BHP

CHAMPION-1, VIC/P30
WELL COMPLETION REPORT
BASIC DATA - VOLUME ONE

BHP Petroleum

BHP PETROLEUM PTY. LTD.
A.C.N. 006 918 832

CHAMPION-1, VIC/P30

WELL COMPLETION REPORT

BASIC DATA

VOLUME ONE

PREPARED BY: C. Ellis

71584.WCR

DATE: November, 1995

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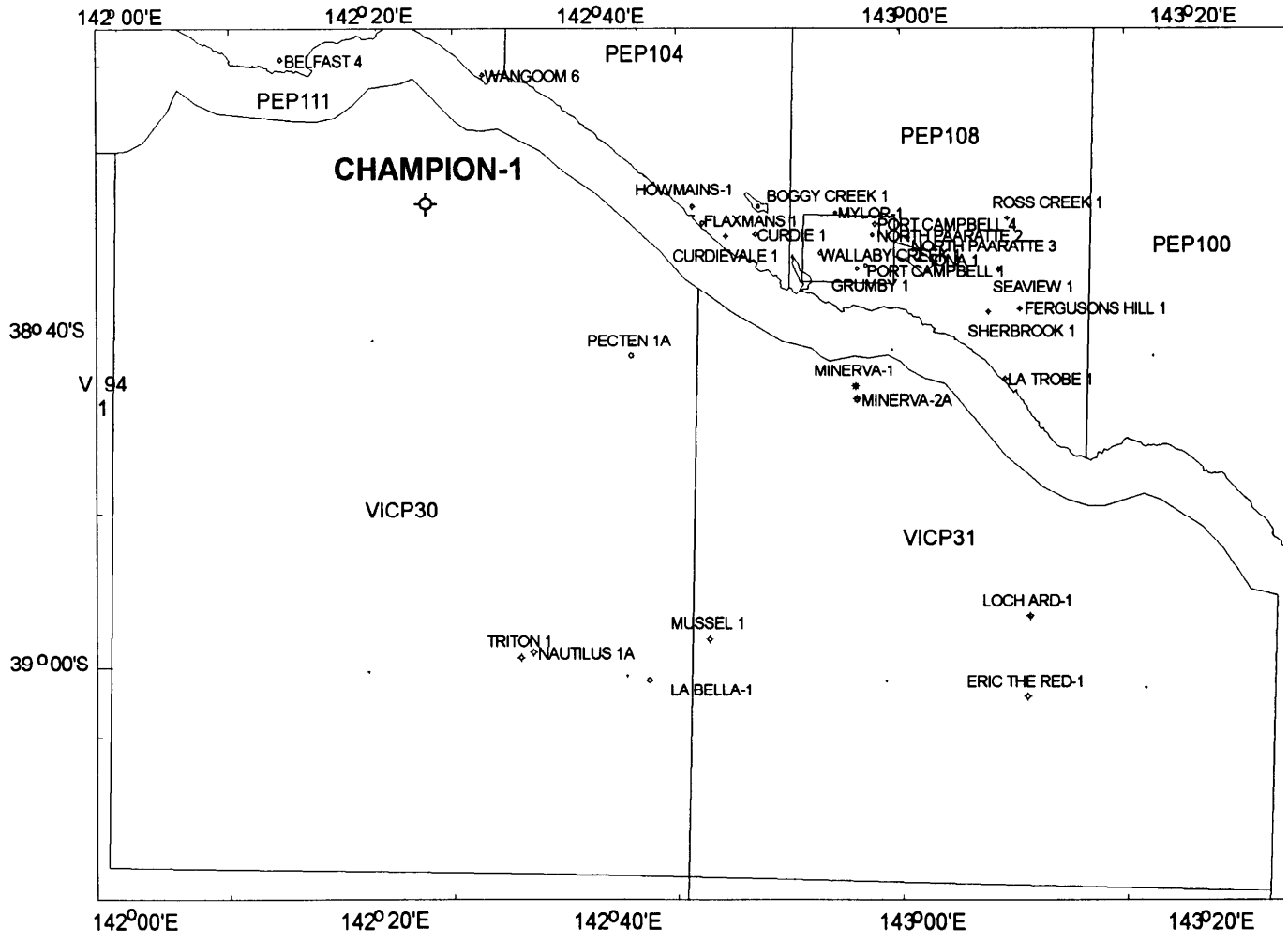
Otway Basin : VIC/P30 and VIC/P31

Champion-1 Location Map



CHAMPION.PRE

APRIL 1995

1 WELL SUMMARY SHEET

Well:	Champion-1
Permit:	VIC/P30
Basin:	Otway
Well Path:	Vertical
Planned Location:	Lat: 38°32'33.50"S Long: 142°23'18.20"E
Actual Location:	Lat: 38°32'33.54"S Long: 142°23'18.66"E East: 621 007.5m North: 5 733 045.4m UTM: C.M. 141°E
Seismic Reference:	Intersection of Lines: OH94-203 and OH94-210A
Elevation:	RT to MSL: 25.0 m
Water Depth MSL to Seabed:	53.0 m
Total Depth Driller:	1882 mRT
(TVD)Driller:	1882 mTVDRT
Rig on Location:	0950 hrs, 07-August-1995
Spud Date:	1500 hrs, 08-August-1995
Reached TD:	0930 hrs, 15-August-1995
Rig Released:	0845 hrs, 19-August-1995
Total Rig Days:	14 Days, 22.5 hours
Well Status:	DRY HOLE, ABANDONED
Operator:	BHP Petroleum
Rig Name:	Ocean Bounty
Drilling Contractor:	Diamond Offshore
Well AFE Cost:	$ 3.559 million (Source: BHPP Finance Dept.)

2 FINAL DRILLING REPORT

FINAL DRILLING REPORT
CHAMPION-1
PERMIT: VIC/P30

PREPARED BY: V. D'Souza
L.Verheggen

cha1_fdr.doc

DATE: 5 October 1995

BHP PETROLEUM PTY. LTD.
A.C.N. 006 918 832

DISTRIBUTION LIST

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

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1.0 WELL DATA

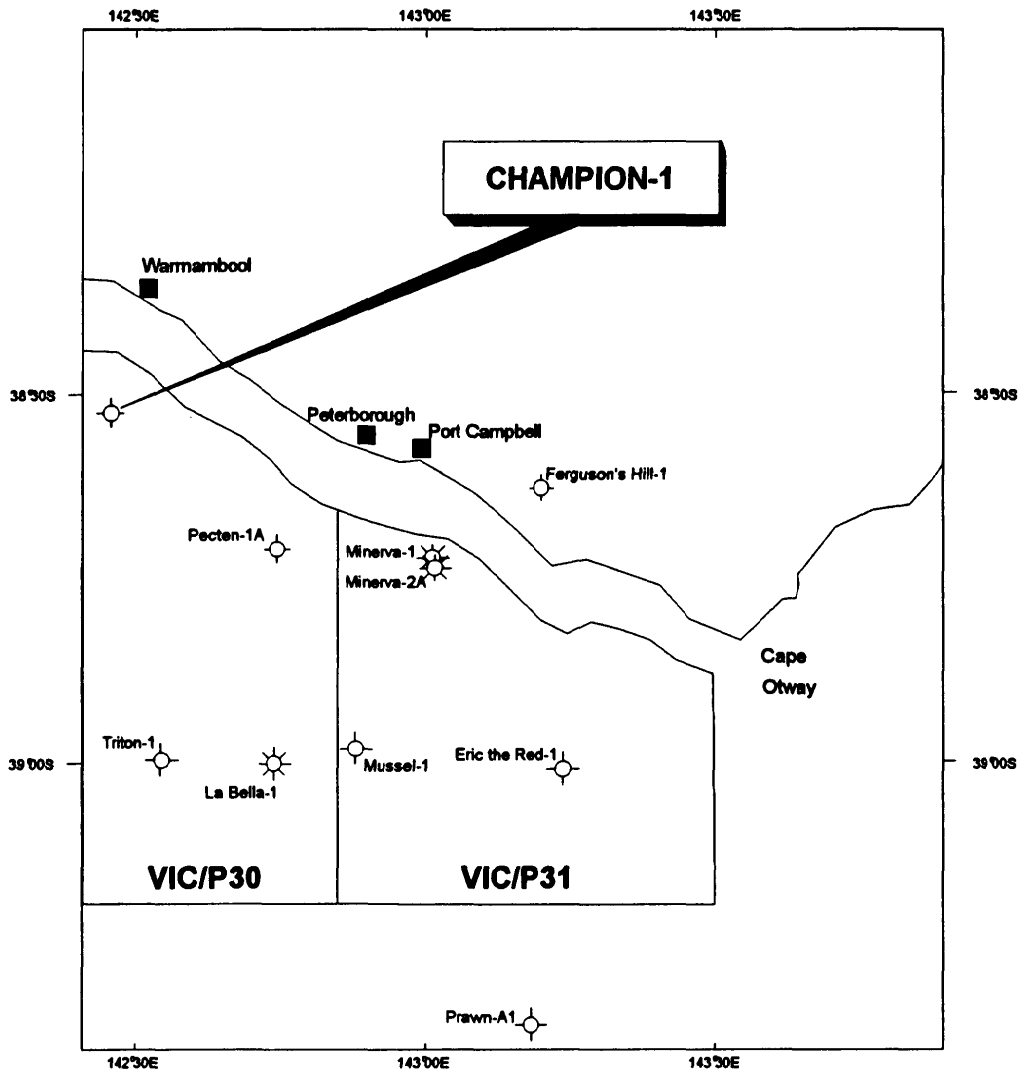
Well	:	CHAMPION-1
Permit	:	VIC/P30
Designation	:	EXPLORATION
Operator	:	BHP PETROLEUM PTY. LTD.
Rig	:	OCEAN BOUNTY
Type	:	SEMI-SUBMERSIBLE
Drilling Contractor	:	DIAMOND OFFSHORE
Water Depth	:	53m
RT Elevation	:	25m
Total Depth	:	1882mMD 1882mTVD
Final Surface Location	:	Lat 38° 32' 33.540" S Long 142° 23' 18.660" E Easting 621 007.5 Northing 5 733 045.4
Location Reference Datum	:	AGD ZONE 84, C.M. 141°E.
Commencement Date	:	1330 hrs, 5 August 1995
Rig on Location	:	0950 hrs, 7 August 1995
Well Spudded	:	1500 hrs, 8 August 1995
TD Date	:	0930 hrs, 15 August 1995
Spud to TD	:	6 Days, 18.5 hours
Rig Released	:	1200 hrs, 20 August 1995
Total Well Duration	:	14 Days, 22.50 hours
Status	:	ABANDONED

1.1 CONTRACTORS

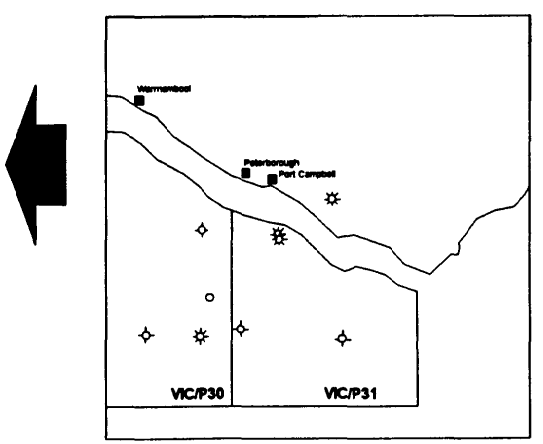
SERVICE	CONTRACTOR
CASING CUTTING	AUSTOIL
CEMENTING	HALLIBURTON
DRILLING FLUIDS	BAKER HUGHES INTEQ
DRILLING TOOLS	AUSTOIL
ELECTRIC LOGGING	SCHLUMBERGER
HELICOPTERS	BRISTOW
JARS	AUSTOIL
MUD LOGGING	HES
MWD	BAKER HUGHES INTEQ
ROLLER REAMERS	GEARHART
ROV	SUBSEA INTERNATION
SHOCK SUBS	TASMAN
SUPPLY VESSEL	TIDEWATER
SUPPLY VESSEL	AOS
WELLHEAD	DRILQUIP

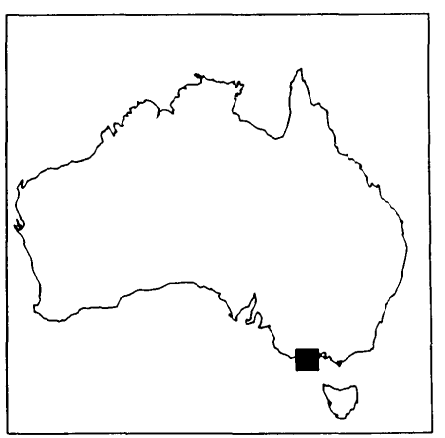
FINAL DRILLING REPORT - CHAMPION-1

1.2 LOCATION MAP



Permit No.	:	VIC/P30
Rig	:	OCEAN BOUNTY
Latitude	:	38° 32' 33.54" S
Longitude	:	142° 23' 18.66" E

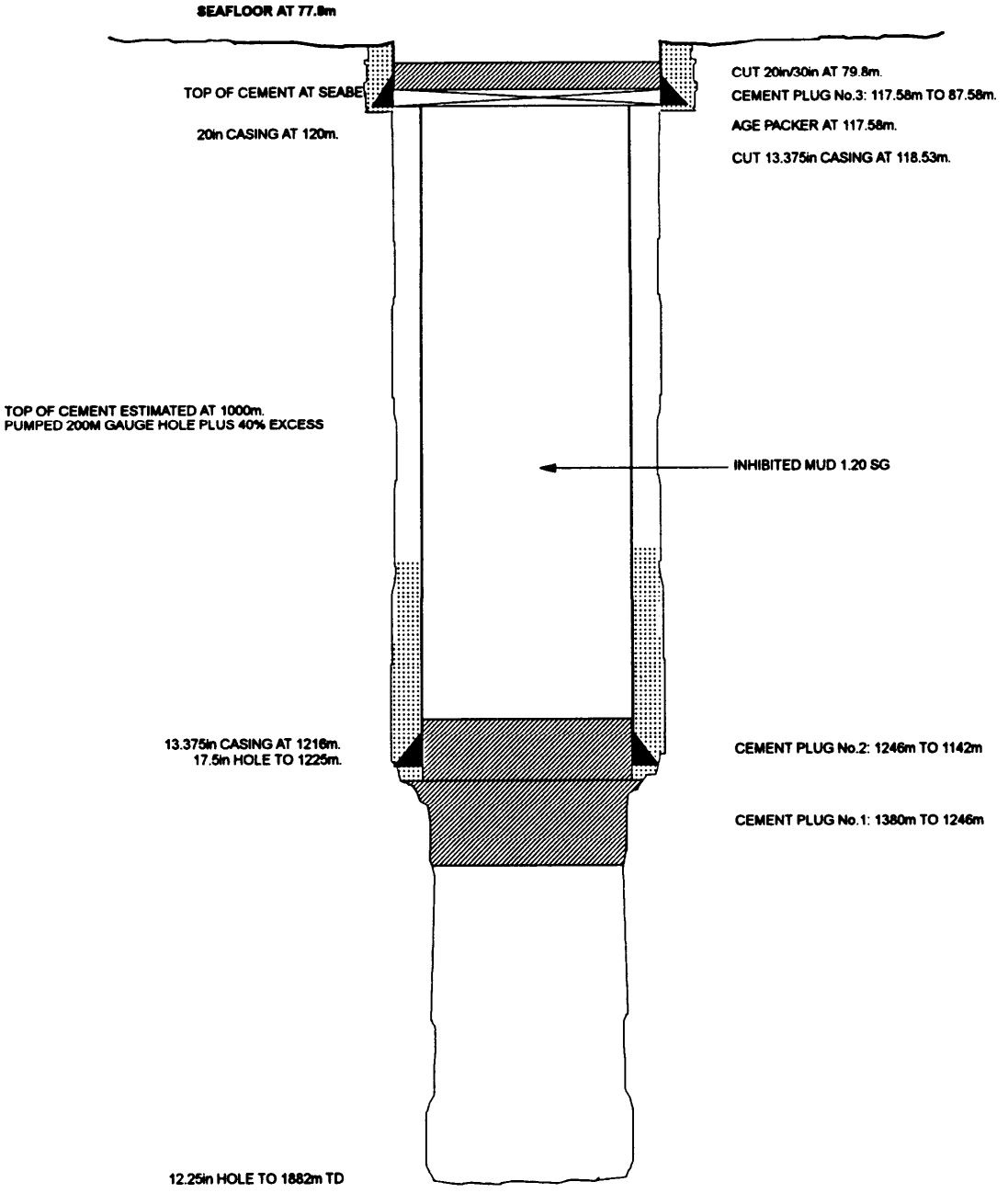




FINAL DRILLIING REPORT - CHAMPION-1

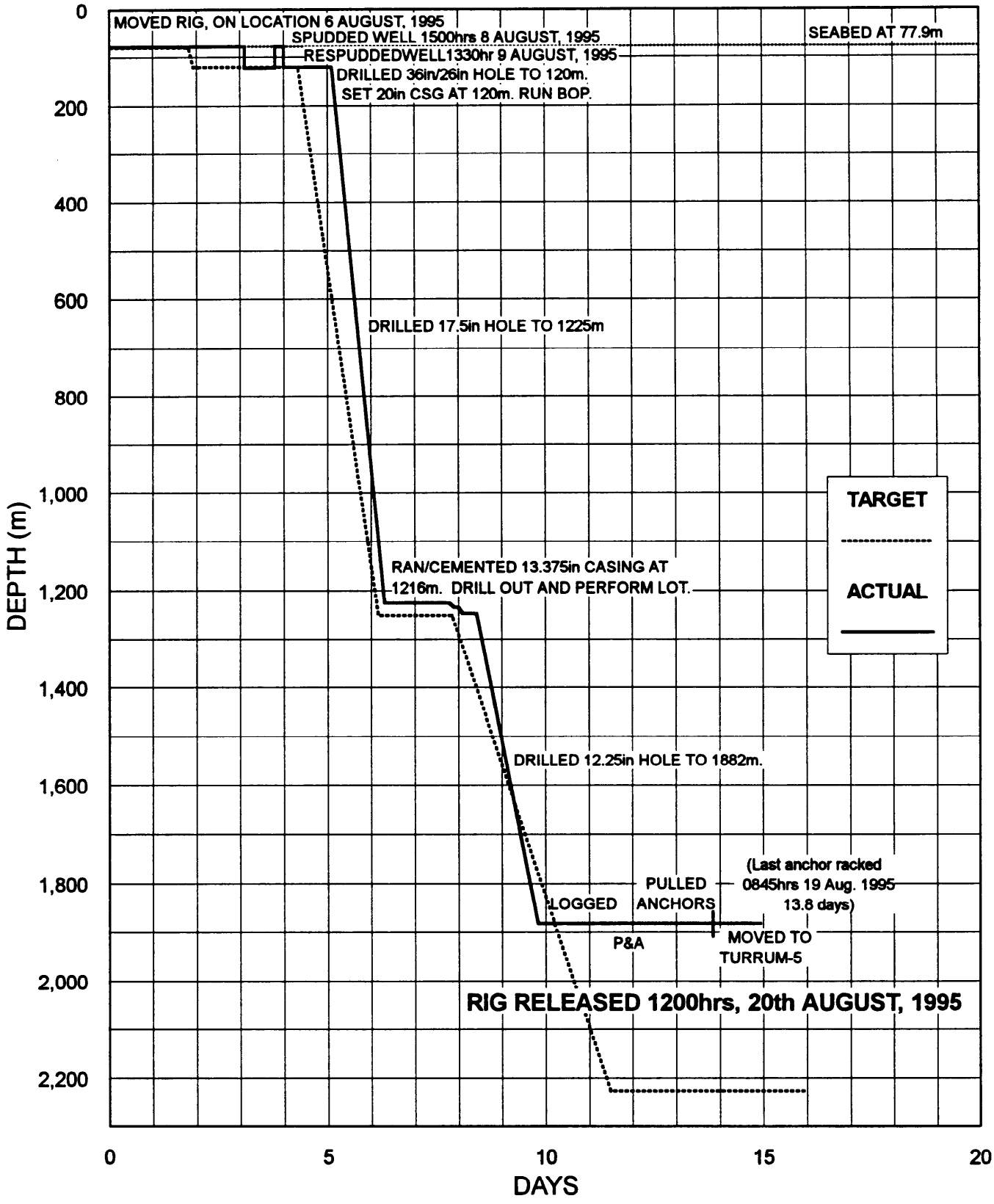
1.3 ABANDONMENT SCHEMATIC

ALL DEPTHS mRT OCEAN BOUNTY



FINAL DRILLING REPORT - CHAMPION-1

1.4 TIME vs DEPTH



2.0 OPERATIONAL SUMMARY

The semi-submersible MODU Ocean Bounty was released from the Conan-1 well at 1330hrs, 5th August 1995.

The rig was towed to the Champion-1 location and the anchors run and pre-tensioned. Bad weather caused significant delays, the pennant on anchor No.1 detached and piggy back anchors were run on No.2, No.3, No.6 and No.7.

The well was spudded at 1500hrs, 8th August 1995 with 36in/26in hole being drilled from 77m to 122m. Difficulty was experienced stabbing the 30in/20in casing into the hole, so the rig was moved. The casing was run and landed but the bulls eyes showed 2.5°. Casing was pulled, the rig repositioned and the well respudded. The 36in/26in hole was drilled from 78m to 120m and the 30in/20in casing was run to bottom, landed and cemented.

The BOP stack was run and 17.5in hole was drilled to 1225m without problems. The 13.375in casing was run and cemented at 1216m and the BOP stack was tested. The seal assembly failed to disengage on the first attempt, but was successfully set after jetting and milling the wellhead profile.

The 13.375in shoe was drilled out and an LOT to 1.92SG EMW was conducted at 1233m. The 12.25in hole was drilled with a PDC bit and motor to 1246m where the ROP fell to 0 and the motor began stalling. The assembly was pulled and the bit and motor were laid down and a roller cone bit and rotary assembly was RIH. This drilled to 1882m, where it was decided to run logs, which confirmed that the Eumeralla Formation (basement) had been encountered high.

The well was abandoned with three cement plugs. Plug No.1 was set from 1380m to 1246m. Plug No.2 was set from 1246m to 1142m (tagged). After the 13.375in casing was cut at 119m and retrieved, an age packer was set at 118m and plug No.3 was set from 118m to 88m. The BOP stack was pulled and the 30in/20in string was cut at 80m and retrieved.

Last anchor was racked and the rig was under tow at 0845hrs, 19th August but as per the agreement with Esso Australia, the rig was not released until 1200hrs, 20th August, 1995.

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
5/08/95	1	0.00	13:30	18:00	4.50	LAT 38deg 52min SOUTH LONG 142deg 39min EAST AVE SPEED 2.26kts COURSE 325deg DIST RUN 9.5km TO GO 18.5km
			18:00	24:00	6.00	LAT 38deg 33.1min SOUTH LONG 142deg 30.1min EAST AVE SPEED LAST 6 HOURS: 2.21kts COURSE 325deg DIST RUN 22.5km TO GO 5.5km ETA CHAMPION-1 02:30hrs 06/08/95
6/08/95	2		00:00	01:00	1.00	RIG ON TOW TO CHAMPION-1 LOCATION. LINE UP ON RUN-IN HEADING.
			01:00	23:00	22.00	WAIT ON WEATHER. CONDITIONS TOO SEVERE FOR ANCHOR HANDLING. 06:00 LAT 38deg 31min SOUTH LONG 142deg 26min EAST DIST TO GO 1.6kts. TO No.7 DROP POINT 1.4kts 12:00 LAT 38deg 32.3min SOUTH LONG 142deg 26.0min EAST 24:00 LAT 38deg 33.0min SOUTH LONG 142deg 22.0min EAST
			23:00	24:00	1.00	WEATHER CONDITIONS SUMMARY

TIME	WIND	SEAS	SWELLS	COMB. SEAS
06:00	35 KTS	10 FT	15 FT	25 FT
12:00	38 KTS	13 FT	18 FT	31 FT
18:00	40 KTS	13 FT	18 FT	31 FT
24:00	28 KTS	13 FT	18 FT	31 FT
07/08/95				
02:00	28 KTS	10 FT	22 FT	32 FT
04:00	30 KTS	10 FT	20 FT	30 FT
06:00	20 KTS	6 FT	10 FT	16 FT

7/08/95	3		00:00	04:00	4.00	CONTINUED TO WAIT ON WEATHER TO RUN ANCHORS
			04:00	09:50	5.83	COMMENCED LINE-UP FOR RUN IN. LET GO No.7 ANCHOR AT 09:50.
			09:50	17:15	7.42	RAN ANCHORS AS FOLLOWS:

BOAT	ANCHOR	A	B	C	D
BONAVISTA	2	11:17	11:54	12:18	12:55
LADY DAWN	3	12:20	12:42	13:19	13:42
LADY DAWN	6	13:53	14:14	14:24	14:56
BONAVISTA	1	14:32	PENNANT DETACHED		
LADY DAWN	5	15:05	15:20	15:33	16:15
BONAVISTA	8	15:46	16:03	16:17	16:55
LADY DAWN	4	16:28	16:44	16:57	17:16

A = PENNANT PASSED TO BOAT
B = RUN ANCHOR OUT
C = ANCHOR ON BOTTOM
D = PENNANT PASSED BACK TO RIG

NOTE: 13:00hr TO 14:30hr RAN ANCHORS WITH

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
7/08/95	3	0.00				ONE BOAT. BONAVISTA HAD MOTOR PROBLEMS. RECTIFIED SAME.
			17:15	21:15	4.00	BONAVISTA RIGGED UP AND GRAPPLED FOR No.1 ANCHOR CHAIN.
			21:15	23:00	1.75	RAN ANCHORS AS FOLLOWS: BONAVISTA 1 21:20 22:16 22:51 AS ABOVE.
			23:00	24:00	1.00	POSITION RIG AND PRETENSION. ANCHORS SLIPPING.
8/08/95	4	0.37	00:00	15:00	15.00	ANCHOR HANDLING NON-PRODUCTIVE TIME AS FOLLOWS: ANCHOR TENSIONING AND PIGGYBACKING: ANCHORS DID NOT HOLD. DECIDE TO RUN PIGGYBACKS AS FOLLOWS: 04:15 LADY DAWN ALONGSIDE TO PICK UP ANCHOR. 05:00 PENNANT No.3 PASSED TO LADY DAWN. 05:10 TENSIONED UP No.3 05:20 SLACKENED OFF No.3. LADY DAWN PICKED ANCHOR OFF BOTTOM. 05:36 ANCHOR No.3 SECURED ON L.D. DECK 06:14 No.3 STRETCHED OUT AND REPOSITIONED 07:44 No.3 PIGGYBACK ON BOTTOM 08:15 No.3 ANCHOR TENSIONED. TESTED TO 400kips 08:30 LADY DAWN ALONSIDE TO PICK UP P.BACK. 09:45 LADY DAWN PROCEEDED TO No.2 10:08 No.2 PENNANT PASED TO LADY DAWN 10:30 PICKED UP ANCHOR No.2 10:36 No.2 ON DECK. WELDING REPAIR CARRIED OUT TO No.2 STABILISER. 11:55 No.2 ON BOTTOM 12:34 No.2 PIGGYBACK ON BOTTOM 13:05 COMMENCED REPOSITIONING RIG AND TENSIONING ANCHOS. 15:00 COMPLETED REPOSITION AND RETENSION
			15:00	16:30	1.50	TAGGED SEA BED AT 77.4m. WATER DEPTH 52m. DRILLED 26in/36in HOLE TO 122.41m.SWEPT 50bbl HIGH-VIS SWEEP EVERY 5m, AND AT CONNECTIONS. FINAL HOLE COORDINATES: LAT 38deg 32min 33.5sec SOUTH LONG 142deg 23min 17.86sec EAST DISTANCE FROM PROPOSED LOCATION 9.2m AT 271.8deg. NOTE: ROV WAS ON BOTTOM FOR THE SPUD AND DRILLING OPERATION. ROV WAS PULLED TO THE MOONPOOL TO TROUBLESHOOT AND REPAIR AN ELECTRICAL PROBLEM. ROV WAS BACK ON BOTTOM BEFORE THE DRILLING WAS COMPLETE.
			16:30	17:00	0.50	SPOTTED 150bbl PRE-HYDRATED GEL ON BOTTOM.
			17:00	18:00	1.00	POOH WITH 26in/36in ASSEMBLY, RACKED SAME IN DERRICK.
			18:00	23:00	5.00	MADE UP 30in/20in COMBINED CASING.SECURED IN PGB. ATTACHED GUIDE WIRES TO PGB. RAN CASING ON HWDP.
			23:00	24:00	1.00	ATTEMPTED TO STAB CASING INTO SEABED WITH ASSISTANCE FROM ROV. UNSUCCESFUL

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
9/08/95	5	1.37	00:00	01:00	1.00	CONTINUED ATTEMPTS TO STAB CASING INTO HOLE.
			01:00	01:30	0.50	MOVED RIG AND STABBED CASING INTO HOLE.
			01:30	02:00	0.50	RAN IN HOLE WITH CASING AND LANDED SAME.
			02:00	08:00	6.00	BULLSEYES 2.5° STARBOARD FORWARD. MOVED RIG, WORKED CASING STRING AND CIRCULATED. STILL 2.5° STARBOARD FORWARD.
			08:00	09:00	1.00	PULLED CASING AND GUIDEBASE AND SECURED IN MOONPOOL.
			09:00	10:00	1.00	MADE UP 26in/36in SPUD ASSEMBLY. RAN TO 10m OFF SEABED.
			10:00	12:00	2.00	RAN 2 ADDITIONAL PIGGYBACK ANCHORS.
			12:00	12:30	0.50	CROSS TENSIONED ANCHORS AND REPOSITIONED RIG. NEW FINAL RIG LOCATION: LAT 30°32'33.54" S LONG 142°23'18.66" E RIG HEADING 224.2° LOCATED 10.2m ON A BEARING OF 95.4° FROM PROPOSED LOCATION.
			12:30	13:30	1.00	JUMPED ROV. DEPLOYED 2 SONAR BUOYS. OBSERVED TAG SEABED.
			13:30	14:30	1.00	SPUDDED WELL. DRILLED 26in/36in HOLE FROM 77.9m TO 120m. SWEPT HOLE WITH 50bbl HIGH VIS MUD EVERY 5m, AND ON CONNECTIONS.
			14:30	15:00	0.50	CIRCULATED 50bbl SWEEP. SPOTTED 150bbl PREHYDRATED GEL ON BOTTOM.
			15:00	16:00	1.00	PULLED AND RACKED DRILLING ASSEMBLY.
			16:00	16:30	0.50	MOVED PGB AND 20in/30in CASING TO MOONPOOL. MADE UP RUNNING TOOL.
			16:30	17:30	1.00	RAN CASING. STABBED IN OK. LANDED CASING ON BOTTOM. ESTABLISHED CIRCULATION. GUIDEBASE 1m FROM SEAFLOOR.
			17:30	19:30	2.00	TESTED LINES TO 2000psi. MIXED AND PUMPED CEMENT AS PER PROGRAM. 280bbl CEMENT AT 15.8ppg. DISPLACED WITH 14bbl SEAWATER. CHECKED FOR BACKFLOW - OK. RIGGED DOWN CEMENT HOSES. BULLSEYE 0.75°. CONFIRMED CEMENT RETURNS TO SEABED WITH ROV.
			19:30	20:00	0.50	RELEASED RUNNING TOOL. PULLED BACK AND LAID DOWN SAME.
			20:00	20:30	0.50	HELD JSA ON RUNNING OF RISER AND BOP.
			20:30	22:00	1.50	RIGGED UP TO RUN RISER AND BOP. MADE UP 2 JOINTS RISER AND STOOD ASIDE.
			22:00	24:00	2.00	SKIDDED BOP TO MOONPOOL. NIPPLED UP.
10/08/95	6	2.37	00:00	02:00	2.00	CONTINUED NIPPLING UP BOP/LMRP. MADE UP RISER TO LMRP.
			02:00	04:30	2.50	RAN BOP ON 2 50ft AND 1 5ft RISER JOINTS. PRESSURE TESTED CHOKE AND KILL CONNECTIONS TO 500/3500psi. MADE UP SLIP JOINT AND HANDLING JOINT.
			04:30	07:30	3.00	MADE UP CHOKE AND KILL GOOSENECKS AND RISER TENSIONERS.
			07:30	08:00	0.50	RAN AND LATCHED BOP. TESTED OVERPULL TO 50kips.TESTED CONNECTOR TO 500psi.
			08:00	10:30	2.50	STROKED OUT SLIP JOINT. MADE UP DIVERTER.
			10:30	11:00	0.50	RIGGED DOWN BOP RUNNING EQUIPMENT.
			11:00	13:30	2.50	LAID DOWN 26in BIT AND 36in HOLE OPENER. MADE UP 17.5in BHA. LAID OUT CEMENTING SWEDGE. MADE UP HALLIBURTON CEMENT HEAD. RAN 17.5in

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
10/08/95	6	2.37				BHA IN TO 90m.
			13:30	14:00	0.50	ESTABLISHED CIRCULATION AND TAGGED CEMENT AT 109m. FUNCTION TESTED AND FLUSHED DIVERTER.
			14:00	15:30	1.50	DRILLED CEMENT FROM 109m TO 120m WITH SEAWATER. CHANGED TO MUD AT SHOE.
			15:30	16:30	1.00	DRILLED 17.5in HOLE FROM 120m TO 198m.
			16:30	17:00	0.50	CIRCULATED BOTTOMS UP UNTIL SHAKERS WERE CLEAN.
			17:00	17:30	0.50	PULLED BACK TO TOP OF 8in DRILL COLLARS. MADE UP ADDITIONAL 8in DRILL COLLARS AND ACCELORATOR. RAN IN HOLE TO 169m.
			17:30	24:00	6.50	WASHED TO BOTTOM. DRILLED NEW FORMATION FROM 198m TO 537m. REAMED EACH CONNECTION.
11/08/95	7	3.37	00:00	02:30	2.50	DRILLED 17.5in HOLE FROM 537m TO 650m. DUMPED SHAKERS HEADER BOX EACH CONNECTION.
			02:30	03:00	0.50	STOPPED DRILLING. SHAKER HEADER BOX BLOCKED WITH CUTTINGS. CLEANED SAME. WORKED PIPE.
			03:00	20:00	17.00	DRILLED 17.5in HOLE FROM 650m TO 1225m. DUMPED SHAKER HEADER BOX EACH CONNECTION.
			20:00	21:00	1.00	CIRCULATED BOTTOMS UP. FLUSHED RISER. SPOTTED 150bbl 8% KCl PILL ON BOTTOM.
			21:00	21:30	0.50	DROPPED TOTCO SURVEY. FLOW CHECKED.
			21:30	24:00	2.50	POH. STRAPPED PIPE. FLOW CHECKED AT SHOE. MONITORED HOLE ON TRIP TANK. Note: BIT DRILLED A TOTAL OF 1105m IN 15.5 ON BOTTOM ROTATING HOURS.
12/08/95	8	4.37	00:00	01:30	1.50	CONTINUED POOH. RACKED BHA. RETRIEVED SURVEY - MISRUN. LAYED DOWN BIT.
			01:30	02:30	1.00	MADE UP WEAR BUSHING RETRIEVAL TOOL AND JET SUB. RIH, JETTED BOP, LANDED OUT, AND NOTED INDEX LINE REFERENCE. PULLED AND LAID DOWN WEAR BUSHING.
			02:30	03:00	0.50	RIGGED UP TO RUN 13.375in CASING.
			03:00	12:00	9.00	MADE UP 2 JOINT SHOE TRACK, AND TESTED SHOE AND FLOAT. RAN 93 JOINTS 13.375in. CHANGED TO 500t EQUIPMENT AT 20in CASING SHOE. RAN LANDING STRING. PICKED UP CEMENTING HEAD, AND CONNECTED CEMENTING HOSE. ESTABLISHED CIRCULATION. LANDED CASING AT 1150hrs. CIRCULATED THROUGH CASING.
			12:00	13:30	1.50	LINED UP ON HALLIBURTON PUMPS. PUMPED 50bbl DRILLWATER SPACER AND TESTED LINES TO 4000psi. DROPPED BALL AND SHEARED OUT BOTTOM PLUG WITH 1200psi. MIXED AND PUMPED 125bbl CEMENT SLURRY AT 15.8ppg. DROPPED DART AND CHASED WITH 10bbl SEAWATER.
			13:30	14:30	1.00	DISPLACED WITH SEAWATER USING RIG PUMPS. BUMPED PLUGS AND TESTED CASING TO 1500psi FOR 10mins. BLED OFF AND CHECKED FOR BACKFLOW. RELEASED RUNNING TOOL WITH 5 TURNS AND SET PACKOFF.
			14:30	17:00	2.50	PRESSURE TESTED SEAL ASSEMBLY TO 3750psi AGAINST PIPE RAMS. PRESSURE TESTED BOP AS PER PROGRAM.
			17:00	18:00	1.00	POOH WITH CASING LANDING STRING.
			18:00	19:00	1.00	SEAL ASSEMBLY FAILED TO DISENGAGE. RUNNING TOOL SERVICED AND LAYED OUT.
			19:00	20:30	1.50	MADE UP JETTING TOOL AND MILL ASSEMBLY. RIH.

