 17 Feb 1993
No samples: 5 412 to 416
No samples used: Lat/Long 5 Height 5
P.D.O.P Minimum 2.1 Maximum 2.1
H.D.O.P Minimum 1.2 Maximum 1.2

3D error Minimun 0.0m Maximum 0.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.546 SEC S (S.D. .28m)
Longitude 143 DEG 10 MIN 55.100 SEC E (S.D. .38m)
Height 24.98 m (S.D. .87m)

TERTIARY COMPUTATION CONSTELLATION SUB FINAL POSITION - Tau

Sub-Final Position J Constellation:(26,12,24,02,13)
08:29:18 17 Feb 1993 to 08:36:00 17 Feb 1993
No samples: 39 417 to 455
No samples used: Lat/Long 39 Height 39
P.D.O.P Minimum 2.1 Maximum 2.2
H.D.O.P Minimum 1.1 Maximum 1.1
3D error Minimun 0.0m Maximum 0.0m
2D error Minimun 0.0m Maximum 0.0m
Latitude 39 DEG 00 MIN 40.580 SEC S (S.D. 1.22m)
Longitude 143 DEG 10 MIN 55.085 SEC E (S.D. 1.13m)
Height 23.54 m (S.D. 1.94m)

FINAL POSITION ANALYSIS: BYFORD DOLPHIN R/M ERIC THE RED-1
GNS v R2.06 07:08:44 17 Feb 1993 to 08:36:00 17 Feb 1993
GPS Weighting Option - Constellations given equal weights
Mean Corrected Gyro...224.8 Gyro Correction... +0.0
Mean Grid Heading.....226.1 Convergence....... -1.373

RTIARY COMPUTATION - Tau

CONSTELLATIONS USED

Const.	# Samples	S.V.s
A	4 (3)	26,15,02,13
B	6	26,15,02,27,13
C	18	26,15,02,13
D	196	26,15,02,27,13
E	35	26,02,27,13
F	9	26,12,02,27,13
G	7	26,02,27,13
H	136	26,12,02,27,13
I	5	26,12,24,02,27,13
J	39	26,12,24,02,13

Total number of samples used = 455 (454)
() denotes # of height samples used after adjustment for altitude aiding

COMPUTED FINAL ANTENNA POSITION
WGS 84 Spheroid
Latitude 39 DEG 00 MIN 40.586 SEC S (S.D. .43 Metres)
Longitude 143 DEG 10 MIN 55.046 SEC E (S.D. .50 Metres)
Height 22.43 Metres (S.D. 1.18 Metres)

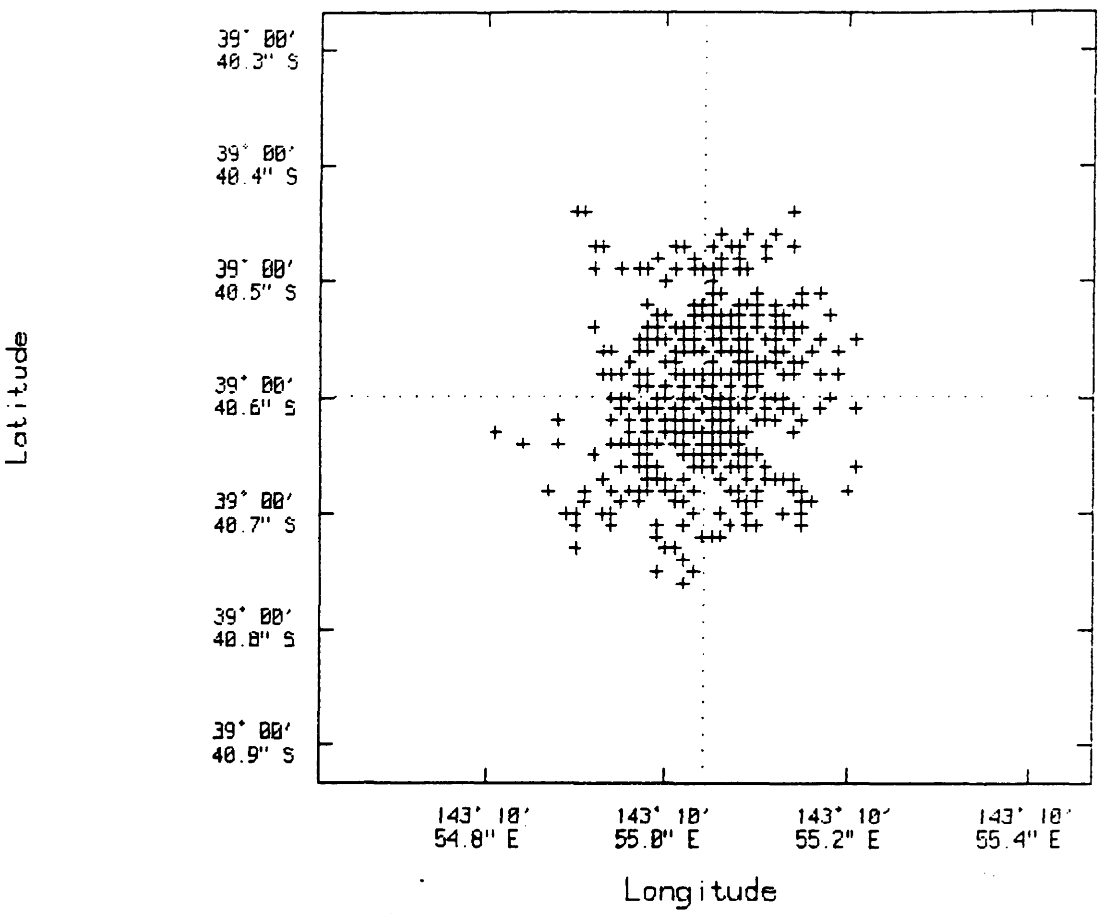
AUSTRALIAN NAT 1984 Spheroid
Latitude 39 DEG 00 MIN 45.904 SEC S
Longitude 143 DEG 10 MIN 50.093 SEC E
Height 39.63 Metres
UTM/TM
Eastings 688796.72 Metres
Northings 5679531.24 Metres

COMPUTED FINAL DATUM POSITION
AUSTRALIAN NAT 1984 Spheroid
Latitude 39 DEG 00 MIN 45.439 SEC S
Longitude 143 DEG 10 MIN 51.451 SEC E
UTM/TM
Eastings 688829.73 Metres
Northings 5679544.81 Metres

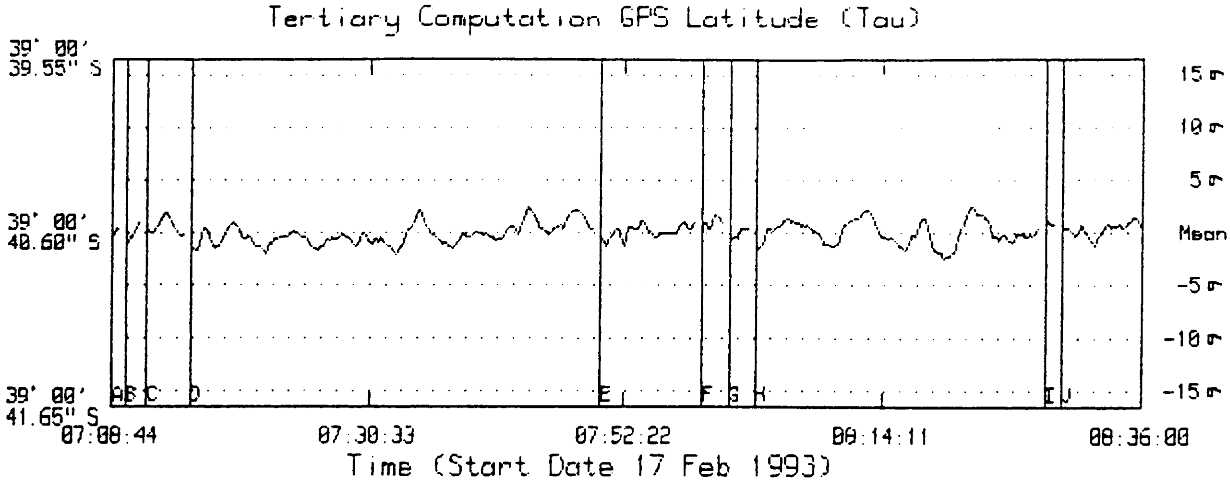
INTENDED FINAL DATUM LOCATION
AUSTRALIAN NAT 1984 Spheroid
Latitude 39 DEG 00 MIN 45.403 SEC S
Longitude 143 DEG 10 MIN 51.295 SEC E
UTM/TM
Eastings 688826.00 Metres
Northings 5679546.00 Metres

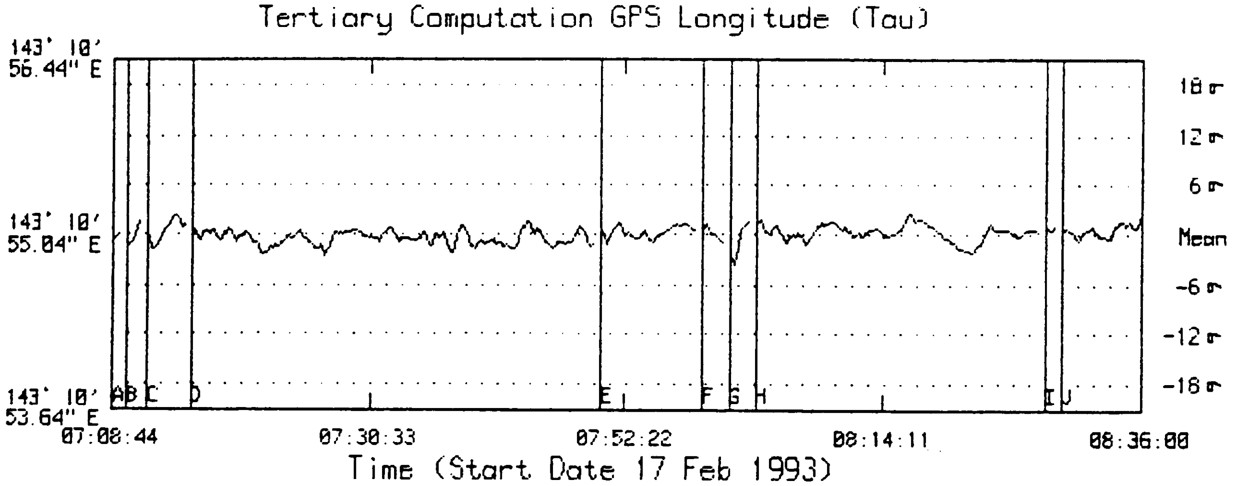
nal Datum Position is 3.92 Metres (spheroidal distance) bearing 106.37 T from the Intended Loc.

Tertiary Computation GPS Scatter Plot (Tau)



:ntred on mean antenna position (passes 1 to 455).
WGS 84 Spheroid
Latitude 39 DEG 00 MIN 40.599 SEC S
Longitude 143 DEG 10 MIN 55.043 SEC E



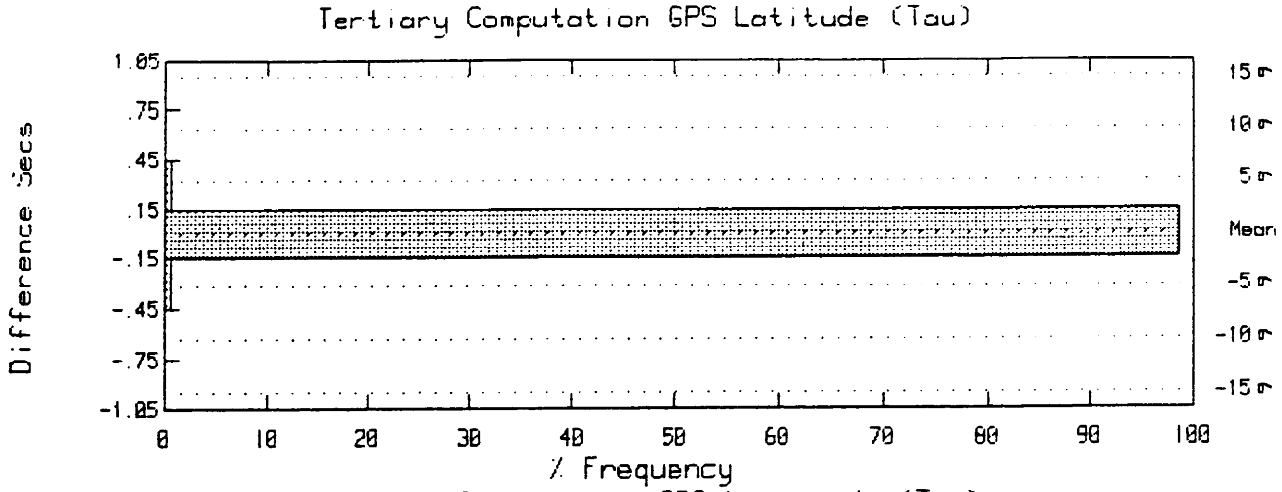


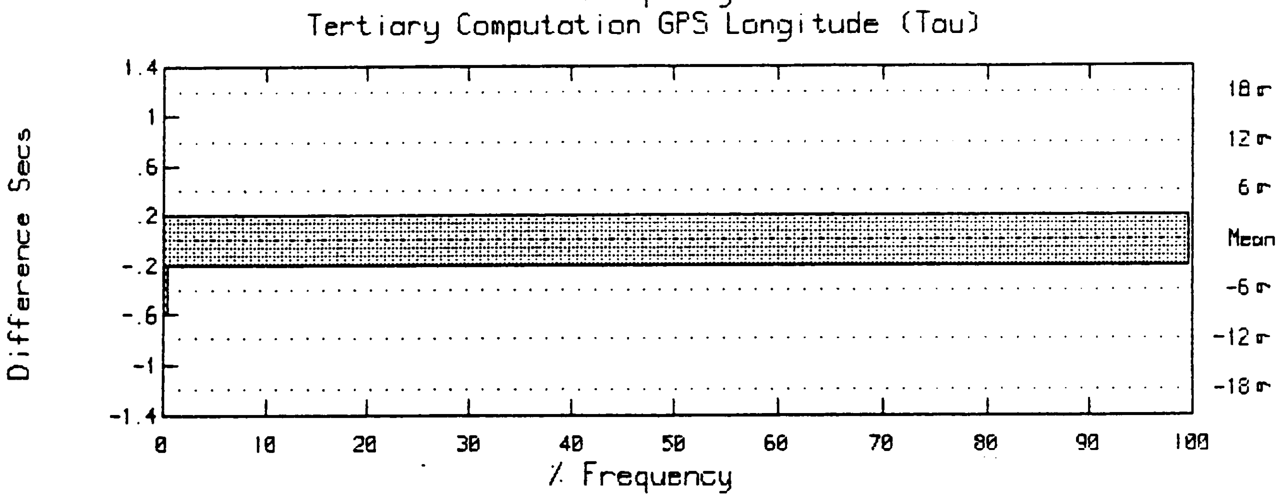
'ertiary Computation (WGS 84 - Tau)

Centred on mean of antenna position (passes 1 to 455).