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
12/08/95	8	4.37				JETTED AND POLISHED WELLHEAD PROFILE. POH.
			20:30	23:00	2.50	MADE UP SEAL ASSEMBLY ON RUNNING TOOL. RAN IN HOLE AND SET SEAL ASSEMBLY. PRESSURE TESTED SAME TO 3750psi. POOH. PRESSURE TESTED CASING AGAINST SHEAR RAMS TO 3500psi.
			23:00	24:00	1.00	MADE UP WEAR BUSHING ONTO RUNNING TOOL AND RIH. SET WEAR BUSHING AND POOH.
13/08/95	9	5.37	00:00	00:30	0.50	PRESSURE TESTED SWIVEL PACKING. NO SUCCESS. CHANGED PACKING, TESTED OK.
			00:30	03:00	2.50	BROKE DOWN 17.5in BHA.
			03:00	04:30	1.50	PICKED UP MACH 1P/HF MOTOR AND SURFACE TESTED. MUD MOTOR HAD 7.625in BOX DOWN CONNECTION, BIT HAD 6.625in PIN UP. NO CROSSOVER AVAILABLE. LAID OUT MACH 1P/HF MOTOR. PICKED UP MACH 1 XL MOTOR.
			04:30	09:00	4.50	CONTINUED TO MAKE UP 12.25in BHA. RIH TO HWDP AND TESTED MWD TOOL. RIH TO 600m FOR MWD SURVEY. CONTINUED RIH TO 1185m.
			09:00	11:00	2.00	BROKE CIRCULATION. TAGGED CEMENT AT 1192m. RECORDED MWD SURVEY. DRILLED CEMENT, FLOAT AND SHOE TO 1216m WITH SEAWATER. CHANGED TO MUD WHILE DRILLING RATHOLE. DRILLED NEW FORMATION FROM 1225m TO 1233m.
			11:00	12:30	1.50	CIRCULATED TO BALANCED MUD WEIGHT IN AND OUT PRIOR TO LEAK OFF TEST.
			12:30	13:00	0.50	RACKED BACK 1 STAND DP. CLOSED UPPER PIPE RAMS. PERFORMED LEAK OFF TEST. SURFACE PRESSURE 1350psi WITH 1.14 SG MUD IN USE. LEAK OFF 1.92 SG EQMD.
			13:00	16:00	3.00	CONTINUED DRILLING 12.25in HOLE FROM 1233m TO 1246m. ROP DROPPED TO ZERO AT 1246m. MOTOR STALLING OUT, UNABLE TO RESTART DRILLING.
			16:00	18:30	2.50	FLOW CHECKED, PUMPED SLUG, POOH.
			18:30	19:00	0.50	BROKE OFF BIT, SERVICED AND LAID DOWN MUD MOTOR.
			19:00	22:30	3.50	PICKED UP 8in DRILL COLLAR AND FLOAT SUB. MADE UP BIT, RAN IN HOLE AND TESTED MWD WITH BIT BELOW WELLHEAD.
			22:30	23:00	0.50	BROKE CIRCULATION AT SHOE. SERVICED TOP DRIVE.
			23:00	23:30	0.50	REAMED FROM 1216m TO 1246m.
			23:30	24:00	0.50	DRILLED 12.25in HOLE FROM 1245m TO 1256m
14/08/95	10	6.37	00:00	24:00	24.00	DRILLED 12.25in HOLE FROM 1256m TO 1689m. WIPED EACH CONNECTION. DUMPED SHAKER HEADER BOX EACH CONNECTION.
15/08/95	11	7.37	00:00	09:30	9.50	DRILLED 12.25in HOLE FROM 1689m TO 1882m. WIPED EACH CONNECTION. DUMPED SHAKER HEADER BOX AT EACH CONNECTION.
			09:30	10:30	1.00	CIRCULATED BOTTOMS UP. FLUSHED CHOKE AND KILL LINES.
			10:30	15:00	4.50	FLOW CHECKED, SLUGGED PIPE AND POH. 20-30kips DRAG FROM 1583m TO 1320m. FLOW CHECKED AT SHOE.
			15:00	15:30	0.50	BROKE OUT DIDS, ACCELERATOR, BIT AND FLOAT SUB. DOWNLOADED MWD TOOL, AND BROKE OUT SAME.
			15:30	17:00	1.50	RIGGED UP WIRELINE LOGGING EQUIPMENT. MADE UP TOOLS FOR WIRELINE LOG RUN No 1.
			17:00	21:30	4.50	RAN LOG No 1. SDT-MSFL-GR-DLT-AMS

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
15/08/95	11	7.37				TOOLS HUNG UP AT 1859m. LOGGED FROM 1855m TO 1216m. (GR TO SURFACE)
			21:30	23:00	1.50	BROKE DOWN TOOLS FROM LOGGING RUN No 1. MADE UP TOOLS FOR LOGGING RUN No 2.
			23:00	24:00	1.00	RAN No 2. FMI-LDT-CNL-GR-AMS. LOGGED FROM 1855m TO 1216m.
16/08/95	12	8.37	00:00	02:30	2.50	CONTINUED RUNNING LOG No.2. FMI-LDT-CNL-GR-AMS. LOGGED FROM 1855m TO 1216m.
			02:30	03:00	0.50	MADE UP TOOLS FOR LOGGING RUN No.3.
			03:00	08:30	5.50	RAN LOG No 3. VSP.
			08:30	09:00	0.50	RIGGED DOWN VSP TOOLS, AND AIR GUNS FOR SAME.
			09:00	09:30	0.50	RIGGED UP TOOLS FOR LOGGING RUN No.4. CST. OBSERVED RADIO SILENCE WHILE TOOL ABOVE ROTARY TABLE.
			09:30	12:30	3.00	LOGGING RUN No.4. CST 30 SHOTS, AS PER PROGRAM.
			12:30	13:00	0.50	BROKE DOWN CST TOOL, OBSERVING RADIO SILENCE. 28 SIDEWALL CORES RECOVERED. RIGGED DOWN LOGGING EQUIPMENT.
			13:00	15:00	2.00	RAN IN HOLE WITH MULE SHOE ON 5in DRILLPIPE TO 1380m. ESTABLISHED CIRCULATION.
			15:00	15:30	0.50	SERVICED TOPDRIVE AS PER DGOC MAINTENANCE SCHEDULE. CONTINUED CIRCULATING.
			15:30	16:30	1.00	SET CEMENT PLUG No.1 FROM 1380m TO 1246m AS FOLLOWS: PUMPED 10bbl WATER SPACER, FOLLOWED BY 70bbl CEMENT SLURRY AT 1.9SG. 344sx CLASS G CEMENT WITH 41bbl MIXWATER, AND 2gal/10bbl HR-6L. PUMPED 1.5bbl WATER SPACER, AND DISPLACED WITH 69.3bbl MUD.
			16:30	17:00	0.50	POOH TO 1246m.
			17:00	17:30	0.50	CIRCULATED BOTTOMS UP. STRONG CEMENT INDICATIONS AT SURFACE.
			17:30	18:00	0.50	SET CEMENT PLUG No.2 FROM 1246m TO 1156m AS FOLLOWS: PUMPED 10bbl WATER SPACER. MIXED AND PUMPED 48.24bbl CEMENT SLURRY AT 1.9SG. 235sx CLASS G CEMENT WITH 28bbl MIXWATER, AND 2gal/10bbl HR-6L. PUMPED 1.5bbl WATER SPACER, AND DISPLACED CEMENT WITH 65bbl MUD.
			18:00	18:30	0.50	POOH TO 1100m.
			18:30	19:00	0.50	CIRCULATED BOTTOMS UP. DISPLACED HOLE TO 1.2SG CORROSION INHIBITED MUD.
			19:00	24:00	5.00	LAID DOWN 5in DRILLPIPE, AND 8in COLLARS.
17/08/95	13	9.37	00:00	00:30	0.50	CONTINUED TO LAY DOWN 8in DRILL COLLARS.
			00:30	01:00	0.50	MADE UP 13.375in CASING CUTTER ASSEMBLY. TESTED SAME AND RACKED IN DERRICK.
			01:00	03:00	2.00	RAN IN HOLE WITH DRILL PIPE AND TAGGED CEMENT AT 1142m WITH 10klb.
			03:00	07:00	4.00	POOH. LAID DOWN EXCESS DRILLPIPE, 111 JOINTS.
			07:00	08:00	1.00	MADE UP WEAR BUSHING RETRIEVAL TOOL. RIH AND JETTED BOP AND WELLHEAD. POOH WITH WEAR BUSHING.
			08:00	09:00	1.00	MADE UP AND RIH WITH 13.375in CASING CUTTER ASSEMBLY.
			09:00	09:30	0.50	CUT 13.375in CASING AT 118.53m.
			09:30	10:00	0.50	POOH WITH CUTTER ASSEMBLY.

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
17/08/95	13	9.37	10:00	11:00	1.00	MADE UP 13.375in CASING SPEAR ASSEMBLY. RIH. LATCHED CASING AND PULLED FREE WITH 50klb OVERPULL.
			11:00	12:00	1.00	POOH WITH CASING. DISENGAGED SPEAR. LAID OUT WELLHEAD JOINT AND 13.375in CASING.
			12:00	13:30	1.50	MADE UP AGE PACKER. RIH AND TAGGED CASING CUT AT 118.58m. SET AGE PACKER AT 117.58m.
			13:30	14:00	0.50	SET CEMENT PLUG No 3 FROM 117.58m TO 87.58m AS FOLLOWS: 170sx CLASS G CEMENT, WITH 2% CaCl2, AND 5 gal/sk SEAWATER AT 15.9ppg.
			14:00	16:00	2.00	RACKED BACK 1 STAND DRILLPIPE. REVERSE CIRCULATED STRING WITH SEAWATER AT 87m. FLUSHED BOP, DIVERTER, CHOKE AND KILL MANIFOLD, AND POOH.
			16:00	18:00	2.00	RIGGED UP TO PULL BOP. RIG AT 70ft DRAFT, TO COMPENSATE FOR HEAVE.
			18:00	24:00	6.00	PULLED DIVERTER AND SLIP JOINT. PULLED 2x 50ft AND 1x 5ft RISER JOINTS AND LAID OUT SAME. STACK ON BEAMS AT 22:00hr.
18/08/95	14	10.37	00:00	01:30	1.50	COMPLETED LAYING DOWN RISER, MOVED BOP BACK TO STOWAGE SPACE
			01:30	02:00	0.50	RIGGED DOWN BOP AND RISER HANDLING TOOLS
			02:00	05:00	3.00	L/DOWN 13.375in TOOLS, PICK UP 20/30in CASING - CUT AND PULL TOOLS
			05:00	05:30	0.50	PULLED ROV TO CUT AND PULL CASING
			05:30	07:30	2.00	CUT CASING AT 79.8m, 1.8m BELOW SEA FLOOR
			07:30	10:00	2.50	PULL 290kips OVER NO GO, RESUMED CUTTING CASING
			10:00	11:30	1.50	PULLED WELLHEAD WITH 40kips
			11:30	23:30	12.00	ANCHOR - PULL/RIG DOWN AS FOLLOWS:

BOAT	ANCHOR	A	B	C	D
LADY DAWN	7		11:20	13:38	13:44
BONAVISTA	4	13:07	13:10	15:25	15:30
LADY DAWN	1	14:18	14:20	16:23	16:28
BONAVISTA	5	15:44	15:49	18:04	18:06
LADY DAWN	2		16:30	19:08	19:13
BONAVISTA	6		18:03	20:50	20:53
BONAVISTA	3		21:06	23:22	23:22

LADY DAWN TO BRIDLE @ 21:13hr

A - PENNANT PASSED TO BOAT
B - BOAT CHASING TO ANCHOR
C - ANCHOR RACKED
D - PENNANT PASSED TO RIG
NOTE: FROM 01:15hr TO 11:27hr PIGGY BACKS ON 2 6 7 WERE PICKED UP AND PUT ON BOARD THE BOUNTY. No.3 WAS BROUGHT IN BY BONAVISTA AND TRANSFERED DIRECTLY TO THE ASSISTER.
ANCHORS 2 3 6 7 WERE BOUYED OFF AFTER HAVING HAD THE PIGGYBACKS REMOVED AND THEREFORE DID NOT HAVE ANY TIME ENTERED IN "A".
BONAVISTA DAMAGED 6 DECK TIMBER WITH THE No.3 ANCHOR BOUY CRUCIFIX.

			23:30	24:00	0.50	BACKLOADED MAERSK ASSISTER
19/08/95	15	11.37	00:00	00:30	0.50	BACK LOAD MAERSK ASSISTER

2.1 DAILY OPERATIONS

Date	Day No.	Days from Spud	From	To	Hours	Daily Operations
19/08/95	15	11.37	00:30	07:30	7.00	DEBALLAST TO TRANSIT DRAFT
			07:30	08:45	1.25	HEAVE IN ANCHOR No.8, ANCHOR RACKED AT 08:45hr
			08:45	24:00	15.25	RIG UNDER TOW TO TURRUM-5 WITH LADY DAWN ON TOW BRIDLE AND THE BONAVISTA FOLLOWING
20/08/95	16	12.37	00:00	12:00	12.00	RIG UNDER TOW TO TURRUM-5 WITH LADY DAWN ON TOW BRIDLE AND THE BONAVISTA FOLLOWING. CHAMPION-1 ENDED AT 12:00hr 20 AUGUST 1995. ESSO AUSTRALIA TOOK CONTROL OF THE RIG.

FINAL DRILLING REPORT - CHAMPION-1

3.0 MUD SUMMARY BY HOLE SECTION

Hole Size (in)	Interval (mRT)	Type	Density (S.G.)		Viscosity (sec/l)		PV (cp)		YP (lbs/100ft^2)		Gels				KCl (%)	Fluid Loss (cc)
			Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.0	Max.0	Min.10	Max.10		
36/26	80-120	SEAWATER + HI-VIS	1.02	1.02	150	150										
17.5	120-1225	KCL PHPA	1.10	1.14	56	64	14	17	19	21	3	4	4	14		4.8-6.0
12.25	1225-1882	KCL PHPA	1.15	1.20	46	52	14	16	22	22	4	4	8	11		4.2-4.4

3.1 MUD PROPERTIES RECORD

Date	Mud Type	Hole size (in)	Depth (mRT)	Temp. (°C)	Density (S.G.)	Viscosity (sec/l)	PV (cp)	YP (lb/100 ft^2)	6 RPM	Gels 0	Gels 10	API WL (ml/30min)	MBT (lb/bbl)	pH	%Solid	%H2O	HGS	LGS	%Sand	Ca+ (mg/L)	Cl- (mg/L)	K+ (mg/L)	% KCl
8/08/95	PREHYDRATED GEL	36.00			1.02	150																	
9/08/95	KCl PHPA POLY.		122		1.05	66	11	22	6	4	11	7.2	2.5	10.3	4.0	96		1.90		80	35000	4	
10/08/95	KCl PHPA POLY.	17.50	120	34	1.10	56	15	21	7	4	12	6	2.5	9.3	6.5	93.5		3.40	1.00	400	31000	4	
11/08/95	KCl PHPA POLY.		1225	40	1.10	48	14	19	5	3	4	5	2.5	9.0	6.0	94		2.10	1.50	360	35000	4	
12/08/95	KCl PHPA POLY.		1225		1.14	64	17	19	6	4	14	4.8		9.3	9.0	91		6.40	2.00	320	36000	6	
13/08/95	KCl PHPA POLY.	12.25	1256		1.15	52	14	22	6	4	11	5		9.5	8.5	91.5	1.10	3.60	1.00	400	48000	34	
14/08/95	KCl PHPA POLY.		1689	46	1.20	46	14	22	6	4	8	4.4	2.5	9.2	10.0	90	2.80	3.00	0.50	560	53000	37	
15/08/95	KCl PHPA POLY.		1882	45	1.20	52	16	22	8	4	10	4.2	1.5	9.3	9.5	90.5	3.30	1.80	0.25	480	51000	41	
16/08/95	KCl PHPA POLY.		1882		1.20	52	16	22	6	4	10	4.2	1.5	9.3	9.5	90.5	3.10	1.50	0.25	480	55000	41	

3.2 MATERIALS CONSUMPTION TOTAL

PRODUCT	SIZE	QUANTITY
BARACIDE	25.00 KG	4
BARASCAV	55.00 USGAL	3
BARITE, BULK	100.00 LB	2054
BENTONITE (Blk)	100.00 LB	492
CAL CHLORIDE	25.00 KG	56
CAUSTIC SODA dr	25.00 KG	6
CAUSTIC SODA sx	25.00 KG	6
DEXTRID LT	25.00 KG	128
EZ MUD DP	25.00 KG	159
LIME	25.00 KG	14
PAC-R	25.00 KG	104
PAC-R	50.00 LB	2
POT CHLOR.	1.00 MT	62
POT HYDROX. sx	25.00 KG	82
SODA ASH	25.00 KG	30
SODA BICARB.	25.00 KG	6
XCD POLYMER	25.00 KG	110

3.2 MATERIALS CONSUMPTION

36in / 26in HOLE SECTION

PRODUCT	SIZE	QUANTITY
BENTONITE (Blk)	100.00 LB	492
CAL CHLORIDE	25.00 KG	56
CAUSTIC SODA dr	25.00 KG	6
DEXTRID LT	25.00 KG	50
EZ MUD DP	25.00 KG	40
LIME	25.00 KG	13
PAC-R	25.00 KG	50
POT CHLOR.	1.00 MT	15
POT HYDROX. sx	25.00 KG	13
SODA ASH	25.00 KG	19
XCD POLYMER	25.00 KG	22

3.2 MATERIALS CONSUMPTION

17.5in HOLE SECTION

PRODUCT	SIZE	QUANTITY
BARASCAV	55.00 USGA	1
DEXTRID LT	25.00 KG	34
EZ MUD DP	25.00 KG	47
PAC-R	25.00 KG	24
POT CHLOR.	1.00 MT	30
POT HYDROX. sx	25.00 KG	14
SODA ASH	25.00 KG	2
XCD POLYMER	25.00 KG	36

3.2 MATERIALS CONSUMPTION

12.25in HOLE SECTION

PRODUCT	SIZE	QUANTITY
BARACIDE	25.00 KG	4
BARASCAV	55.00 USGA	2
BARITE, BULK	100.00 LB	2054
CAUSTIC SODA sx	25.00 KG	6
DEXTRID LT	25.00 KG	44
EZ MUD DP	25.00 KG	72
LIME	25.00 KG	1
PAC-R	25.00 KG	30
PAC-R	50.00 LB	2
POT CHLOR.	1.00 MT	17
POT HYDROX. sx	25.00 KG	55
SODA ASH	25.00 KG	9
SODA BICARB.	25.00 KG	6
XCD POLYMER	25.00 KG	52

4.0 BIT SUMMARY

Bit No	Run No	New/ Used	Size / Make	Bit Type / Serial No.	Jets / TFA	Depth In / Out	Total Metres	Total Hours	ROP (m/hr)	WOB (klps)	RPM (min/max)	Pump gpm / psi	IADC Bit Grading / Comments
1	1	U	26	S3SJ	28 28 32 - - -	78	42.0	2.50	16.80	5.0 / 15.0	40 / 100	501.6 / 150	1.1.NO.A.1.I.NO.TD
			SECURITY	6220444	1.99	120							SAME BIT USED TO RE-SPUD
2	2	N	17.5	MAX05	22 22 18 - - -	120	1105.0	15.00	73.67	25.0 / 50.0	130 / 150	1400 / 2850	3.3.WT.A.E.I.BT.TD
			HUGHES	X740552	0.99	1,225							
3	3	N	12.25	AG526	16 16 16 16 18 -	1,225	21.0	3.50	6.00	5.0 / 15.0	210 / 250	700 / 2250	3.4.BT.S.X.2.RO.PR
			HUGHES	0120102	1.03	1,246							
4	4	N	12.25	ATM GT18	18 18 18 - - -	1,246	636.0	33.50	18.99	15.0 / 45.0	60 / 110	850 / 3500	2.2.WT.A.E.I.ER.TD
			HUGHES	C38CV	0.75	1,882							

4.1 BHA SUMMARY

BHA Name : 1. RESPUD ASSEMBLY **Depth In:** 78 m. **Depth Out:** 120 m.

Bit Used : 1

Purpose : DRILL 36in HOLE

Joints	BHA Item	O.D.	Length
1	BIT	26.000	0.54
1	HOLE OPENER	36.000	1.88
1	FLOAT SUB	9.500	0.90
2	DRILL COLLAR	9.500	18.00
1	ROLLER REAMER	17.500	2.51
1	DRILL COLLAR	9.500	9.80
1	CROSS OVER	8.000	0.80
3	DRILL COLLAR	8.000	27.37
2	CROSS OVER	8.000	1.37
6	HWDP	5.000	55.76
		Total BHA Length :	**118.93**

BHA Name : 2. 17.5in SECTION **Depth In:** 120 m. **Depth Out:** 1225 m.

Bit Used : 2

Purpose : DRILL 17.5in

Joints	BHA Item	O.D.	Length
1	BIT	17.500	0.42
1	FLOAT SUB	9.500	0.90
2	DRILL COLLAR	9.500	18.47
1	ROLLER REAMER	17.500	2.51
1	DRILL COLLAR	9.500	9.33
1	ROLLER REAMER	17.500	2.64
2	DRILL COLLAR	9.500	18.45
1	CROSS OVER	9.500	0.63
9	DRILL COLLAR	8.000	81.28
1	JARS	8.000	9.72
2	DRILL COLLAR	8.000	18.04
1	JAR ACCELERATOR	8.000	6.24
1	CROSS OVER	8.000	0.74
15	HWDP	5.000	137.53
		Total BHA Length :	**306.90**

BHA Name : 3. PDC/MOTOR ASSY. **Depth In:** 1225 m. **Depth Out:** 1246 m.

Bit Used : 3

Purpose : 12.25in MOTOR RUN

Joints	BHA Item	O.D.	Length
1	BIT	12.250	0.42
1	POSITIVE DISPL. MOTOR	9.500	10.79
1	ROLLER REAMER	12.250	2.27
1	SUB	8.000	0.39
1	MWD TOOL	8.250	12.23
8	DRILL COLLAR	8.000	72.15
1	JARS	8.000	9.72
3	DRILL COLLAR	8.000	27.17
1	JAR ACCELERATOR	8.000	6.21
1	CROSS OVER	8.000	0.74
1	HWDP	5.000	9.42
1	DIDS	6.265	0.69
14	HWDP	5.000	128.11

4.1 BHA SUMMARY

Total BHA Length : **280.31**

BHA Name : 4. 12.25 ROTARY **Depth In:** 1246 m. **Depth Out:** 1882 m.

Bit Used : 4

Purpose : ROTARY

Joints	BHA Item	O.D.	Length
1	BIT	12.250	0.30
1	FLOAT SUB	8.000	1.08
1	DRILL COLLAR	8.000	8.85
1	SUB	8.000	0.39
1	MWD TOOL	8.250	12.23
1	ROLLER REAMER	12.250	2.27
8	DRILL COLLAR	8.000	66.94
1	JARS	8.000	9.72
3	DRILL COLLAR	8.000	27.17
1	JAR ACCELERATOR	8.000	6.21
1	CROSS OVER	8.000	0.74
1	HWDP	5.000	9.42
1	DIDS	6.265	0.69
14	HWDP	5.000	128.11
	Total BHA Length :		**274.12**

4.2 DEVIATION SURVEYS - ORIG DRILLING

Depth	Angle	Azimuth	Method	Missrun
146.0	0.40	0.0	MWD	
579.0	0.20	0.0	MWD	
1174.0	1.90	0.0	MWD	
1226.0	1.70	309.0	MWD	
1487.0	0.40	8.8	MWD	
1777.0	0.90	53.8	MWD	
1867.0	0.60	45.0	MWD	

5.0 CASING REPORT - 20in COMBINATION 30in/20in STRUCTURAL

						CASING FLANGE / WELLHEAD	
Hole Size	: 36 in	**Total Depth**	: 120 m	**Manufacturer**	: DRILQUIP		
Weight in Slips	: lb	**Casing Shoe at**	: 120.3 m	**Model**	: SS-10-C		
R.T. to Wellhead	: 75.45 m	**Top of Casing**	: 75.45 m	**Size**	: 18.75 in		
		Liner Overlap	: m	**Rating**	: 10000 psi		

PIPE INFORMATION

Description	Manufacturer	Size	Weight	Grade	Cnd	Threads	Joints	Length	Interval
WELLHEAD		18.75					1	0.96	76.41 - 75.45
PUP JOINT		20	94			HD-90	1	6.75	83.16 - 76.41
CROSS OVER		20	94			RL-4S	1	12.37	95.53 - 83.16
INTERMEDIATE JOINT		20	94			RL-4S	1	11.62	107.15 - 95.53
SHOE JOINT		20	94			RL-4S	1	13.15	120.30 - 107.15

ACCESSORIES INFORMATION

Item	Manufacturer	Number	Spacing	Interval	How Fixed
30in HOUSING JT	HUNG OFF PGB & RUN WITH 20in	1		- 11.79	
30in CONE RDCER		1		11.79 - 23.15	

HOLE / RUNNING CONDITIONS

Mud Type	: SPUD MUD	**Avg. Make Up Torque**	: ft lb	**Avg. Drag**	: lb		
Density	: 1.05 SG	**RPM**	:	**Max. Drag**	: lb		
Viscosity	: 150	**Avg. Torque Rot.**	: ft lb	**Volume Lost**	: 0 bbl		
PV / YP	: /	**Max. Torque Rot.**	: ft lb				

Remarks : 30in/20in COMBINATION CASING STRING. 30in HUNG OFF PGB, AND 20in CASING STRING RUN INTERNALLY.

5.0 CASING REPORT - 13.375in INTERMEDIATE CASING

						CASING FLANGE / WELLHEAD	
Hole Size	: 17.5 in	**Total Depth**	: 1225 m	**Manufacturer**	: DRILQUIP		
Weight in Slips	: 385000 lb	**Casing Shoe at**	: 1216.05 m	**Model**	: SS-10-C		
R.T. to Wellhead	: 75.45 m	**Top of Casing**	: 76.45 m	**Size**	: 18.75 in		
		Liner Overlap	: m	**Rating**	: 10000 psi		

PIPE INFORMATION

Description	Manufacturer	Size	Weight	Grade	Cnd	Threads	Joints	Length	Interval
CASING HANGER		13.375	68	K-55		BTC	1	0.6	77.05 - 76.45
PUP JOINT		13.375	68	K-55		BTC	1	3.09	80.14 - 77.05
CASING		13.375	68	K-55		BTC	93	1099.4	1179.51 - 80.14
FLOAT JOINT		13.375	68	K-55		BTC	1	12.26	1191.77 - 1179.51
INTERMEDIATE JOINT		13.375	68	K-55		BTC	1	11.87	1203.64 - 1191.77
SHOE JOINT		13.375	68	K-55		BTC	1	12.41	1216.05 - 1203.64

ACCESSORIES INFORMATION

Item	Manufacturer	Number	Spacing	Interval	How Fixed
CENTRALIZER	WEATHERFORD	2		1179.4 - 1216.4	SCREWED

Remarks : HAND SLIPS AND ELEVATORS USED UNTIL SHOE ENTERED OPEN HOLE. CHANGED TO 500t ELEVATORS AND SLIPS. CASING RAN WITHOUT INCIDENT. CASING FILLED EVERY JOINT, NO FLUID LOSSES WHILE .

5.1 CEMENTING REPORT - 20in CASING

Date	: 9/08/95	**Report No.** : 1		**Job Type**	: PRIMARY
Cementer	: HALLIBURTON			**Total Stages**	: 01
Supervisor	: PETER WATSON			**Cemented Interval**	: 78 - 120m.