Latitude 39 DEG 00 MIN 40.599 SEC S Sd 1.952 Metres

Longitude 143 DEG 10 MIN 55.043 SEC E Sd 1.585 Metres





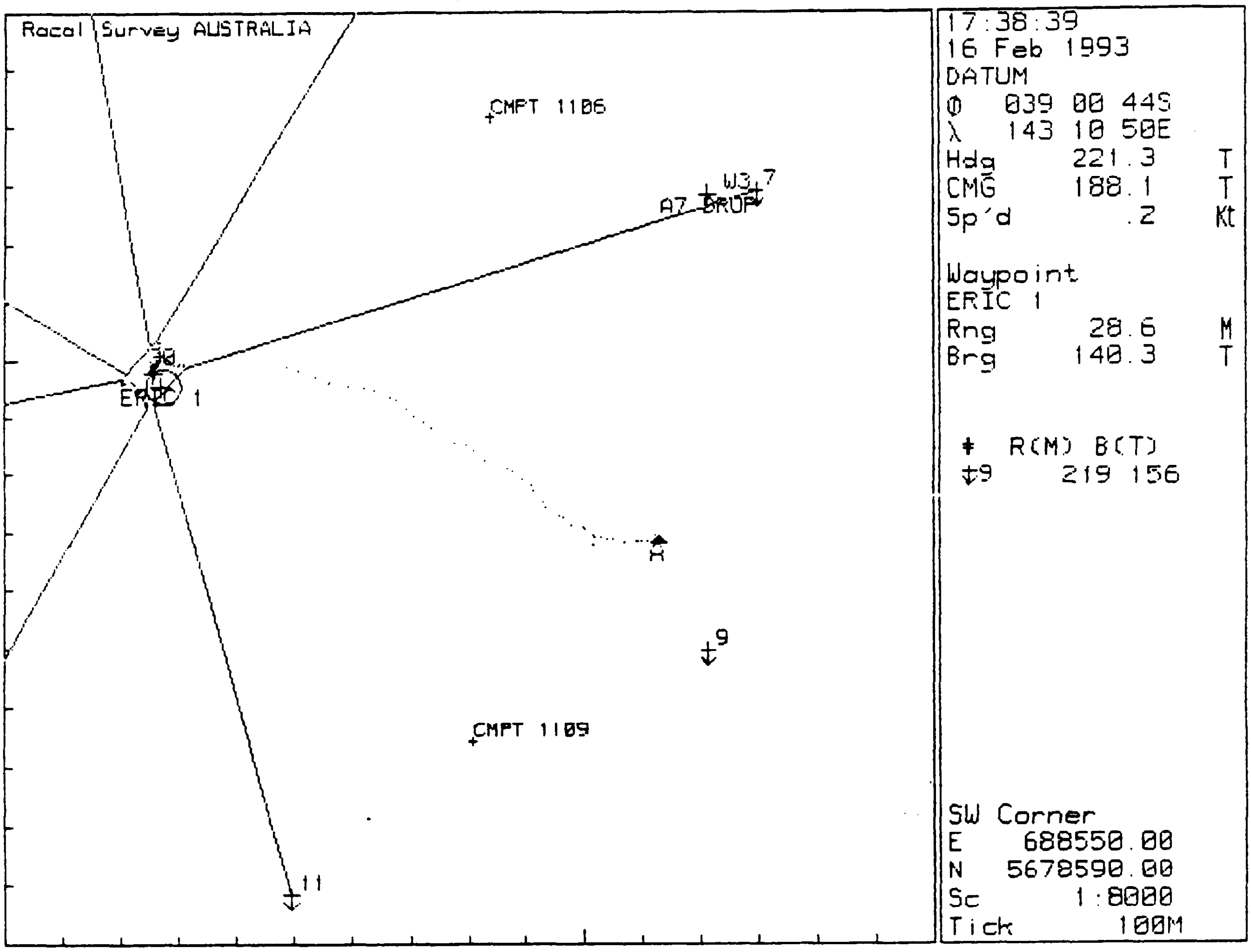
ertiary Computation (WGS 84 - Tau)
Centred on mean of antenna position (passes 1 to 455).
Latitude 39 DEG 00 MIN 40.599 SEC S Sd 1.952 Metres
Longitude 143 DEG 10 MIN 55.043 SEC E Sd 1.585 Metres

Analysis data stored to file ANALYSIS2

APPENDIX G

GOLF LASER TRACKING PRINTOUTS

Vessel Datum : 688805.68E, 5679568.27N Gyro : 220.60½T
Laser : HELI#2 688806.61E, 5679529.10N
Range 905.00 metres Bearing 243.40 Relative to Vessel Head
Tug Posn 689679E, 5679289N
Rng & Brg to Intended drop 219.3 metres 155.8 deg. True

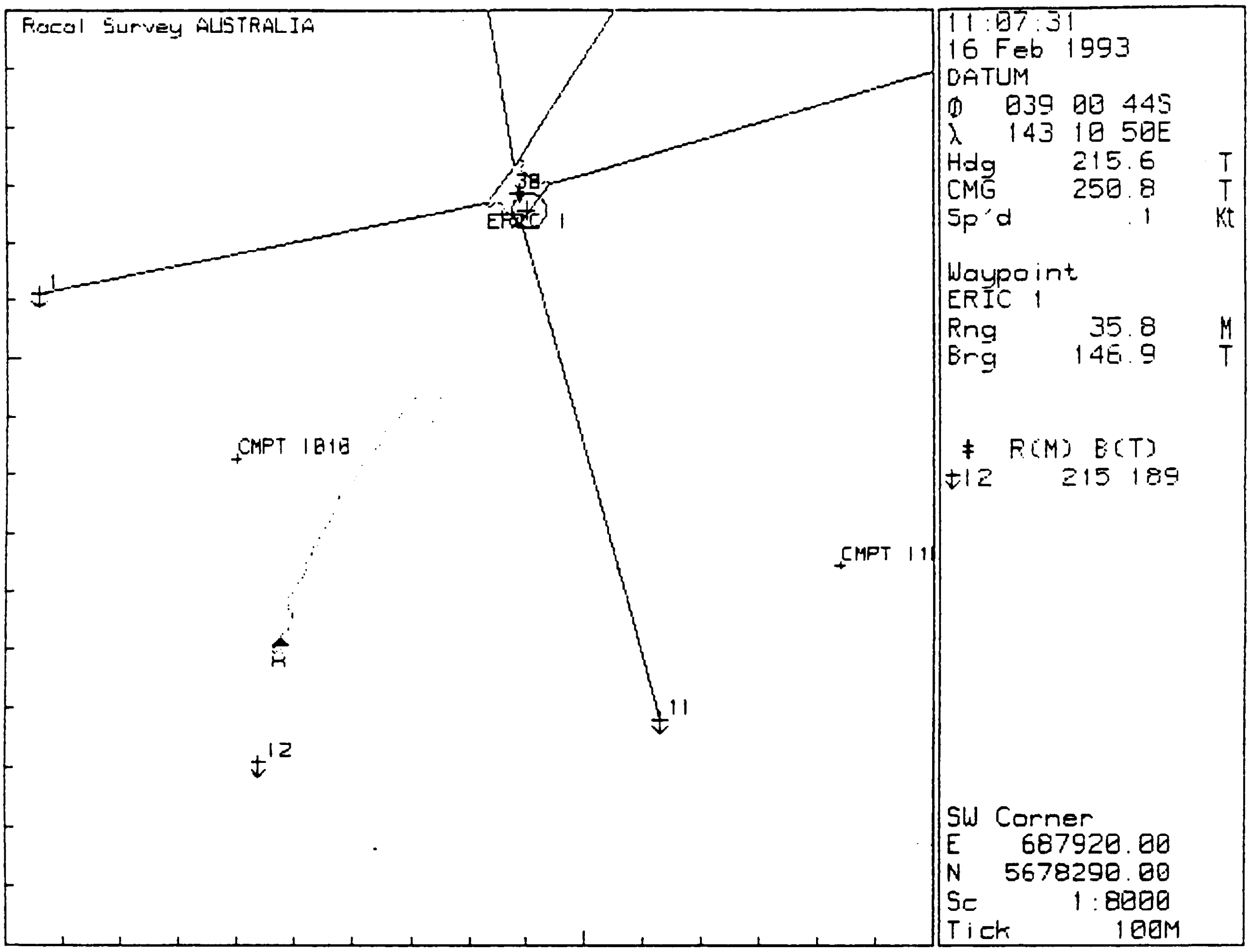


Laser : HELI#2   688814.63E, 5679537.83N

Range   860.00 metres   Bearing   353.40 Relative to Vessel Head

Tug Posn   688386E,   5678789N

Rng & Brg to Intended drop   192.1 metres   186.6 deg. True



RANGE & BEARING DISPLAY TABLE

Slot	To	From
1	Intended Drop 3	Laser Target 1A
2	OFF	OFF
3	OFF	OFF
4	OFF	OFF
5	OFF	OFF
6	OFF	OFF
7	OFF	OFF
8	OFF	OFF
9	OFF	OFF
10	OFF	OFF
11	OFF	OFF
12	OFF	OFF

RANGE & BEARING DISPLAY TABLE

Slot	To	From
1	Actual Drop 3	Winch Offset 3
2	OFF	OFF
3	OFF	OFF
4	OFF	OFF
5	OFF	OFF

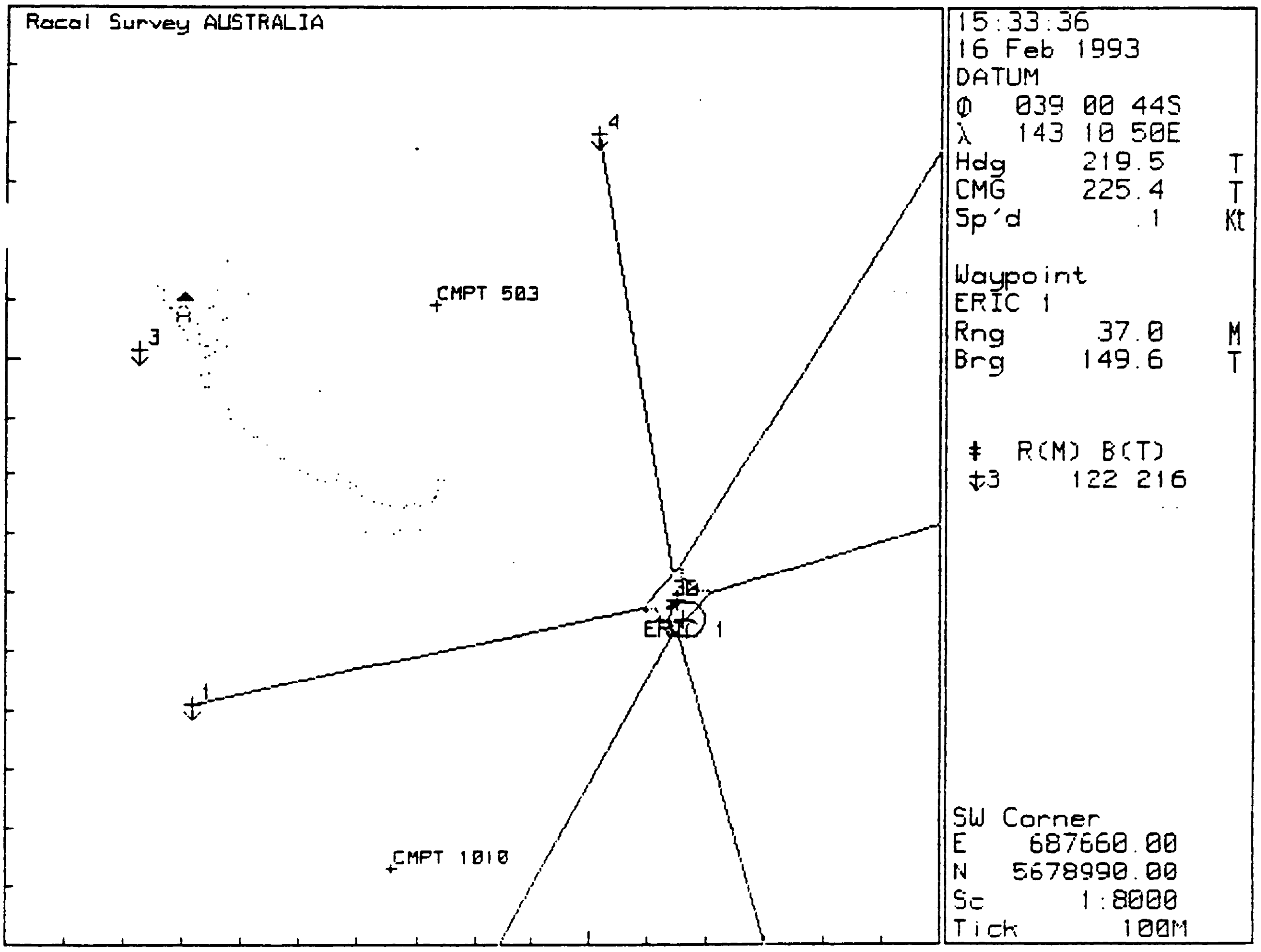
Vessel Datum : 688808.26E, 5679573.96N Gyro : 219.10½T
Laser : STARB 688754.05E, 5679561.72N
Range 910.00 metres Bearing 83.90 Relative to Vessel Head
Tug Posn 688002E, 5680076N
Rng & Brg to Intended drop 134.8 metres 236.7 deg. True

TUG TRACKING FIX @ TIME 15:32:08 Ident 1 A
Current Anchor # 3 Int. Location 687888E, 5680005N
Vessel Datum : 688807.68E, 5679574.68N Gyro : 219.50½T
Laser : STARB 688753.38E, 5679562.82N
Range 950.00 metres Bearing 83.30 Relative to Vessel Head
Tug Posn 687967E, 5680097N
Rng & Brg to Intended drop 121.3 metres 219.5 deg. True

TUG TRACKING FIX @ TIME 15:32:50 Ident 1 A

⚓3 OTB

Current Anchor # 3 Int. Location 687888E, 5680005N
Vessel Datum : 688807.22E, 5679576.91N Gyro : 219.40½T
Laser : STARB 688752.94E, 5679564.95N
Range 950.00 metres Bearing 83.40 Relative to Vessel Head
Tug Posn 687967E, 5680099N
Rng & Brg to Intended drop 122.8 metres 218.8 deg. True



RANGE & BEARING DISPLAY TABLE

lot	To	From
1	Intended Drop 9	Winch Offset 9
2	OFF	OFF

Laser : STARB 688753.37E, 5679562.25N
Range 980.00 metres Bearing 81.50 Relative to Vessel Head
Tug Posn 687927E, 5680088N
Rng & Brg to Intended drop 92.0 metres 203.6 deg. True