STAGE NUMBER : **001 of 001**

Mixing Method	:				
Density Measured By	: DENSOMETER	**Displacement Fluid**	: MUD	**Top Plug**	: No
Start Mix Cement	: 17:30 hrs	**Fluid Density**	: 1.05 SG	**Bottom Plug**	: No
Start Slurry Disp.	: 17:45 hrs	**Fluid Volume**	: 14 bbl	**Bump Plug**	: No
Start Fluid Disp.	: 18:46 hrs	**Displac't Avg. Rate**	: 8.5 bpm		
End Pumping	: 18:52 hrs	**Displac't Max. Rate**	: 8.5 bpm	**Returns**	: TO SEABE
End Pumping Date	: 9/08/95			**Total Mud Lost**	: 0 bbl

CEMENTING MUD SYSTEM

Type	: SPUD MUD	**Gels (10 sec)**	:	**Circ. Prior to Cementing**	: 0.50 hrs
Density	: 1.05 SG	**Gels (10 min)**	:	**Mud Circ. Rate**	: gpm
Viscosity	: 150 s/qt			**Mud Circ. Press**	: 750 psi
PV / YP	: /				

CEMENT LOGS / CASING TESTING

CBL Run	: No	**Top of Cement** :	m.	**Casing Pressure Test** :	psi
CET Run	: No	**Top of Cement Determined by** :		**Pressure Held For** :	min
Bond Quality	:				
Hours Prior to Log	:			**Shoetrack Cement** :	Yes
BHT Run	: No				

Remarks :

5.1 CEMENTING REPORT - 20in CASING

Stage Number	001 OF 001
Slurry Number	001 OF 001
Slurry Type	TAIL SLURRY
Slurry Class	G
Slurry Description	ACCELERATED
Amount (sacks)	1367
Volume (bbl)	280
Yield (ft^3/sx)	1.15
Excess (%)	200
From / To (m)	78 / 120
Density	1.9
Thickening Time (hrs)	4.06
Temp. (°C)	18
Free Water (%)	
Temp. (°C)	
Fluid Loss (cc)	
Temp. (°C)	
Water Used (gal/sack)	5
Water Source	SEAWATER
Comp. Strength (psi)	50
Time (hrs)	4.2
Temp (°C)	18
Comp. Strength 2. (psi)	500
Time (hrs)	14.7
Temp (°C)	118
BHST (°C)	
BHCT (°C)	

Additives 27 sacks of 2 % bwoc CACL2 ACCELERA

5.1 CEMENTING REPORT - 13.375in CASING

Date	: 12/08/95	**Report No.** : 2		**Job Type** :	PRIMARY
Cementer	: HALLIBURTON			**Total Stages** :	01
Supervisor	: PETER WATSON			**Cemented Interval** :	1016 - 1225m.

STAGE NUMBER : **001 of 001**

Mixing Method	: FLY				
Density Measured By	: DENSOMETER	**Displacement Fluid**	: MUD	**Top Plug**	: Yes
Start Mix Cement	: 12:06 hrs	**Fluid Density**	: 1.14 SG	**Bottom Plug**	: Yes
Start Slurry Disp.	: 12:38 hrs	**Fluid Volume**	: 553 bbl	**Bump Plug**	: Yes
Start Fluid Disp.	: 13:24 hrs	**Displac't Avg. Rate**	: 5 bpm		
End Pumping	: 14:10 hrs	**Displac't Max. Rate**	: 6 bpm	**Returns**	: FULL RETU
End Pumping Date	: 12/08/95			**Total Mud Lost**	: 10 bbl

CEMENTING MUD SYSTEM

Type	: KCl PHPA POLY.	**Gels (10 sec)**	: 4	**Circ. Prior to Cementing**	: 0.50 hrs
Density	: 1.14 SG	**Gels (10 min)**	: 14	**Mud Circ. Rate**	: 420 gpm
Viscosity	: 65 s/qt			**Mud Circ. Press**	: 800 psi
PV / YP	: 17 / 19				

CEMENT LOGS / CASING TESTING

CBL Run	: No	**Top of Cement** :	m.	**Casing Pressure Test** :	1500 psi
CET Run	: No				
Bond Quality	:	**Top of Cement Determined by** :		**Pressure Held For** :	10 min
Hours Prior to Log	:				
BHT Run	: No			**Shoetrack Cement** :	Yes

Remarks :

5.1 CEMENTING REPORT - 13.375in CASING

Stage Number	001 OF 001
Slurry Number	001 OF 001
Slurry Type	TAIL SLURRY
Slurry Class	G
Slurry Description	RETARDED
Amount (sacks)	650
Volume (bbl)	125
Yield (ft^3/sx)	1.15
Excess (%)	40
From / To (m)	1016 / 1225
Density	1.9
Thickening Time (hrs)	4.07
Temp. (°C)	44
Free Water (%)	
Temp. (°C)	
Fluid Loss (cc)	
Temp. (°C)	
Water Used (gal/sack)	5
Water Source	DRILLWATER
Comp. Strength (psi)	
Time (hrs)	
Temp (°C)	
Comp. Strength 2. (psi)	
Time (hrs)	
Temp (°C)	
BHST (°C)	70
BHCT (°C)	71

Additives: 50 gal of 4 g/10bl HR6-L RETARDER

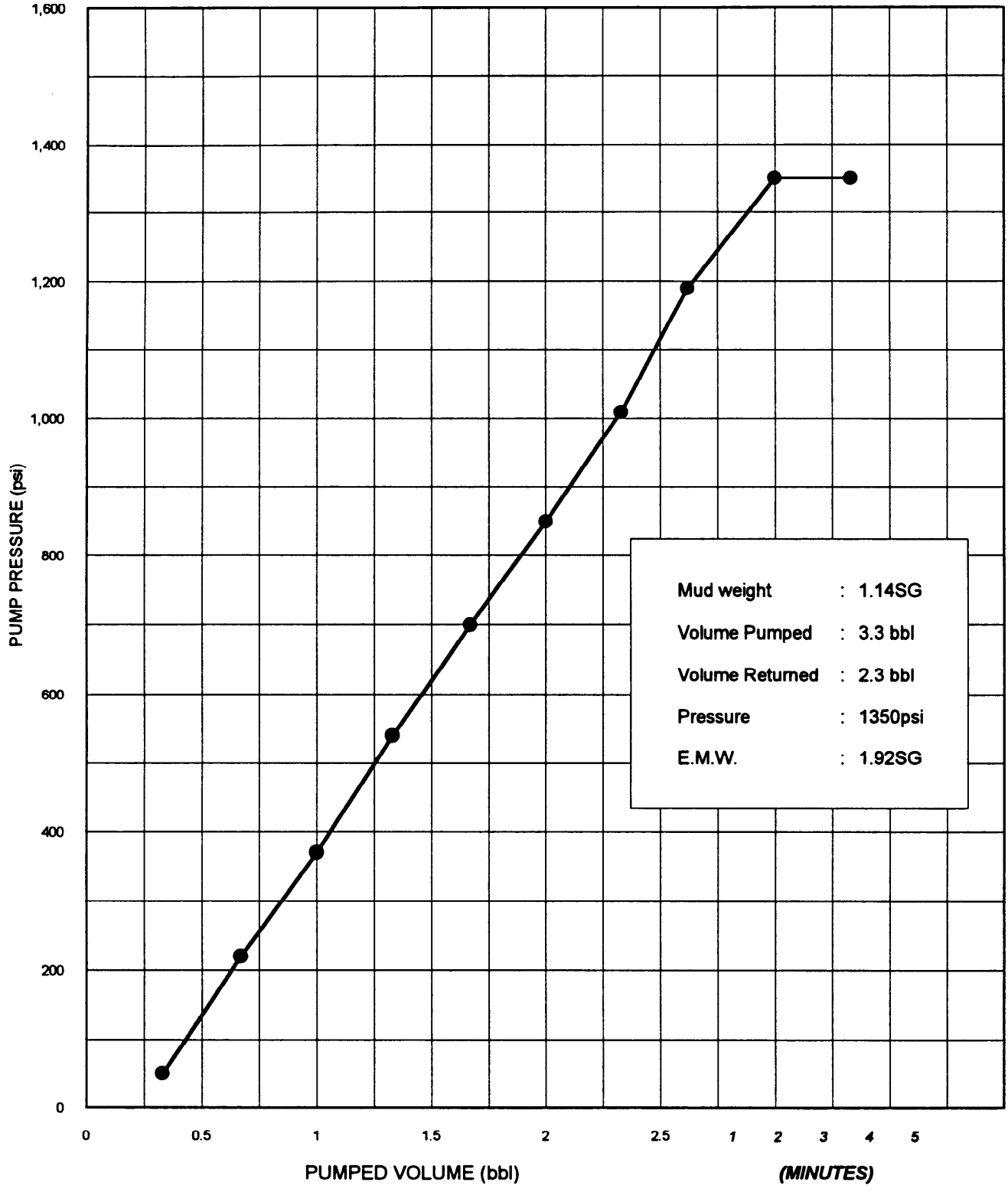
FINAL DRILLING REPORT - CHAMPION-1

5.2 LEAK OFF TEST DIAGRAM - 13.375in CASING

MEASURED DEPTH: 1233m

CASING DIAMETER: 13.375in, 68lb/ft

SHOE DEPTH: 1216m



6.0 CEMENTING REPORT - ABANDONMENT PLUG No.1

Date	: 16/08/95	**Report No.** : 3		**Plug Type** :	ABANDONMENT
Cementer	: HALLIBURTON			**Total Stages** :	01
Supervisor	: PETER WATSON				

STAGE NUMBER : **001 of 001** **Cemented Interval** : **1246 - 1380 m.**

Mixing Method	: FLY						
Density Measured By	: DENSOMETER	**Displacement Flui**	: MUD	**Top Plug**	: No		
Start Mix Cement	: 15:49 hrs	**Fluid Density**	: 1.20 SG	**Bottom Plug**	: No		
Start Slurry Disp.	: 15:49 hrs	**Fluid Volume**	: 64 bbl	**Bump Plug**	: No		
Start Fluid Disp.	: 16:08 hrs	**Displac't Avg. Rate**	: 6 bpm				
End Pumping	: 16:17 hrs	**Displac't Max. Rate**	: 8 bpm	**Returns**	: YES		
End Pumping Date	: 16/08/95			**Total Mud Lost**	: 0 bbl		

CEMENTING MUD SYSTEM

Type	: KCl PHPA POLY.	**Gels (10 sec)**	: 4	**Circ. Prior to Cementing**	: 0.50 hrs
Density	: 1.20 S.G.	**Gels (10 min)**	: 10	**Mud Circ. Rate**	: gpm
Viscosity	: 52 s/qt			**Mud Circ. Press**	: psi
PV / YP	: 16 / 22				

CEMENT LOGS / CASING TESTING

CBL Run	: No	**Top of Cement** :	m.	**Casing Pressure Test** :	psi
CET Run	: No	**Top of Cement Determined by** :		**Pressure Held For** :	min
Bond Quality	:				
Hours Prior to Log	:			**Shoetrack Cement** :	N/A
BHT Run	: No				

6.0 CEMENTING REPORT - ABANDONMENT PLUG No.1

Stage Number	001
Slurry Number	001
Slurry Type	TAIL SLURRY
Slurry Class	G
Slurry Description	RETARDED SLURRY
Amount (sacks)	344
Volume (bbl)	70
Yield (ft^3/sx)	1.15
Excess (%)	10
From / To (m)	1246 / 1380
Density	1.9
Thickening Time (hrs)	2.07
Temp. (°C)	
Free Water (%)	
Temp. (°C)	
Fluid Loss (cc)	
Temp. (°C)	
Water Used (gal/sack)	5
Water Source	SEAWATER
Comp. Strength (psi)	
Time (hrs)	
Temp (°C)	
Comp. Strength 2 (psi)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	

Additives: 14 gal of 2 g/10bl HR6-L

6.0 CEMENTING REPORT - ABANDONMENT PLUG No.2

Date	: 16/08/95	**Report No.** : 4		**Plug Type** :	ABANDONMENT
Cementer	: HALLIBURTON			**Total Stages** :	01
Supervisor	: PETER WATSON				

STAGE NUMBER : **001 of 001** **Cemented Interval** : 1156 - 1246 m.

Mixing Method	: FLY				
Density Measured By	: DENSOMETER	**Displacement Flui**	: MUD	**Top Plug**	: No
Start Mix Cement	: 17:30 hrs	**Fluid Density**	: 1.20 SG	**Bottom Plug**	: No
Start Slurry Disp.	: 17:30 hrs	**Fluid Volume**	: 60 bbl	**Bump Plug**	: No
Start Fluid Disp.	: 17:45 hrs	**Displac't Avg. Rate**	: 6 bpm		
End Pumping	: 17:55 hrs	**Displac't Max. Rate**	: 8 bpm	**Returns**	: YES
End Pumping Date	: 6/08/95			**Total Mud Lost**	: 0 bbl

CEMENTING MUD SYSTEM

Type	: KCl PHPA POLY.	**Gels (10 sec)**	: 4		
Density	: 1.20 S.G.	**Gels (10 min)**	: 10	**Circ. Prior to Cementing**	: 0.50 hrs
Viscosity	: 52 s/qt			**Mud Circ. Rate**	: gpm
PV / YP	: 16 / 22			**Mud Circ. Press**	: psi

CEMENT LOGS / CASING TESTING

CBL Run	: No	**Top of Cement**	: 1142.0 m.	**Casing Pressure Test**	: psi
CET Run	: No				
Bond Quality	:	**Top of Cement Determined by**	: TAGGED	**Pressure Held For**	: min
Hours Prior to Log	:				
BHT Run	: No			**Shoetrack Cement**	: N/A

6.0 CEMENTING REPORT - ABANDONMENT PLUG No.2

Stage Number	001
Slurry Number	001
Slurry Type	TAIL SLURRY
Slurry Class	G
Slurry Description	RETARDED SLURRY
Amount (sacks)	235
Volume (bbl)	48.4
Yield (ft^3/sx)	1.15
Excess (%)	10
From / To (m)	1156 / 1246
Density	1.9
Thickening Time (hrs)	2.07
Temp. (°C)	
Free Water (%)	
Temp. (°C)	
Fluid Loss (cc)	
Temp. (°C)	
Water Used (gal/sack)	5
Water Source	SEAWATER
Comp. Strength (psi)	
Time (hrs)	
Temp (°C)	
Comp. Strength 2 (psi)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	

Additives 9.6 gal of 2 g/10bl HR6-L

6.0 CEMENTING REPORT - ABANDONMENT PLUG No.3

Date	: 17/08/95	**Report No.** :	5	**Plug Type** :	ABANDONMENT
Cementer	: HALLIBURTON			**Total Stages** :	01
Supervisor	: PETER WATSON				

STAGE NUMBER : **001 of 001** **Cemented Interval** : **87 - 117.58 m.**

Mixing Method	: BATCH				
Density Measured By	: DENSOMETER	**Displacement Flui**	: SEAWATER	**Top Plug**	: No
Start Mix Cement	: 13:53 hrs	**Fluid Density**	: SG	**Bottom Plug**	: No
Start Slurry Disp.	: 13:53 hrs	**Fluid Volume**	: bbl	**Bump Plug**	: No
Start Fluid Disp.	: 14:11 hrs	**Displac't Avg. Rate**	: 6 bpm		
End Pumping	: 14:21 hrs	**Displac't Max. Rate**	: 8 bpm	**Returns**	:
End Pumping Date	: 17/08/95			**Total Mud Lost**	: 0 bbl

CEMENTING MUD SYSTEM

Type	: KCl PHPA POLY.	**Gels (10 sec)**	: 4	**Circ. Prior to Cementing**	: 0.10 hrs
Density	: 1.20 S.G.	**Gels (10 min)**	: 10	**Mud Circ. Rate**	: gpm
Viscosity	: 52 s/qt			**Mud Circ. Press**	: psi
PV / YP	: 16 / 22				

CEMENT LOGS / CASING TESTING

CBL Run	: No	**Top of Cement** :	m.	**Casing Pressure Test** :	psi
CET Run	: No				
Bond Quality	:	**Top of Cement Determined by** :		**Pressure Held For** :	min
Hours Prior to Log	:				
BHT Run	: No			**Shoetrack Cement** :	N/A

6.0 CEMENTING REPORT - ABANDONMENT PLUG No.3

Stage Number	001
Slurry Number	001
Slurry Type	TAIL SLURRY
Slurry Class	G
Slurry Description	ACCELERATED
Amount (sacks)	170
Volume (bbl)	30
Yield (ft^3/sx)	1.15
Excess (%)	
From / To (m)	87 / 117.58
Density	1.9
Thickening Time (hrs)	2.07
Temp. (°C)	
Free Water (%)	
Temp. (°C)	
Fluid Loss (cc)	
Temp. (°C)	
Water Used (gal/sack)	5
Water Source	SEAWATER
Comp. Strength (psi)	
Time (hrs)	
Temp (°C)	
Comp. Strength 2 (psi)	
Time (hrs)	
Temp (°C)	
BHST (°C)	
BHCT (°C)	

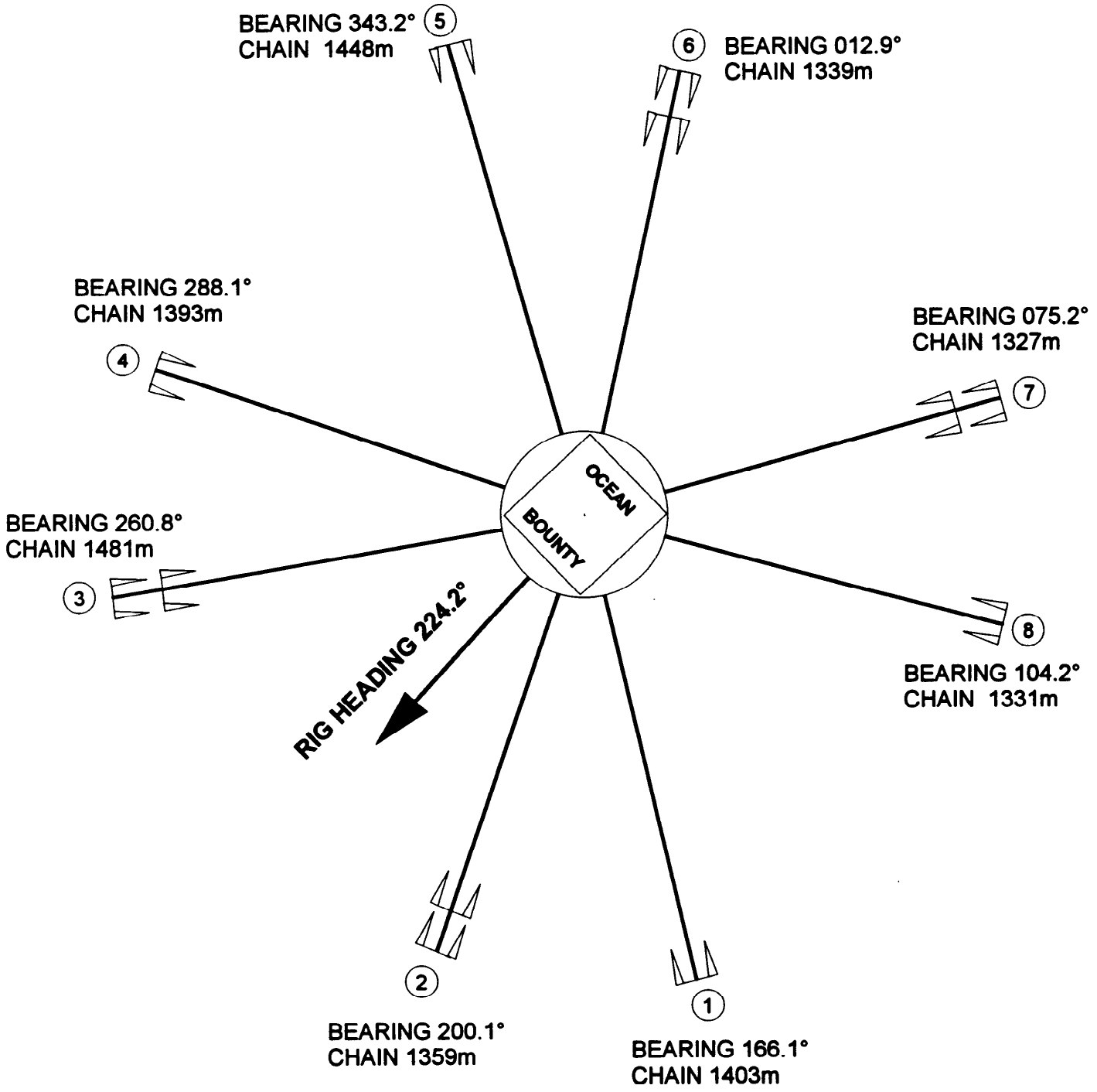
Additives: of 2 % CACL2

7.0 WEATHER DATA

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)
5/08/95	1	40	200	10	15	UNSETTLED	5.3	16	225	4	14	270		3	3.5	1025
6/08/95	2	40	225	9	15	POOR	22	16	225	12	14	225		4	4	1027
7/08/95	3	30	200	9	15	MODERATE	6.7	16	225	3	8	200		4	4	1028
8/08/95	4	22	180	10	15	FAIR	12	16	225	6	8	180		1.5	1.5	1028
9/08/95	5	12	180	14	15	FAIR	8	16	180	6	8	180		1	1	1033
15/08/95	11	18	25	14	15	FINE	8	16	225	3	4	25	2.5	1.5	1	1029
16/08/95	12	30	315	11	15	FAIR	10	16	225	5	4	315	5	2.5	1.5	1026
17/08/95	13	30	315	15	15		12	16	225	6	6	315	6	2.5	2	1022
18/08/95	14	30	335	15	15		10	16	225	6	6	335		2	1	

FINAL DRILLING REPORT - CHAMPION-1

7.1 MOORING DIAGRAM



8.0 APPROVALS

Compiled By: _____ Technical Assistant — 10-11-95 Date

Reviewed By: _____ Senior Drilling Engineer — 10/11/95 Date

_____ Drilling Superintendent — 12/11/95 Date

Approved By: _____ Drilling Engineering Supervisor — 10/11/95 Date

3 SAMPLES, SIDEWALL CORES, CONVENTIONAL CORES

3.1 Cuttings

COLLECTION INTERVAL(mRT)	TREATMENT
130 - 1882 (TD)	- 1 set unwashed - 6 sets washed & dried - 2 composite

Cuttings Lithological Descriptions - Appendix 1.

3.2 Sidewall Cores/Mechanical Sidewall Cores

Suite	Run	Bullets	Depth From (mRT)	Depth To (mRT)	No. Attempted	No. Lost	No. Rec.
1	4	30	1812.0	1255.0	30	2	28

Sidewall core descriptions - Appendix 2.

No mechanical sidewall cores were taken for Champion-1.

3.3 Conventional Cores

No conventional cores were cut for Champion-1.

3.4 Palynology

No. of Samples	Sample Type	Collection Interval (mRT)
8	Cuttings	1480 - 1882
20	Sidewall cores	1255 - 1812

Palynological analysis was completed by Roger Morgan of Morgan Palaeo Associates.

Palynological Basic Data and Range Charts have been incorporated in the Palynological Interpretive Report which is contained in the Champion-1 Well Completion Report, Interpretive Volume.

3.5 Micropalaeontology

No micropalaeontological analysis was performed for Champion-1.

3.6 Geochemistry

Vitrinite reflectance analysis was performed on 7 sidewall cores by Geotechnical Services Pty. Ltd.

Geochemical Basic Data - Appendix 3.

4

4 LOGGING AND SURVEYS

4.1 Mudlogging/Measurement While Drilling

Mudlogging was provided by Halliburton Australia Pty. Ltd. Measurement While Drilling was provided by Baker Hughes Inteq.

Interval
Mudlogging: 120 - 1882 mRT (T.D)
Measurement While Drilling: 1225 - 1882 mRT

End of Well Report (mudlogging) - Appendix 4.
Final Well Report (MWD) - Appendix 5.

4.2 Wireline Logs

Logging was completed by Schlumberger.

Suite No.	Run No.	Log Type	Interval (mRT)	Date
1	1	AS-MSFL-GR-DLL-AMS	1856 - 79	15-08-95
1	2	LDL-CNL-GR-AMS	1843 - 1216	15-08-95
1	2	FMI (IMAGES)	1854 - 1216	15-08-95
1	3	CSI-VSP	1845 - 150	15-08-95
1	4	CST-GR	1812 - 1255	15-08-95

4.3 Processed Logs

Suite No.	Run No.	Log Type	Interval (mRT)	Date
1	1	MSD	1854 - 1216	15-08-95

4.4 Velocity Survey

A VSP survey was run by Schlumberger.

Well Seismic Processing Report - Champion-1 Well Completion Report - Basic Data, Volume Two.

4.5 Site Survey

No analogue site survey was performed for Champion-1.

4.6 Rig Location Survey

Survey was conducted by Racal Survey Australia Limited.

Rig Positioning Report - Appendix 6.

5

5 FORMATION TESTING

5.1 RFT/MDT

No RFT/MDTs were run for Champion-1.

5.2 DST

No drillstem tests were run for Champion-1.

6

Appendices

6.1 APPENDIX 1 Cuttings Lithological Descriptions

CUTTINGS DESCRIPTION SHEETS

Well: CHAMPION-1
Permit: VIC/P30
Hole Section: 17½"
Geologist(s): C.Menhennitt / P.Lawry

Australia Division
BHP Petroleum

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 1
Well spudded 1330 hrs 9/8/95. 17½" Section from 120mRT, sample interval 10 metres.		
130	100	**BIOCLASTIC CALCARENITE:** greyish yellow to yellowish grey, friable to moderately firm, predominantly medium to coarse grained, trace very coarse grains, common fossil fragments generally coarse to granule sized, trace medium to coarse grained quartz, trace to rare glauconite, trace yellowish grey argillaceous matrix, trace cement contamination. **CALCIMETRY:** 94/5
140	100	**BIOCLASTIC CALCARENITE:** as above.
150	100	**BIOCLASTIC CALCARENITE:** as above. **CALCIMETRY:** 99/1
160	100	**BIOCLASTIC CALCARENITE:** generally as above, becoming predominantly yellowish grey.
170	100	**BIOCLASTIC CALCARENITE:** greyish yellow to predominantly yellowish grey, friable to moderately firm, predominantly medium to coarse grained, trace very coarse grains, common fossil fragments generally coarse to granule sized, trace medium to coarse grained quartz, trace to rare glauconite, trace yellowish grey argillaceous matrix.
180	100	**BIOCLASTIC CALCARENITE:** as above.
190	100	**BIOCLASTIC CALCARENITE:** as above.
200	100	**BIOCLASTIC CALCARENITE:** as above. **CALCIMETRY:** 99/1
210	100	**BIOCLASTIC CALCARENITE:** as above.
220	100	**BIOCLASTIC CALCARENITE:** as above.
230	100	**CALCARENITE:** yellowish grey to very light grey, friable to moderately firm, fine to medium grained, rare to minor coarse to very coarse grains, minor fossil fragments generally coarse to granule sized, trace medium to coarse grained quartz, trace to rare glauconite, trace to rare light grey argillaceous matrix.
240	100	**CALCARENITE:** as above. **CALCIMETRY:** 95/2
250	100	**CALCARENITE:** as above.
260	100	**CALCARENITE:** as above. **CALCIMETRY:** 77/2.5

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 2
270	30 70	**CALCARENITE:** yellowish grey to very light grey, friable to moderately firm, fine to medium grained, rare to minor coarse to very coarse grains, minor fossil fragments generally coarse to granule sized, trace medium to coarse grained quartz, trace to rare glauconite, trace to rare light grey argillaceous matrix, grades to calcisiltite. **CALCISILTITE:** yellowish grey, firm to soft, minor fossil fragments, trace medium to very fine gained quartz, trace glauconite. **CALCIMETRY:** 75/2
280	100	**CALCISILTITE:** as above. **CALCIMETRY:** 75/2
290	100	**MARL:** medium dark grey to olive gray, soft, massive, amorphous, trace to rare glauconite, trace very fine grained quartz, grades to argillaceous calcilutite.
300	100	**ARGILLACEOUS CALCILUTITE:** yellowish grey to olive grey, firm to soft, massive, trace to common silt and very fine calcarenite, grades to marl.
310	100	**ARGILLACEOUS CALCILUTITE:** yellowish grey to medium grey, firm to soft, common silt and very fine occasionally medium calcarenite, rare to trace fossil fragments and glauconite, grades to very fine grained calcarenite and calcisiltite.
320	100	**ARGILLACEOUS CALCILUTITE:** as above.
330	100	**ARGILLACEOUS CALCILUTITE:** as above.
340	100	**ARGILLACEOUS CALCILUTITE:** as above.
350		sample missed due to high penetration rate.
360	100	**ARGILLACEOUS CALCILUTITE:** as above. **CALCIMETRY:** 93/7
370	100	**ARGILLACEOUS CALCILUTITE:** as above.
380	100	**CALCILUTITE:** olive grey, light to medium grey, firm to soft, common very fine occasionally fine grained calcarenite, trace calcareous material, rare fossil fragments and glauconite and carbonaceous flecks, grades to very fine grained calcarenite and calcisiltite.
390	100	**CALCILUTITE:** as above.
400	100	**CALCARENITE:** very light grey to olive grey to medium grey, hard, very fine grained, massive, sub angular to sub rounded, well sorted, abundant calcareous, silt and clay matrix, trace glauconite, no visual porosity, grades to calcisiltite. **CALCIMETRY:** 93/2
410	100	**CALCISILTITE:** very light to medium grey, hard, commonly very fine grained, trace glauconite, trace mineral fluorescence, grades to calcilutite and very fine grained calcarenite.
420	100	**CALCISILTITE:** as above.
430	100	**CALCISILTITE:** as above.
440		sample missed due to high penetration rate.
450	100	**MARL:** light to medium grey, soft to firm, rare very fine to fine grained calcarenite, rare glauconite, grades to calcisiltite. **CALCIMETRY:** 98/2
460	100	**CALCISILTITE:** light olive grey to medium grey, soft to firm, rare very fine to fine grained calcarenite, trace glauconite, grades to calcilutite.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 3
470	100	**CALCISILTITE:** light olive grey to medium grey, soft to hard, trace very fine to fine grained calcarenite, trace glauconite, trace fossil fragments, grades to calcilutite.
480	100	**CALCISILTITE:** light olive grey to medium grey, soft to hard, rare very fine to fine grained calcarenite, trace carbonaceous material, trace fossil fragments, grades to calcilutite.
490	100	**CALCISILTITE:** as above.
500	100	**CALCISILTITE:** as above. **CALCIMETRY:** 92/1
510	100	**CALCISILTITE:** light olive grey to medium grey, firm to hard, rare very fine to fine grained calcarenite, trace fossil fragments, grades to calcilutite, rare mineral fluorescence.
510	100	**CALCISILTITE:** as above.
520	100	**CALCISILTITE:** as above.
530	100	**CALCISILTITE:** light olive grey to medium grey, firm, rare very fine to fine grained calcarenite, trace fossil fragments and pyrite, grades to calcilutite, rare mineral fluorescence.
540	100	**CALCISILTITE:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, grades to calcilutite.
550	100	**CALCISILTITE:** as above. **CALCIMETRY:** 86/7
560	100	**CALCISILTITE:** as above.
570	100	**CALCISILTITE:** as above.
580	100	**CALCISILTITE:** as above.
590	100	**CALCILUTITE:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, grades to calcisiltite.
600	100	**CALCISILTITE:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments and forams, grades to calcilutite. **CALCIMETRY:** 78/12
610	100	**CALCISILTITE:** as above.
620	100	**CALCISILTITE:** as above.
630	100	**CALCISILTITE:** as above.
640	100	**CALCISILTITE:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments and pyrite, grades to calcilutite.
650	100	**CALCISILTITE:** as above. **CALCIMETRY:** 82/5
660	100	**CALCISILTITE:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, forams, glauconite and pyrite, grades to calcilutite.
670	100	**CALCISILTITE:** as above.
680	100	**CALCISILTITE:** as above.
690	100	**CALCISILTITE:** light olive grey to medium grey, occasionally light grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, glauconite and pyrite, grades to calcilutite.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 4
700	100	**MARL:** light olive grey to medium grey, occasionally light grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, glauconite and pyrite, grades to calcilutite. **CALCIMETRY:** 62/10
710	100	**MARL:** light olive grey to medium grey, firm to soft, rare very fine to fine grained calcarenite, trace fossil fragments, forams, glauconite and pyrite, grades to calcilutite.
720	100	**MARL:** as above.
730	100	**MARL:** as above.
740	100	**MARL:** as above.
760	100	**MARL:** as above.
770	100	**MARL:** as above.
780	100	**MARL:** as above.
790	100	**SANDSTONE:** dark yellowish orange to light brown, friable, medium to very coarse grained dominantly coarse grained, sub angular to rounded, well sorted quartz, trace siliceous cement, trace calcite cement, trace limonite grains, trace carbonaceous fragments, good to very good visual porosity.
800	100	**SANDSTONE:** as above.
810	-	Sample missed due to high ROP
320	100	**SANDSTONE:** dark yellowish orange to light brown, friable, medium to very coarse grained dominantly medium to coarse grained, sub angular to rounded, well sorted quartz, trace siliceous cement, trace calcite cement, trace pale yellowish orange argillaceous matrix, trace limonite grains, trace carbonaceous fragments, good to very good visual porosity.
830	100	**SANDSTONE:** as above.
840	100	**SANDSTONE:** as above.
850	100	**SANDSTONE:** as above.
860	100	**SANDSTONE:** dark yellowish orange to light brown, friable, fine to coarse grained dominantly medium grained, trace to rare fine and very coarse grains, sub angular to rounded, well sorted quartz, trace siliceous cement, trace calcite cement, trace pale yellowish orange argillaceous matrix, trace limonite grains, trace carbonaceous fragments, good to very good visual porosity.
870	100	**SANDSTONE:** as above.
880	100	**SANDSTONE:** as above.
890	100	**SANDSTONE:** as above.
900	100	**SANDSTONE:** generally as above, becoming medium light grey.
910	100	**SANDSTONE:** generally as above, becoming medium light grey.
920	100	**SANDSTONE:** generally as above, becoming medium light grey.
930	100	**SANDSTONE:** very light grey to medium light grey, clear to translucent grains, commonly frosted, friable with abundant loose grains, fine to predominantly medium grains, trace coarse grains, sub rounded to rounded, moderate sphericity, moderately well sorted quartz, trace weak silica cement in part, trace localised pyrite cement, trace to rare medium light grey argillaceous matrix, trace mica, good to very good visual porosity.
940	100	**SANDSTONE:** as above.
950	100	**ARGILLACOUS SILTSTONE:** brownish grey, soft, abundant argillaceous matrix, minor to common very fine to fine grained quartz with trace pyrite cemented aggregates, rare coarse quartz grains, grading to argillaceous sandstone.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 5
960	100	**ARGILLACOUS SILTSTONE:** brownish grey, soft, abundant argillaceous matrix, minor to common very fine to fine grained quartz with trace pyrite cemented aggregates, rare coarse quartz grains, grading to argillaceous sandstone.
970	100	**ARGILLACEOUS SILTSTONE:** as above.
980	100	**ARGILLACEOUS SILTSTONE:** as above.
990	100	**ARGILLACEOUS SILTSTONE:** as above.
1000	100	**ARGILLACEOUS SILTSTONE:** as above. **CALCIMETRY:** 4/0
1010	100	**ARGILLACEOUS SILTSTONE:** as above.
1020	100	**SANDSTONE:** light grey to light brownish grey, clear to translucent grains, commonly frosted, friable with abundant loose grains, medium to coarse grained, trace fine and very coarse grains, sub angular to rounded, moderate sphericity, well sorted quartz, trace patchy pyrite cement, minor light brownish grey to brownish grey silty and argillaceous matrix, trace lithic grains, good visual porosity.
1030	100	**SANDSTONE:** as above.
1040	100	**SANDSTONE:** as above.
1050	100	**SANDSTONE:** generally as above, becoming predominantly medium grained.
1060	100	**SANDSTONE:** generally as above, becoming predominantly medium grained.
1070	100	**SANDSTONE:** generally as above, becoming predominantly medium grained with rare to minor pyrite cement.
1080	90 10	**ARGILLACOUS SILTSTONE:** brownish grey, soft, abundant argillaceous matrix, minor to common very fine to fine grained quartz with trace pyrite cemented aggregates, rare coarse quartz grains, grading to argillaceous sandstone. **SANDSTONE:** as above.
1090	20 80	**ARGILLACEOUS SILTSTONE:** as above. **SANDSTONE:** light grey to light brownish grey, clear to translucent grains, commonly frosted, friable with abundant loose grains, medium to coarse grained, trace fine and very coarse grains, sub angular to rounded, moderate sphericity, moderately well sorted quartz, trace patchy pyrite cement, trace light brownish grey to brownish grey silty and argillaceous matrix, trace lithic grains, good visual porosity.
1100	100	**SANDSTONE:** as above. **CALCIMETRY:** 3/0
1110	100	**SANDSTONE:** as above.
1120	80 20	**ARGILLACEOUS SILTSTONE:** as above. **SANDSTONE:** as above. **CALCIMETRY:** 1/0
1130	80 20	**ARGILLACEOUS SILTSTONE:** as above. **SANDSTONE:** as above.
1140	50 50	**ARGILLACEOUS SILTSTONE:** as above. **SANDSTONE:** as above.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 6
150	50	**ARGILLACEOUS SILTSTONE:** brownish grey, soft, abundant argillaceous matrix, minor to common very fine to fine grained quartz with trace pyrite cemented aggregates, rare coarse quartz grains, grading to argillaceous sandstone.
	50	**SANDSTONE:** light grey to light brownish grey, clear to translucent grains, commonly frosted, friable with abundant loose grains, medium to coarse grained, trace fine and very coarse grains, sub angular to rounded, moderate sphericity, moderately well sorted quartz, trace patchy pyrite cement, trace light brownish grey to brownish grey silty and argillaceous matrix, trace lithic grains, good visual porosity.
1160	100	**SANDSTONE:** as above.
1170	100	**ARGILLACOUS SILTSTONE:** brownish grey, soft, abundant argillaceous matrix, minor to common very fine to fine grained quartz with trace pyrite cemented aggregates, rare coarse quartz grains, grading to argillaceous sandstone.
1175 (Spot)	100	**CLAYSTONE:** moderate brown to brownish grey, soft, trace to rare quartz silt, trace pyritised carbonaceous fragments, non calcareous.
1180	100	**CLAYSTONE:** as above.
1190	100	**CLAYSTONE:** as above.
1210	100	**CLAYSTONE:** as above.
1220	100	**CLAYSTONE:** as above. **CALCIMETRY:** 4/0
1225	70	**SANDSTONE:** clear to translucent, friable to hard with abundant loose quartz grains, very coarse to medium grained dominantly coarse, sub angular to rounded, moderately well sorted, rare siliceous cement, trace pyrite cement, trace clay matrix, very good visual porosity.
	30	**CLAYSTONE:** as above.
TD 1225mRT reached at 1950 hrs 11/8/95		