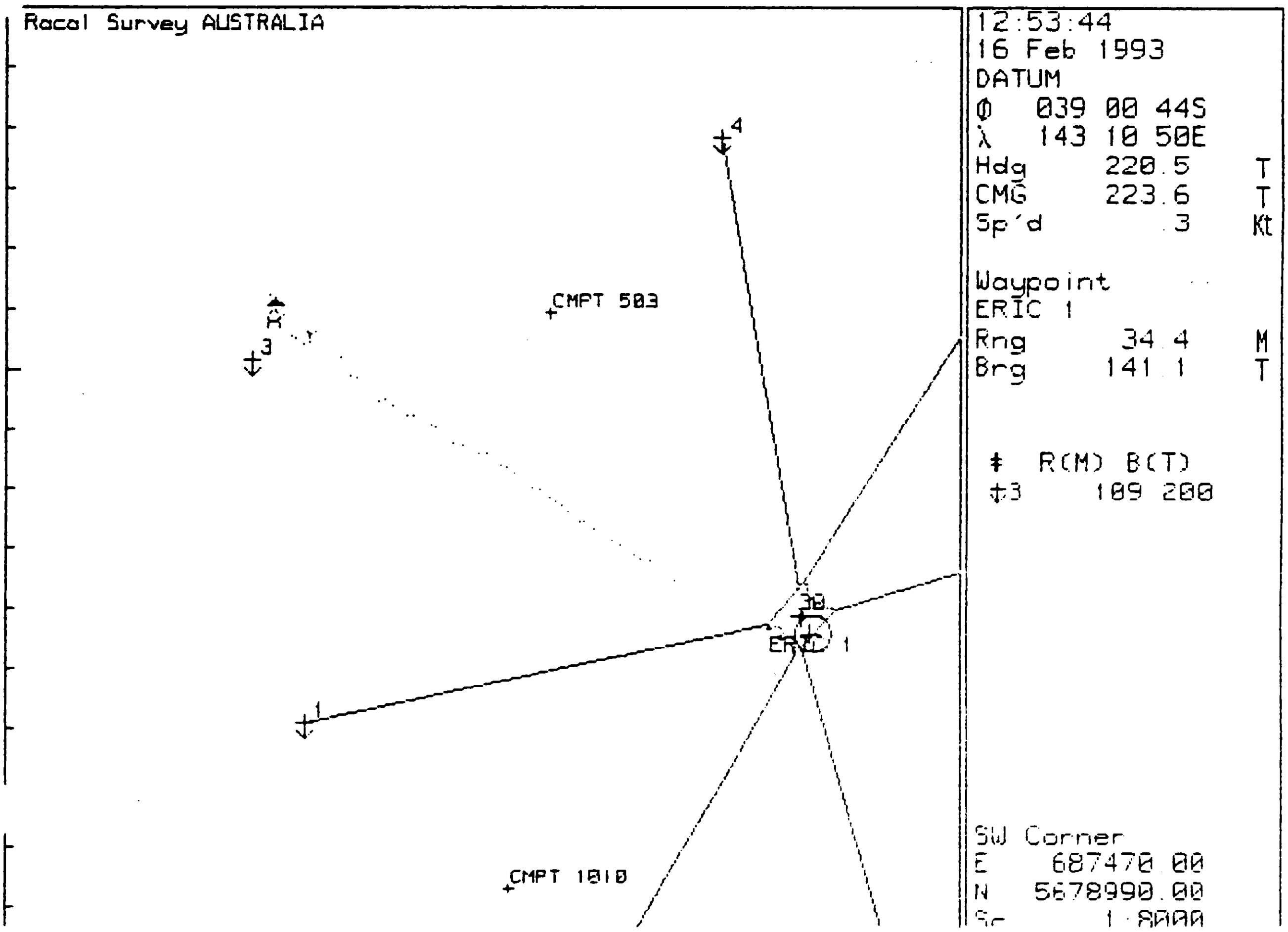
TUG TRACKING FIX @ TIME 12:52:19 Ident 1 A
Current Anchor # 3 Int. Location 687888E, 5680005N
Vessel Datum : 688808.46E, 5679574.55N Gyro : 219.70½T
Laser : STARB 688754.12E, 5679562.89N
Range 990.00 metres Bearing 82.30 Relative to Vessel Head
Tug Posn 687926E, 5680105N
Rng & Brg to Intended drop 107.1 metres 199.4 deg. True

TUG TRACKING FIX @ TIME 12:52:45 Ident 1 A
Current Anchor # 3 Int. Location 687888E, 5680005N

Vessel Datum : 688808.78E, 5679574.07N Gyro : 220.00½T
Laser : STARB 688754.37E, 5679562.69N
Range 1000.00 metres Bearing 81.90 Relative to Vessel Head
Tug Posn 687919E, 5680112N
Rng & Brg to Intended drop 111.2 metres 194.6 deg. True

TUG TRACKING FIX @ TIME 12:52:53 Ident 1 A
Current Anchor # 3 Int. Location 687888E, 5680005N
Vessel Datum : 688808.27E, 5679573.16N Gyro : 220.00½T
Laser : STARB 688753.87E, 5679561.78N
Range 990.00 metres Bearing 82.00 Relative to Vessel Head
Tug Posn 687927E, 5680107N
Rng & Brg to Intended drop 109.3 metres 199.7 deg. True

⚓3 CTB



TUG TRACKING FIX @ TIME 10:25:28 Ident 1 A

Current Anchor # 4 Int. Location 688520E, 5680544N

Vessel Datum : 688811.25E, 5679576.67N Gyro : 216.20½T

Laser : STARB 688757.72E, 5679561.71N

Range 935.00 metres Bearing 123.70 Relative to Vessel Head

Tug Posn 688461E, 5680448N

Rng & Brg to Intended drop 112.6 metres 30.4 deg. True

TUG TRACKING FIX @ TIME 10:26:14 Ident 1 A

Current Anchor # 4 Int. Location 688520E, 5680544N

Vessel Datum : 688810.07E, 5679577.43N Gyro : 214.80½T

Laser : STARB 688756.93E, 5679561.17N

Range 955.00 metres Bearing 125.10 Relative to Vessel Head

Tug Posn 688450E, 5680465N

Rng & Brg to Intended drop 105.5 metres 40.1 deg. True

TUG TRACKING FIX @ TIME 10:26:40 Ident 1 A

Current Anchor # 4 Int. Location 688520E, 5680544N

Vessel Datum : 688808.78E, 5679578.24N Gyro : 214.50½T

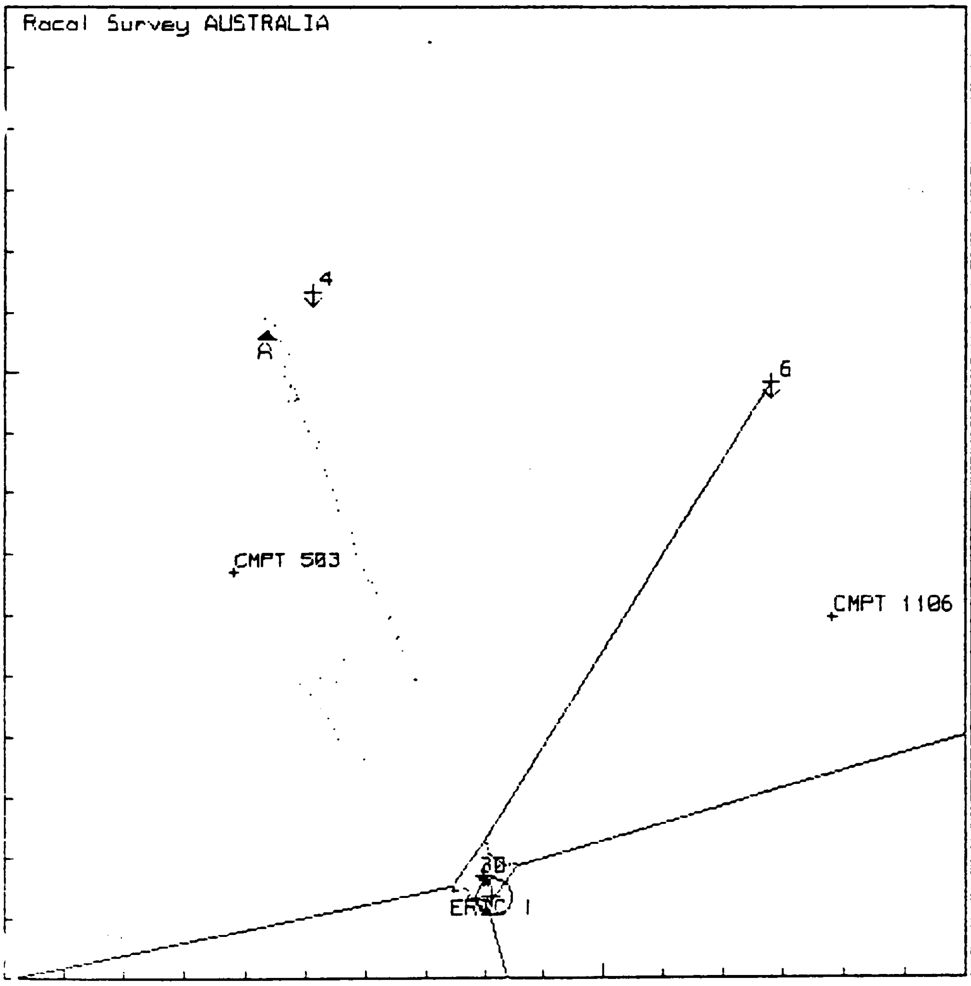
Laser : STARB 688755.72E, 5679561.69N

Range 970.00 metres Bearing 125.40 Relative to Vessel Head

Tug Posn 688445E, 5680480N

Rng & Brg to Intended drop 98.7 metres 48.5 deg. True

⚓4 OTB



10:27:29
16 Feb 1993
DATUM
Φ 039 00 44S
λ 143 10 50E
Hdg 214.6 T
CMG 142.6 T
Sp'd .3 Kt

Waypoint
ERIC 1
Rng 37.6 M
Brg 152.3 T

#	R(M)	B(T)
⚓4	100	049

SW Corner
E 688010.00
N 5679410.00
Sc 1:8000
Tick 100M

RANGE & BEARING DISPLAY TABLE

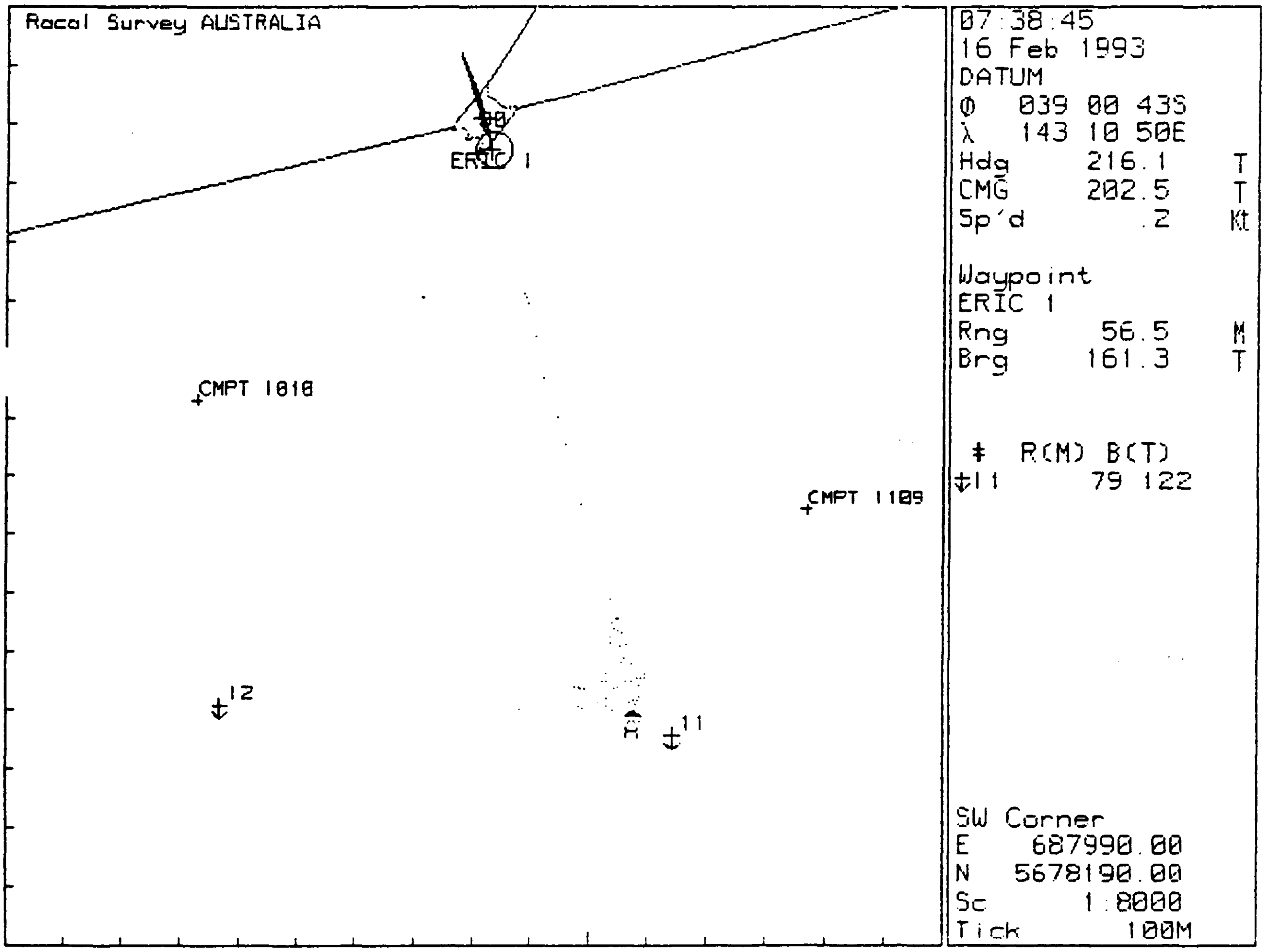
Slot	To	From

TUG TRACKING FIX @ TIME 07:38:00 Ident 1 A
Current Anchor # 11 Int. Location 689132E, 5678548N
Vessel Datum : 688806.16E, 5679603.89N Gyro : 216.30½T
Laser : HELI#2 688810.02E, 5679564.90N
Range 1030.00 metres Bearing 307.40 Relative to Vessel Head
Tug Posn 689075E, 5678570N
Rng & Brg to Intended drop 60.7 metres 109.6 deg. True

Anchor #11 on the Seabed.