CUTTINGS DESCRIPTION SHEETS

Well: CHAMPION-1
Permit: VIC/P30
Hole Section: 12¼"
Geologist(s): C.Menhennitt / P.Lawry

BHP
Australia Division
BHP Petroleum

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 1
		12¼" section 1225-1882mRT, sample interval 5m
1230	60	**CLAYSTONE:** medium grey to brownish grey, soft, trace nodular pyrite, trace calcareous.
	40	**SANDSTONE:** very light grey, clear to translucent grains, friable, abundant loose grains, medium to coarse grained, trace very coarse grains, sub angular to sub rounded, moderate sphericity, moderately sorted quartz, trace pyrite cement, trace to rare brownish grey argillaceous matrix, good inferred porosity.
1235	70	**CLAYSTONE:** medium grey to brownish grey, soft, trace nodular pyrite, trace disseminated pyrite, trace calcareous.
	30	**SANDSTONE:** very light grey, clear to translucent grains, friable, abundant loose grains, medium to coarse grained, trace very coarse grains, sub angular to sub rounded, moderate sphericity, moderately sorted quartz, trace to rare pyrite cement, trace siliceous cement, trace to rare brownish grey argillaceous matrix, good inferred porosity.
1240	70	**CLAYSTONE:** as above.
	30	**SANDSTONE:** as above.
		CALCIMETRY: 8/3
1245	80	**CLAYSTONE:** as above.
	20	**SANDSTONE:** as above.
1250	40	**CLAYSTONE:** medium grey to brownish grey, soft to occasionally firm, trace to rare nodular and disseminated pyrite, trace glauconite, trace calcareous, grades to siltstone.
	60	**SANDSTONE:** very light grey, clear to translucent grains, friable to very hard dominantly very hard, abundant loose quartz grains, medium to very coarse grained, trace granule, angular to sub rounded dominantly sub rounded, moderately sorted, trace to common pyrite cement, trace siliceous cement, trace to rare brownish grey argillaceous matrix, nil to poor occasionally good visual porosity.
1255	90	**CLAYSTONE:** as above, grades to siltstone.
	10	**SANDSTONE:** as above.
1260	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** medium grey to brownish grey, soft to occasionally firm, trace disseminated pyrite, trace calcareous, grades to claystone.
	10	**SANDSTONE:** as above.
		CALCIMETRY: 3/2

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 2
265	40	**CLAYSTONE:** medium grey to brownish grey, soft to occasionally firm, trace disseminated pyrite, trace calcareous, grades to siltstone.
	50	**SILTSTONE:** medium grey to brownish grey, soft to occasionally firm, trace disseminated pyrite, trace calcareous, grades to claystone.
	10	**SANDSTONE:** very light to light grey, clear to translucent grains, friable to very hard, very fine to medium occasionally coarse grained, sub angular to rounded dominantly rounded, moderate sorting, common pyrite cement, trace siliceous cement, trace argillaceous matrix, poor to good visual porosity.
1270	40	**CLAYSTONE:** medium grey to brownish grey, soft, trace to rare disseminated pyrite, trace calcareous, grades to siltstone.
	40	**SILTSTONE:** as above.
	20	**SANDSTONE:** very light to light grey to brownish grey, clear to translucent grains, friable to very hard, very fine to medium occasionally coarse grained, sub angular to rounded dominantly rounded, moderate to well sorted, rare to common pyrite and siliceous cement, trace argillaceous matrix, poor to good visual porosity.
1275	30	**CLAYSTONE:** as above.
	30	**SILTSTONE:** as above.
	40	**SANDSTONE:** as above, becoming dominantly fine grained.
1280	50	**CLAYSTONE:** as above.
	40	**SANDSTONE:** as above, dominantly fine grained.
	30	**SILTSTONE:** as above.
1285	30	**CLAYSTONE:** as above.
	30	**SILTSTONE:** as above.
	40	**SANDSTONE:** as above.
1290	30	**CLAYSTONE:** as above.
	30	**SILTSTONE:** as above.
	40	**SANDSTONE:** as above.
1295	40	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	20	**SANDSTONE:** as above.
1300	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 3
305	50	**CLAYSTONE:** medium grey to brownish grey, soft to firm, trace disseminated pyrite, trace calcareous, micromicaceous and ?carbonaceous, grades to siltstone.
	40	**SILTSTONE:** medium grey to brownish grey, soft to firm, trace disseminated pyrite, minor trace calcareous, micromicaceous and ?carbonaceous material, grades to claystone and very fine grained sandstone.
	10	**SANDSTONE:** very light to light grey to brownish grey aggregates, clear to translucent loose quartz grains, friable to very hard, very fine to medium grained, sub angular to rounded dominantly rounded, moderate to well sorted, rare to common pyrite and siliceous cements, trace opaque minerals, trace to common argillaceous and silty matrix, nil to poor visual porosity.
1310	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.
		CALCIMETRY: 2/6
1315	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.
1320	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.
1325	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.
1330	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above with trace fine grained glauconite.
1335	50	**CLAYSTONE:** as above.
	40	**SILTSTONE:** as above.
	10	**SANDSTONE:** as above.
1340	90	**CLAYSTONE:** medium grey to brownish grey, soft to firm, trace disseminated pyrite, trace calcareous, micaceous, glauconitic and ?carbonaceous, grades to siltstone.
	10	**SANDSTONE:** very light to light grey to brownish grey aggregates, clear to translucent loose quartz grains, friable to very hard, very fine to medium grained dominantly very fine, sub angular to rounded dominantly rounded, moderate to well sorted, rare to common pyrite and siliceous cements, trace opaque minerals and glauconite, trace to common argillaceous and silty matrix, nil to poor visual porosity.
1345	90	**CLAYSTONE:** as above, grading to siltstone.
	10	**SANDSTONE:** as above.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 4
350	90 10	**CLAYSTONE:** medium grey to brownish grey, soft to firm, trace disseminated pyrite, trace calcareous, micromicaceous, glauconitic and carbonaceous, grades to siltstone. **SANDSTONE:** very light to light grey to brownish grey aggregates, clear to translucent loose quartz grains, friable to very hard, very fine to medium grained dominantly very fine, sub angular to rounded dominantly rounded, moderate to well sorted, rare to common pyrite and siliceous cements, trace opaque minerals and glauconite, trace to common argillaceous and silty matrix, nil to poor visual porosity.
1355	90 10	**CLAYSTONE:** as above, grading to siltstone. **SANDSTONE:** as above.
1360	90 10	**CLAYSTONE:** as above, grading to siltstone. **SANDSTONE:** as above. **CALCIMETRY:** 2/1
1365	90 10	**CLAYSTONE:** as above, grading to siltstone. **SANDSTONE:** as above.
1370	90 10	**CLAYSTONE:** as above, becoming non calcareous and grading to siltstone. **SANDSTONE:** as above.
375		sample missed, high ROP
1380	90 10	**CLAYSTONE:** medium grey to brownish grey, soft to moderately firm, dispersive, trace disseminated pyrite, micromicaceous and carbonaceous, trace to minor very fine to medium grained quartz, grades to siltstone. **SANDSTONE:** as above,
1385	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1390	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1395	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1400	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1405	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1410	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.
1415	90 10	**CLAYSTONE:** as above. **SANDSTONE:** as above.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 5
1420	90	**CLAYSTONE:** medium grey to brownish grey, soft to moderately firm, dispersive, trace disseminated pyrite, trace micromica, trace carbonaceous material, trace to minor very fine to medium grained quartz, grades to siltstone.
	10	**SANDSTONE:** very light to light grey to brownish grey aggregates, clear to translucent loose quartz grains, friable to very hard, very fine to medium grained dominantly very fine, sub angular to rounded dominantly rounded, moderately to well sorted, rare to common pyrite and siliceous cements, trace to common argillaceous and silty matrix, trace opaque minerals and glauconite, nil to poor visual porosity. **CALCIMETRY:** 2/2
1425	90	**CLAYSTONE:** as above.
	10	**SANDSTONE:** as above.
1430	90	**CLAYSTONE:** as above.
	10	**SANDSTONE:** as above.
1435	80	**CLAYSTONE:** as above.
	20	**SANDSTONE:** as above.
1440	100	**CLAYSTONE:** medium grey to medium dark grey, soft to moderately firm, dispersive, trace disseminated pyrite, trace micromica, trace carbonaceous material, trace to minor very fine to medium grained quartz, grades to siltstone.
1445	100	**CLAYSTONE:** as above.
1450	100	**CLAYSTONE:** as above.
1455	100	**CLAYSTONE:** as above.
1460	100	**CLAYSTONE:** as above. **CALCIMETRY:** 2/2
1465	100	**CLAYSTONE:** as above.
1470	100	**CLAYSTONE:** generally as above, trace nodular pyrite.
1475	100	**CLAYSTONE:** as above.
1480	100	**CLAYSTONE:** as above.
1485	100	**CLAYSTONE:** as above.
1490	100	**CLAYSTONE:** as above.
1495	100	**CLAYSTONE:** as above.
1500	100	**CLAYSTONE:** as above.
1505	100	**CLAYSTONE:** as above.
1510	90	**CLAYSTONE:** medium grey to medium dark grey, soft to moderately firm, dispersive, trace disseminated pyrite, trace micromica, trace to rare carbonaceous material, trace to minor very fine to fine grained quartz, grades to siltstone.
	10	**SANDSTONE:** white to very light grey, friable to moderately , very fine to fine grained, angular to sub angular, moderate to high sphericity, well sorted quartz, minor calcite cement, trace light grey argillaceous matrix, trace glauconite, trace lithic grains, poor visual porosity. No shows. **CALCIMETRY:** 2/0

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 6
1515	90	**CLAYSTONE:** as above.
	10	**SANDSTONE:** as above.
1520	100	**CLAYSTONE:** as above.
1525	100	**CLAYSTONE:** medium grey to medium dark grey, soft to moderately firm, dispersive, trace disseminated pyrite, trace micromica, rare carbonaceous material, trace to minor very fine to fine grained quartz, grades to siltstone.
1530	70	**CLAYSTONE:** as above.
	30	**SANDSTONE:** very light grey to pale yellowish orange, firm to friable, fine to medium grained, trace coarse grains, sub angular to sub rounded, trace rounded, moderate to high sphericity, well sorted quartz, minor to common moderately strong calcite cement, trace light brownish grey argillaceous matrix, trace to rare glauconite, trace lithic grains, poor visual porosity. No shows.
1535	60	**CLAYSTONE:** as above.
	40	**SANDSTONE:** as above.
1540	80	**CLAYSTONE:** as above.
	20	**SANDSTONE:** as above.
1545	100	**CLAYSTONE:** medium grey to brownish grey, firm to moderately firm, dispersive, trace disseminated pyrite, trace micromica, rare carbonaceous material, trace to minor very fine to fine grained quartz, grades to siltstone.
1550	100	**CLAYSTONE:** as above. **CALCIMETRY:** 2/0
1555	100	**CLAYSTONE:** as above.
1560	100	**CLAYSTONE:** as above.
1565	100	**CLAYSTONE:** as above.
1570	100	**CLAYSTONE:** generally as above, trace very fine grained quartz sand laminae.
1575	100	**CLAYSTONE:** as above.
1580	100	**CLAYSTONE:** as above.
1585	100	**CLAYSTONE:** medium grey to brownish grey, firm to moderately firm, dispersive, trace disseminated pyrite, micromica and carbonaceous material, trace to minor very fine to fine grained quartz and very fine grained quartzose argillaceous sandstone aggregates, grades to siltstone.
1590	100	**CLAYSTONE:** as above.
1595	100	**CLAYSTONE:** as above.
1600	100	**CLAYSTONE:** medium grey to brownish grey, firm to moderately firm, dispersive, trace disseminated pyrite, glauconite, micromica and carbonaceous material, trace to minor very fine to fine grained quartz and very fine grained quartzose argillaceous sandstone aggregates, grades to siltstone. **CALCIMETRY:** 0/0
1605	100	**CLAYSTONE:** as above.
1610	100	**CLAYSTONE:** as above.
1615	100	**CLAYSTONE:** as above.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 7
620	100	**CLAYSTONE:** as above.
1625	100	**CLAYSTONE:** as above.
1630	100	**CLAYSTONE:** as above.
1635	100	**CLAYSTONE:** as above.
1640	100	**CLAYSTONE:** as above.
1645	100	**CLAYSTONE:** as above, trace fossil fragments with mineral fluorescence.
1650	100	**CLAYSTONE:** as above.
1655	100	**CLAYSTONE:** as above.
1660	100	**CLAYSTONE:** medium grey to brownish grey, firm to moderately firm, dispersive, trace disseminated pyrite, glauconite, micromica and carbonaceous material, trace to minor very fine to fine grained quartz, grades to siltstone. **CALCIMETRY:** 0/0
1665	100	**CLAYSTONE:** as above.
1670	100	**CLAYSTONE:** as above.
1675	100	**CLAYSTONE:** as above.
1680	100	**CLAYSTONE:** as above.
1685	100	**CLAYSTONE:** as above.
1690	100	**CLAYSTONE:** medium grey to brownish grey, firm to hard, dispersive in part, trace disseminated pyrite, glauconite, micromica and carbonaceous material, trace very fine grained sandstone laminae, grades to siltstone.
1695	100	**CLAYSTONE:** as above.
1700	100	**CLAYSTONE:** as above.
1701 (spot sample)	100	**CLAYSTONE:** light bluish grey to very light grey to brownish grey, firm, dispersive and sticky in part, trace glauconite, calcareous, micromica and carbonaceous material, very fine grained quartz, grades to siltstone and very fine grained argillaceous sandstone. **CALCIMETRY:** 8/0
1704 (spot)	100	**CLAYSTONE:** as above.
1705	50 50	**CLAYSTONE:** medium grey to brownish grey, as above. **CLAYSTONE:** light bluish grey to very light grey to brownish grey, as above.
1710	100 TR	**CLAYSTONE:** light bluish grey to very light grey to brownish grey, firm, dispersive and sticky in part, trace chloritic grains, calcareous, micromica and carbonaceous and coaly material, very fine grained quartz, grades to siltstone. **COAL:** black, brittle, silty.
1715	100	**CLAYSTONE:** light bluish grey to very light grey to brownish grey, firm, dispersive and sticky in part, trace chloritic grains, calcareous and micromica, very fine grained quartz, grades to siltstone.
1720	100	**CLAYSTONE:** as above.
1725	100	**CLAYSTONE:** as above, trace disseminated pyrite.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 8
730	100	**CLAYSTONE:** light grey to light olive grey, firm to hard, dispersive, trace chloritic grains, carbonaceous material and micromica, grades to siltstone.
1735	100	**CLAYSTONE:** as above.
1740	100	**CLAYSTONE:** as above.
1745	100	**CLAYSTONE:** as above.
1750	100	**CLAYSTONE:** as above. **CALCIMETRY:** 1/0
1755	100	**CLAYSTONE:** as above.
1760	100	**CLAYSTONE:** as above.
1765	100	**CLAYSTONE:** as above.
1770	100	**CLAYSTONE:** as above.
1775	100	**CLAYSTONE:** as above, rare disseminated pyrite.
1780	100	**CLAYSTONE:** as above.
1785	100	**CLAYSTONE:** as above, trace coaly laminae.
1790	100	**CLAYSTONE:** light grey to light olive grey, firm to hard, dispersive, trace chloritic grains, trace carbonaceous material and micromica, grades to siltstone.
.795	100	**CLAYSTONE:** as above.
1800	100	**CLAYSTONE:** as above. **CALCIMETRY:** 1/1
1805	100 TR	**CLAYSTONE:** as above. **CARBONACEOUS SILTSTONE:** dusky brown to greyish black, firm to brittle, trace amber, grades to coal.
1810	90 10	**CLAYSTONE:** as above. **SANDSTONE:** clear to translucent to white, friable, very fine to fine dominantly fine grained, sub angular to sub rounded, moderately well sorted, common argillaceous matrix, trace calcareous cement, trace lithic grains, poor visual porosity
1815	90 10	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace glauconite, carbonaceous material and micromica, grades to siltstone. **SANDSTONE:** as above.
1820	90 10	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace glauconite, carbonaceous material and micromica, grades to siltstone. **SANDSTONE:** clear to translucent to white, friable, very fine to fine dominantly fine grained, sub angular to sub rounded, moderately well sorted, common argillaceous matrix, trace calcareous cement, trace lithic grains, poor visual porosity. **CALCIMETRY:** 1/0

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 9
825	50	**SANDSTONE:** clear to translucent to white to light grey, friable, very fine to dominantly fine grained, trace coarse grains, sub angular to sub rounded, moderately well sorted quartz, trace calcareous cement, common very light grey argillaceous matrix, trace orange, green and white lithic grains, trace feldspathic grains, trace mica, trace very fine carbonaceous specks, poor visual porosity. No shows.
	50	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace glauconite, carbonaceous material and micromica, grades to siltstone.
1830	70	**SANDSTONE:** as above.
	30	**CLAYSTONE:** as above.
1835	70	**SANDSTONE:** as above.
	30	**CLAYSTONE:** as above.
1840	60	**SANDSTONE:** as above.
	40	**CLAYSTONE:** as above.
1845	-	Sample missed.
1850	60	**SANDSTONE:** very light grey to light grey, clear to translucent grains, friable, very fine to dominantly fine grained, trace coarse grains, sub angular to sub rounded, moderately well sorted quartz, trace calcareous cement, common very light grey argillaceous matrix, trace orange, green and white lithic grains, trace feldspathic grains, trace mica, trace very fine carbonaceous specks, poor visual porosity. No shows.
	40	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace chloritic grains, carbonaceous material and micromica, grades to siltstone and very fine grained argillaceous sandstone. **CALCIMETRY:** 1/0
1855	80	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace to rare carbonaceous material, trace micromica, trace to rare quartz silt, grading to argillaceous siltstone in part, trace to rare fine to very fine grained quartz, trace calcareous.
	20	**SANDSTONE:** as above.
1860	80	**CLAYSTONE:** as above.
	20	**SANDSTONE:** as above.
1865	90	**CLAYSTONE:** as above.
	10	**SANDSTONE:** as above.
1870	90	**CLAYSTONE:** as above.
	10	**SANDSTONE:** as above.
1875	90 10	**CLAYSTONE:** light grey to light olive grey, soft to firm, dispersive, trace to rare material, trace micromica, trace to rare quartz silt, grading to argillaceous siltstone in trace to rare fine to very fine grained quartz, trace calcareous. part,carbonaceous**CLAYSTONE:** **SANDSTONE:** very light grey to light grey, clear to translucent grains, friable, very fine to dominantly fine grained, trace coarse grains, sub angular to sub rounded, moderately well sorted quartz, trace calcareous cement, common very light grey argillaceous matrix, trace orange, green and white lithic grains, trace feldspathic grains, trace mica, trace very fine carbonaceous specks, poor visual porosity. No shows.

Depth (mRT)	Lithology (%)	CUTTINGS DESCRIPTIONS Well: CHAMPION-1 Page 10
880	70	**CLAYSTONE:** as above.
	30	**SANDSTONE:** as above.
		CALCIMETRY: 1/0
1882	60	**CLAYSTONE:** as above.
	40	**SANDSTONE:** as above.
TD 1882mRT reached at 0930 hrs 15/8/95		

.2

6.2 APPENDIX 2 Sidewall Core Descriptions

Core No.	Depth (mRT)	Recovery (mm)	SIDEWALL CORE DESCRIPTION SHEET Well: CHAMPION-1 Permit: Vic/P30 Date: 16/8/95 Geologist(s): C.Menhennitt/P.Lawry Logging Suite No: One Page: 1 of 4
1	1812	30	**CLAYSTONE:** medium light grey to medium grey, moderately firm to firm, dispersive, minor to abundant silt grading to silty claystone in part, trace very fine grained quartz, trace pyrite, trace moderate reddish orange and black lithic grains, trace micromica, non calcareous.
2	1795	30	**CLAYSTONE WITH MINOR INTERBEDDED SANDSTONE** **CLAYSTONE:** as above. **SANDSTONE:** very light grey to light grey, friable, very fine to fine grained, angular to sub angular, moderate sphericity, well sorted quartz, trace weak calcite cement, minor to common light grey argillaceous matrix, trace moderate reddish orange and black lithic grains, trace carbonaceous specks, trace nodular pyrite, very poor visual porosity. No shows.
3	1770	35	**CLAYSTONE:** medium light grey to medium grey, moderately firm to firm, dispersive, minor to abundant silt grading to silty claystone in part, trace very fine grained quartz, trace nodular pyrite, trace moderate reddish orange and black lithic grains, trace micromica, trace carbonaceous specks, non calcareous.
4	1751	35	**CLAYSTONE:** medium light grey to medium grey, moderately firm to firm, dispersive, minor to common silt grading to silty claystone in part, trace very fine grained quartz, trace pyrite, trace moderate reddish orange and black lithic grains, trace micromica, trace carbonaceous specks, non calcareous.
5	1740	30	**CLAYSTONE:** medium light grey to medium grey, moderately firm to firm, dispersive, minor to common silt grading to silty claystone in part, trace very fine grained quartz, trace nodular pyrite, trace micromica, trace carbonaceous specks, non calcareous.
6	1712	25	**SILTY CLAYSTONE:** medium light grey to medium grey, moderately firm to firm, dispersive, abundant silt, trace disseminated pyrite, trace micromica, trace carbonaceous flecks, trace lithic fragments, trace nodular pyrite, trace very fine grained quartz, non calcareous.
7	1707	-	No recovery, bullet lost.
8	1695	-	No recovery, bullet lost.
9	1686	30	**SILTY CLAYSTONE:** medium grey to medium dark grey, moderately firm to firm, dispersive, common to abundant silt, trace to rare very fine grained quartz, grading to argillaceous siltstone, rare to minor carbonaceous specks, trace mica, non calcareous.

Core No.	Depth (mRT)	Recovery (mm)	SIDEWALL CORE DESCRIPTION SHEET Well: CHAMPION-1 Permit: Vic/P30 Date: 16/8/95 Geologist(s): C.Menhennitt/P.Lawry Logging Suite No: One Page: 2 of 4
10	1673	37	**CLAYSTONE:** medium dark grey to dark grey, moderately firm to firm, dispersive, sub blocky fracture, trace pyrite, trace quartz silt, trace very fine grained quartz, nil to trace calcareous.
11	1654	40	**CLAYSTONE:** medium dark grey to dark grey, soft to moderately firm, dispersive, amorphous, trace pyrite, trace quartz silt, trace very fine grained quartz, trace to rare glauconite, trace calcareous fossil fragments.
12	1638	60	**CLAYSTONE:** medium dark grey to dark grey, moderately firm to firm, dispersive, sub blocky fracture, rare to minor glauconite, trace nodular pyrite, trace quartz silt, trace very fine grained quartz, trace micromica, nil to trace calcareous.
13	1626	60	**CLAYSTONE:** medium dark grey to dark grey, moderately firm to firm, dispersive, amorphous, trace nodular pyrite, trace to rare quartz silt, trace very fine grained quartz, nil to trace glauconite, trace calcareous fossil fragments.
14	1620	35	**CLAYSTONE:** medium grey to medium dark grey, moderately firm to firm, dispersive, amorphous, trace nodular pyrite, trace to rare quartz silt, trace very fine grained quartz, trace glauconite, trace calcareous fossil and shell fragments.
15	1612	36	**CLAYSTONE:** medium dark grey to dark grey, firm, dispersive, amorphous, trace disseminated pyrite, quartz silt, very fine grained quartz, micromica, carbonaceous flecks, calcareous and glauconite.
16	1598	35	**CLAYSTONE:** brownish grey to grey, firm, dispersive, rare to common glauconite and very fine to fine grained quartz, trace quartz silt, nodular pyrite, micromica, carbonaceous flecks and calcareous.
17	1592	33	**CLAYSTONE:** brownish grey to dark grey, moderately firm to firm, dispersive, amorphous, trace glauconite, very fine to fine grained quartz, trace quartz silt, nodular and disseminated pyrite, micromica, carbonaceous flecks and calcareous.
18	1572	35	**CLAYSTONE:** light brownish grey to medium dark grey, soft to moderately hard, dispersive, amorphous, trace micromica, quartz silt, carbonaceous material calcareous.
19	1561	25	**CLAYSTONE:** medium brownish grey to medium dark grey, firm to moderately hard, dispersive, trace micromica, quartz silt, disseminated and nodular pyrite, carbonaceous material and calcareous with rare sandstone laminae. **SANDSTONE:** white to very light grey to yellowish grey, firm to friable, very fine occasionally fine grained quartz, angular to sub rounded, poor to moderate sorting, trace pyrite and calcareous cement, rare to common argillaceous and silt matrix, poor visual porosity, no shows.

Core No.	Depth (mRT)	Recovery (mm)	SIDEWALL CORE DESCRIPTION SHEET Well: CHAMPION-1 Permit: Vic/P30 Date: 16/8/95 Geologist(s): C.Menhennitt/P.Lawry Logging Suite No: One Page: 3 of 4
20	1547	25	**CLAYSTONE WITH THIN SANDSTONE LAMINAE** **CLAYSTONE:** brownish grey to medium dark grey, firm, dispersive, trace micromica, silt and very fine grained quartz, carbonaceous material and calcareous with rare sandstone laminae. **SANDSTONE:** white to very light grey, firm to friable, very fine grained quartz, angular to sub rounded, poor to moderate sorting, trace calcareous cement, common argillaceous and silt matrix, nil to poor visual porosity, no shows.
21	1527	36	**INTERLAMINATED CLAYSTONE AND SANDSTONE** **CLAYSTONE:** brownish grey to medium dark grey, firm to moderately hard, dispersive, trace micromica, silt and very fine grained quartz, carbonaceous material, disseminated pyrite and carbonaceous flecks with sandstone laminae. **SANDSTONE:** white to very light grey to yellowish grey, friable, very fine grained quartz, angular to sub rounded, moderate sorting, common argillaceous and silt matrix, trace glauconite, nil to poor visual porosity, no shows.
22	1518	32	**INTERLAMINATED CLAYSTONE AND SANDSTONE** **CLAYSTONE:** medium dark grey to greyish black, firm to moderately hard, dispersive, trace micromica, silt and very fine grained quartz, carbonaceous flecks and laminae. **SANDSTONE:** white to very light grey to yellowish grey, friable to firm, very fine grained quartz, angular to sub rounded, moderate sorting, common argillaceous and silt matrix, trace glauconite, nil to poor visual porosity, no shows.
23	1510	35	**INTERLAMINATED CLAYSTONE AND SANDSTONE** **CLAYSTONE:** medium dark grey to greyish black, firm, dispersive, trace silt and very fine grained quartz, trace calcareous. **SANDSTONE:** white to very light grey to light greenish grey, friable, very fine grained quartz, angular to sub rounded, moderate sorting, common white argillaceous and silt matrix, trace glauconite, nil to poor visual porosity, no shows.

Core No.	Depth (mRT)	Recovery (mm)	SIDEWALL CORE DESCRIPTION SHEET Well: CHAMPION-1 Permit: Vic/P30 Date: 16/8/95 Geologist(s): C.Menhennitt/P.Lawry Logging Suite No: One Page: 4 of 4
24	1504	33	**INTERLAMINATED DOLOMITIC CLAYSTONE AND GLAUCONITIC SANDSTONE** **DOLOMITC CLAYSTONE:** greyish orange to dusky yellow, firm to very hard, dispersive, common discrete hard dolomite medium grained angular pieces, and glauconite, trace calcareous and ?sideritic. **GLAUCONITIC SANDSTONE:** dark greenish grey to greenish black, firm to friable, fine to medium grained quartz and glauconite, sub rounded to rounded, abundant clay and silt matrix, trace to common ?siderite cement, nil visual porosity, no shows. **CALCIMETRY:** 6/12
25	1482	35	**CLAYSTONE:** medium grey to medium dark grey, firm, dispersive, trace micromica, glauconite and fossil fragments.
26	1460	28	**CLAYSTONE:** brownish grey to dark grey, firm, dispersive, trace fossil fragments, carbonaceous material, micromica, silt and fine grained quartz, calcareous and nodular pyrite.
27	1428	35	**SANDSTONE:** light greenish grey to yellowish grey to light grey, translucent quartz grains, very fine to fine grained, friable, sub angular to sub rounded, well sorted, trace argillaceous matrix, trace opaque, pink and green (?glauconite) grains, micaceous, thin silty laminae, good visual porosity, no shows.
28	1313	20	**SANDSTONE:** very light grey to translucent to clear, friable to unconsolidated, very fine to fine dominantly fine grained, subrounded, very well sorted, trace opaque grains, excellent visual porosity, no shows.
29	1277	35	**SANDSTONE:** light grey to light brownish grey, friable to unconsolidated, very fine to fine dominantly fine grained, subangular to subrounded, very well sorted, trace argillaceous matrix, trace opaque grains, excellent visual porosity, no shows.
30	1255	25	**SANDSTONE:** light grey to light brownish grey to translucent, friable to unconsolidated, fine to medium dominantly medium grained, subangular to subrounded, well sorted, trace argillaceous matrix, trace opaque grains and nodular pyrite, excellent visual porosity, no shows.

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6.3 APPENDIX 3 Geochemical Basic Data

GEOTECH JOB 2216, CHAMPION-1

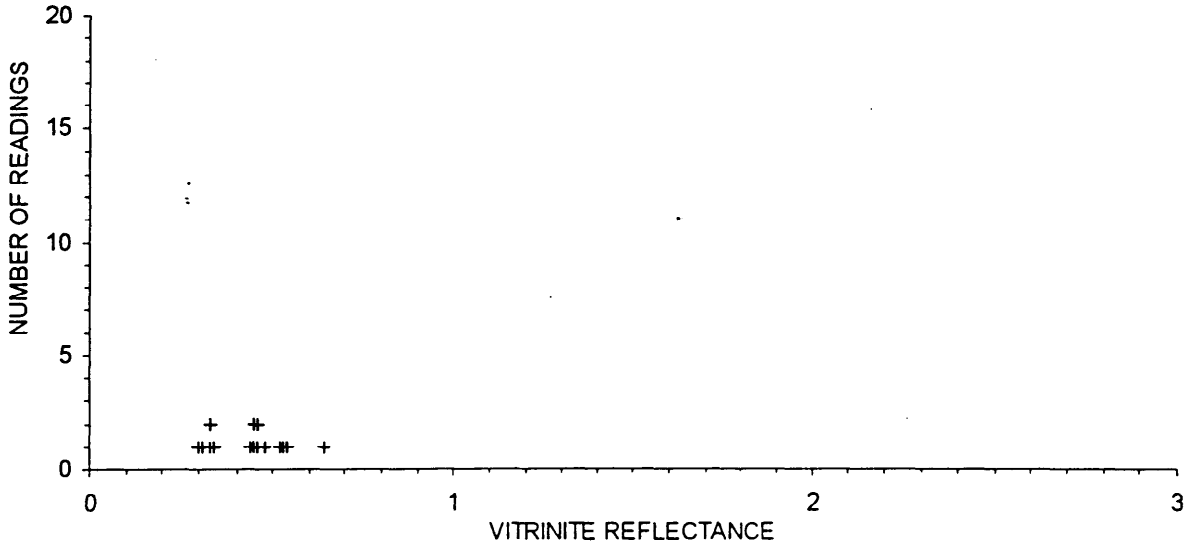
KK/ref. No.	Depth(m) Type	Rvmax	Range	N	Description Including Liptinite (Exinite) Fluorescence
T1759	1428 SWC 27	0.44	0.30-0.64	15	Rare liptodetrinite orange. (Sandy siltstone. Dom sparse, sparse, I>V>L. Inertinite sparse, vitrinite and liptinite rare. Mineral fluorescence patchy, moderate orange from argillaceous, probably absent from sand sized grains. Glauconite common. Iron oxides common. Pyrite common.)
T1760	1504 SWC 24	0.53	0.29-0.68	25	Sparse liptodetrinite. (Sandy argillaceous carbonate. Dom common, I>L>V. Inertinite common, liptinite sparse, vitrinite sparse. Sparse large macrinite grains present. The liptinite is largely restricted to the argillaceous layers. Sparse inclusions of yellow oil within carbonate. Mineral fluorescence patchy, moderate orange from carbonate, weak dull orange from argillaceous layers. Carbonate appears to be sideritic. Pyrite sparse.)
T1761	1572 SWC 18	0.45	0.35-0.64	23	Sparse resinite, yellow to orange, sparse liptodetrinite yellow to orange, sparse lamalginite bright yellow to orange, rare sporinite orange. (Claystone, silty. Dom abundant, I>L>V. Inertinite abundant, liptinite sparse, vitrinite sparse. Phytoclasts are all small, and most are poorly preserved. Mineral fluorescence pervasive, moderate orange. Pyrite sparse.)
T1762	1654 SWC 11	0.53	0.38-0.67	25	Sparse sporinite, yellow to orange, sparse liptodetrinite yellow to orange, rare cutinite dull orange. (Siltstone. Dom abundant, I>V>L. Inertinite abundant, vitrinite common, liptinite sparse. Mineral fluorescence pervasive, weak dull orange. Pyrite abundant.)
T1763	1686 SWC 9	0.52	0.34-0.69	26	Sparse sporinite, yellow to orange, sparse cutinite, liptodetrinite yellow to orange. (Siltstone. Dom major, I>V>L. Inertinite and vitrinite abundant, liptinite sparse. Some large inertinite and vitrinite phytoclasts present. Within the larger vitrinite phytoclasts, it is possible to distinguish lower reflecting suberinite-like material and corpocollinite. Mineral fluorescence patchy, moderate to weak orange to dull orange. Pyrite common, probably largely marcasite.)
T1764	1712 SWC 6	0.46	0.32-0.62	12	Common lamalginite, yellow, common liptodetrinite yellow, sparse cutinite yellow. (Claystone, silty. Dom common L>I>V. Liptinite common, inertinite sparse, vitrinite rare. Possible oil drops common, yellow occurring as clusters of small droplets within claystone, but difficult to distinguish from some occurrences of liptodetrinite. Facies is probably lacustrine. Mineral fluorescence patchy moderate orange to dull orange. Pyrite sparse.)
T1765	1812 SWC 1	0.59	0.50-0.68	6	Sparse lamalginite and sparse liptodetrinite, yellowish orange. (Siltstone. Dom sparse L>I>V. Liptinite sparse, inertinite sparse and vitrinite rare. Mineral fluorescence weak dull orange to brown. Iron oxides sparse. Pyrite sparse.)

WELL: CHAMPION 1 CLIENT: BHP PETROLEUM SAMPLE TYPE: SWC

SAMPLE ID: 1428 METRES DATE: NOVEMBER 1995

(Total No. of Readings=15) 0.30 0.31 0.33 0.33 0.34 0.44 0.45 0.45 0.46 0.46 0.48 0.52 0.53 0.54 0.64

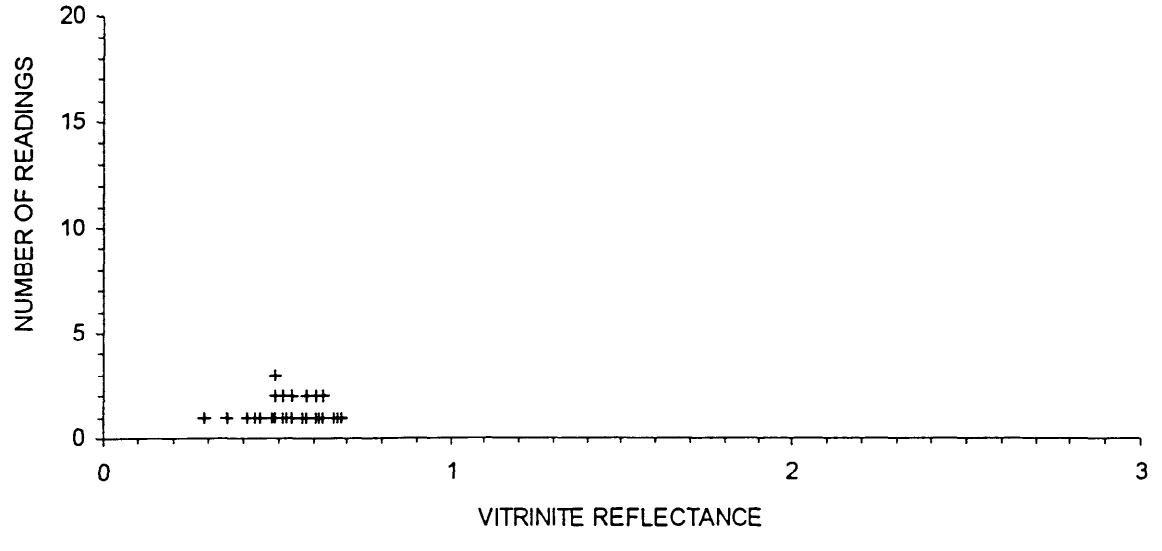
VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	15	0.44	0.30	0.64	0.10	INDIGENOUS (+)	0.00	0.00	0.00	100.00



SAMPLE ID: 1504 METRES SAMPLE TYPE: SWC

(Total No. of Readings=25) 0.29 0.35 0.41 0.43 0.45 0.48 0.49 0.49 0.49 0.51 0.51 0.52 0.54 0.54 0.57 0.58 0.58
0.61 0.61 0.62 0.63 0.63 0.66 0.67 0.68

VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	25	0.53	0.29	0.68	0.10	INDIGENOUS (+)	0.00	25.00	12.50	62.50

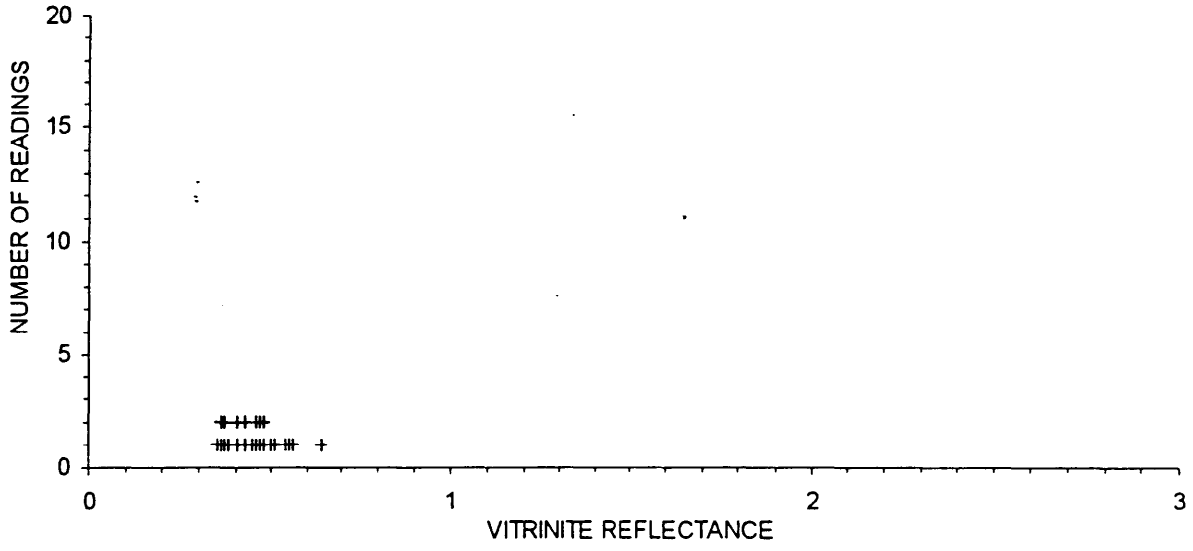


WELL: CHAMPION 1 CLIENT: BHP PETROLEUM SAMPLE TYPE: SWC

SAMPLE ID: 1572 METRES DATE: NOVEMBER 1995

(Total No. of Readings=23) 0.35 0.36 0.36 0.37 0.37 0.38 0.41 0.41 0.43 0.43 0.45 0.46 0.46 0.47 0.47 0.48 0.48 0.50 0.51 0.54 0.55 0.56 0.64

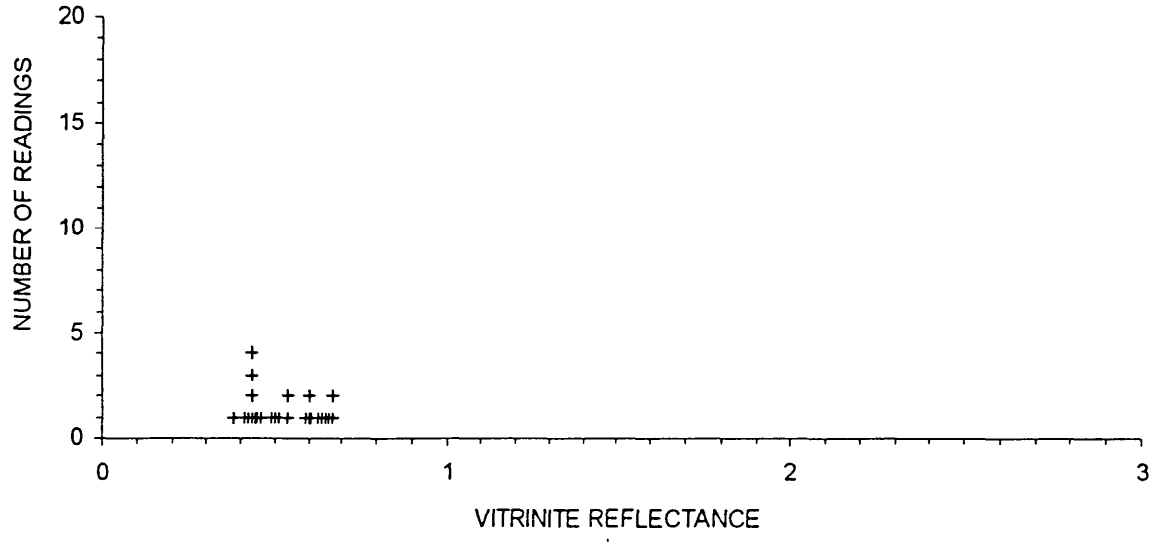
VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	23	0.45	0.35	0.64	0.07	INDIGENOUS (+)	4.17	8.33	4.17	83.33



SAMPLE ID: 1654 METRES SAMPLE TYPE: SWC

(Total No. of Readings=25) 0.38 0.41 0.42 0.43 0.43 0.43 0.43 0.44 0.45 0.46 0.49 0.50 0.51 0.54 0.54 0.59 0.60 0.60 0.61 0.63 0.64 0.65 0.66 0.67 0.67

VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	25	0.53	0.38	0.67	0.10	INDIGENOUS (+)	0.00	2.99	22.39	74.63

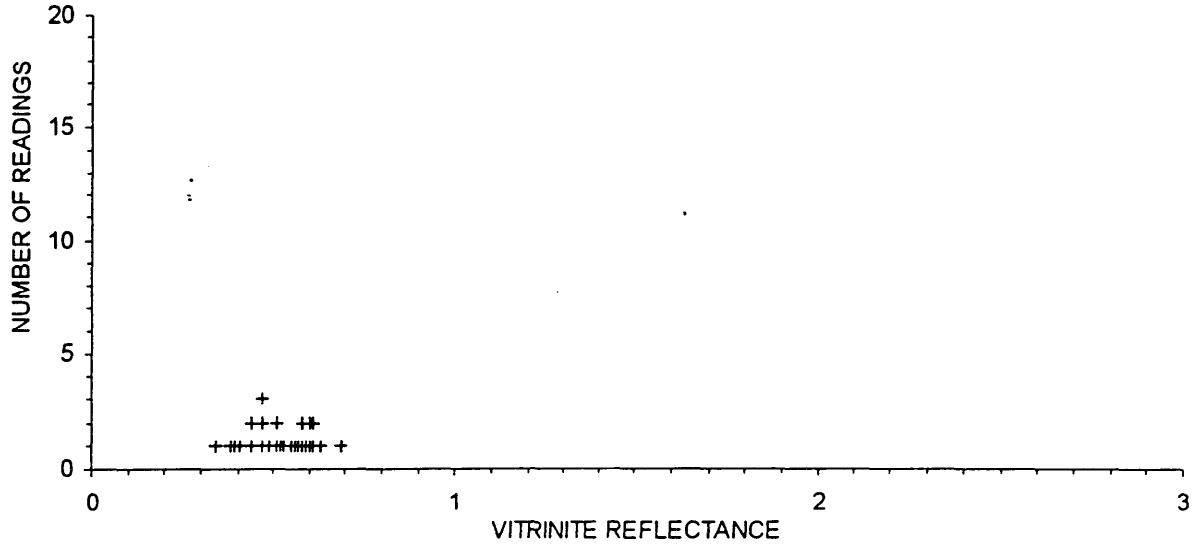


WELL: CHAMPION 1 CLIENT: BHP PETROLEUM SAMPLE TYPE: SWC

SAMPLE ID: 1686 METRES DATE: NOVEMBER 1995

(Total No. of Readings=26) 0.34 0.38 0.39 0.41 0.44 0.44 0.47 0.47 0.47 0.49 0.51 0.51 0.52 0.53 0.55 0.56 0.57 0.58 0.58 0.59 0.60 0.60 0.61 0.61 0.63 0.69

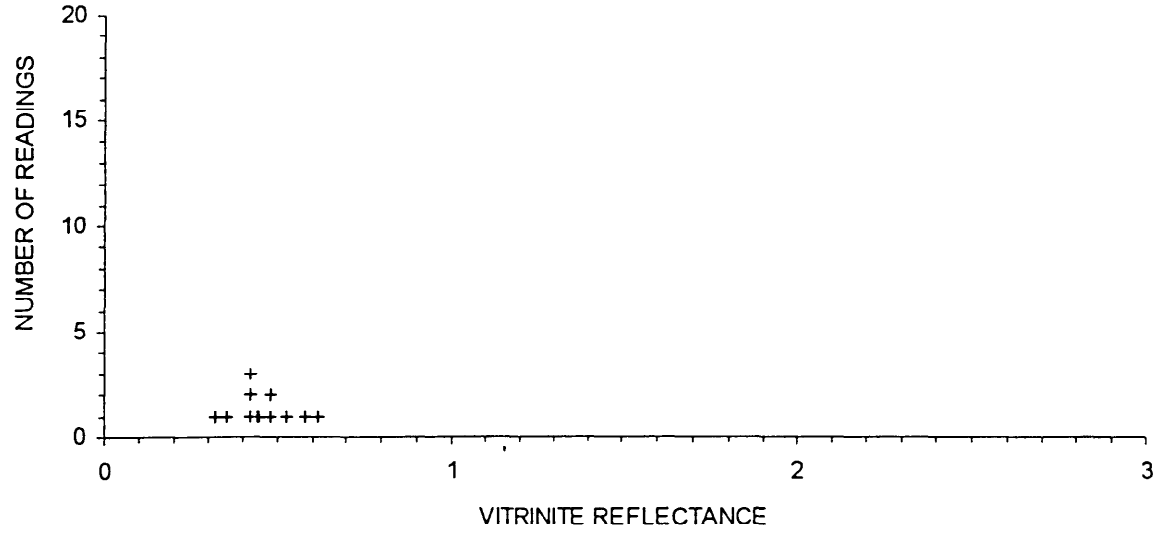
VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	26	0.52	0.34	0.69	0.09	INDIGENOUS (+)	0.00	2.91	19.42	77.67



SAMPLE ID: 1712 METRES SAMPLE TYPE: SWC

(Total No. of Readings=12) 0.32 0.35 0.42 0.42 0.42 0.44 0.45 0.48 0.48 0.53 0.58 0.62

VITRINITE REFLECTANCE							MACERAL IDENTIFICATION				
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	12	0.46	0.32	0.62	0.09	INDIGENOUS (+)	42.86	50.00	0.00	7.14

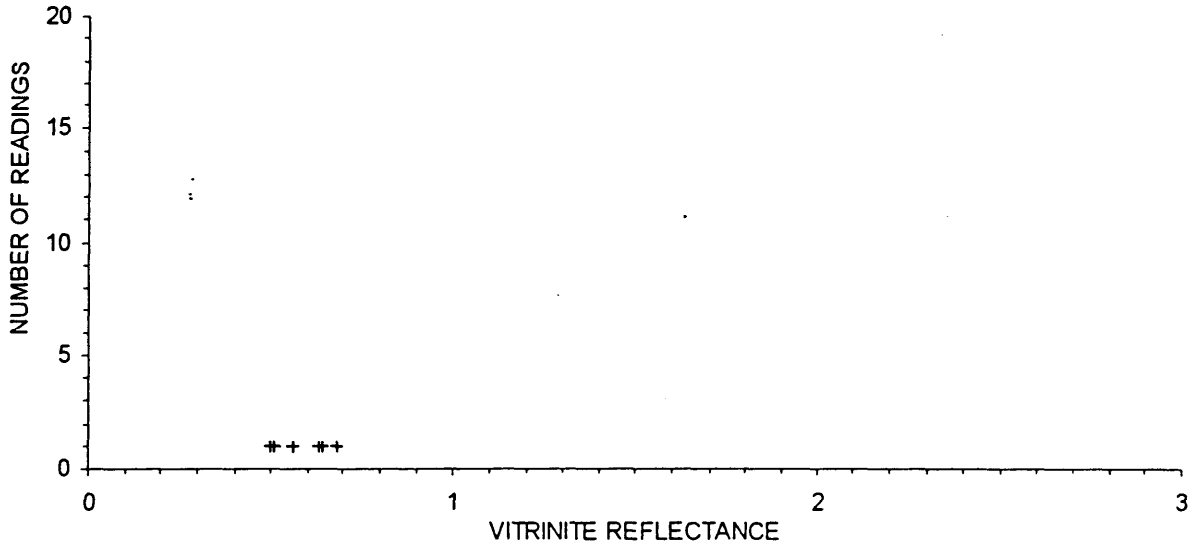


WELL: CHAMPION 1 CLIENT: BHP PETROLEUM SAMPLE TYPE: SWC

SAMPLE ID: 1812 METRES DATE: NOVEMBER 1995

(Total No. of Readings=6) 0.50 0.51 0.56 0.63 0.64 0.68

VITRINITE REFLECTANCE								MACERAL IDENTIFICATION			
POPULATION		No. of	Mean	Min	Max	STD		%	%	%	%
Number	%	Readings	Ro (%)	Ro (%)	Ro (%)	Dev (%)	Comments	Alginite	Exinite	Vitrinite	Inertinite
1	100.0	6	0.59	0.50	0.68	0.07	INDIGENOUS (+)	33.33	33.33	0.00	33.33



6.4 APPENDIX 4 End of Well Report (Mudlogging)

END OF WELL REPORT

COMPILED FOR

BHP PETROLEUM

CHAMPION-1

Drilled

AUGUST, 1995

HALLIBURTON

The Future Is Working Together.

SURFACE DATA LOGGING
HALLIBURTON ENERGY SERVICES
53-55 BANNISTER ROAD
CANNING VALE
WA 6155
TELEPHONE 61 9 455 5200
FACSIMILE 61 9 455 5300

END OF WELL REPORT

COMPILED FOR

BHP PETROLEUM

CHAMPION-1

Drilled

AUGUST, 1995

SURFACE DATA LOGGING
HALLIBURTON ENERGY SERVICES
53-55 BANNISTER ROAD
CANNING VALE
WA 6155
TELEPHONE 61 9 455 5200
FACSIMILE 61 9 455 5300

CONTENTS

SECTION 1 INTRODUCTION

1.1 WELL SUMMARY

1.2 LOGGING PERSONNEL AND SERVICE

1.3 WELL SUMMARY PLOTS AND TABLES

1.1 CHAMPION-1 SUMMARY DATA SHEET

VERTICAL WELL

WELL:	Champion -1
DESIGNATION:	Exploration Well
OPERATOR:	BHP Petroleum Pty Ltd.
PERMIT:	VIC/P30
DRILLING RIG/CONTRACTOR	Ocean Bounty - Diamond Offshore
AIR GAP:	25m
WATER DEPTH:	52.9m
GEOGRAPHIC LOCATION 8 AUGUST 1995:	Lat 38° 32' 33.5" South, Long 142° 23' 17.86" East Northing :5 733 046.5 mN Easting : 620 997.3 mE DATUM: AGD 84 CM 141°E
SEISMIC REFERENCE:	Seismic Line OH94 203. SP 1151
RIG TOLERANCE:	A circle of 30m radius, centred on the shotpoint.
OBJECTIVE TOLERANCE:	A circle of 100m radius, centred at 1580m
OFFSET WELLS:	25 km NW of Pecten -1A
PRIMARY OBJECTIVE:	Late Cretaceous Ship Wreck Group sequences
SPUD:	15:00, 9 August 1995
TOTAL DEPTH:	1882m [TVD 1882m], 09:30 hrs, 15 August 1995
WELL STATUS:	Plugged and Abandoned

1.2 PERSONNEL AND SUMMARY OF SERVICES

PERSONNEL

For the well, the Halliburton Australia crew of SDL9000 Unit 182 comprised the following :-

Data/Pressure Engineers	Logging Geologists
Tony Ford	Tim Geddes
Andrew James	Rhys Jones

SURFACE DATA LOGGING SERVICE

EQUIPMENT AND SCOPE OF SERVICE

The SDL 9000 surface data logging unit is a new generation computerised laboratory equipped to receive signals from external surface sensors. These sensors provide information, which allows the logging crew to evaluate the formation, detect the presence of hydrocarbons, assess down hole pore pressure conditions, and to analyse drilling and engineering data. In the logging unit, sensors provide measurements of the following parameters:-

1. Total Gas.
2. Chromatographic Gas Breakdown.
3. Hydrogen Sulphide Levels (3 sensors, located at Shakers, Flowline and Drillfloor).
4. Depth / Rate of Penetration. Tide compensated.
5. Pipe speed / Block Position.
6. Top drive RPM.
7. Top drive Torque.
8. Hook Load / Weight On Bit.
9. Standpipe Pressure.
10. Mud Pump Rate (3 pumps).
10. Casing Shut In Pressure.
11. Mud Pit Levels on 6 pits & Trip Tank.
12. Mud Weight In and Out.
13. Mud Temperature In and Out.
14. Mud Flow Out.
15. Mud Conductivity In and Out.

Typical offline computer services included:- Daily drilling summary in metric SI units and rig API units, Drilling hydraulics summaries and modelling (six models available). Preparation of daily geological report. Modem transmission of Formation Evaluation, Pressure Evaluation and Drilling Log to Melbourne.

In addition to microscopic examination of drilled cuttings, samples were subjected to the following tests: Fluoroscope examination, Calcimetry and Bulk Density (where and as required).

1. 3 WELL SUMMARY TABLES AND PLOTS

Prognosed Formation Tops
Prognosed Geology
Sampling Program
Well Profile
Condensed Lithology
Depth and Days from Spud Table
Well Progress
Bit Rotating Hours Plot
Drilling Data Plot
Overpressure Plot
Drilling Cost Plot

PROGNOSED FORMATION TOPS

FORMATION	EXPECTED LITHOLOGY	MD RT DEPTH (mSS)	Predicted Fluid
HEYTESBURY GROUP	Bioclastic Calcarenites / Marls	Seabed to 615m (80)	
NIRRANDA GROUP	Calcareous Claystones & Marls	615m (590)	
WANGERRIP MEGASEQUENCE	Sandstones, Claystones	1015m (990)	
SHERBROOK GROUP	Claystones	1304m (1279)	
MINERVA FORMATION	Sandstones with Claystone partings	1580m (1555)	Oil/Gas
LA BELLA FORMATION	Argillaceous Sandstones with interbeds of Claystone, Siltstone and Coal		Oil/Gas
TD		2225m (2220)	

PROGNOSED GEOLOGICAL SUMMARY

Nearest wells	Approximately 25km NW of Pecten-1 and 17km from shore.
Test Design	NW-SE trending fault block mapped top of Shipwreck Group.
Age	Late Cretaceous
Structure	Largest of a series of Culminations, formed by NW-SE transverse faulting.
Prospect	"Trap-door" structure, NW tilted fault block, overlain by SW dipping Sherbrooke
Boundaries	North-side, NW-SE down-to-north fault, South-side, E-W down-to-basin.fault
Closure	400m at (above) fault intersection, 12km NW-SE, 5km NE-SW (SW dip).
Formation	Shipwreck Group sequences
Minerva Fm	fine-medium-coarse grain quartz sandstone, moderate to poorly sorted, minor claystone and coals, porosity 15-20%, possibly a lower sequence of silty claystone with interbedded fine-medium grain, moderately to well sorted sandstones.
La Bella Fm	medium grained light gren grey to clear quartz Sandstone, moderately to well sorted argillaceous quartz-sandstones, common to trace lithic fragments, interbedded grey firm, silty claystones. The sandstones may become finer with depth, more argillaceous, more lithic and less porous with interbeds of siltstone and claystone becoming more abundant..
GWC (estimated)	filled to spill case-closure to base of Minerva Fm
Geothermal Gradient	Anticipated at 2.5°C/100m, BHT to be approximately 107°C.
Hazards	No shallow gas is anticipated H2S risk is considered low. CO2 is expected to be low, RFT data from nearby wells indicated 10-13% CO2. Pore pressure is expected to be normal to 2100m at 1.03sg. Expected pore pressure below this depth is 1.15sg in the La Belle Fm.

SAMPLE PROGRAM

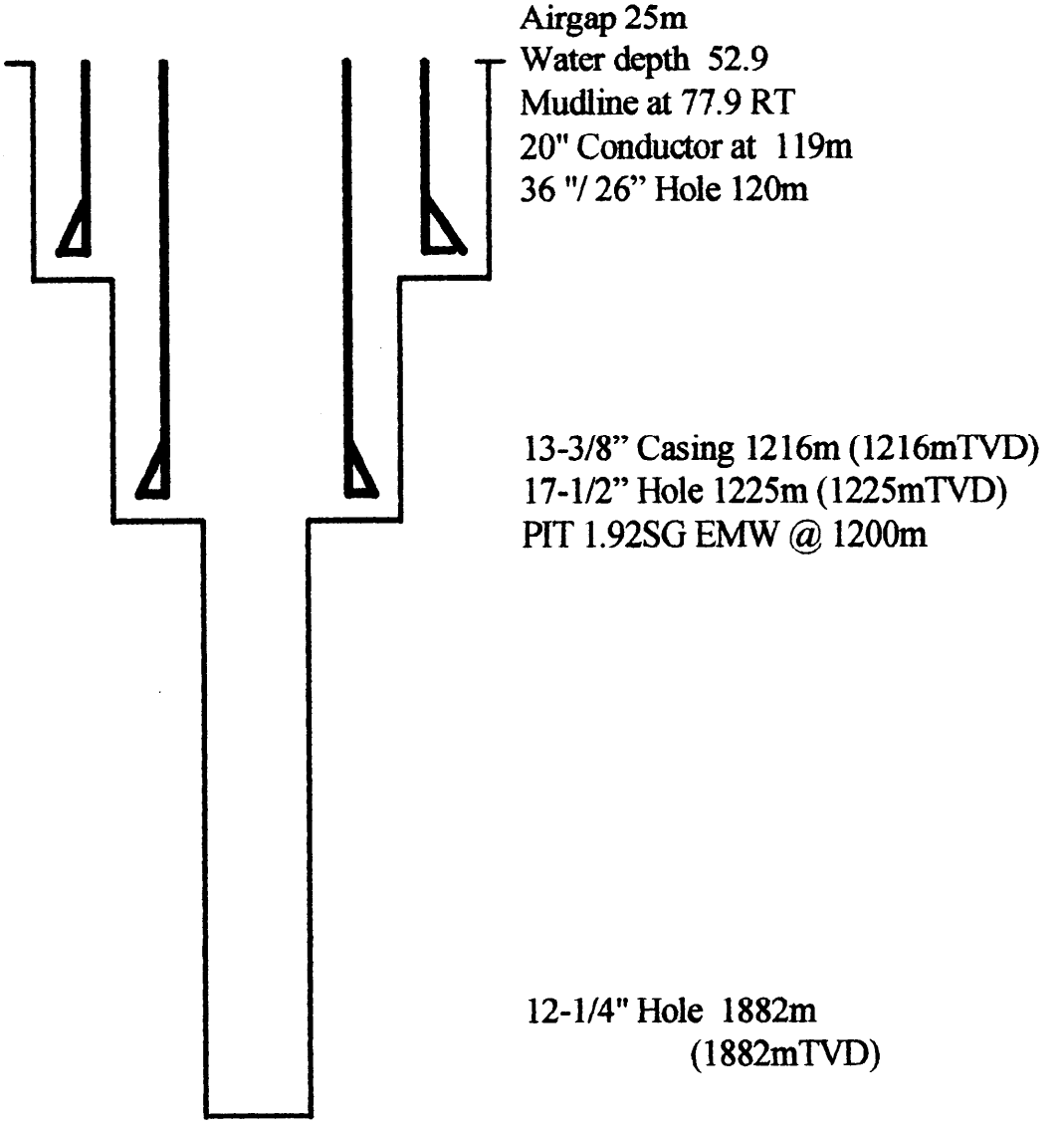
DEPTH (m)	INTERVAL (m)	COMMENT
120m to 1225m	10m	-
1225m to 1882m(TD)	5m	-

N.B 5m sampling intervals were set at Wellsite Geologists' discretion & ROP constraints.