TUG TRACKING FIX @ TIME 07:38:09 Ident 1 A
Current Anchor # 11 Int. Location 689132E, 5678548N
Vessel Datum : 688806.86E, 5679602.95N Gyro : 216.30½T
Laser : HELI#2 688810.72E, 5679563.96N
Range 1005.00 metres Bearing 307.60 Relative to Vessel Head
Tug Posn 689066E, 5678592N

Rng & Brg to Intended drop 79.1 metres 122.4 deg. True



RANGE & BEARING DISPLAY TABLE

Lot	To	From
1	Intended Drop 12	Winch Offset 12
2	OFF	OFF

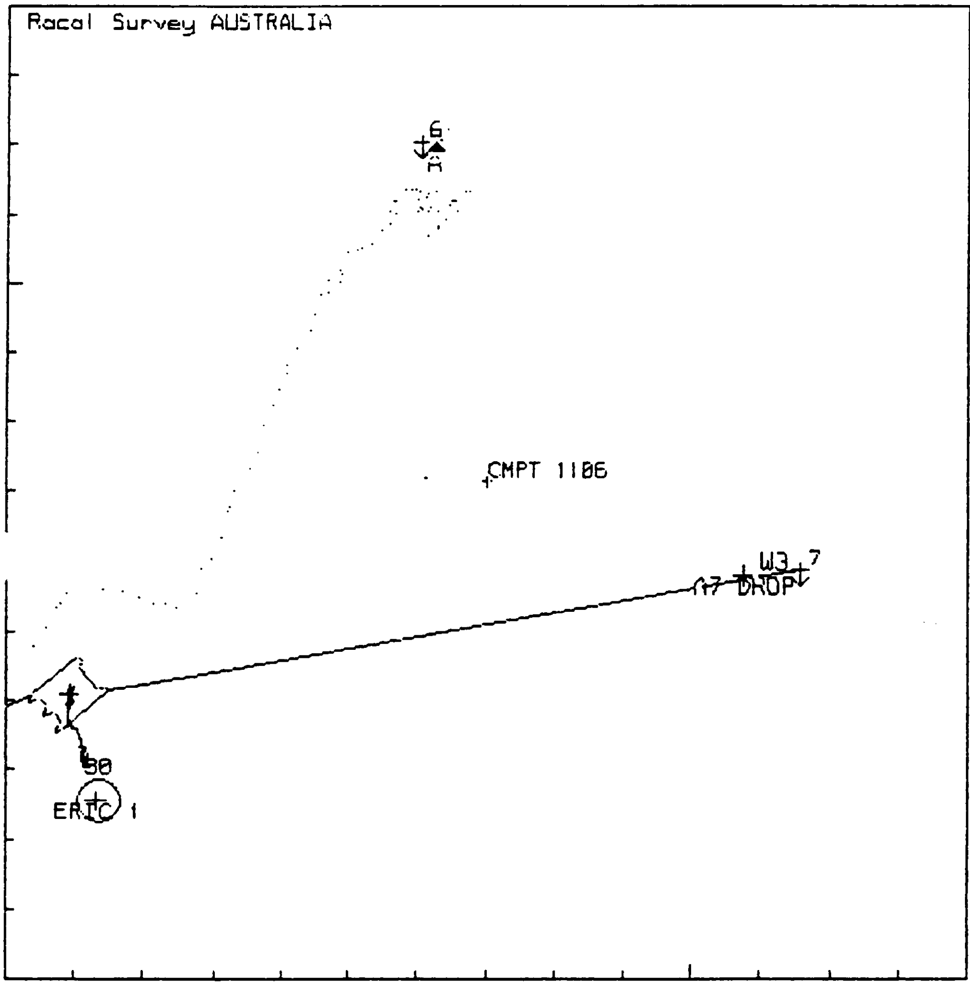
Range 1005.00 metres Bearing 167.80 Relative to Vessel Head

Tug Posn 689322E, 5680496N
Rng & Brg to Intended drop 28.0 metres 261.7 deg. True

TUG TRACKING FIX @ TIME 03:07:17 Ident 1 A

Anchor #6 on the Seabed.

Current Anchor # 6 Int. Location 689294E, 5680493N
Vessel Datum : 688783.47E, 5679696.26N Gyro : 228.10½T
Laser : STARB 688728.00E, 5679692.65N
Range 995.00 metres Bearing 167.00 Relative to Vessel Head
Tug Posn 689315E, 5680495N
Rng & Brg to Intended drop 21.3 metres 264.5 deg. True

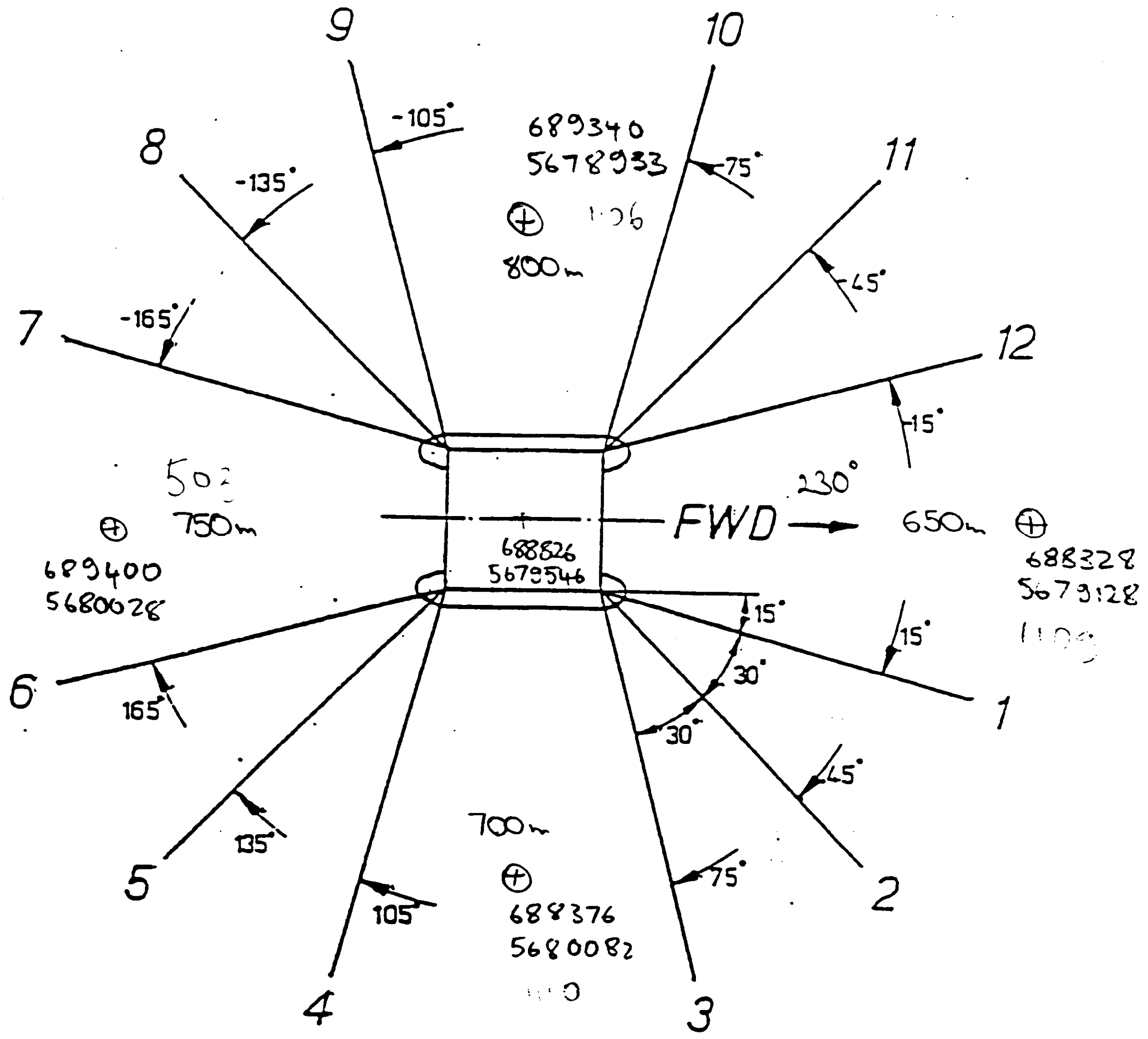


03:07:35		
16 Feb 1993		
DATUM		
Hdg	228.6	T
CMG	328.1	T
Sp'd	.4	Kt
Track Guid.		
OFF		
Brg	88.5	T
DOfL	65301.9	M
Waypoint		
ERIC 1		
Rng	159.4	M
Brg	162.8	T
‡	R(M)	B(T)
‡6	21	265
SW Corner		
E	688690.00	
N	5679290.00	
Sc	1:7000	
Tick	100M	

RANGE & BEARING DISPLAY TABLE

APPENDIX H

ANCHOR INTENDED AND DROP LOCATION PRINTOUTS



Regular 12-line anchor pattern

Fig. 5

APPENDIX I

ANCHOR PATTERN DIAGRAM

Rig BYFORD DOLPHIN at LA-BELLA Rig Heading 230.0 degrees
Location Co ordinates :   Easting 646791.490   Northing 5681400.630

ANCHOR #	BEARING	DISTANCE	EASTING	NORTHING
1	245.00	1000.000	645828.089	5680974.489
			2	5681484.263
			5	5681970.684
			5	5682362.552
			9	5682452.438
			0	5682275.396
			1	5681826.771
			8	5681316.997
			5	5680830.576
			5	5680438.708
			1	5680348.822
			0	5680525.864

Anc#	INTENDED (E,N)	DROP Locn (E,N)
1	645828.0, 5680974.0	645777.9, 5680963.0
2	645738.0, 5681484.0	645761.6, 5681609.6
3	645915.0, 5681970.0	NOT YET LAID
4	646382.0, 5682362.0	646422.4, 5682391.6
5	646892.0, 5682452.0	646911.7, 5682457.7
6	647378.0, 5682275.0	647391.5, 5682256.6
7	647754.0, 5681826.0	647767.0, 5681838.0
8	647833.0, 5681230.0	647883.3, 5681230.5
9	647555.0, 5680697.0	647548.8, 5680705.1
10	647200.0, 5680438.0	NOT YET LAID
11	646865.0, 5680349.0	646908.7, 5680381.9
12	646278.0, 5680479.0	646288.1, 5680499.2

FINAL ANCHOR POSITIONS
21/1/93.
LA-BELLA
BYFORD DOLPHIN

****

t)

t;

-99)

9 00 14.3
lea input longitude (ex, w120 00 01.2345)=?
42 41 42.9
ading geoid height data (30 degree latitude band)
0 14.3000 e142 41 42.9000 undulation = -3.462 m
lease input latitude(ex, s40 00 01.2345)=? (end, -99)