DISTRIBUTION	Unwashed Cuttings	Washed and Dried cuttings
BHP Petroleum, Melbourne, BHPP Core Store, c/ Kestrel Management Aust. Mt Waverly	1 (set A)	3 (set B,C, D)
Petrocraft Samples, attn Geolo.Opns. Coordinator, BHPP Melbourne.		1 (set E)
Parker & Parsley Aust. Ltd.		1 (set F)
AGSO, Canberra BRS Core and Cuttings Laboratory, Fyshwick		1 (set G, min 100gm)
VIC DAEM, Melbourne, VicDAEM Core Laboratory, Port Mellbourne		1 (set H, min 100gm)
TOTAL	1	7

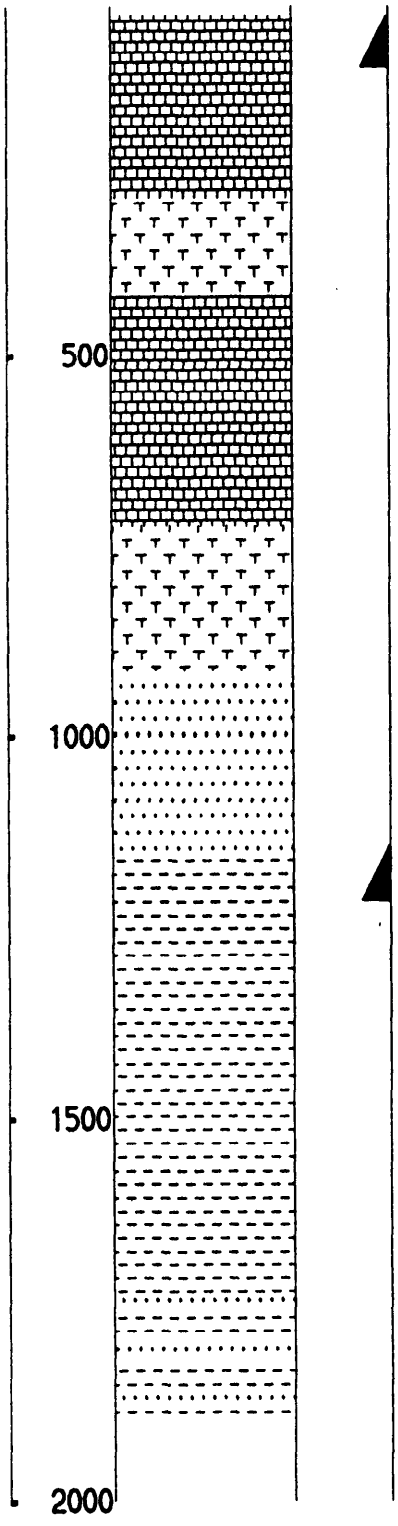
SAMPLES SENT for distribution from
BHP Petroleum Core Store,
c/- Kestrel Management (Australia)
Unit 58, Slough Estate
170 Forster Road.
MT. WAVERLY VIC. 3149
Telephone (03) 544 3399

WELL PROFILE



NB Diagrammatic Only Not to scale

CHAMPION-1 ACTUAL CONDENSED LITHOLOGY



HEYTESBURY GROUP

CALCARENITE:bioclastic,greyish yellow yellow grey,medium to coarse grained.Microcrystalline cement.Minor dolimite,trace glauconite,trace quartz grains,common fossil fragments.

MARL:mediun to light grey,soft,amorphous disspersive,trace rare glauconite,trace fossil fragments.Grades to calcilutite.

CALCISILTITE:light olive grey to medium grey,firm to soft very fine to fine grained,trace fossil fragments.Grades to calcarenite.

NIRRANDA GROUP

MARL:light olive to medium grey,firm to soft,rare traces of fossil fragments,trace glauconite and pyrite noduals.Grades to calcilutite.

WANGERIPP SANDSTONE

SANDSTONE:translucent lt brown,lt gry brown,subangular to subrounded,very fine to medium grained,well sorted.Trace calcareous and siliceous cement,trace agillaceous and silty matrix,trace glauconite and mineralization.poor to good porosity No fluoresence.

SHERBROOK GROUP

CLAYSTONE:light medium to dark grey brown light olive brown in part.Soft to firm,amorphous moderately to predominantly disspersed.Grading to silty claystone.Common traces of glauconite and rare traces of pyrite.

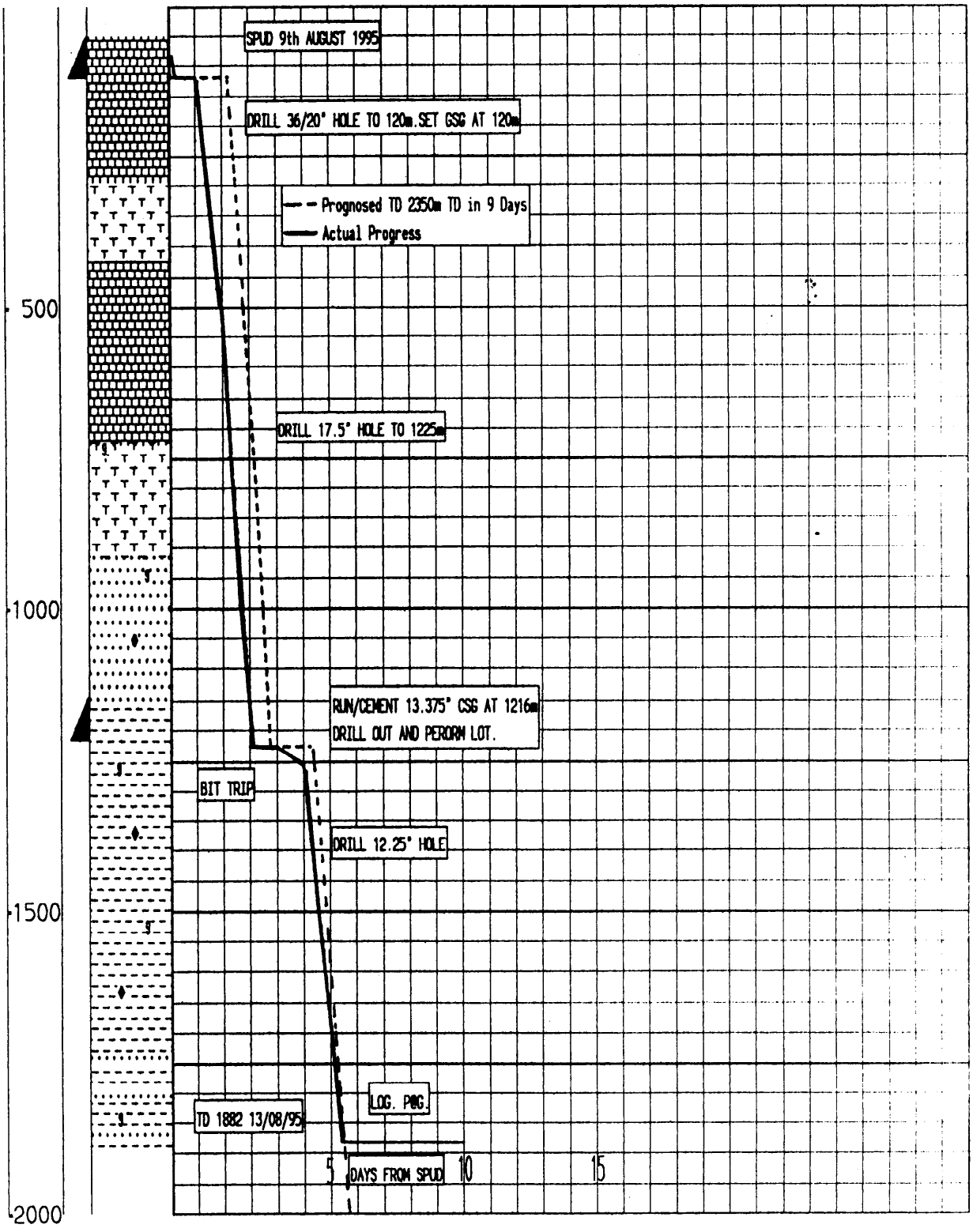
MINERVA FORMATION

SANDSTONE:White translucent light green/grey.Predominantly very fine to fine grained,angular to subangular,well sorted,common argillaceous matix,weak calc cement,trace white green orange lithics.Poor visible porosity,no fluoresence.

DRILLING DEPTH AND DAYS FROM SPUD TABLE

DATE	DEPTH @ 24:00 HRS	DAYS FROM SPUD
8/8/95	On Location, Anchoring, perpare to Spud	0
9/8/95	Anchoring / Spud 77.9 to 120m	1
10/8/95	537m	2
11/8/95	1225m	3
12/8/95	1225m	4
13/8/95	1256m	5
14/8/95	1689m	6
15/8/95	1882m TD	7
16/8/95	Run E-logs	8
17/8/95	Wait on plugs	9
18/8/95	Pull BOP's / Riser. Pull anchors	10

CHAMPION-1 WELL PROGRESS PLOT PLOT

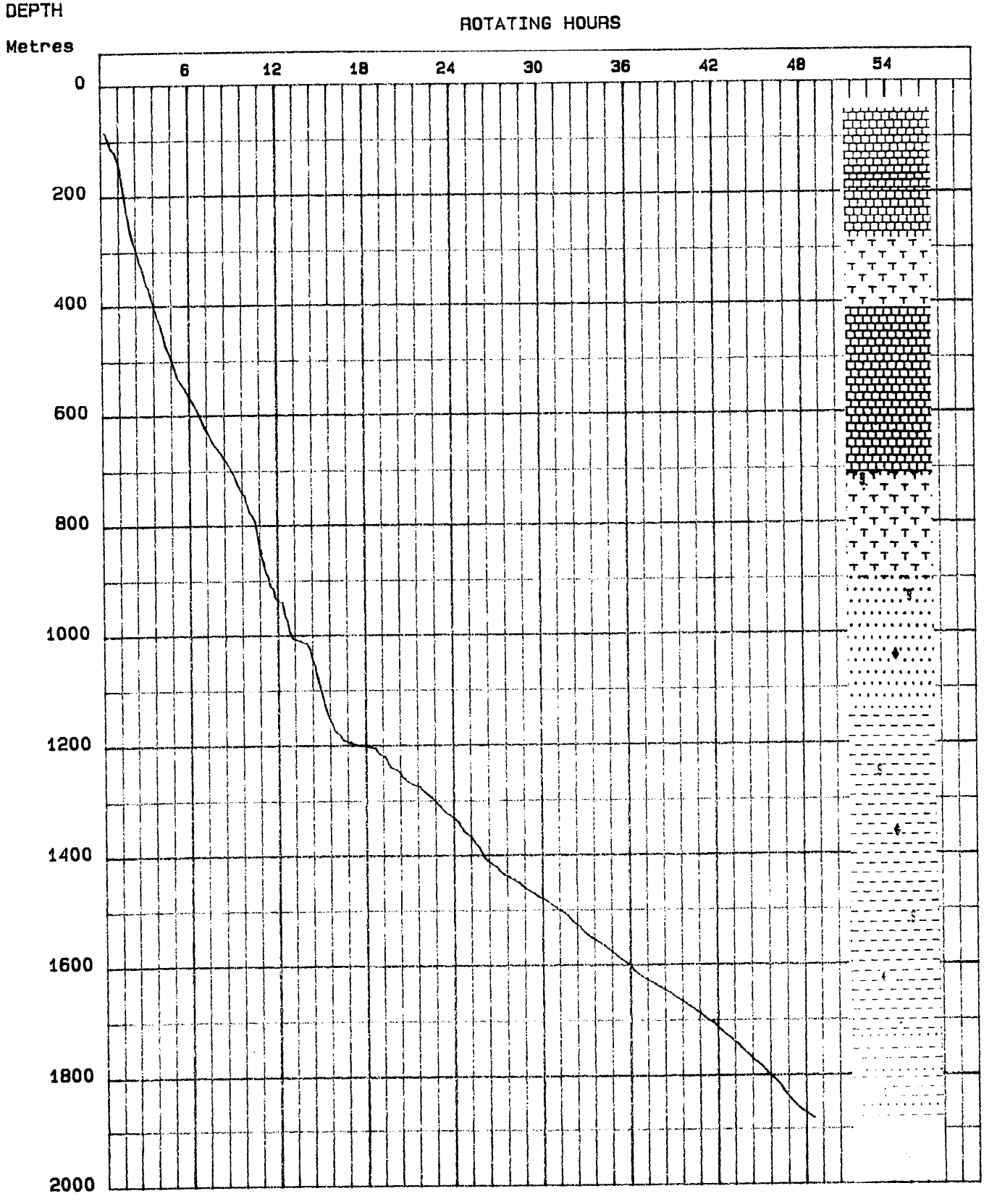


HALLIBURTON

ROTATING HOURS PLOT

Operator: BHP PETROLEUM

Well number: CHAMPION-1

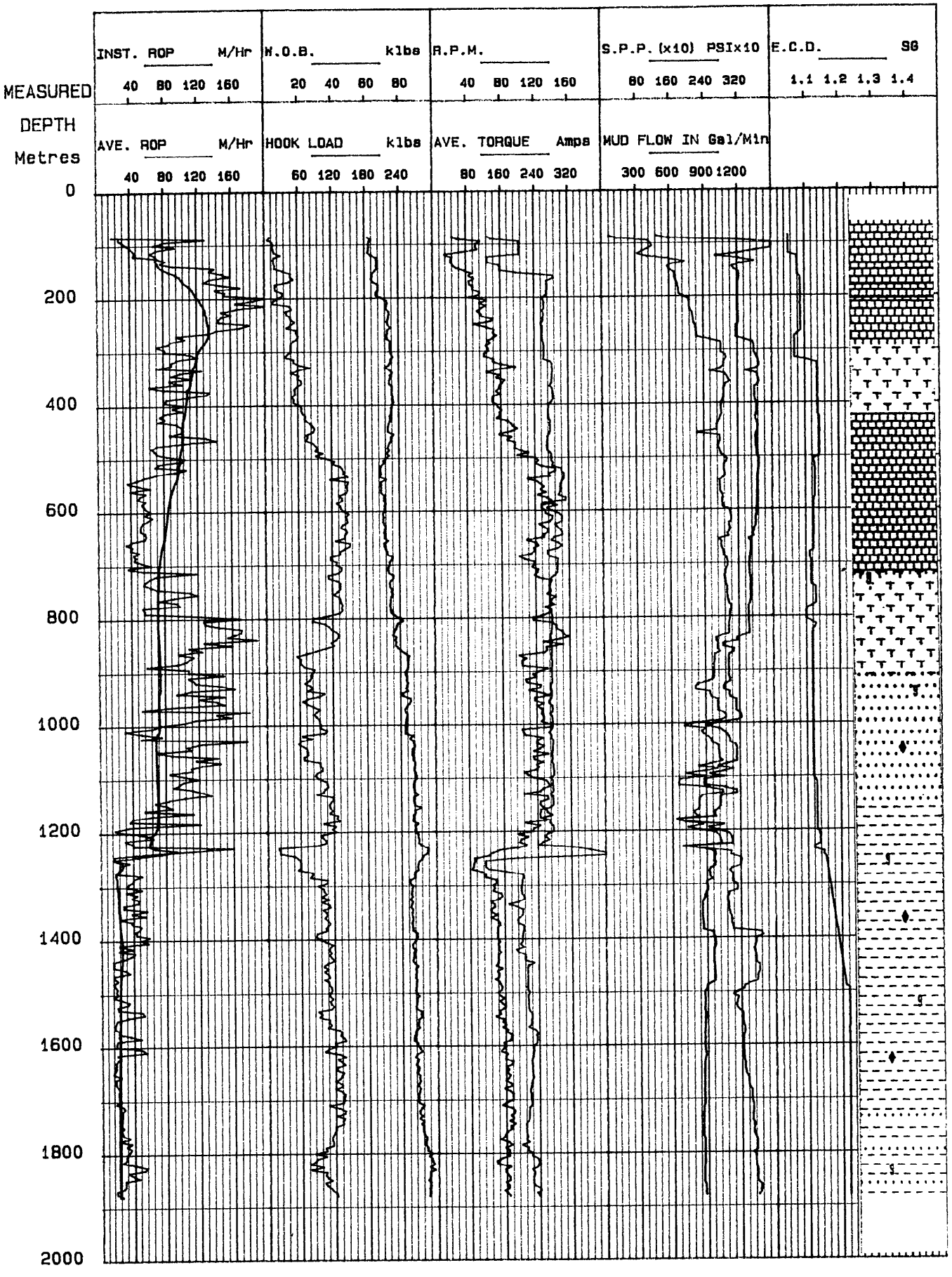


DEPTH SCALE = 1 : 10000

DRILLING DATA PLOT

Well No: CHAMPION-1
Operator: BHP PETROLEUM

HALLIBURTON

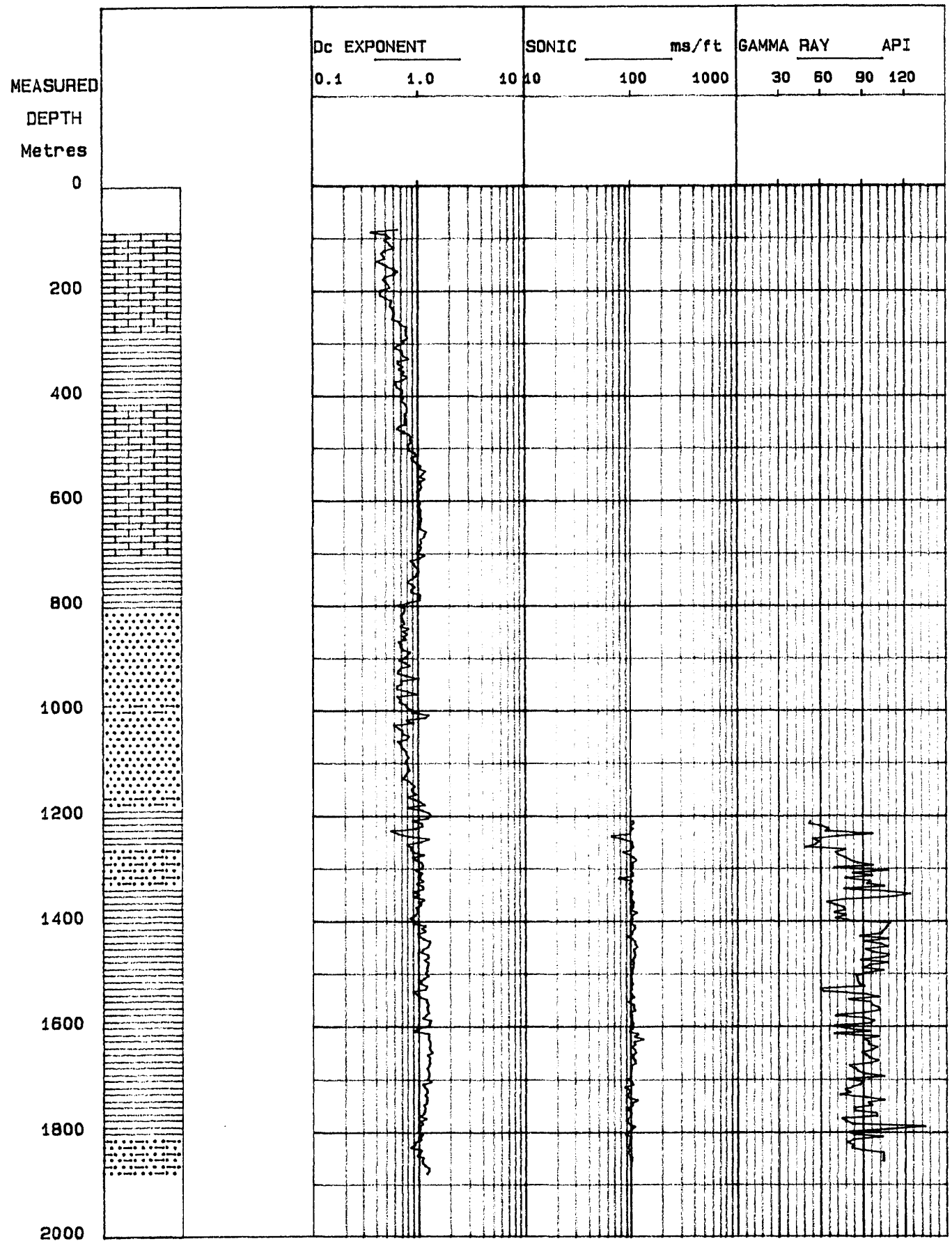


DEPTH SCALE = 1 : 10000

OVERPRESSURE PLOT

Well No: CHAMPION-1
Operator: BHP PETROLEUM

HALLIBURTON

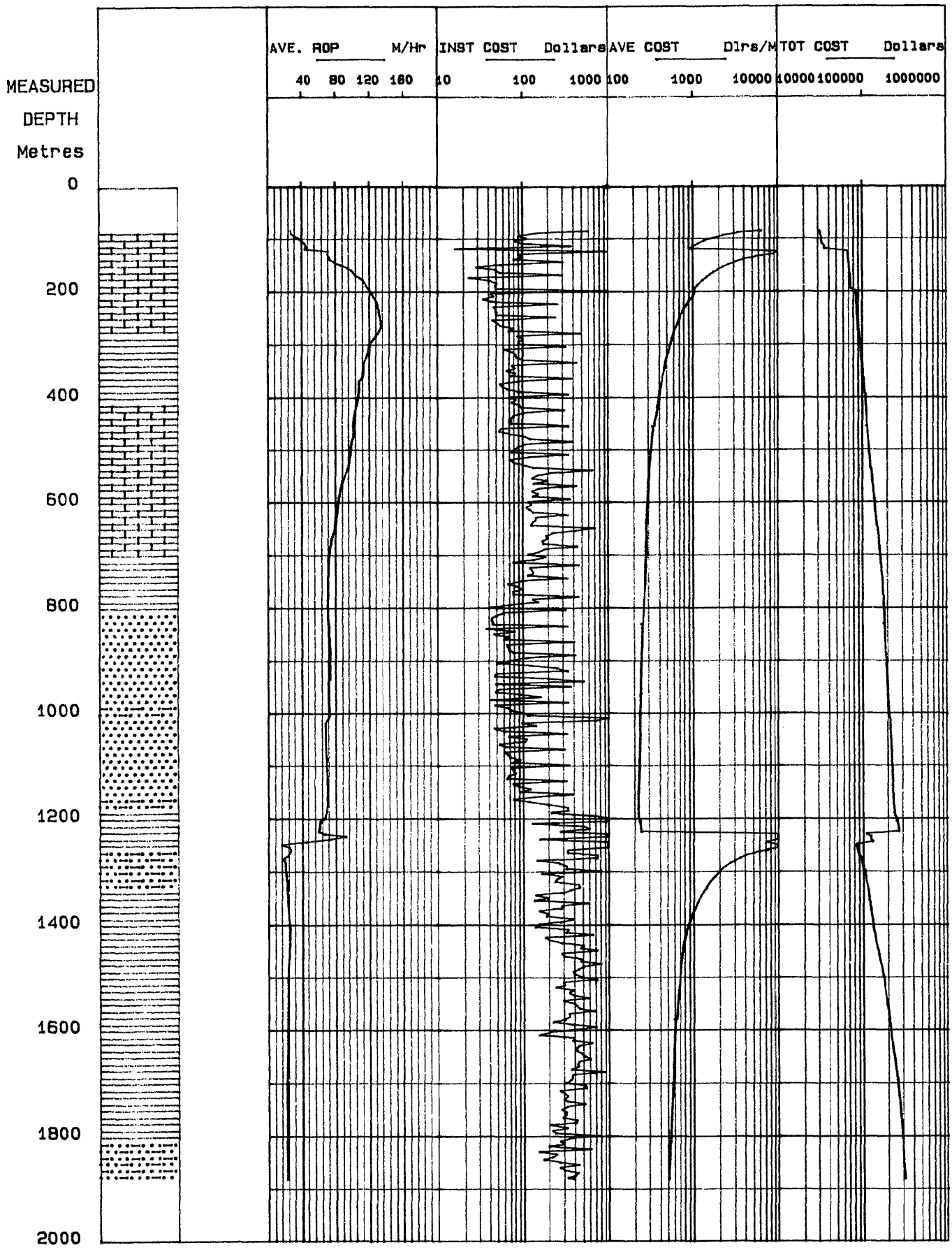


DEPTH SCALE = 1 : 10000

DRILLING COST PLOT

Well No: CHAMPION-1
Operator: BHP PETROLEUM

HALLIBURTON



DEPTH SCALE = 1 : 10000

SECTION 2 GEOLOGY

2.1 FORMATION EVALUATION SUMMARY

2.2 GAS RATIO ANALYSIS

2.1 FORMATION EVALUATION SUMMARY

The formation evaluation intervals based on lithological units. All depthsbelow the rotary table, ie. Measured depth.
53m - 120m - Returns to seafloor

120m - 270m **CALCARENITE**

Drilling Parameters: TRQ: 105 [32-106] amps
WOB: 3 [3-21] klbs SPP: 1900 [1070-2230] psi
RPM: 118 [62-145] MFI: 1200 [1000-1400] gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CALCARENITE	Greyish yellow to yellow grey, and light grey, bioclastic, fine to coarse grained and firm to friable, cryptocrystalline cement and occasional yellow calcite laminations/inclusions, trace glauconite, trace lithics, trace quartz sand, common fossil fragments, some glauconite as fossil cavity infill.	127.6	277 at 214m	47 at 133m	No gas detected							

270m - 410m **MARL**

Drilling Parameters: TRQ: 145 [103-203] amps
WOB: 18 [7-28] klbs SPP: 2800 [2230-3000] psi
RPM: 136 [128-142] MFI: 1350 [1180-1390] gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
MARL	Light to medium light grey,soft to firm and amorphous, common to minor argillaceous content , tending to grade to argillaceous calcilutite, trace glauconite and trace to rare fossil fragments.	86.5	180 @ 334m	16.2 @ 365m	No gas detected							

FORMATION EVALUATION SUMMARY

410m - 780m **CALCISILTITE AND MARL**

Drilling Parameters: TRQ: 240 [122-321] amps
WOB: 41 [18-53] klbs SPP: 2840 [2680-3040] psi
RPM: 142 [90-158] MFI: gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CALCISILTITE	Light olive grey to medium grey, soft to firm, very fine grained and occasionally grading to Calcarenite, amorphous to massive structure, trace glauconite, Foraminifera, and trace pyrite	57	225 @ 750m	16.5 @ 777m	Background	0.001	0.0015	0.003	0.0001	0	0	0
					Max @ 612m	0.002	0.0004	0	0	0	0	0
MARL	Light olive grey to medium grey,soft to firm, and amorphous, very abundant argillaceous matrix with traces of glauconite and pyrite				Min @ 812m	0	0	0	0	0	0	0

780m - 1170m **SANDSTONE and SILTSTONE**

Drilling Parameters: TRQ: 250 [147-355]amps
WOB: 30 [11-48] klbs SPP: 2500 [1720-3000] psi
RPM: 137 [113-140] MFI: 1120 [810-1300] gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
SANDSTONE	Yellow orange to light brown, very friable with occasional hard stringers, medium to very coarse, trace to minor granules, becoming clear to translucent from around 950m, poorly sorted, angular to sub-rounded, with both trace calcareous and minor siliceous cements. Trace brown argillaceous matrix, initially abundant iron-oxide stained grains, trace to abundant glauconite nodules, inferred porosity good to very good. No fluorescence observed.	68.3	240 @ 1165m	4.1 @ 1103m	Background	0.001	0.0004	0	0	0	0	0
					Max @ 1063.8m	0.299	0.2848	0.0011	0	0	0	0
					Min @ multiple places	0	0	0	0	0	0	0
SILTSTONE	Medium to dark brown and grey brown, soft and amorphous, dispersive, commonly very finely arenaceous, trace micromicaceous material. Grades to silty claystone.											

FORMATION EVALUATION SUMMARY

1170m - 1325m **CLAYSTONE and minor SANDSTONE**					Drilling Parameters (3 bits used): WOB: 28 [4-47]]klbs RPM: 119 [55-250]		TRQ: 159 [42-298] amps SPP: 2750 [1570-3300] psi MFI: 884 [571-995] gal/min					
Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CLAYSTONE	Grey brown to dusky brown, soft and amorphous, commonly silty and very finely arenaceous, soft to firm, amorphous structure, predominantly dispersed, commonly grading Silty Claystone, trace to rare disseminated and nodular glauconite, trace glauconite.	18.8	225 @ 1228m	2.0 @ 1201m	Background	0.15	0.0955	0.0031	0.001	0	0	0
					Max @ 1711.6m	0.363	0.292	0.0112	0.0038	0.0006	0.0004	0
SANDSTONE	Thin interbeds, light grey, clear to translucent, loose in sample, inferred firm to hard, fine to very coarse with rare granules, angular to sub-rounded and poorly sorted, siliceous and calcareous cement with trace pyritic cement, off white argillaceous matrix, trace lithics, trace to poor inferred porosity. No fluorescence.				Min @ 1108.3m	0.002	0.0012	0	0	0	0	0

FORMATION EVALUATION SUMMARY

1325m - 1530m <u>CLAYSTONE and trace SANDSTONE</u>					Drilling Parameters: WOB: 35 [23-42] klbs RPM: 102 [62-117]			TRQ: 143 [96-172] amps SPP: 3263 [2640-3890] psi MFI: 910 [830-1000] gal/min				
Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CLAYSTONE	Light to medium grey medium grey brown, becoming light olive brown and dark grey brown, soft to firm, amorphous, predominantly dispersed, grading silty claystone, commom traces of glauconite, rare trace disseminated nodular pyrite.	23.2	83.7 @ 1376m	7.7 @ 1420m	Background	0.02	0.018	0	0	0	0	0
					Max @ 1517m	0.068	0.068		0	0	0	0
SANDSTONE	Forming thin interbeds with Claystone, off white, opaque to translucent, light grey brown in part, subangular to sub- round, very fine to predominantly medium to predominantly fine, and well sorted, sliceous and weak calcareous cement, trace to common argillaceous and silty matrix, trace glauconite and mineralization. Poor to good visual porosity. No hydrocarbon shows.				Min @ 1370m	0.014	0.013	0	0	0	0	0

FORMATION EVALUATION SUMMARY

1530m - 1685m <u>SANDSTONE with minor INTERBEDDED CLAYSTONE</u>					Drilling Parameters: WOB: 40 [22-48] klbs RPM: 111 [103-118]		TRQ: 111 [102-181] amps SPP: 3250 [3050-3480] psi MFI: 867 [853-889] gal/min					
Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CLAYSTONE	Medium to dark grey brown to dark grey, soft to firm, slightly amorphous, moderately dispersive, commomly grading silty claystone, trace glauconite, rare traces disseminated glauconite.	19.3	95 @ 1536m	8.6 @ 1539 m	Background	0.050	0.046	0.0010	0.0001	0	0	0
					Max @ 1676m	0.130	0.126	0.0031	0.0001	0	0	0
SANDSTONE	Interbedded in Claystone. White off white, translucent to light brown, predominantly fine to medium, rare coarse grains, angular to subrounded, moderately well sorted, trace weak calcareous cement, trace argillaceous matrix, trace glauconite. Poor visual porosity. No hydrocarbon shows.				Min @ 1560m	0.025	0.0242	0.0006	0	0	0	0

FORMATION EVALUATION SUMMARY

1685m -1795m **CLAYSTONE with minor INTERBEDDED COAL**

Drilling Parameters: TRQ: 167 [100-190] amps
WOB: 10 [19-50] klbs SPP: 3460 [3324-3552]psi
RPM: 105 [83-110] MFI: 856 [835-867] gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CLAYSTONE	Pale to light blueish grey, medium grey , becoming medium dark grey brown in part, soft to firm, slightly amorphous, disspersive, grading silty claystone, common carbonaceous specks, micromicaceous, trace to abundant glauconite.	24	55 at 1891	7.0 at 1702	Background	0.113	0.111	0.0017	0.0004	0	0	0
					Max @ 1852m	0.426	0.4151	0.0078	0.0012	0.0003	0	0
COAL	Black, brittle and silty.				Min @ 1888m	0.011	0.01	0	0	0	0	0

1795m -1882m (TD) **CLAYSTONEwith INTERBEDDED SANDSTONE.**

Drilling Parameters: TRQ: 158 [130-190] amps
WOB: 33 [14-45]klbs SPP: 3535 [3352-3645] psi
RPM: 114 [98-122] MFI: 861 [835-876] gal/min

Lithology	Lithological Description	ROP m/hr			GAS	Total	C1	C2	C3	iC4	nC4	C5
		Ave.	Max.	Min.		%	%	%	%	%	%	%
CLAYSTONE	Light grey to light olive grey, soft to firm disspersive, grading to silty Claystone, common carbonaceous specks, micrimicaceous	30	62 at 1839	9 at 1802	Background	0.36	0.27	0.0061	0.0003	0	0	0
					Max @ 1826m	0.761	0.732	0.0168	0.011	0	0	0
SANDSTONE	White-translucent ,very light grey to light grey light grey green, loose to friable, very fine to predominantly fine grained with trace coarse grains, sub angular to sub rounded, moderate to well sorted, trace calcareous cement, common very light grey argillaceous material, trace white green light to dark orange lithic grains, trace feldspathic grains, trace mica, trace carbonaceous specks, poor visual porosity. No fluorescence shows.				Min @ 1834m	0.118	0.116	0.0024	0.0001	0	0	0

2.2 GAS RATIO LOG INTERPRETATION AND PLOTS

INTRODUCTION TO GAS RATIO PLOT ANALYSIS

Alkane ratio chromatography involves ratio quantification of the relative percentages of methane (C1), ethane (C2), propane (C3), iso and normal butane (IC4 and NC4), and pentane (C5) present in a gas sample.

Whittaker and Sellens (1987) developed a three parameter method to more accurately define the nature of the gas yielded from any one formation. The parameters they defined are *Hydrocarbon Wetness* (Wh), *Hydrocarbon Balance* (Bh), and *Hydrocarbon Character* (Ch).

Previously, gas ratio analysis enabled the user to define only the non-productive or productive oil and gas, using logarithmic or triangular ratio plots. Hydrocarbon wetness, balance and character can be plotted on the formation evaluation log. This gives instant information on the nature of the hydrocarbons present in the well. Zones of interest can be further analysed using ratio plots.

Hydrocarbon Wetness

The Hydrocarbon Wetness ratio is defined as a measure of the proportion of heavy alkanes present in the gas sample where:-

$$Wh = \frac{[C_2 + C_3 + C_4 + C_5]}{[C_1 + C_2 + C_3 + C_4 + C_5]} \times 100$$

As a rule it can be said that Wh will increase as the hydrocarbon gravity increases from light dry gas to residual oil.

Below a Wh value of 0.5 the gas is extremely light with a low productivity potential. If the wetness ratio value is between 0.5 and 1.75 the sample is productive gas. If the value is between 17.5 and 40, the sample contains potentially productive oil. Over 40 the sample contains residual oil with a low productivity potential.

Hydrocarbon Balance

Hydrocarbon balance is a measure of the relative concentrations of C1 and C2 to C3, C4 and C5 present in a gas sample, where:-

$$Bh = \frac{[C_1 + C_2]}{[C_3 + C_4 + C_5]}$$

As the hydrocarbon gravity increases from light gas to residual oil the balance ratio falls. Wh and Bh have an inverse relationship and when plotted on the same scale can further improve evaluation.

Hydrocarbon Character

When used together, Wh and Bh will resolve differences in the hydrocarbon makeup. However, when considering gas condensates or a high gravity/high gas-oil ratio (GOR) oil, little distinction is apparent. To combat this Whittaker and Sellens developed the Character ratio.
Hydrocarbon character is calculated as :-

$$Ch = \frac{[C_4 + C_2]}{C_3}$$

Gas condensates and high GOR oils have Wh ratio values of 0.5 to 17.5 and Bh values characteristically below Wh. Using character to discriminate between the two, we can say that gas condensates have a Ch value less than 0.5 whereas high gravity and GOR oils have Ch values greater than 0.5.

It is important to note that Wh, Bh and Ch do not conclusively prove the reservoir potential, however they can be used as an aid to help clearer definition of potential zones for furthur evaluation.

Gas Ratio Log Interpretation Summary:

The Gas Ratio Log is a plot of ratios of chromatographic gas data and normalised Total Gas from the flowline mud stream, integrated with the Penetration Rate (ROP) and, Lagged Total Gas (LTG). Interpretation of gases in reservoir fluids is subjective. The ratio method plotted against depth can enhance interpretation and analysis whilst drilling and during post electric logging data correlation. Residual oil through to gas fluids in the formation can be determined by correlation with the ratios. The Normalised gas trend takes into account the ROP, volume of rock cut, and the pump rate whilst drilling. The Gas Ratio Log is based on Hydrocarbon Wetness Ratio (Wh), balance ratio (Bh) and, character ratio (Ch).

TRIANGULAR GAS RATIO PLOTS

The plot is constructed in a number of stages. First an equilateral triangle is drawn with C2, C3 and nC4 at it's vertices. The ellipsoid plotted within the triangle will be used later to indicate the productive potential of the show.

Each side of the triangle can now be used to plot ratios of C2/C3, C3/nC4 and nC4/C2. If each side of the triangle is taken to be length = 1, then these ratios can be found by:-

$$\frac{C2}{[C2+C3]}, \frac{C3}{[C3+nC4]}, \frac{nC4}{[C2+nC4]}$$

This gives a value of up to 1 for each ratio. Plot these points onto the side of the triangle. The next step is to construct lines from each point to the opposite corner of the triangle. The intersection of these lines defines the *productivity* of the show. If the intersection falls within the ellipsoid, the formation is likely to be productive. If it falls outside then the show is probably non productive. An intersection falling near to the edges of the ellipsoid would indicate a marginal show.

To discover whether the show represents *oil or gas*, we consider the ratios of C2/Ctot, C3/Ctot and nC4/Ctot, where Ctot is the sum of all the alkanes present, ie C1 to C5.

A triangular graph is now constructed such that each side reads from 0 to 0.17. This is superimposed onto the existing triangular plot. Each of the above ratios is calculated and plotted onto the relevant side of the triangle using this scale. If the ratio value exceeds 0.17, extrapolate the scale and plot as normal.

Now construct a line through each of these ratio points such that it parallels the side opposite the C2, C3 or nC4 apex. The three lines will form a triangle whose way up will indicate whether the Cn/Ctot ratios represent oil or gas.

GAS RATIO PLOT

This plot is based ratios of C1/C2, C1/C3, C1/C4 and C1/C5.

These ratios are plotted onto the relevant *vertical* line of the plot. Analysis of real well data has shown that these ratios can indicate whether a formation bears oil, gas or water and whether or not it is productive.

The points corresponding to each ratio are then joined together to produce a slope. If this slope is positive, the show is likely to be productive. Any negative slope, eg. C1/C4<C1/C3, suggests that the formation is likely to be non productive or water bearing.

Generally speaking an extremely steep slope, eg. C1/C2 low in the oil zone and C1/C4 high in the gas zone, would suggest a very tight formation.

CHAMPION-1 WELL RESULTS

Gas Ratio Log Interpretation & Gas Ratio Plots

As C4 & C5 was not detected above trace levels in Champion-1 detailed gas ratio analysis is not warranted.

SECTION 3 FORMATION PRESSURE ANALYSIS

3.1 PORE PRESSURE ANALYSIS AND DISCUSSION

3.2 OTHER DATA

3.3 DATA PLOTS

3.1 PRESSURE ANALYSIS AND DISCUSSION

17-1/2" Hole Section **Interval 120-1225m** **Pore Pressure Summary - estimated normal 1.032sg**	
Lithology: No returns to 120m. Calcarenite, calcilutite, marl, bioclastic in top sections from 120-780m, sandstone 788-1170m, claystone and siltstones 1170-1225m	
Observations	**Remarks**
Corrected Drilling Exponent. Erratic Dxc observed in the upper section to 270m. A Normal Compaction Trend (NCT) established in the marls. The Dxc becomes erratic from 410m. Claystone from 1130m provides another anchor point for the NCT.	Erratic Dxc trend shows a general increase with depth despite variations in mineralogy, lithology and degree of compaction. The NCT is established over marls, claystones and argillaceous siltstones through intervals 270-410m and 1130-1225m
Background Gas First gas returns was recorded from 630m. Average background was 0.001%. **Connection Gas Peaks** None detected. No wiper trip was performed in hole section.	Initially, nil gas detected to 630m. Level increased to trace amounts to 1225m. The absence of connection gas peaks suggest good overbalance. MWI 1.05-1.13sg
Flowline Temperature Mud temperature out (MTO) 29°-42.6°C. ΔT 2.6° to 3.7°C at 1208m..	Flowline temperature generally increased with depth. The geothermal gradient (3°C/100) at 680m, suggests a normal pore pressure. Gradient varied widely from 680m (0-3.5°C/100), and a cooling effect is seen from 680m to 1225m, related to frequent additions of mud to the active system while fast drilling the interval.
Cuttings No bulk density measurement was performed in this predominantly carbonate and sandstone sections. No abnormal cuttings were observed in the samples.	Parameter does not indicate overpressure.
Other Data High mud addition rates while drilling sandstone intervals. No wiper trip was performed at 1225m. 30klbs drag experienced pulling back to the shoe at two spots only, wiped until slick. Hole fill okay with 15bbls lost, probably seepage into friable Wangerrip Formation.	
Conclusions Dxc NCT shows a general normal trend. The absence of connection gas peaks suggests good overbalance. Flowline temperature trend suggests normal pore pressure regime. The pore pressure over this interval is considered normal (1.03 sg).	

12-1/4" Hole Section.
Interval 1225m -1685m
Pore Pressure Summary- estimated normal 1.032sg

Lithology: claystone with occasional sandstone and siltstone interbeds to 1530m, interbedded claystone and sandstone 1530-1685m.

Observations	Remarks
Corrected Drilling Exponent. Erratic, however , generally shows a normal compaction trend (NCT) from 1225m to 1685m, with cutbacks in sandstone intervals and sandy claystone/siltstones.	Through claystones, the Dxc should have been a good pore pressure indicator. From 1300m the Dxc exhibits a slightly decreasing trend, offset from the NCT due to the sandstone lithology. Eaton Overlay interpretation suggests a normal 1.032sg formation pressure to 1685m .
Background Gas from 1225m-1650m was generally less than 0.2%. (A constricted sample line may have inhibited gas levels) **Connection Gas Peaks** none detected.	General Gas levels increased with depth unless mud weight increased- ie gas level generally proportional to mud weight.
Flowline Temperature over interval 1225-1450m- 25 to 45°C.. ΔT decreased 4.5 to 2.6°C over 1225-1685m.	Flowline temperature trend did not suggest a normal pore pressure regime as mud had not reached an equilibrium, then shows an "insulating " section (Blanket effect), indicating either a potential overpressured zone below 1685m (Gradient decreases from 1450-1670m to 0.5°C/100m) or frequent additions to mud system.
Cuttings No density analysis performed, generally unsuitable (soft, amorphous, dispersive claystone with silt/sandstone interrbeds).	Minor cavings seen in the cuttings were not considered to be related to abnormal pore pressure.

Other Data Mudweight raised from 1.13 to 1.2sg by 1430m.
Wireline data: very erratic sonic trend suggests an increasing pore pressure from 1250m to 1685m in several steps, in excess of indications of other parameters, and is discounted as unreliable. In addition, there is only data from the 12-1/4" hole section. Caliper log- hole in good condition.
Overpull on trip TD of 20-30Klbs from 1585-1320m through sandstone intervals (mudcake?).

Conclusions
A normal pore pressure regime from above parameters to approximately 1685m.

12-1/4" Hole Section continued
Interval 1685m -1795m
Pore Pressure Summary- estimated transition zone 1.032sg to 1.13sg

Lithology: claystone with occasional siltstone and sandstone interbeds, rare coal streaks 1685-1690m.

Observations	Remarks
Corrected Drilling Exponent.. shows a cutback from the NCT from 1685m to 1795m.	Through claystones, from 1685m, the Dxc exhibits a slightly decreasing trend, indicating an increasing pore pressure regime on the Eaton Overlay. Interpretation suggests a formation pressure increasing from 1.032sg at 1685m to 1.2sg by 1795m.
Background Gas from 1685m, the background rose from less than 0.1% to 0.5% by 1795m. (A constricted sample line may have inhibited saome gas levels) **Connection Gas Peaks above background** 1766m=0.25%, 1795m=0.18%.	The pore pressure increases through this section as suggested by a rise in background and the presence of connection gas peaks suggesting a pore pressure of up to 1.13sg. (MW=1.20sg)
Flowline Temperature Flowline temperature over this interval shows a trend of 3°C/100m. with depth to 1795m. ΔT steady 3.2-3.4°C over 1685-1795m	Trend suggests a transition regime from normal to slightly overpressured. MTO & ΔT show a potential overpressured zone below this "insulated " section. (Blanket effect).
Cuttings As above. Some hard-firm flat and blocky claystone cavings. No "propellor" shaped character or splintery cavings.	Minor cavings seen in the cuttings were not considered to be related to abnormal pore pressure.

Other Data Mudweight 1.2sg.
Wireline data: erratic sonic trend indicates a pore pressure increase from approximately 1660m to 1800m.

Conclusions
Abnormal pressure regime from above parameters, up to 1.1+ sg EMW maximum by 1795m.

Hole section - 12-1/4" continued. **Interval 1795-1882m (TD)** **Pore Pressure Summary- estimated 1.1+sg, 0.07+sg above normal**	
Lithology: predominantly sandstone 1800-1955m, claystone 1955-1970m, sandstone 1970-1985m	
Observations	**Remarks**
Corrected Drilling Exponent. Very erratic from 1795m through sandstones, subsequently trends back towards the previously established NCT through sandy claystones.	The Dxc Eaton overlay suggests a pore pressure of 1.2+sg (in sandstone interbeds), and returning to 1.1sg in claystones continuing down to 1882m. Pore pressure regime is assumed to be less than the above maximum at 1.1+sg EMW.
Background Gas from 1795m gas levels increased 0.15% -0.7% and decreasing towards TD. Levels were erratic from 1795m due to interbedded sandstones and minor claystones but were in the range 0.3%-0.6% down to 1882m. **Connection gas peaks above background** 1824m=0.28%, 1855m-0.11%	Presence of connection gas peaks shows estimated pore pressure remains at 1.1+sg, background gas was lithology and ROP dependent.
Flowline Temperature MTO gradually increases with depth at 2°C/100m from 1795m to 1882m (TD).	Flowline temperature trend and ΔT here suggested no further increase in formation pore pressure.
Other Data Some flat and occassionally splintery cuttings (rarely blocky) were seen at the shakers as above.	Cavings seen in the cuttings were considered to be related to abnormal pore pressures, tectonic stress release and or hole instability.
Other Data Sonic data suggests pore pressure decreases back towards normal from 1755m.This, however, does not agree with other data, and 1.10+sg is a reasonable assertion.	
Conclusions The pore pressure regime, from the above parameters, reaches approximately 1.13sg EMW from 1795m.	

3.2 OTHER DATA

Leak Off data

LOT Equivalent Mud Weight at 1233m: 1.92sg EMW with 1.14sg mud, surface pressure 1350psi.

CHAMPION-1 Horner Plot

Bottom hole temperature estimated from Horner Plot: : 165°F, 74.2°C

Esitmated Bottom hole Temperature Calculated from ELOG data

DEPTH M	MAX TEMP F	MAX TEMP C	DELTA TIME	CIRC TIME	HORNER VALUE
1859	153	67	7.97	0.83	1.104
1859	158	70	13.55	0.83	1.061

3.3 DATA PLOTS

Formation Pressure Profile
Raw Dxc Plot
Dxc With Eaton Overlays
Sonic Data Plot
Migrated Flowline Temperature Plot
Horner Plot

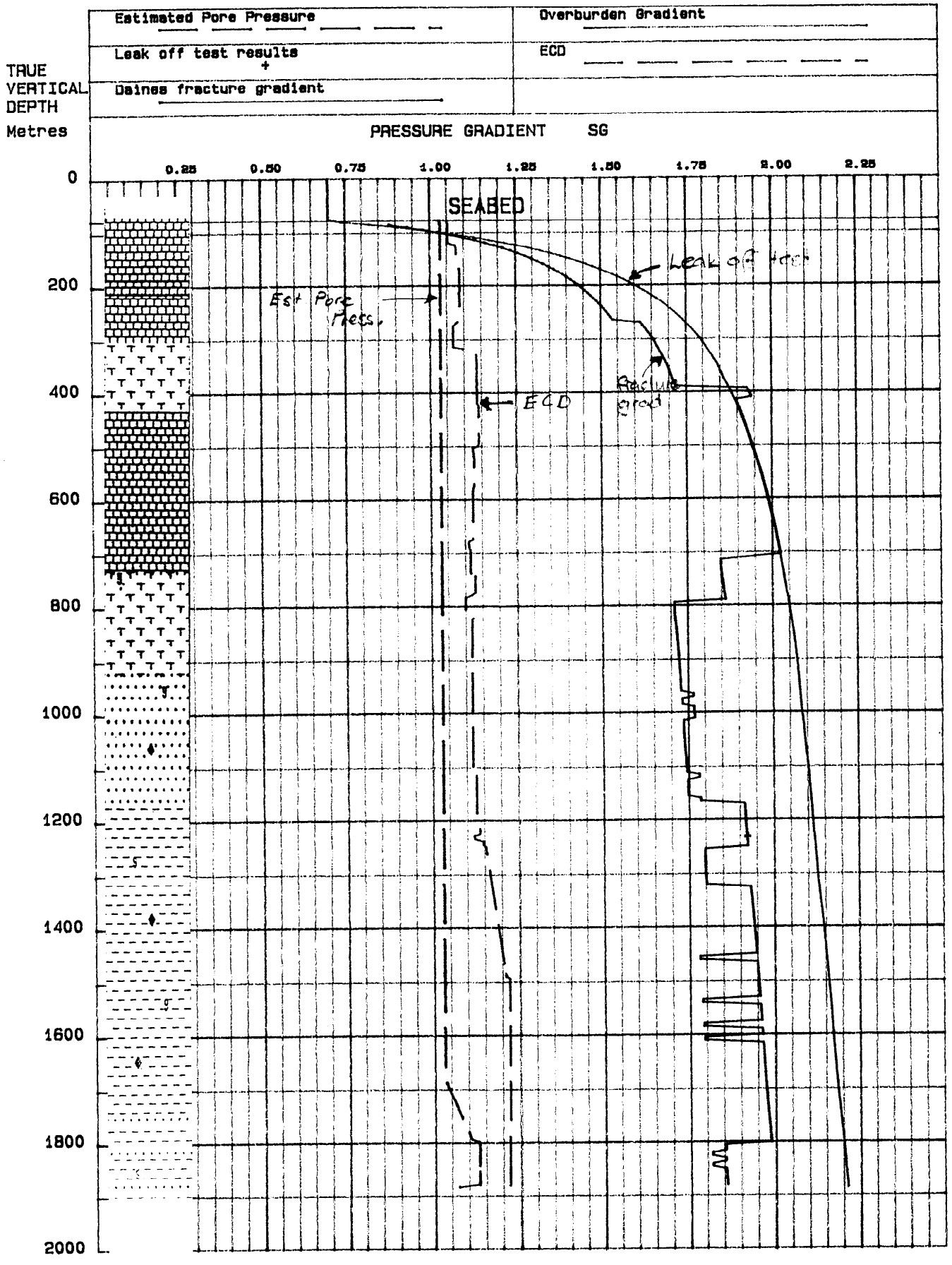
Notes:
Pressure plots use 5m averaged data points.
Tophole overburden gradient to 120m is a compilation of representative offset well data points (Sonic).
Fracture gradients calculated with offset data to 120m.
Dxc plots with Eaton Overlay is not shifted as the longer bitruns were drilled with tricone bit types.

PRESSURE GRADIENT vs DEPTH PLOT

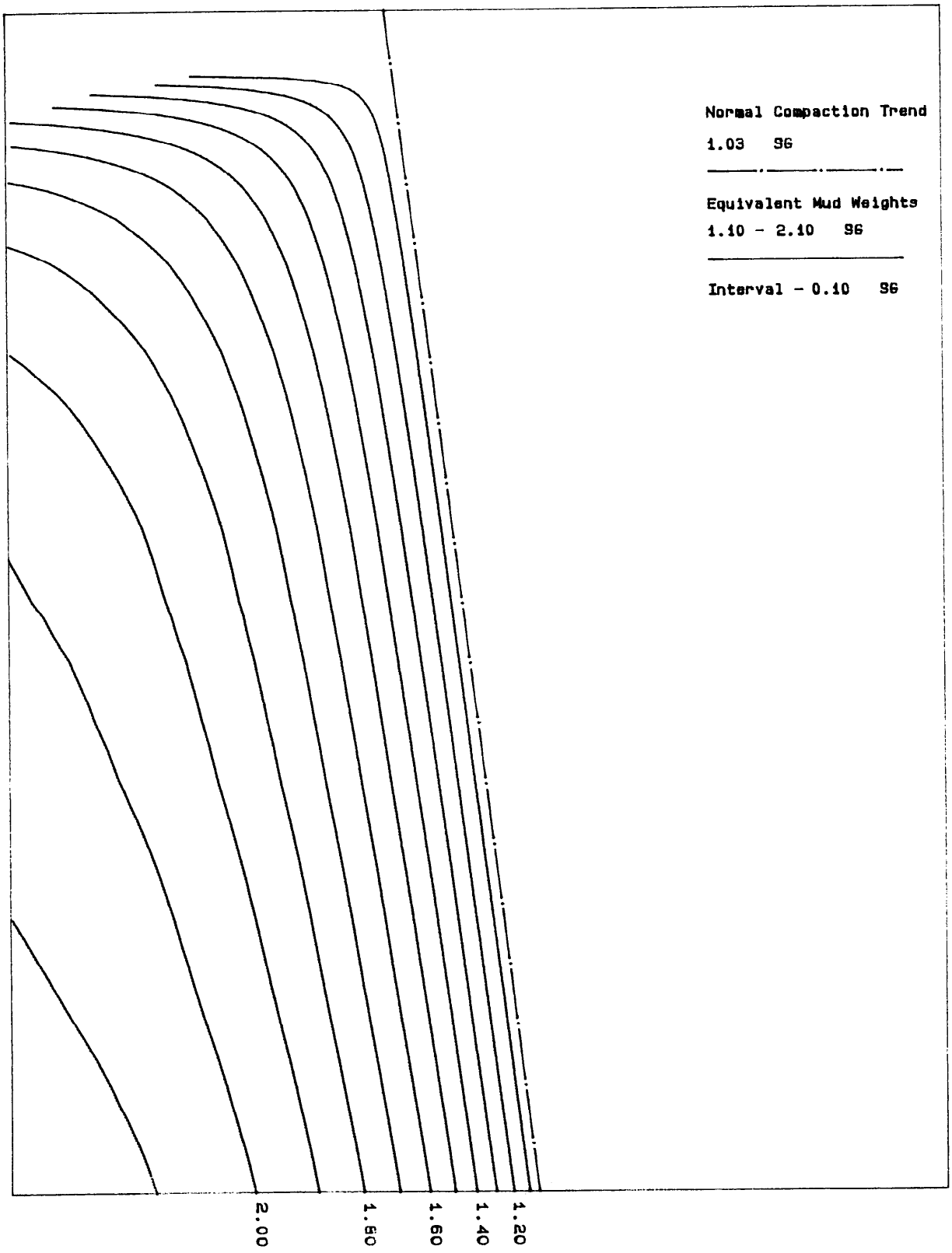
HALLIBURTON

Operator: BHP PETROLEUM

Well number: CHAMPION-1



DEPTH SCALE = 1 : 10000

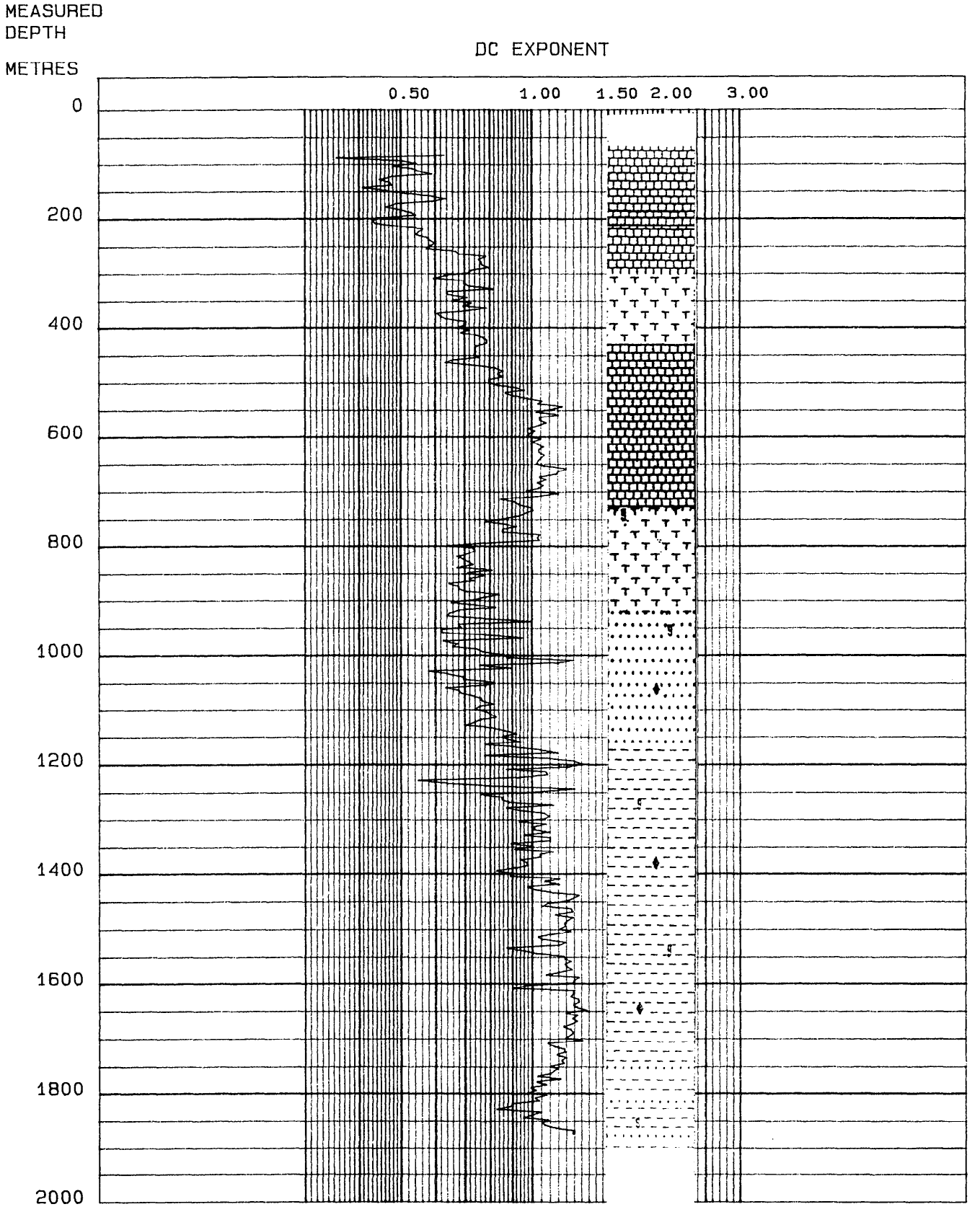

Normal Compaction Trend
1.03 SG
Equivalent Mud Weights
1.10 - 2.10 SG
Interval - 0.10 SG
2.00
1.50
1.60
1.40
1.20

HALLIBURTON

DC EXPONENT PLOT

Operator: BHP PETROLEUM

Well number: CHAMPION-1



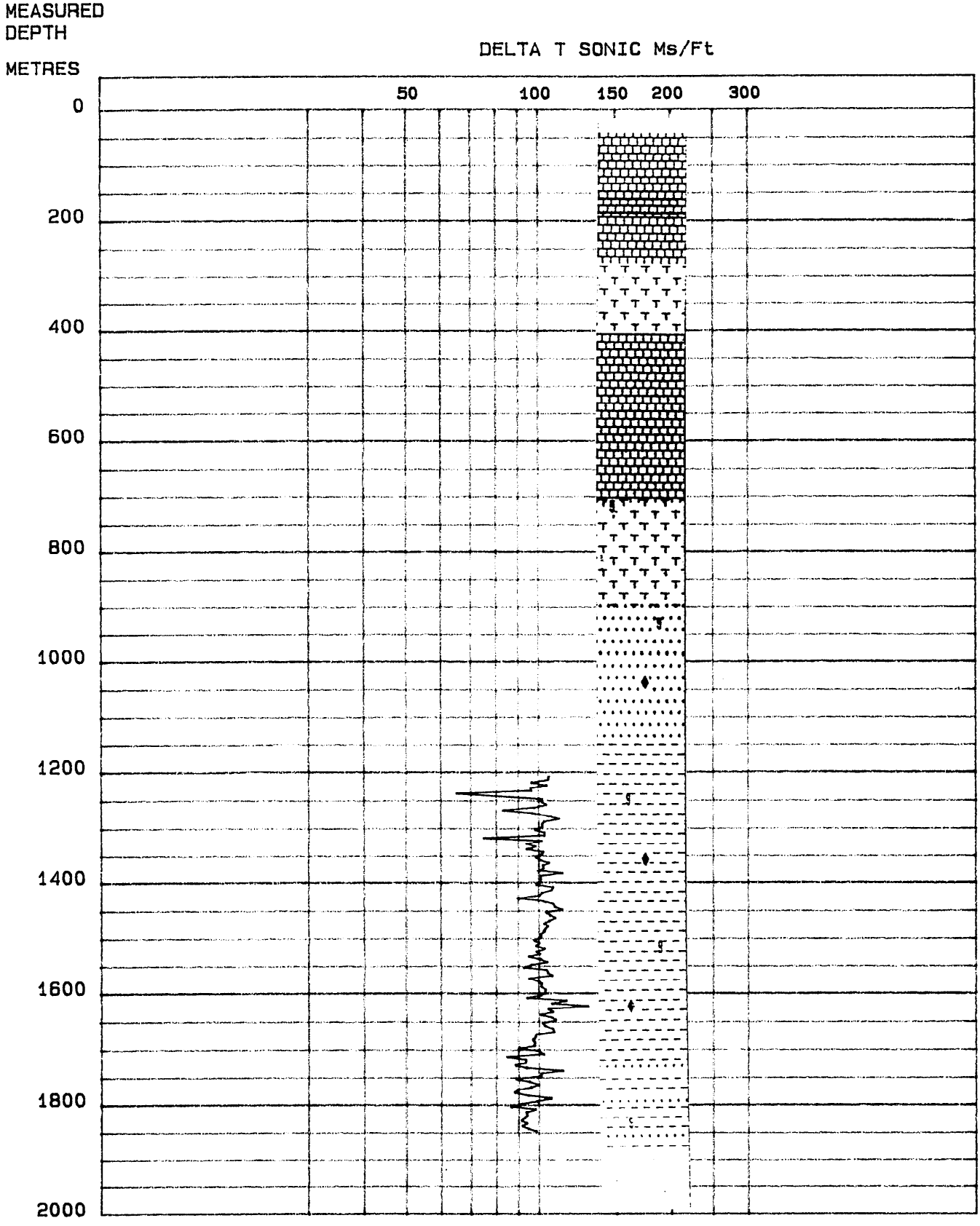
DEPTH SCALE = 1 : 10000

HALLIBURTON

DELTA T SONIC PLOT

Operator: BHP PETROLEUM

Well number: CHAMPION-1



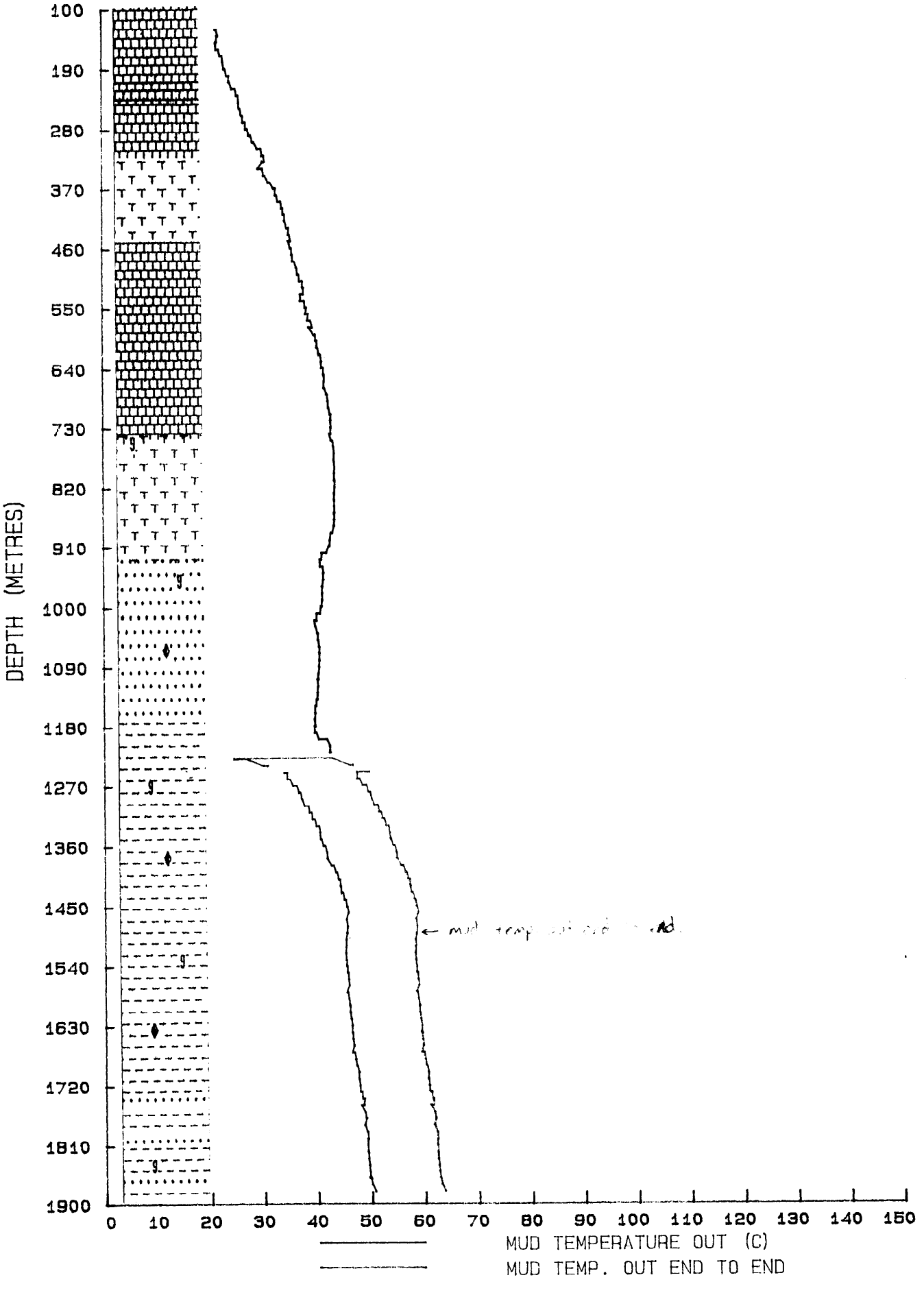
DEPTH SCALE = 1 : 10000

HALLIBURTON

FLOWLINE TEMPERATURE PLOT.