565915.4

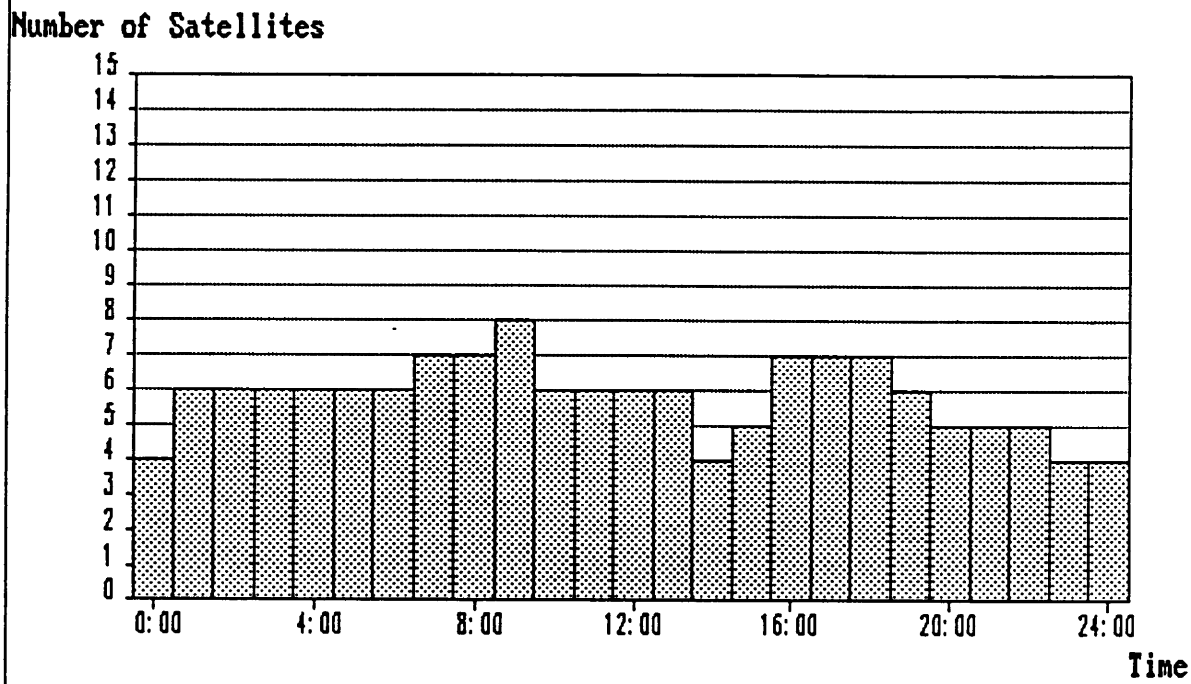
APPENDIX J

SATELLITE AVAILABILITY PREDICTIONS

Number of Visible Satellites vs Time

Station : EricTheRed Latitude :39 00'45"S Longitude :143 10'51"E

Date : 17 Feb 1993 Zone : 0:00 Cut-off Elevation : 10

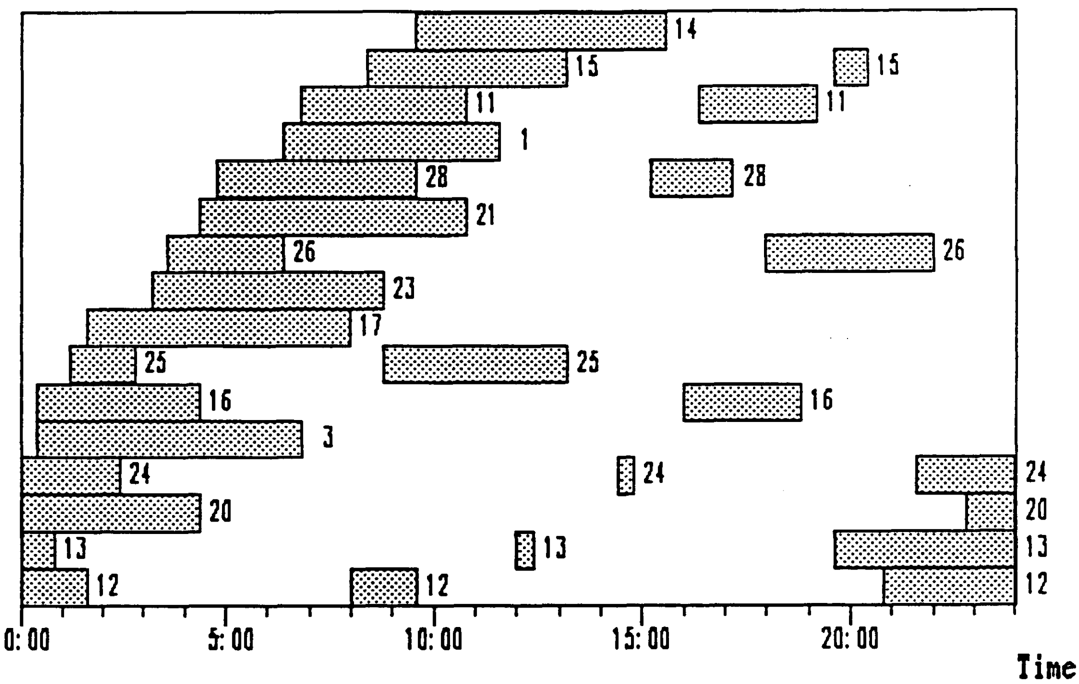


Increment of 60.0 minutes

Visible Satellites vs Time

Station : EricTheRed   Latitude :39 00'45"S   Longitude :143 10'51"E

Date : 17 Feb 1993   Zone : 0:00   Cut-off Elevation : 10



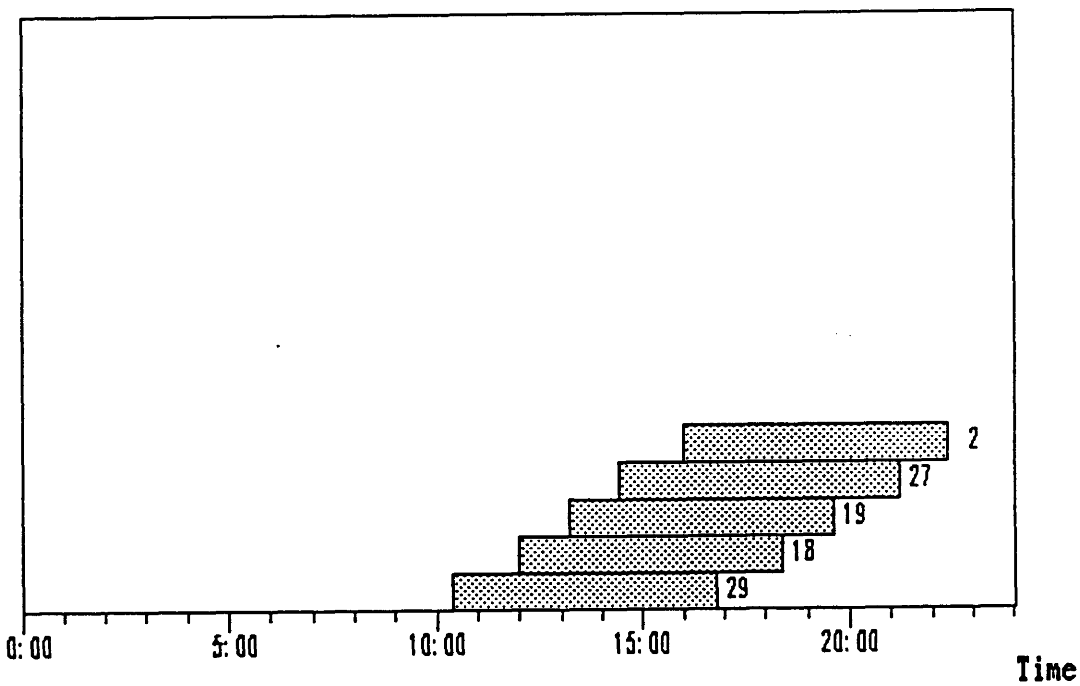
Increment of 60.0 minutes

Page 1 of 2 Pages

Visible Satellites vs Time

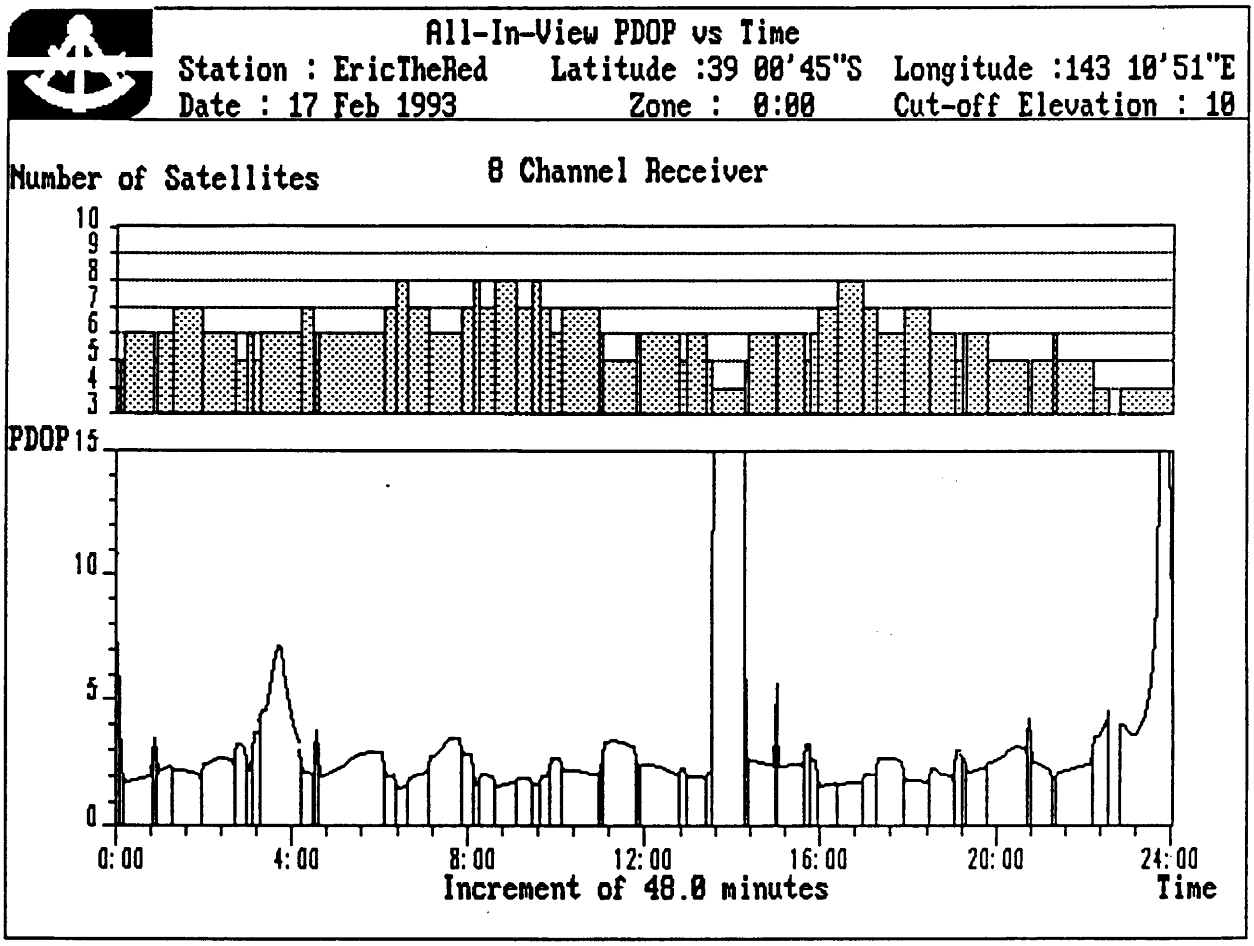
Station : EricTheRed   Latitude :39 00'45"S   Longitude :143 10'51"E

Date : 17 Feb 1993   Zone : 0:00   Cut-off Elevation : 10



Increment of 60.0 minutes

Page 2 of 2 Pages


All-In-View PDOP vs Time
Station : EricTheRed
Latitude :39 00'45"S
Longitude :143 10'51"E
Date : 17 Feb 1993
Zone : 0:00
Cut-off Elevation : 10
Number of Satellites
8 Channel Receiver
10
9
8
7
6
5
4
3
PDOP 15
10
5
0
0:00
4:00
8:00
12:00
16:00
20:00
24:00
Increment of 48.0 minutes
Time

All-In-View PDOP for EricTheRed

Date : 17 Feb 1993
Time : 0:00 -> 24:00
Cut-off Elevation : 10°

Latitude : 39° 00' 45" S
Longitude : 143° 10' 51" E
Zone : 0:00

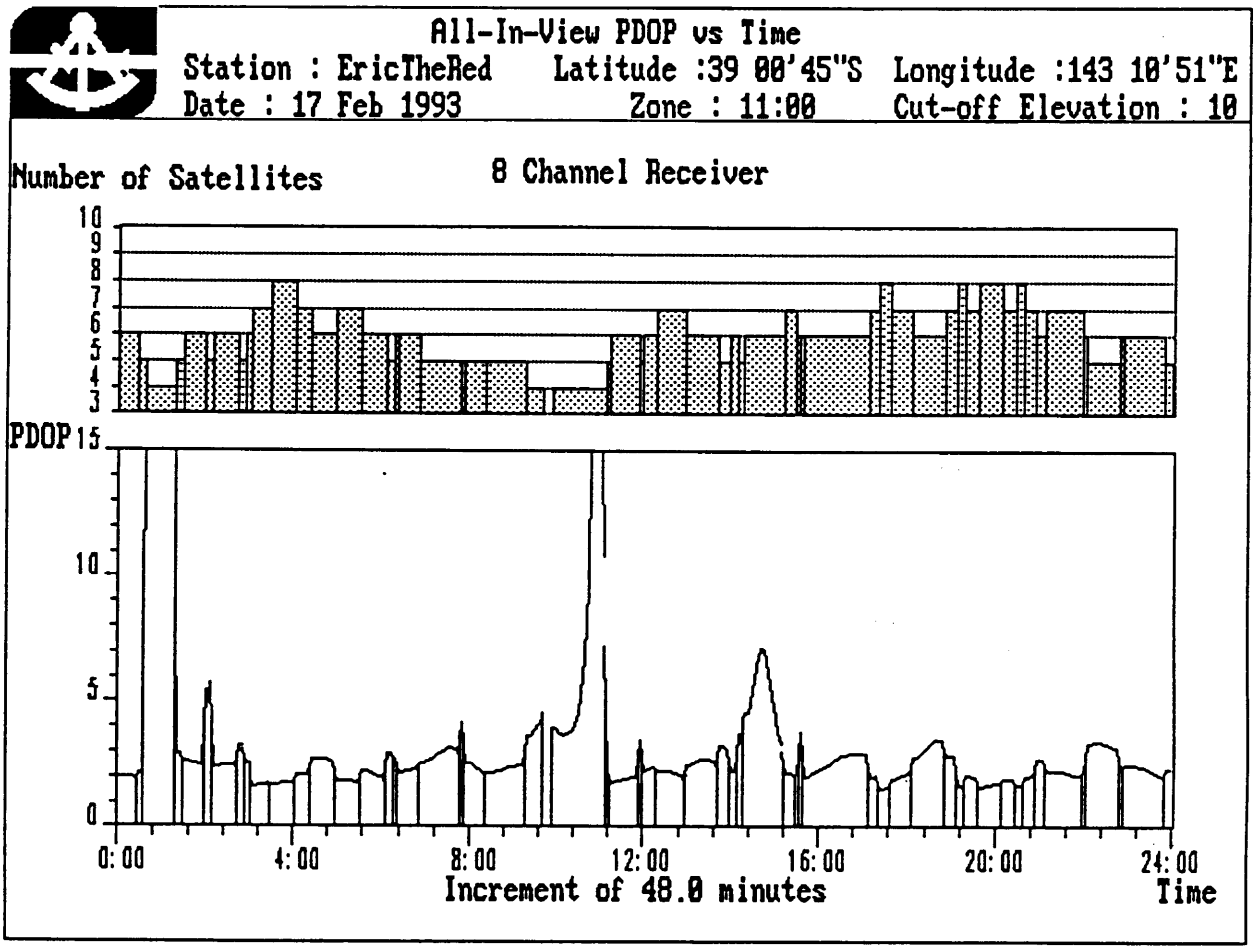
Satellite Constellation	Time Rise	Time Set	dT	PDOP Rise	PDOP Set
12 13 20 24	0:00	0:07	0:07	10.8	7.2
12 13 16 20 24	0:07	0:12	0:05	2.3	2.3
3 12 13 16 20 24	0:12	0:52	0:40	1.8	2.0
3 12 16 20 24	0:52	0:57	0:05	3.5	3.5
3 12 16 20 24 25	0:57	1:17	0:20	2.2	2.4
3 12 16 17 20 24 25	1:17	1:57	0:40	2.2	1.9
3 16 17 20 24 25	1:57	2:42	0:45	2.5	2.4
3 16 17 20 25	2:42	2:57	0:15	3.2	3.0
3 16 17 20 23 25	2:57	3:07	0:10	2.2	2.2
3 16 17 20 23	3:07	3:17	0:10	3.7	4.1
3 16 17 20 23 26	3:17	4:12	0:55	4.6	3.0
3 16 17 20 21 23 26	4:12	4:27	0:15	2.1	2.1
3 16 17 21 23 26	4:27	4:32	0:05	2.2	2.2
3 17 21 23 26	4:32	4:37	0:05	3.8	3.8
3 17 21 23 26 28	4:37	6:07	1:30	2.0	2.9
1 3 17 21 23 26 28	6:07	6:22	0:15	2.0	2.1
1 3 11 17 21 23 26 28	6:22	6:37	0:15	1.6	1.6
1 3 11 17 21 23 28	6:37	7:07	0:30	1.9	2.1
1 11 17 21 23 28	7:07	7:52	0:45	2.8	3.4
1 11 12 17 21 23 28	7:52	8:07	0:15	2.8	2.8
1 11 12 15 17 21 23 28	8:07	8:17	0:10	1.6	1.6
1 11 12 15 21 23 28	8:17	8:37	0:20	2.0	2.0
1 11 12 15 21 23 25 28	8:37	9:07	0:30	1.6	1.8
1 11 12 15 21 25 28	9:07	9:27	0:20	1.9	1.9
11 12 14 15 21 25 28	9:27	9:37	0:10	1.7	1.7
1 11 12 14 15 21 25	9:37	9:52	0:15	2.0	2.1
1 11 14 15 21 25	9:52	10:07	0:15	2.7	2.7
1 11 14 15 21 25 29	10:07	10:57	0:50	2.2	2.0
1 11 14 15 25 29	10:57	11:02	0:05	2.2	2.2
1 14 15 25 29	11:02	11:47	0:45	3.3	3.1
1 13 14 15 25 29	11:47	11:52	0:05	2.3	2.3
13 14 15 18 25 29	11:52	12:47	0:55	2.5	2.0
4 15 18 25 29	12:47	12:57	0:10	2.3	2.2
14 15 18 19 25 29	12:57	13:22	0:25	2.0	1.9
14 18 19 25 29	13:22	13:32	0:10	2.2	2.2
14 18 19 29	13:32	14:17	0:45	21.0	99.9
14 18 19 24 29	14:17	14:22	0:05	2.9	2.9
14 18 19 24 27 29	14:22	14:57	0:35	2.6	2.4
14 18 19 27 29	14:57	15:02	0:05	5.7	5.7
14 18 19 27 28 29	15:02	15:37	0:35	2.4	2.4
18 19 27 28 29	15:37	15:47	0:10	3.2	3.1
16 18 19 27 28 29	15:47	15:57	0:10	2.6	2.6
2 16 18 19 27 28 29	15:57	16:22	0:25	1.6	1.7
2 11 16 18 19 27 28 29	16:22	16:57	0:35	1.7	1.8
2 11 16 18 19 27 28	16:57	17:17	0:20	2.0	2.1

All-In-View PDOP for EricTheRed

Date : 17 Feb 1993
Time : 0:00 -> 24:00
Cut-off Elevation : 10°

Latitude : 39° 00' 45" S
Longitude : 143° 10' 51" E
Zone : 0:00

Satellite Constellation	Time Rise	Time Set	dT	PDOP Rise	PDOP Set
2 11 16 18 19 27	17:17	17:52	0:35	2.7	2.5
2 11 16 18 19 26 27	17:52	18:27	0:35	1.9	1.8
2 11 16 19 26 27	18:27	19:02	0:35	2.3	1.9
2 11 19 26 27	19:02	19:12	0:10	3.0	2.9
2 11 15 19 26 27	19:12	19:17	0:05	2.7	2.7
2 13 15 19 26 27	19:17	19:47	0:30	2.2	2.3
2 13 15 26 27	19:47	20:42	0:55	2.5	3.0
2 13 26 27	20:42	20:47	0:05	4.3	4.3
2 12 13 26 27	20:47	21:17	0:30	2.5	2.1
2 12 13 24 26 27	21:17	21:22	0:05	1.9	1.9
2 12 13 24 26	21:22	22:12	0:50	2.2	2.5
2 12 13 24	22:12	22:35	0:23	3.6	4.6
12 13 20 24	22:50	24:00	1:10	4.0	7.7


All-In-View PDOP vs Time
Station : EricTheRed
Latitude :39 00'45"S
Longitude :143 10'51"E
Date : 17 Feb 1993
Zone : 11:00
Cut-off Elevation : 10
Number of Satellites
8 Channel Receiver
10
9
8
7
6
5
4
3
PDOP 15
10
5
0
0:00
4:00
8:00
12:00
16:00
20:00
24:00
Increment of 48.0 minutes
Time

All-In-View PDOP for EricTheRed

Date : 17 Feb 1993
Time : 0:00 -> 24:00
Cut-off Elevation : 10°

Latitude : 39° 00' 45" S
Longitude : 143° 10' 51" E
Zone : 11:00

Satellite Constellation	Time Rise	Time Set	dT	PDOP Rise	PDOP Set
14 15 18 25 29	0:00	0:02	0:02	2.2	2.2
14 15 18 19 25 29	0:02	0:27	0:25	2.0	1.9
14 18 19 25 29	0:27	0:37	0:10	2.2	2.2
14 18 19 29	0:37	1:17	0:40	21.3	99.9
14 18 19 24 29	1:17	1:27	0:10	3.0	2.9
14 18 19 24 27 29	1:27	1:57	0:30	2.6	2.4
14 18 19 27 29	1:57	2:07	0:10	5.4	5.8
14 18 19 27 28 29	2:07	2:42	0:35	2.4	2.4
18 19 27 28 29	2:42	2:52	0:10	3.2	3.1
16 18 19 27 28 29	2:52	3:02	0:10	2.6	2.6
2 16 18 19 27 28 29	3:02	3:27	0:25	1.6	1.7
2 11 16 18 19 27 28 29	3:27	4:02	0:35	1.7	1.8
2 11 16 18 19 27 28	4:02	4:22	0:20	2.0	2.1
2 11 16 18 19 27	4:22	4:57	0:35	2.7	2.5
2 11 16 18 19 26 27	4:57	5:32	0:35	1.9	1.8
2 11 16 19 26 27	5:32	6:07	0:35	2.3	1.9
2 11 19 26 27	6:07	6:17	0:10	3.0	2.9
2 11 15 19 26 27	6:17	6:22	0:05	2.7	2.7
2 13 15 19 26 27	6:22	6:52	0:30	2.2	2.3
2 13 15 26 27	6:52	7:47	0:55	2.5	2.9
2 13 26 27	7:47	7:52	0:05	4.2	4.2
2 12 13 26 27	7:52	8:22	0:30	2.5	2.1
2 12 13 24 26	8:22	9:17	0:55	2.1	2.5
2 12 13 24	9:17	9:40	0:23	3.6	4.6
1: .3 20 24	9:55	11:07	1:12	3.9	7.2
12 13 16 20 24	11:07	11:12	0:05	2.3	2.3
3 12 13 16 20 24	11:12	11:52	0:40	1.8	2.0
3 12 16 20 24	11:52	11:57	0:05	3.5	3.5
3 12 16 20 24 25	11:57	12:17	0:20	2.2	2.4
3 12 16 17 20 24 25	12:17	12:57	0:40	2.2	1.9
3 16 17 20 24 25	12:57	13:42	0:45	2.5	2.4
3 16 17 20 25	13:42	13:57	0:15	3.2	3.0
3 16 17 20 23 25	13:57	14:07	0:10	2.2	2.2
3 16 17 20 23	14:07	14:17	0:10	3.7	4.1
3 16 17 20 23 26	14:17	15:12	0:55	4.6	3.0
3 16 17 20 21 23 26	15:12	15:27	0:15	2.1	2.1
3 16 17 21 23 26	15:27	15:32	0:05	2.2	2.2
3 17 21 23 26	15:32	15:37	0:05	3.8	3.8
3 17 21 23 26 28	15:37	17:07	1:30	2.0	2.9
1 3 17 21 23 26 28	17:07	17:22	0:15	2.0	2.1
1 3 11 17 21 23 26 28	17:22	17:37	0:15	1.6	1.6
1 3 11 17 21 23 28	17:37	18:07	0:30	1.9	2.1
1 11 17 21 23 28	18:07	18:52	0:45	2.8	3.4
1 11 12 17 21 23 28	18:52	19:07	0:15	2.8	2.8
1 11 12 15 17 21 23 28	19:07	19:17	0:10	1.6	1.6

All-In-View PDOP for EricTheRed

Date : 17 Feb 1993
Time : 0:00 -> 24:00
Cut-off Elevation : 10°

Latitude : 39° 00' 45" S
Longitude : 143° 10' 51" E
Zone : 11:00

Satellite Constellation	Time Rise	Time Set	dT	PDOP Rise	PDOP Set
1 11 12 15 21 23 28	19:17	19:37	0:20	2.0	2.0
1 11 12 15 21 23 25 28	19:37	20:07	0:30	1.6	1.8
1 11 12 15 21 25 28	20:07	20:27	0:20	1.9	1.9
1 11 12 14 15 21 25 28	20:27	20:37	0:10	1.7	1.7
1 11 12 14 15 21 25	20:37	20:52	0:15	2.0	2.1
1 11 14 15 21 25	20:52	21:07	0:15	2.7	2.7
1 11 14 15 21 25 29	21:07	21:57	0:50	2.2	2.0
1 11 14 15 25 29	21:57	22:02	0:05	2.2	2.2
1 14 15 25 29	22:02	22:47	0:45	3.3	3.1
1 13 14 15 25 29	22:47	22:52	0:05	2.3	2.3
13 14 15 18 25 29	22:52	23:47	0:55	2.5	2.0
14 15 18 25 29	23:47	23:57	0:10	2.3	2.2

APPENDIX K

ACOUSTIC/DGPS COMPARISON PRINTOUTS

tion Pattern Codes

(ON)			Secondary(ON)				Tertiary(ON)[TRACKING]				Quaternary(OFF)
Code	SRC	HRB	LOP	Patt Code	SRC	HRB	LOP	Patt Code	SRC	HRB	No Data
0503	113	R	1	Geogs	211	1	1	Geogs	311	1	
1106	116	R									
1109	119	R									
1010	[illegible]	R									

R=Receiver C=Channel *=Pattern temporarily not used in computation

BHP
BYFORD DOLPHIN R/M
ERIC THE RED

ACOUSTIC / SKYFIX-DGPS
COMPARISONS.

TRANSPONDER CO-ORDS
FROM SEABED / BOX-INS

RIGMOVE / GNS

Definition

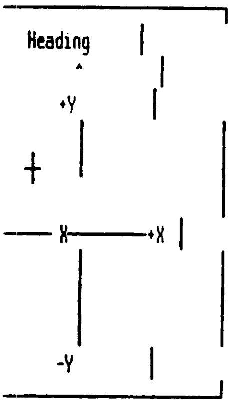
.	Sonardyne	On/Off Status=ON
2	Del Norte	On/Off Status=ON
3	Tau	On/Off Status=ON
4	Not defined	On/Off Status=OFF

NSFER SEQUENCE TO ONLINE OPERATION COMPLETE - R2.06A

er Offsets

Sonardyne
er 1

Y	Depth
+8.20	+15.00



Transducer 1=+

Parameters

Sonardyne
of Propagation = 1513.2 M/Sec
tow point-fish= 0.0 M

SFER SEQUENCE TO ONLINE OPERATION COMPLETE - R2.06A

SFER SEQUENCE TO ONLINE OPERATION COMPLETE - R2.06A

SFER SEQUENCE TO ONLINE OPERATION COMPLETE - R2.06A

13:42:11 12 Feb 1993 Gyro(T): 176.8 Corrn: -5.9 Speed MG(K): 2.8
CURRE[illegible]FSET : DATUM +0.00 X +0.00 Y
E 68[illegible].79 N 5679890.17 Lat 39 0 34.1945 145 10 53.727E

Line: P'LAND TO ERIC 1 CC Speed(K): 1.6 Dist to Go(M): 112

Waypoint: ERIC THE R Dist(M): 351 Brg(T): 189.6

PRIMARY COMP. E 688896.09 N 5679895.08

LOP	PATT	TF	SRC	RAW DATA	C-O	RESIDUAL		WEIGHT						
1	0503	R	113	544.43	+0.00	-.63	-.63	1.0	Diff E	+3.3	Diff N	+4.9		
2	1106	R	116	509.81	+0.00	+.13	+.13	1.0	Drms	3.1	Max Error	3.6	Orient	1.6
3	1109	R	119	1061.65	+0.00	-.77	-.77	1.0	Rms	.8	Mn Wt Res	.5		
4	1		1110	964.80	+0.00	+.62	+.62	1.0						

SECONDARY COMP.

GPS (Del Norte) E 688917.90 N 5679916.63 Diff E +25.11 Diff N +26.46 No. Sats. used unknown

C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

Latitude: 39 0 27.999 S Longitude: 143 10 59.697 E Height: -21.90 M

TERTIARY COMP. (T)

GPS (Tau) E 688892.79 N 5679890.17 Height +12.6

C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

12 Feb 1993 UTC Time :02 41 44.4 CMG :03.20 SMG :003.2

Posn(WGS 84) Lat : 39 0 28.740 S Long :143 10 58.670 E (PR Corr.) Ht : 7.80 M

PRNs:[20 SN:24 RE:000 STAT:0][17 SN:13 RE:001 STAT:0][24 SN:09 RE:000 STAT:0][03 SN:16 RE:000 STAT:0][25 SN:10 RE:001 STAT:0]

PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:43:04 12 Feb 1993 Gyro(T): 187.8 Corrn: -5.9 Speed MG(K): 1.7

CURRENT OFFSET : DATUM +0.00 X +0.00 Y

E 688919.97 N 5679832.79 Lat 39 0 36.033S 143 10 54.914E

Line: P'LAND TO ERIC 1 CC Speed(K): .9 Dist to Go(M): 60

Waypoint: ERIC THE R Dist(M): 302 Brg(T): 196.8

PRIMARY COMP. E 688924.18 N 5679835.74

LOP	PATT	TF	SRC	RAW DATA	C-O	RESIDUAL		WEIGHT						
1	0503	R	113	593.06	+0.00	+.08	+.08	1.0	Diff E	+4.2	Diff N	+2.9		
2	1106	R	116	0.00	+0.00	-501.99	-501.99	0.0	Drms	3.5	Max Error	4.1	Orient	52.2
3	1109	R	119	996.53	+0.00	+.08	+.08	1.0	Rms	.1	Mn Wt Res	.1		
4	1010	R	1110	933.47	+0.00	-.05	-.05	1.0						

SECONDARY COMP.

GPS (Del Norte) E 688948.39 N 5679846.68 Diff E +28.42 Diff N +13.89 No. Sats. used unknown

C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

Latitude: 39 0 30.242 S Longitude: 143 11 1.033 E Height: -24.50 M

TERTIARY COMP. (T)

GPS (Tau) E 688919.97 N 5679832.79 Height +11.3

C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

12 Feb 1993 UTC Time :02 42 37.3 CMG :01.80 SMG :001.8

Posn(WGS 84) Lat : 39 0 30.580 S Long :143 10 59.890 E (PR Corr.) Ht : 6.50 M

PRNs:[20 SN:22 RE:000 STAT:0][17 SN:12 RE:000 STAT:0][24 SN:07 RE:000 STAT:0][03 SN:16 RE:000 STAT:0][25 SN:10 RE:001 STAT:0]

PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:43:31 12 Feb 1993 Gyro(T): 189.9 Corrn: -5.9 Speed MG(K): 1.4

CURRENT OFFSET : DATUM +0.00 X +0.00 Y

E 688932.36 N 5679813.70 Lat 39 0 36.642S 143 10 55.448E

Line: P'LAND TO ERIC 1 CC Speed(K): .6 Dist to Go(M): 40

Waypoint: ERIC THE R Dist(M): 288 Brg(T): 200.3

PRIMARY COMP. E 688931.00 N 5679806.54

LOP	PATT	TF	SRC	RAW DATA	C-O	RESIDUAL		WEIGHT						
1	0503	R	113	615.80	+0.00	+3.18	+3.18	1.0	Diff E	-1.4	Diff N	-7.2		
2	1106	R	116	499.70	+0.00	-7.43	-7.43	1.0	Drms	3.0	Max Error	3.5	Orient	353.5
3	1109	R	119	973.77	+0.00	+6.53	+6.53	1.0	Rms	10.2	Mn Wt Res	6.8		
4	1010	R	1110	905.76	+0.00	+9.97	+9.97	1.0						

SECONDARY COMP.ABORTED

TERTIARY COMP. (T)

GPS (E 688932.36 N 5679813.70 Height +13.7

C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

12 Feb 1993 UTC Time :02 43 04.3 CMG :01.40 SMG :001.4
Posn(WGS 84) Lat : 39 0 31.190 S Long :143 11 .430 E (PR Corr.) Ht : 8.90 M
PRNs:[20 SN:21 RE:000 STAT:0][17 SN:14 RE:000 STAT:0][24 SN:07 RE:000 STAT:0][03 SN:15 RE:000 STAT:0][25 SN:10 RE:000 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:43:59 12 Feb 1993 Gyro(T): 182.8 Corrn: -5.9 Speed MG(K): 1.7
CURRENT OFFSET : DATUM +0.00 X +0.00 Y
E 688952.29 N 5679800.52 Lat 39 0 37.054S 143 10 56.289E
Line: P'LAND TO ERIC 1 CC Speed(K): .2 Dist to Go(M): 16
Waypoint: ERIC THE R Dist(M): 284 Brg(T): 205.0
PRIMARY COMP. E 688955.12 N 5679803.94
LOP PATT TF SRC RAW DATA C-O RESIDUAL WEIGHT
1 0503 R 113 634.86 +0.00 -.21 -.21 1.0 Diff E +2.8 Diff N +3.4
2 1106 R 116 485.14 +0.00 +.03 +.03 1.0 Drms 3.0 Max Error 3.5 Orient 349.3
3 1109 R 119 954.46 +0.00 -.22 -.22 1.0 Rms .2 Mn Wt Res .2
4 1010 R 1110 931.61 +0.00 +.17 +.17 1.0
SECONDARY COMP.
GPS (Del Norte) E 688977.15 N 5679802.23 Diff E +24.86 Diff N +1.72 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 31.661 S Longitude: 143 11 2.273 E Height: -25.00 M
TERTIARY COMP. (T)
GPS (Tau) E 688952.29 N 5679800.52 Height +15.0
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
12 Feb 1993 UTC Time :02 43 32.4 CMG :01.60 SMG :001.6
Posn(WGS 84) Lat : 39 0 31.600 S Long :143 11 1.250 E (PR Corr.) Ht : 10.20 M
PRNs:[20 SN:22 RE:001 STAT:0][17 SN:10 RE:000 STAT:0][24 SN:11 RE:001 STAT:0][03 SN:14 RE:000 STAT:0][25 SN:07 RE:000 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:44:30 12 Feb 1993 Gyro(T): 177.7 Corrn: -5.9 Speed MG(K): 1.5
CURRENT OFFSET : DATUM +0.00 X +0.00 Y
E 688971.43 N 5679789.88 Lat 39 0 37.384S 143 10 57.095E
Line: P'LAND TO ERIC 1 CC Speed(K): -0.0 Dist to Go(M): -6
Waypoint: ERIC THE R Dist(M): 284 Brg(T): 209.4
PRIMARY COMP. E 688992.38 N 5679759.99
LOP PATT TF SRC RAW DATA C-O RESIDUAL WEIGHT
1 0503 R 113 661.39 +0.00 -27.29 -27.29 1.0 Diff E +21.0 Diff N -29.9
2 1106 R 116 468.77 +0.00 -3.99 -3.99 1.0 Drms 3.0 Max Error 3.4 Orient 339.6
3 1109 R 119 872.98 +0.00 -26.63 -26.63 1.0 Rms 28.7 Mn Wt Res 17.8
4 1010 R 1110 941.20 +0.00 +13.48 +13.48 1.0
SECONDARY COMP.
GPS (Del Norte) E 688987.82 N 5679796.34 Diff E +16.39 Diff N +6.47 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 31.844 S Longitude: 143 11 2.722 E Height: -31.30 M
TERTIARY COMP. (T)
GPS (Tau) E 688971.43 N 5679789.88 Height +13.6
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
12 Feb 1993 UTC Time :02 44 02.4 CMG :01.40 SMG :001.4
Posn(WGS 84) Lat : 39 0 31.930 S Long :143 11 2.040 E (PR Corr.) Ht : 8.80 M
PRNs:[20 SN:23 RE:001 STAT:0][17 SN:14 RE:000 STAT:0][24 SN:09 RE:001 STAT:0][03 SN:16 RE:000 STAT:0][25 SN:11 RE:001 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:44:57 12 Feb 1993 Gyro(T): 173.9 Corrn: -5.9 Speed MG(K): 1.4
CURRENT OFFSET : DATUM +0.00 X +0.00 Y
E 688991.78 N 5679783.86 Lat 39 0 37.563S 143 10 57.946E
Line: P'LAND TO ERIC 1 CC Speed(K): .2 Dist to Go(M): -27
Waypoint: ERIC THE R Dist(M): 290 Brg(T): 213.5
PRIMARY COMP. E 688999.89 N 5679788.15

LOP PATT TF SRC RAW DATA C-O RESIDUAL WEIGHT
1 0503 R 113 685.53 +0.00 +2.83 +2.83 1.0 Diff E +8.1 Diff N +4.3
1106 R 116 454.41 +0.00 +3.13 +3.13 1.0 Drms 3.0 Max Error 3.5 Orient 340.9
1109 R 119 924.74 +0.00 +2.03 +2.03 1.0 Rms 3.4 Mn Wt Res 2.3
4 1010 R 1110 954.58 +0.00 +1.31 +1.31 1.0
SECONDARY COMP.
GPS (D Norte) E 689003.56 N 5679790.45 Diff E +11.78 Diff N +6.60 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 32.022 S Longitude: 143 11 3.382 E Height: -32.00 M
TERTIARY COMP. (T)
GPS (Tau) E 688991.78 N 5679783.86 Height +12.8
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
12 Feb 1993 UTC Time :02 44 29.4 CMG :01.70 SMG :001.7
Posn(WGS 84) Lat : 39 0 32.110 S Long :143 11 2.880 E (PR Corr.) Ht : 8.00 M
PRNs:[20 SN:25 RE:001 STAT:0][17 SN:12 RE:000 STAT:0][24 SN:11 RE:001 STAT:0][03 SN:15 RE:000 STAT:0][25 SN:07 RE:001 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:45:00 12 Feb 1993 Gyro(T): 173.5 Corrn: -5.9 Speed MG(K): 1.5
CURRENT OFFSET : DATUM +0.00 X +0.00 Y
E 688993.96 N 5679783.50 Lat 39 0 37.573S 143 10 58.037E
Line: P'LAND TO ERIC 1 CC Speed(K): .3 Dist to Go(M): -29
Waypoint: ERIC THE R Dist(M): 291 Brg(T): 213.9
PRIMARY COMP. E 689000.06 N 5679784.94
LOP PATT TF SRC RAW DATA C-O RESIDUAL WEIGHT
1 0503 R 113 686.60 +0.00 +2.32 +2.32 1.0 Diff E +6.1 Diff N +1.4
2 1106 R 116 453.11 +0.00 +.46 +.46 1.0 Drms 3.0 Max Error 3.5 Orient 340.7
3 1109 R 119 921.94 +0.00 +2.22 +2.22 1.0 Rms 2.4 Mn Wt Res 1.5
4 1010 R 1110 950.09 +0.00 -1.14 -1.14 1.0
SECONDARY COMP.
GPS (Del Norte) E 689001.34 N 5679790.41 Diff E +7.38 Diff N +6.92 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 32.025 S Longitude: 143 11 3.289 E Height: -31.80 M
TERTIARY COMP. (T)
GPS (Tau) E 688993.96 N 5679783.50 Height +11.2
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
12 Feb 1993 UTC Time :02 44 33.4 CMG :01.50 SMG :001.5
Posn(WGS 84) Lat : 39 0 32.120 S Long :143 11 2.970 E (PR Corr.) Ht : 6.40 M
PRNs:[20 SN:23 RE:001 STAT:0][17 SN:14 RE:000 STAT:0][24 SN:10 RE:001 STAT:0][03 SN:18 RE:000 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:46:44 12 Feb 1993 Gyro(T): 154.1 Corrn: -5.9 Speed MG(K): 1.6
CURRENT OFFSET : DATUM +0.00 X +0.00 Y
E 689080.14 N 5679777.81 Lat 39 0 37.691S 143 11 1.624E
Line: P'LAND TO ERIC 1 CC Speed(K): .8 Dist to Go(M): -106
Waypoint: ERIC THE R Dist(M): 344 Brg(T): 226.3
PRIMARY COMP. E 689081.12 N 5679779.77
LOP PATT TF SRC RAW DATA C-O RESIDUAL WEIGHT
1 0503 R 113 761.09 +0.00 +.73 +.73 1.0 Diff E +1.0 Diff N +2.0
2 1106 R 116 385.45 +0.00 +.61 +.61 1.0 Drms 3.1 Max Error 3.5 Orient 328.3
3 1109 R 119 889.55 +0.00 +.66 +.66 1.0 Rms .8 Mn Wt Res .5
4 1010 R 1110 1011.24 +0.00 +.03 +.03 1.0
SECONDARY COMP.
GPS (Del Norte) E 689075.14 N 5679790.36 Diff E -5.01 Diff N +12.55 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 31.970 S Longitude: 143 11 6.356 E Height: -31.90 M
TERTIARY COMP. (T)
GPS (Tau) E 689080.14 N 5679777.81 Height +11.7
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84

12 Feb 1993 UTC Time :02 46 17.4 CMG :01.90 SMG :001.9
Posn(WGS 84) Lat : 39 0 32.250 S Long :143 11 6.500 E (PR Corr.) Ht : 6.90 M
PRNs:[20 SN:22 RE:000 STAT:0][17 SN:12 RE:000 STAT:0][24 SN:12 RE:001 STAT:0][03 SN:17 RE:000 STAT:0][25 SN:08 RE:000 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

13:47:23 12 Feb 1993 Gyro(T): 144.3 Corrn: -5.9 Speed MG(K): 1.7
CURR FFSET : DATUM +0.00 X +0.00 Y
E 689114.16 N 5679785.38 Lat 39 0 37.419S 143 11 3.030E
Line: P'LAND TO ERIC 1 CC Speed(K): 1.2 Dist to Go(M): -132
Waypoint: ERIC THE R Dist(M): 375 Brg(T): 228.9
PRIMARY COMP. E 689112.11 N 5679785.63

LOP	PATT	TF	SRC	RAW DATA	C-O	RESIDUAL		WEIGHT						
1	0503	R	113	786.67	+0.00	+.20	+.20	1.0	Diff E	-2.0	Diff N	+.3		
2	1106	R	116	356.03	+0.00	+.56	+.56	1.0	Drms	3.1	Max Error	3.6	Orient	325.0
3	1109	R	119	887.20	+0.00	+.18	+.18	1.0	Rms	.5	Mn Wt Res	.3		
4	1010	R	1110	1040.62	+0.00	+.39	+.39	1.0						

SECONDARY COMP.
GPS (Del Norte) E 689114.06 N 5679790.70 Diff E -.10 Diff N +5.32 No. Sats. used unknown
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
Latitude: 39 0 31.928 S Longitude: 143 11 7.973 E Height: -38.90 M
TERTIARY COMP. (T)
(Tau) E 689114.16 N 5679785.38 Height +10.0
C-Os applied dLat : +0.00 dLong : +0.00 dHeight : +0.00 Rx spheroid : WGS 84
12 Feb 1993 UTC Time :02 46 55.4 CMG :02.00 SMG :002.0
Posn(WGS 84) Lat : 39 0 31.990 S Long :143 11 7.880 E (PR Corr.) Ht : 5.20 M
PRNs:[20 SN:24 RE:000 STAT:0][17 SN:14 RE:000 STAT:0][24 SN:10 RE:001 STAT:0][03 SN:14 RE:000 STAT:0][25 SN:08 RE:000 STAT:0]
PDOP :02.8 HDOP :01.7 3D-Err :000 2D-Err :000 Mode :3SV & ALT

APPENDIX L

DAILY LOG SHEETS

RCRD 1/PE900171/P431

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea St	Swell	Wind Dir.
0000	3	2-3	60° 15kts
0600	3	2	60° 15kts
1200	3	2-3	90° 22kts
1800	3	3-4	110° 45kts

Client : BHP			Job No : 2051			Date : 14-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS PC	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0700 - Helicopter arrived with SkyFix equipment.

0730 - Byford Dolphin commenced recovering anchors.

1930 - Byford Dolphin still has 4 ~~[illegible]~~ anchors to recover

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 K Eddy SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations
YELLOW	: Clients Representative

Signature Colin Sellers CLIENTS REPRESENTATIVE

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000	2.5	2.3	110° 25kn
0	2.5	2.3	0° 10kn
1200	1.5	1.2	280° 15kn
1800	1.5	1.2	Var 2kn

RCRD /PE900171 /P432

Client : BHP			Job No : 2051			Date : 15-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS PC	✓		SPARKER (DELPH/EPC)				DISKS			#7	
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/~~Winch~~/~~Fish~~)	✓										

DIARY OF OPERATIONS :

0730 - Byford Dolphin has recovered all anchors except No.7. Towing vessels are on anchors 1 & 12 shortening chain before commencing recovery of No.7.

1200 - Byford Dolphin at anchor with No.7. Far Sword on static tow on anchor #1. Bona Vista still playing with anchor #12 chain and anchor. Approx 1.5 → 2 hrs before Byford can commence recovering anchor #7.

1400 - Byford Dolphin commenced recovering anchor #7.

1530 - Byford Dolphin recovered anchor #7. Commenced Tow to Eric The Red-1 location.

2130 - Commenced 5 mile run-in to ERIC THE RED-1 location.

2240 - #7 O.T.B (689848 E 5679879 N)

2345 - Byford Dolphin 50m north of location and rig is preparing to run anchor #1.

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

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
06			
1200			
1800			

RCRD1 / PE900171 / P433

Client : BHP			Job No : 2051			Date : 16-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS PC	✓		SPARKER (DELPH / EPC)				DISKS			⚓1	
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.			⚓6	
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			~~⚓7~~	
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS				⚓11	
SONARDYNE COMPATTS	4									⚓4	
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0039 - Far Sword commenced running anchor #1
0115 - Anchor #1 on the seabed
0225 - Far Sword commenced running anchor #6
0303 - Anchor #6 going over stern roller
0307 - Anchor #6 on the seabed
0706 - Far Sword commenced running anchor #11.
0718 - Far Sword commenced lowering anchor #11 to the seabed.
0738 - Anchor #11 on the seabed.
1000 - Far Sword commenced running anchor #4.
1009 - Far Sword commend lowering anchor #4 to the seabed.
1026 - Anchor #4 on the seabed.
1053 - Bonavista to commence running anchor #12

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 K Eddy
SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P434

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
06	1	1	120° 5 kts
1200			
1800			

Client : BHP			Job No : 2051			Date : 16-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN	⚓12	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			⚓3	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			⚓3 (re-run)	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			⚓9	
GNS PC	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LAXER	✓		UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker / Winch / Fish)	✓										

DIARY OF OPERATIONS : 11:06 - Bonavista commenced lowering anchor #12 to the seabed. #12 dropped, Shackle broke.

12:34 - Far Sword commenced running anchor # 3.

12:47 - Far Sword commence lowering anchor # 3 to the seabed.

12.52 - Anchor # 3 on the seabed.

13:10 - Anchor # 3 slipping. To be re-run.

13:50 - Winch # 3 hauling in Far Sword.

14:45 - Far Sword commence re-running anchor # 3. Anchor sitting wrong. Haul in again to rectify.

15.12 - Far Sword re-commence re-running.

15:28 - Far Sword commence lowering anchor # 3 to the Seabed.

15:32 - Anchor # 3 on the seabed.

1716 - Far Sword commenced running anchor #9.

1734 - Far Sword commence lowering anchor #9 to the seabed

1737 - Anchor #9 on the seabed.

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Signature K. Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

RCRD 1 / PE900171 / P435

Client : BHP			Job No : 2051			Date : 16-02-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN		
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER				
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER				
GNS PC	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/~~Fish~~)	✓										

DIARY OF OPERATIONS : 18:20 Pre-tensioning operations commencing.

2000 - Byford Dolphin movings towards Eric The Red-1 location.

2045 - Byford Dolphin completed moving over Eric The Red-1. Commenced Ballasting down.

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.

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations
YELLOW	: Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RACAL SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0			
1200			
1800			

RCRD 1 / PE900171 / P436

Client : BHP			Job No : 2051			Date : 17-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS PC	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS	PRINTER PAP	0.5	1.0		
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0318 - Byford Dolphin completed Ballasting down.
0705 - Commenced collecting Trimble/SkyFix/DNAVN DGPS data for Final Position determination at Eric The Red location. Differential corrections via Sydney
0748 - Differential corrections via Adelaide.
0755 - Enabled all Sonardyne Compatts.

TP	Addr	BC	Volts
1	503	54	26.1
2	1106	54	26.1
3	1109	54	26.4
4	1010	54	26.6

0757 Released Compatt 1010
0759 Pacific Martin RS recovered Compatt 1010

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers.
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P437

RACAL

RA[illegible]AL SURVE[illegible] AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	[illegible]ll	Wind Dir.
0000			
06[illegible]			
1200			
1800			

Client : BHP			Job No : 2051			Date : 17-2-93	Vessel : BYFORD DOLPHIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE			K. EDDY	ITEM	USED	REMAIN		1010
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER				503
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER				1106
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER				1109
GNS DL	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
~~TELEMETRY~~ GOLF LASER	✓		UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	4										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/~~Winch~~/~~Fish~~)	✓										

DIARY OF OPERATIONS :

0808 - Released Compatt 503
0810 - Compatt 503 recovered by R5
0813 - Released Compatt 1106
0815 - Compatt 1106 recovered by R5
0824 - Released Compatt 1109
0827 - Compatt 1109 recovered by R5
0834 - Completed Collecting DGPS data for Final Position determination.
0835 - Final Position of Eric The Red-1.
** Lat 39° 00' 45.44" South Long 143° 10' 51.45" East
E'ing 688 829.7m N'ing 5 679 544.8 m
This places the well 3.9 metres on a bearing of 106.4° from the intended Eric The Red 1 location.

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Signature [signature]
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature [signature]
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P438

RACAL

R[illegible]AL SURVEY AUSTRALI[illegible] LIMITED

DAILY RECORD SHEET

WX	SeaSta	[illegible]well	Wind Dir.
0000			
06[illegible]			
1200			
1800			

Client : BHP			Job No : 2051			Date : 10-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX Rig Port	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN		
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	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			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	1										
SONARDYNE (~~Bunker~~/Winch/Fish)	1										

DIARY OF OPERATIONS :

1000 - K. EDDY, C. ROBINSON, L. ETHERIDGE & C. SELLERS arrive Portland airport

1100 - Personnel arrive Pacific Marlin - commence setting equipment to work.

1130 - Checked all Sonardyne Compatts

Addr Code	S/No	BC	Volts	Error
503	7271-05	469	21.2	0
1010	9227-04	468	24.2	0
1109	48542-04	469	25.4	0
1106	48542-04	469	24.6	0
203	9178-03	817	21.3	0

1300 All compatts except 203 placed on charge.

1400 All equipment tested and operational.

1600 Pacific Marlin departed Portland harbour

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Signature K. Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellars
CLIENTS REPRESENTATIVE

RCRD 1 /PE900171/ P439

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
06			
1200			
1800			

Client : BHP			Job No : 2051			Date : 10-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN		
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	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			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Donker / Winch / Fish)	✓										

DIARY OF OPERATIONS :

1630 - Pacific Marlin at anchor off Portland.

2105 - Pacific Marlin departed Portland anchorage for Eric The Red location.

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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 K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0600	3/4	E-2m	N-3/4
1200	4-5	W-1.5	NW-4.5
1800	6-7	2m	W-7

RCRD 1 / PE900171 / P440

Client : BHP			Job No : 2051			Date : 11-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS HP	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0600 - Pacific Marlin arrived Eric the Red location.
0645 - Setting up equipment for Salinity Profile. Returning to Eric the Red location
0730 - At Eric the Red location.
0745 - Carried out STD-12 Profile at Eric the Red location.
0800 - Received rig heading and anchor pattern from Byford Dolphin for Eric the Red location.
0930 - Setting up to deploy Sonardyne Compatts at Eric The Red location.
1009 - Deployed Sonardyne Compatt 503 Depth of TX 63.3m. - Del Norte Nav
1019 - Deployed Sonardyne Compatt 1106 Depth of TX point 70.0m
1029 - Deployed Sonardyne Compatt 1109 Depth of TX point 71.2m
1039 - Deployed Sonardyne Compatt 1010 Depth of TX point 72.0
1045 - Waiting on suitable DGPS coverage for Acoustic calibrations

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P441

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200	~~[illegible]~~		
1800			

Client : BHP			Job No : 2051			Date : 11-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS x2 HP	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

1205 - Commenced Relative/Absolute calibration data collection of Eric The Red acoustic array Nav on Del Norte DGPS Direct Injection S.U's 12, 20, 24, 16, 3 PDOP 3·4, HDOP 1·5 VDOP 3·0 TDOP 2·1

1348 - Completed Relative/Absolute data collection. Amount of data collected was poor due to acoustic noise of vessel and vessel speed with one engine ~~[illegible] [illegible]~~ clutched in - approx 4 - 4·5 knts. Will Box-In two transponders and seabed baseline measurements.

1405 - Commenced Box-In of TP 4 Compatt 1010 Radius 300m Nav on Del Norte DGPS S.U's 25, 16, 3, 17 PDOP 3·2 HDOP 1·7 VDOP 2·7 TDOP 2·0

1500 - Waiting on suitable DGPS coverage to continue calibrations

1502 - Results of Box-In of TP 4 Compatt 1010

* * Eing 688 324·3m Ning 5 679 118·3m Depth 72m RMS 2·9

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P442

RACAL

R AL SURVEY AUSTRALI LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0(			
1200			
1800			

Client : BHP			Job No : 2051			Date : 11-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH/EPC)				ELICS PAPER			1010	
GNS x 2	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY/GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

1520 - Commenced Box-In of TP 2 Compatt 1106 Radius 300 Nav on Del Norte DGPS
SU's 23, 20, 26, 16, 3, 17 PDOP 4.0 HDOP 2.1 VDOP 3.4 TDOP 2.4
1600 - ~~Sop~~ Completed Box-In data collection of TP 2 Compatt 1106
1614 - Box-In position of TP 2 Compatt 1106
** E'ing 689 396.9 m N'ing 5 680 002.1 Depth 70.0 RMS 3.0
1626 - Commenced Sea-Bed Calibration data collection of Eric The Red array
15 Cycles requested.
1711 - Completed Sea-Bed Calibration
1720 - Disabled all Compatts in Eric The Red array
503 - BC 7 Volts 26.8 1106 - BC 7 Volts 26.5
1109 - BC 7 Volts 26.7 1010 - BC 7 Volts 27.3
1730 - Recovered Sonardyne Tow Fish

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 K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea Sta	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : 2051			Date : 11-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (~~Dunker~~/Winch / Fish)	✓										

DIARY OF OPERATIONS :

1745 - Pacific Marlin steaming around Eric The Red location
Commenced Relative/Absolute Calibration calculations.
2000 - Completed Relative/Absolute Calibration calculations - Results Not Used.
2010 - Eric The Red Transponder Positions from SeaBed/Baseln results

TP	Addr	Reply Channel	Eing	Ning	Depth
1	~~80~~503	3	688 395·98	5 680 079·71	65·0
2	1106	6	689 396·93	5 680 002·14	70·0
3	1109	9	689 363·12	5 678 930·89	71·2
4	1010	10	688 324·28	5 679 118·32	72·0

2030 Pacific Marlin steaming around overnight.

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.

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Signature K. Eddy
SURVEYOR/ENGINEER

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BLUE : Operations
YELLOW : Clients Representative

Signature Colin Sellers.
CLIENTS REPRESENTATIVE

RCRD 1/PE900171/P443

RCRD 1 / PE900171 / P444

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000	5	2m	SW×W 5
06	5	4m	SW 5
1200	4	3-4m	SW 3
1800			

Client : BHP | Job No : 2051 | Date : 12-2-93 | Vessel : PACIFIC MARLIN

RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	USED	REMAIN	Anchors / Tpdrs Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0650 - Pacific Marlin at Eric The Red location.
0700 - Waiting on suitable DGPS coverage to carryout Acoustic calibrations using SkyFix
0740 - Deployed Sonardyne Tow Fish
0750 - Enabled Compatts 503, 1106 + 1109.
0756 - Commenced Box-In of TP3 Compatt 1109 Trimble / SkyFix / DNAVN Nav.
S.V's 2, 13, 15, 26 + 27 HDOP 1.4 VDOP 2.7 h-1σ 0.3 v-1σ 0.6 Thr 1.0
Sydney ~~Adelaide~~ Ref Station Circle Radius 300m.
0808 - S.V's 2, 13, 26 + 27
0840 - Completed Box-In of TP3 Compatt 1109.
0842 - Enabled TP4 Compatt 1010.
0848 - Box-In Position of TP3/1109 from Trimble / SkyFix / DNAVN
E'ing 689 360.33 N'ing 5 678 935.55 Depth 71.2.

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.

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Signature K Eddy
SURVEYOR / ENGINEER

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Signature Colin Sellers
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P445

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : 2051			Date : 12-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO			CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0905 - Commenced Relative/Absolute Calibration data collection of Eric The Red Array
Nav on Trimble/SkyFix/DNAVN S.U's 2, 12 13, 24 & 26 Adelaide Ref Station
HDOP 1.2 VDOP 2.0 h-1σ 1.0 v-1σ 1.1 Thr 1.2
Tow Fish ~~Depth~~ 15m. mark on waterline.
1110 - Completed Relative/Absolute data collection
1115 - Relative Calibration Calculation
1210 - Completed Relative Calibration Calculation
1223 - Commenced Box-In calibration data collection of TP1/503 300m Radius
Trimble/SkyFix/DNAVN for Nav S.U's 3, 12, 16, 20 & 24 Sydney Ref Station.
HDOP 1.5 VDOP 3.5 h-1σ 0.3 v-1σ 0.5 Thr 1.1
1310 - Completed Box-In calibration data collection of TP1/503
1342 - Carrying out Acoustic/DGPS comparisons.

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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 K Eddy
SURVEYOR/ENGINEER

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BLUE	: Operations
YELLOW	: Clients Representative

Signature Colin Sellers.
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P446

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
06			
1200			
1800			

Client : BHP			Job No : 2051			Date : 12-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX BIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS x2 HP	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.	1 [illegible]			
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS	PRINTER PAP	1 ream			
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

1400 - Disabled all Sonardyne Compatts in Eric The Red acoustic array

TP	ADDR	REPLY CHANNEL	BC	VOLTS	ERROR
1	503	3	16	26.5	0
2	1106	6	17	26.4	0
3	1109	9	17	26.5	0
4	1010	10	16	27.1	0

1415 - Recovered Sonardyne Tow Fish

1417 - Pacific Marlin departed Eric The Red location for Byford Dolphin @ La Bella.

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature [signature]
CLIENTS REPRESENTATIVE

RCRD 1 / PE900171 / P447

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	SeaState	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : 2051			Date : 12-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS x2 HP	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch / Fish)	✓										

DIARY OF OPERATIONS :

** 1630 FINAL ABSOLUTE CO-ORDINATES OF ERIC THE RED ACOUSTIC ARRAY DERIVED FROM TRIMBLE/SKYFIX/DNAVN ABSOLUTE CALIBRATION.

TP	ADDR CODE	REPLY CHANNEL	EASTING	NORTHING	DEPTH
1	503	3	688 392.52	5 680 081.17	71.81
2	1106	6	689 393.49	5 680 004.65	69.78
3	1109	9	689 360.63	5 678 933.87	72.37
** 4	1010	10	688 322.04	5 679 119.75	72.24

1715- Pacific Marlin arrived La Bella location and assumed stand by duties for Byford Dolphin.

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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 [signature]
CLIENTS REPRESENTATIVE

RCRD 1/PE900171/P448

RACAL

RACAL SURVEY AUSTRALIA LIMITED

DAILY RECORD SHEET

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : 2051			Date : 13-2-93	Vessel : PACIFIC MARLIN			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX RIG PORT	✓		STD 12 / VELOCITY PROBE	✓		K. EDDY	ITEM	USED	REMAIN	503	
SYLEDIS			ECHO SOUNDER (20/25)			C. ROBINSON	SIDESCAN PAPER			1106	
MICROFIX			SIDESCAN (595/531/PINGER)			L. ETHERIDGE	E/SOUNDER PAPER			1109	
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			1010	
GNS x 2 HP	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			C. SELLERS					
SONARDYNE COMPATTS	5										
SONARDYNE PAN	✓										
SONARDYNE (Dunker/Winch/Fish)	✓										

DIARY OF OPERATIONS :

0700 - Pacific Marlin on Stand-By Duties. Waiting to Transfer to Byford Dolphin.
0839 - Sea Conditions marginal for transferring personnel and equipment by basket to Byford Dolphin
0910 - Pacific Marlin departed Byford Dolphin @ La Bella location for Portland to off load survey personnel and equipment for helicopter flight to Byford Dolphin. Sea conditions unsafe to transfer personnel by basket.
1545 - Pacific Marlin arrived Portland harbour
1600 - Pacific Marlin berthed Portland - unload survey equipment for Byford Dolphin.
1735 - Personnel & GNS survey equipment depart Portland by helicopter for Byford Dolphin. Trimble & SkyFix equipment remain at Portland airport - delivered to rig tomorrow
1810 - Arrive Byford Dolphin.
2030 - GNS operational and interfaced to Del Norte GPS receiver.

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Signature K Eddy
SURVEYOR/ENGINEER

WHITE	: Commercial Office
BLUE	: Operations
YELLOW	: Clients Representative

Signature Colin Sellers
CLIENTS REPRESENTATIVE

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7. ENCLOSURES

Enclosure 1 Exlog Mudlog

PE600077

This is an enclosure indicator page.
The enclosure PE600077 is enclosed within the container PE900171 at this location in this document.

The enclosure PE600077 has the following characteristics:

ITEM_BARCODE =	PE600077
CONTAINER_BARCODE =	PE900171
NAME =	ERIC THE RED 1 DRILLBYTE FORMATION EVALUATION LOG; 1:500 (COPY), ENCLOSURE 1
BASIN =	Otway
PERMIT =	VIC/P31
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	ERIC THE RED 1 DRILLBYTE FORMATION EVALUATION LOG; 1:500 (COPY), ENCLOSURE 1
REMARKS =	
DATE_CREATED =	26/02/93
DATE_RECEIVED =	15/12/93
W_NO =	W1077
WELL_NAME =	ERIC THE RED 1
CONTRACTOR =	EXLOG
CLIENT_OP_CO =	BHP

(Inserted by DNRE - Vic Govt Mines Dept)

Enclosure 2 Eastman Teleco MWD Logs

PE600037

This is an enclosure indicator page.
The enclosure PE600037 is enclosed within the container PE900171 at this location in this document.

The enclosure PE600037 has the following characteristics:

ITEM_BARCODE = PE600037
CONTAINER_BARCODE = PE900171
NAME = ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:1000, ENCLOSURE 2
BASIN = Otway
PERMIT = VIC/P31
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:1000, ENCLOSURE 2
REMARKS =
DATE_CREATED = 26/02/93
DATE_RECEIVED = 15/12/93
W_NO = W1077
WELL_NAME = ERIC THE RED 1
CONTRACTOR = EASTMAN TELECO
CLIENT_OP_CO = BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600038

This is an enclosure indicator page.
The enclosure PE600038 is enclosed within the container PE900171 at this location in this document.

The enclosure PE600038 has the following characteristics:

ITEM_BARCODE = PE600038
CONTAINER_BARCODE = PE900171
NAME = ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:500, ENCLOSURE 2
BASIN = Otway
PERMIT = VIC/P31
TYPE = WELL
SUBTYPE = WELL_LOG
DESCRIPTION = ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:500, ENCLOSURE 2
REMARKS =
DATE_CREATED = 26/02/93
DATE_RECEIVED = 15/12/93
W_NO = W1077
WELL_NAME = ERIC THE RED 1
CONTRACTOR = EASTMAN TELECO
CLIENT_OP_CO = BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600071

This is an enclosure indicator page.
The enclosure PE600071 is enclosed within the container PE900171 at this location in this document.

The enclosure PE600071 has the following characteristics:

ITEM_BARCODE =	PE600071
CONTAINER_BARCODE =	PE900171
NAME =	ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:200, ENCLOSURE 2
BASIN =	Otway
PERMIT =	VIC/P31
TYPE =	WELL
SUBTYPE =	WELL_LOG
DESCRIPTION =	ERIC THE RED 1 DUAL PROPAGATION RESISTIVITY; GAMMA RAY; 1:200, ENCLOSURE 2
REMARKS =	
DATE_CREATED =	26/02/93
DATE_RECEIVED =	18/03/93
W_NO =	W1077
WELL_NAME =	ERIC THE RED 1
CONTRACTOR =	EASTMAN TELECO
CLIENT_OP_CO =	BHP

(Inserted by DNRE - Vic Govt Mines Dept)