Operator: BHP PETROLEUM

Well No: CHAMPION-1

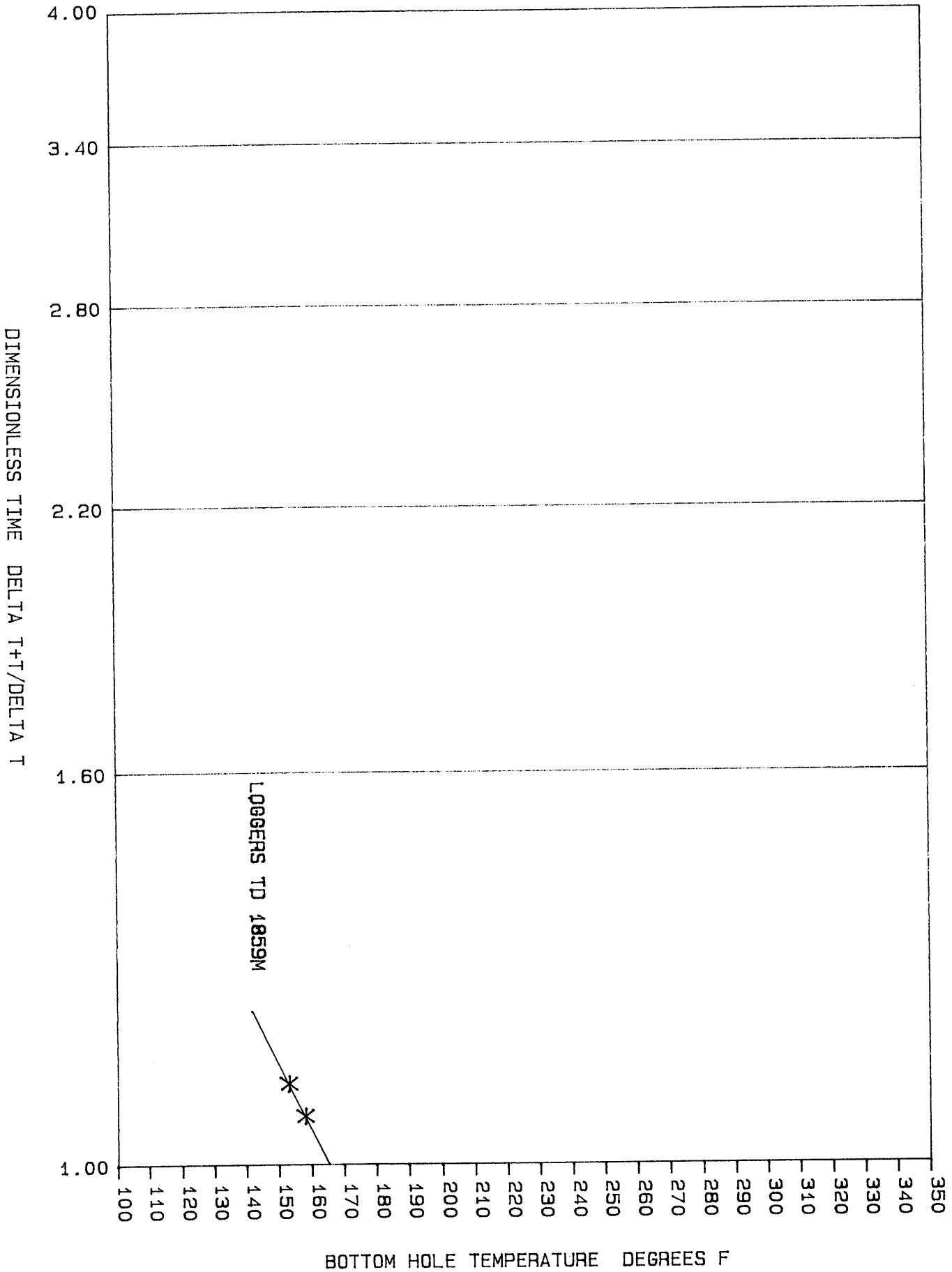


H A L L I B U R T O N

HORNER TEMPERATURE PLOT

Operator : BHP PETROLEUM

Well number : CHAMPION-1



SECTION 4 DRILLING AND ENGINEERING DATA

4.1 DRILLING SUMMARY

For other information outlined below refer to Drilling and Engineering Data or to the BHPP Drilling Supervisor's daily reports. SECTION 5 contains an Abbreviations listing.

The data acquisition service commenced from drilling out the 20" casing shoe at 120m

All depths quoted in this section are Measured Depth below the Rotary Table.

Bottom Hole Assembly data is summarised, and listed in the Drilling Discussion Section.

Bit performance can be seen in the Drilling Data Plot, the Drilling Cost Plot and Drilling Parameter Log.

Data in ASCII format is included with this report on 3.5" HD DS diskette.

Representative hydraulics printouts for each of the Bit runs have been provided in section 4.8. Each hydraulics listing shows the hydraulic performance at the end of that particular Bitrun in relation to the drilling mud, bottom hole assembly, hole configuration and the total flow area of the bit. The printouts list the inputs and mud properties relevant to the drilling hydraulics calculations. The STANDARD POWER LAW MODEL is used for calculating the pressure losses in the system and flow regime.

The following is a drilling summary of bit runs based on hole sections.

26" Hole Section, 77.9-120m (TD)

Bit Run 1 (77.9m to 120m) **RR1 26" STC S3SJ Rockbit**, jets 3x28 and 36" Hole Opener .
Objective of Bit Run was drill to a total depth of 120m, the 20"/30" Casing Point.
BHA 1: 26" Bit, 36" Hole Opener, Float Sub, 2 x 9-1/2" DC, 17-1/2" String Roller Reamer, 1 x 9-1/2" DC, X/O, 3 x 8" DCs, X/O.
Progress 42.1m in 1.0 rotating hours, average penetration rate (ROP) of 42.1 m/hr, 5.3 Krevs.
WEAR: 1-1-N0-A-1-I-NO-TD.
HOLE PROBLEMS: No hole drilling problems encountered.

The well was spudded at 13:30 hours on August 9,1995. Mud line at 77.9m. Spudded well with 5 kips WOB, 500 gpm and 60 rpm - drilled to 120m. Swept hole with 50bbls HiVis Pill every 5m. Circulate twice hole volume to clean and condition - pumped 150bbls pre-hydrated Bentonite spotted on bottom at TD.

The 20"/30" casing combination was run with the shoe set at 119m and cemented as per BHP Petroleum specifications:
Mix and pump 285 bbls (650sx) G grade cement with 40gallons of HRGL and 2.5gallons of D-AIR 2, average slurry density 1.91sg. Displaced with 16 bbls seawater, good returns to seafloor observed with ROV.

BOP and riser run, tested, tensioners installed, and landed.

17-1/2" Hole Section -120m to 1225m (TD)

Bit Run 2 (120-198m) **Bit 2, HUGHES MAX-05** Rockbit, jets 22,22,18
Objective of Bit Run was to drill the 17 ½" section in CHAMPION-1 to the 13-3/8" casing point.
BHA 2: :. 17-1/2" Bit, Float Sub, 2 x 9-1/2" DCs, 17-1/2" String Roller Reamer, 9-1/2" DC, 17-1/2" String Roller Reamer, 2 x 9-1/2" DCs, X/O, 9 x 8" DCs, 8" Dailey Jars, 2 x 8" DCs, Accelerator, 8" DC, X/O, 15 x HWDP.
Reason for POOH: Drilled to 13-3/8" Casing point at 1225m.
Wear: 2-3-WT-A-E-1/16-ER-BT-TD
Hole Problems: None
Progress: Made 1105m in 18.52 Rotating hours, average ROP 59.7 m/hr, 145 Krevs.
Hole Problems: 10-30 kips drag when POH at two tight spots. Wiped each tight spot until slick.

Tagged the top of cement at 109m. Drilled cement with seawater from 109m, 20" shoe and rathole to 120m. Pumped Hi Vis gel Premix Spacer at shoe and displaced to KCl Polymer mud system. Drilled to 198m, cleaned and conditioned hole prior to trip out to pick up further 8" DCs and Jars. RIH. Drilled from 190m to 1225m wiping each stand before connections. POH (problems as described above) and performed FCs at HWDP and DCs - static.

RIH to retrieve Wear Bushing, POH. RIH to jet wellhead, POH. Rig up to run 13-3/8" CSG. Picked up Shoe joint, Inter joint, and Float joint. Rigged down 500 ton elevators. Made up Hanger joint and RIH on landing string. Landed out CSG at 1216.49m.

Pumped 50 bbl Drillwater Spacer, mixed and pumped 130 bbls (650 sx) of 1.90sg cement slurry. Displaced with 534 bbls drillwater with rig pumps as per BHPP instructions.
Attempt Set seal assembly twice. Pressure test to 3750 psi. POH with landing string.

12-1/4" Hole Section 1225m to 1246m

Bit Run 3 (1225-1246m) **Bit 3 HUGHES CHRISTENSEN AG-526**, PDC Bit, Jets 4x16, 1x18, and Mud Motor & MWD
Objective Of Bit Run: Drill to 12-1/4" hole TD.
BHA 4 12-14" Bit, 9-1/2" Mud Motor, X/O, 12-1/4" String Roller Reamer, Non Magnetic Sub, 8-1/4" MWD collar, 8 x 8" DCs, 1 x Dailey Jars, 3 x 8" DCs, Accelerator, X/O, 15 x HWDP.
Reason for POOH: Poor penetration rate. Bit stopped drilling in the coarse grained Sherbrooke (?) which was partly pyritised and showed minor siliceous and dolomitic cement.
Progress: Made 21m in 1.55 Rotating hours, average ROP 13.6 m/hr, 21.7 Krevs.
Wear: 3-4-BT-S-X-2-RO-PR
Hole Problems: None encountered.

RIH and tagged TOC at 1192m, drilled cement, Float, 13-3/8" shoe , and cleaned out rathole to 1233m. Displaced to KCl/polymer mud system, pulled back inside the shoe to perform a LOT. Performed LOT to 1.92sg EMW with 1.14sg mudweight and 1490psi. Drilled ahead to 1246m. Bit stopped drilling at 1246m. Circulated bottoms up and flow checked - POH.

Bit Run 4 (1246m-1882m TD) **Bit 4 HUGHES ATM-GT18**, Rockbit, Jets 3x18, MWD.
Objective Of Bit Run: Drill 12-1/4" section to TD.
BHA 5: 12-1/4" Bit, Near Bit Roller Reamer, Non Magnetic Sub, 8-1/4" MWD collar, 12-1/4" String Roller Reamer, Non Magnetic Sub, 11x 8" DCs, 1 x Dailey Jars, 3 x 8" DCs, X/O, 15 x HWDP.
Reason for POOH: Drilled to 12-1/4" TD.
Progress: 636m in 28.6 Rotating hours, average ROP 22.2 m/hr, 174 Krevs.
Wear: 2-2-WT-A-E-I-ER-TD
Hole Problems: Tight spots on trip out of hole 1600m - 1390m. POH slick.

RIH - washed down to 1246m. Drilled ahead (flow checks on connections) - flow checked drillng break at 1824m - static. Total Depth of 1882m reached at 09:30 on 15/08/95 upon interpretation and correlation with CONAN-1 and no shows. Circulated bottoms up - slugged pipe, wiper trip as above.

Rig up and run wireline logs.

PLUGGED AND ABANDONED CHAMPION-1

4.2 BIT RECORD

WELL No.	CHAMPION-1	HOB=rotating hours on bottom, Depth from Rotary Table, Rop=m/hr	
OPERATOR:	BHP PETROLEUM	Assemblies :	PUMPS 1,2,3 OILWELL A1700 PT:
LOCATION:	OTWAY BASIN	HO=HOLE OPENER M=MUD MOTOR, T- TURBINE, W= MWD,	L1=6.5" LINER = 5.01g/stk (97%eff) 26" & 17.5" Hole Sections
RIG:	OCEAN BOUNTY	P= PENDULUM, S=STEERABLE, C=CORING, Pk= PACKED	L2=6.0" LINER = 4.65g/stk (97%eff) 12.25" Hole section
		BITS= TRICONE, *PDC*, PUMP LINERS= L1, L2	
The BHA numbering follows that used by the Drilling Contractor. The Bit numbering follows that used by the Client's Bit Record. ROP is averaged bit run length divided by rotating hours on bottom as recorded by the drill monitor.		Formation types: Sandstone= sst, Siltstone= sltst, claystone=clyst, limestone=lst, marl=marl, minor= mnr, inerterbed-intbds	Bit manufacturers: STC=Security, HTC= Hughes Tool Company, HC= Hughes Christenson

Bit Performance

BHA	RUN	BIT	MAKE	TYPE	SIZE	JETS/ TFA	SERIAL	DEPTH IN	MTG	HOB	ROP	TOTAL HRS	WOB	RPM	KREVS	GPM	SPP	BIT CONDITION I-O-D-L-B-G-RO-R	ASSEMBLIES / LINERS
1	1	RR1	STC	S3SJ	26	2x28, 1x32	622044	77.9	42.1	1	42	1	5	90	5.3	1150+	1200	1-1-NO-A-1-1-NO-TD	36" HO, L1
2	2	2	HTC	MAX-05	17.5	22,22,18	X740552	120	1105	85.52	71	16.52	30	135	145	1224	2572	2-3-WT-A-E-1/16-BT-TD	P, L1
3	***3***	***3***	***HC***	***AG-526***	***12.25***	***4x16,18***	***X740552***	***1225***	***31***	***1.55***	***20***	***18.1***	***9***	***208***	***21.7***	***867***	***2567***	***3-4-BT-S-X-2-RO-PR***	***M, W, L2***
4	4	4	HTC	ATM-GT-18	12.25	3x18	C38CC	1246	636	28.6	22	46.7	36	104	175	880	3300	2-2-WT-A-E-I-ER-TD	W , L2

Performance Per Formation Type

BIT	TYPE	SIZE	Formation Type	Interval (m)	Length (m)	HOB	av m/hr	*Range*	WOB	*Range*	RPM	*Range*
RR1	S3SJ	26	LST	78-120	42	1.00	42.0	*15-276*	5	*0-11*	90	*60-102*
2	MAX-05	17.5	LST	120-270	150	1.13	134.7	*47-277*	12	*3-21*	118	*62-145*
			MARL	270-410	340	1.62	87.5	*16-180*	18	*7-28*	136	*128-142*
			LST, MARL	410-780	370	6.53	56.6	*17-225*	41	*18-53*	142	*90-158*
			SST, mnr SLTST	780-1170	390	5.68	68.6	*4-240*	30	*11-48*	137	*113-140*
			CLYST, mnr SST intbds	1170-1225	55	3.56	15.5	*2-171*	36	*13-47*	131	*114-141*
3	***AG-526***	***12.25***	***CLYST, mnr SST intbds***	***1225-1246***	***31***	***1.55***	***13.5***	***2-225***	***9***	***4-28***	***208***	***114-250***
4	ATM-GT-18	12.25	CLYST, mnr SST intbds	1246-1325	79	3.58	22.6	*5-80*	28	*11-40*	86	*55-104*
			CLYST, mnr SST intbds	1325-1530	205	8.85	23.2	*8-84*	35	*23-42*	102	*68-117*
			SST, mnr CLYST	1530-1685	155	8.03	19.3	*9-95*	40	*22-48*	111	*103-118*
			CLYST, mnr COAL	1685-1795	110	4.77	24.0	*8-23*	40	*19-50*	105	*83-110*
			CLYST, mnr SST intbds	1795-1882	87	3.28	30.0	*9-61*	33	*14-45*	114	*98-122*

4.3 BOTTOM HOLE ASSEMBLIES

BHA No. 1, AUGUST 9, 95

Bit No. RR1 26" STC S3SJ, s/n 622044, Jets 3x28 (Drill from spud at 95m to 142m)

Description	Length	Total Length	I.D.	O.D.
Bit - 26"	0.54	0.54		26.00
Hole Opener - 36"	1.88	2.42	2-7/8	9-3/8
Float Sub	0.9	3.32	3.00	9-3/8
9.5" DC	9.15	12.47	2-7/8	9-1/2
9.5" DC	9.32	21.79	3-1/16	9-1/2
Rlr Reamer 17-1/2"	2.51	24.30	3-1/16	9-1/5
9.5" DC	9.33	33.63	3.00	9-1/2
X/O	0.63	34.26	2-15/16	7-15/16
8" DC	9.46	43.72	2-13/6	8-1/16
8" DC	8.99	52.71	3-1/8	7-7/8
8" DC	8.92	61.63	3.00	7-7/8
X/O	0.74	62.37	2-7/8	8.00
	total	62.37		

Total BHA Weight - 40Klbs Weight Below Jars - No Jars.

BHA No. 2, 10 AUGUST 1995

Bit No. 2 HC MAX-05, s/n X740552, 17.5", Jets 22,22,18 (Drill from 120m to 1225m)

Description	Length	Total Length	O.D.	I.D.
Bit - 17-1/2"	0.42	0.42	17-1/2	
Float Sub	0.90	1.32	9-3/8	3.00
9.5" DC	9.15	10.47	9-1/2	3.00
9.5" DC	9.32	19.79	9-3/8	2-7/8
Rlr' Reamer 17-1/2"	2.51	22.3	9-1/2	3-1/16
9.5" DC	9.33	31.63	9-1/2	3.00
Rlr Reamer 17-1/2"	2.64	34.27	9-1./2	3-3/16
9.5" DC	9.32	43.59	9-3/8	3.00
9.5" DC	9.13	52.72	9-3/8	3.00
X/O	0.63	53.35	9-1/2	3.00
8" DC	9.13	62.48	7-7/8	3-1/8
8" DC	9.46	71.37	8-1/16	2-13/16
8" DC	8.99	80.93	7-7/8	3-1/8
8" DC	8.92	89.85	7-7/8	3.00
8" DC	8.82	98.67	7-13/16	3-3/16
8" DC	8.86	107.53	7-7/8	3-3/16
8" DC	9.38	116.91	8-1/8	2-3/4
8" DC	8.96	125.87	7-7/8	3.00
8" DC	8.76	134.63	7-7/8	3.00
8" JARS	9.72	144.35	8.00	3.00
8" DC	9.06	153.41	7-7/8	2-3/4
8" DC	8.98	162.39	7-7/8	2-18/16
8" DC	6.21	168.4	8-1/8	3.00
X/O	0.74	169.34	8.00	2-7/8
15 x HWDP	137.53	306.87	5.00	3.00
	total	306.87		

Total BHA Weight - 80Klbs Weight Below Jars - 60Klbs

BHA No. 3, 13 AUGUST 1995

BIT No.3 HC AG 526, s/n 0120102, 12.25", Jets 4 x 16, 1 x 18, (1225m to 1246m)

Description	Length	Total Length	O.D.	I.D.
Bit - 12-1/4"	0.42	0.42	12-1/4	
9.5" Motor	10.79	11.21	9-1/2	-
Rlr Reamer 12-1/4"	2.27	13.48	8.00	3.00
Non Magnetic Sub	0.39	13.87	8.00	2-3/4
8-1/4" MWD	12.23	26.10	8-1/4	
8" DC	9.46	35.56	8-1/16	2-13/16
8" DC	8.99	44.55	7-7/8	3-1/8
8" DC	8.92	53.47	7-7/8	3.00
8" DC	8.82	62.29	7-13/16	3-3/16
8" DC	8.86	71.15	7-7/8	3-3/16
8" DC	9.38	80.53	8-1/8	2-3/4
8" DC	8.96	89.49	7-13/16	3.00
8" DC	7.76	98.25	7-7/8	3.00
8" JARS	9.72	107.97	8.00	3.00
8" DC	9.13	117.10	7-7/8	3-1/8
8" DC	9.06	126.16	7-7/8	2-3/4
8" DC	8.98	135.14	7-7/8	2-18/16
Accelerator	6.21	141.35	8.00	3.00
X/O	0.74	142.09	8.00	2-7/8
1 x HWDP	9.42	151.51	5.00	3.00
1 x DIDS	0.69	152.20	6-3/8	-
15 x HWDP	137.53	280.31	5.00	3.00
	total	280.31		

Total BHA Weight - 80Klbs Weight Below Jars - 60Klbs

BHA No. 4, 13 AUGUST 1995

BIT No.4 HTC ATM-GT18, s/n C38CV, 12.25", Jets 5 x 16, (1757m to 1985m - TD)

Description	Length	Total Length	O.D.	I.D.
Bit - 12-1/4"	0.30	0.30	12-1/4	-
Float Sub	1.08	1.38	7-9/16	-
8" DC	8.85	10.23	7-7/8	3-3/16
Non Magnetic Sub	0.39	10.62	8.00	2-3/4
8-1/4" MWD	12.23	22.85	8-1/4	-
Rlr Reamer 12-1/4"	2.27	25.12	12-1/4	3.00
8" DC	9.46	34.85	7-15/16	3-1/16
8" DC	8.99	43.57	7-13/16	2-7/8
8" DC	8.91	52.48	7-7/8	3-1/8
8" DC	8.82	61.30	8-1/16	3-3/16
8" DC	8.86	70.16	7-7/8	3-1/8
8" DC	9.38	79.54	7-7/8	3.00
8" DC	8.96	88.50	7-13/16	3-3/16
8" DC	8.76	97.26	7-7/8	3-3/16
8" JARS	9.72	106.98	8.00	3.00
8" DC	9.13	116.11	7-7/8	3-1/8
8" DC	9.06	125.17	7-7/8	2-3/4
8" DC	8.98	134.15	7-7/8	2-18/16
Accelerator	6.21	140.36	8.00	3.00
X/O	0.74	141.10	8.00	2-7/8
1 x HWDP	9.42	150.52	5.00	3.00
1 x DIDS	0.69	151.21	6-3/8	-
15 x HWDP	137.53	279.32	5.00	3.00
	total	297.32		

Total BHA Weight - 70Klbs Weight Below Jars - 40Klbs

4.4 MUD RECORD

Mud Company- BHI
Mud Type- Seawater mud to 142m with HiVis sweeps; PHPA / 5-8% KCl Polymer mud to 1882m (TD).

Page 1 of 1

Date		9/8/95	10/8/95	11/8/95	11/8/95	12/8/95	13/8/95	14/8/95	14/8/95	15/8/95	15/8/95
Depth	m	120	260	650	1120	1225	1256	1356	1575	1802	1882
Weight	SG	1.05	1.08	1.1	1.1	1.14	1.15	1.18	1.2	1.2	1.2
Funnel Visc.	sec/qt	66	58	58	54	65	52	58	47	54	52
Plastic Visc.	cP	11	14	14	14	17	14	13	15	15	16
Yield Point	lb/100 ft^2	22	21	23	22	19	22	24	22	23	22
Gels 10s/10m	lb/100 ft^2	4/11	4/12	4/6	4/4	4/14	4/11	4/10	4/9	4/12	4/10
API Filtrate	ml/30min	7.2	6.4	5.6	5.0	4.8	5.0	4.8	4.8	4.2	4.2
API/HPHT Filter Cake	32nd ins	1	1	1	1	1	1	1	1	1	1
Solids	%Vol	4.0	5.5	6.0	6.0	9.0	8.5	9.0	10.0	10.0	9.5
Water Content	%Vol	96.0	94.5	94.0	94.0	91.0	91.5	91.0	90.0	90.0	90.5
Sand	%Vol		0.5	1.0	2.0	2.0	1.0	0.75	0.5	0.25	0.25
Methylene Blue cap.	ppb	2.50	2.50	2.50	2.50	-		2.50	2.50	2.50	1.50
pH	metre	10.3	9.7	9.5	9.2	9.3	9.5	9.3	9.0	9.6	9.3
Alk. Mud pm	ml	1.00	0.90	0.80	0.60	0.30	1.0	0.80	0.70	0.9	0.80
Alk. Filtrate , Pf/Mf	ml	0.65/0.13	0.3/0.6	0.8/1.0	0.3/0.6	0.4/0.8	0.5/1.2	0.25/0.65	0.2/0.8	0.5/0.95	0.3/0.8
Chlorides	mg/Lx10^3	35000	32000	32000	33000	36000	48000	54000	55000	50000	55000
Total Hardness	mg/L	180	400	400	400	400	480	400	800	480	560
Calcium	mg/L	80	400	360	360	320	400	320	800	400	480
PHPA Excess	ppb			0.80	0.75	1.00	1.00	1.00	1.00	1.00	1.00
KCl	%Wt Soln.	3.50	4.50	4.50	4.00	6.00	6.50	8.00	7.50	8.00	7.90
Potassium Ion Conc.	X1000	18.33	23.56	23.56	20.94	31.42	34.63	41.89	39.27	41.89	41.36
Brine Phase Correction Factor		1.03	1.03	1.03	1.03	1.03	1.04	1.05	1.05	1.04	1.05
Brine Phase	SG	1.04	1.04	1.04	1.04	1.04	1.06	1.07	1.07	1.06	1.07
Liquid Content (% Vol + %Salt		98.8	96.99	96.48	96.57	93.74	95.28	95.28	94.32	93.89	94.85
Average SG Solids		1.58	2.37	2.75	2.76	2.56	2.98	3.46	3.39	3.32	3.63
Sulfite	mg/l		40	40	80	60	60	60	80	60	80

4.5 TRIP REPORTS

Date:1-08-95	Trip Analysis Report	Rig:OCEAN BOUNTY	Report/Trip No. 1
Depth:1225m	Well:CHAMPION-1	Hole Size: 17 1/2"	Last Casing:120m
Reason for trip:	TD 17.5" section - P.O.O.H. Run 13.375" Casing.		
Hookload: Overpull:	305 Up to 30 klbs on STDS 29 and 28 otherwise nil.		
Trip speed	TD at 19:45 hrs- CBU and flush riser to 21:25 hrs- start P.O.OH.		
Swab/Surge:	NIL		
Torque:	NIL		
Reaming:	NIL		
Mud Volumes:	62 bbls volume of string. Displacment over trip +3 bbls to hole.		
Gas:	Trace gas (< 0.01% before trip).		
Hole Condition:	Good		
Other	Mud seepage losses to formation.Probably Wangeripp Sandstone.		

Date:13-8-95	Trip Analysis Report	Rig:OCEAN BOUNTY	Report/Trip No. 2
Depth:1246m	Well:CHAMPION-1	Hole Size: 12 .25"	Last Casing:1215.6m
Reason for trip:	Low ROP		
Hookload: Overpull:	285 kllbs		
Trip speed	Start at 16:00rs, Bit at surface @ 18:30hrs		
Swab/Surge:	None recognised		
Torque:	N/A		
Reaming:	No backreaming		
Mud Volumes:	Total hole fill volume from active mud system and trip tank: 60.0 bbls Theoretical volume: 59.5 bbls.		
Gas:	Trace gas, less than 0.01% before trip.		
Hole Condition:	Good .		
Other	Good Hole fill		

Date:15-8-95	Trip Analysis Report	Rig:OCEAN BOUNTY	Report/Trip No. 3
Depth:1882m	Well:CHAMPION-1	Hole Size: 12 .25"	Last Casing:1215.6m
Reason for trip:	Pull out for electric logs, possibly Total Depth		
Hookload: Overpull:	315 kllbs 20-30klbs drag between 1583 to 1320m		
Trip speed	Start at 10:50hrs, Bit at surface @ 1500hrs		
Swab/Surge:	None recognised		
Torque:	N/A		
Reaming:	No backreaming		
Mud Volumes:	Total hole fill volume from active mud system and trip tank:79.5 Theoretical volume: 74.9 bbls.		
Gas:	Not applicable		
Hole Condition:	Good.		
Other	Circulated bottoms up prior to trip Flow check made at shoe - static Good Hole fill		

4.6 SUMMARY HYDRAULICS LISTINGS

HALLIBURTON

DRILLING HYDRAULICS PROGRAM

BR2 BIT HTS MAX-05 DRILLED DEPTH 1225. mt TRUE DEPTH 1225. mt

MUD PROPERTIES

Mud weight	1.11 SG	Actual standpipe pressure	2750 psi
PV/YP	14./ 22.	Pump rate	225 spm
Theta 300/600	36./ 50.	Flow rate	1128.3 gpm
N	0.47	Hydrostatic head	1932.4 psi
K	1.88	Pore pressure	1796.6 psi
R Laminar	2821.09	Estimated overbalance	135.8 psi
R Turbulent	3621.09	M.A.A.S.P	148.8 psi
E.C.D.	1.12 SG	Equivalent B.H.P	2081.17 psi
E.C.D. SHOE	1.11 SG		

BIT HYDRAULICS

Total flow area (Nozzles)	0.991 sq.ins	Total annular pressure loss	10.3 psi
Nozzle velocity	117.2 m /sec	Drill string pressure loss	1947.0 psi
Hydraulic Impact	2079.4 lbs.wt.	Surface equipment press. loss	125.8 psi
Bit hydraulic power	727.0 HP	Bit pressure loss	1104.3 psi
Total hydraulic horsepower	2098.2 HP	Total system pressure loss	3187.3 psi
Theor .% HHP at bit	34.6		
Actual % HHP at bit	40.2		

PRESSURE LOSSES

LAG TIME

Annular volume	1097. bbls	Max. annular velocity	39.0 m /min
Lag time of mud in mins.	40.8 mins	Min. annular velocity	23.2 m /min
Lag time of mud in strokes	9190. strks	Ave. annular velocity	30.0 m /min
Lag time of cuttings	49.4 mins	Ave. cuttings slip velocity	5.2 m /min

VELOCITIES

SECTIONAL VELOCITIES

Section	Size ins.	Ann.Vel m /min	Crit. Vel m /min	Pres. loss psi	Modified Reynolds No.	Cuttings slip Vel. m /min	Flow type
BIT & 9 1/2" COLLARS	9.50	39.0	121.6	0.9	638.5	5.8	Laminar
OPEN HOLE	17.50						
8" COLLARS	8.00	34.8	115.3	1.4	581.5	5.5	Laminar
OPEN HOLE	17.50						
HWDP	5.00	30.0	105.9	1.1	527.3	5.1	Laminar
OPEN HOLE	17.50						
DRILL PIPE	5.13	30.1	106.3	6.2	528.4	5.1	Laminar
OPEN HOLE	17.50						
DRILL PIPE	5.13	24.8	102.3	0.2	417.7	4.9	Laminar
CASING	19.12						
DRILL PIPE	5.13	23.2	100.9	0.4	383.5	4.8	Laminar
MARINE RISER	19.75						

Critical Velocities Turbulent Reynolds No.

HALLIBURTON

DRILLING HYDRAULICS PROGRAM

BR3 BIT3 HC AG526 | DRILLED DEPTH 1246. mt | TRUE DEPTH 1246. mt

MUD PROPERTIES

Mud weight	1.14 SG	Actual standpipe pressure	2890 psi
PV/YP	14./ 22.	Pump rate	222 spm
Theta 300/600	36./ 50.	Flow rate	948.3 gpm
N	0.47	Hydrostatic head	2018.6 psi
K	1.88	Pore pressure	1827.4 psi
R Laminar	2821.09	Estimated overbalance	191.2 psi
R Turbulent	3621.09	M.A.A.S.P	1348.1 psi
E.C.D.	1.17 SG	Equivalent B.H.P	3366.66 psi
E.C.D. SHOE	1.16 SG		

BIT HYDRAULICS

Total flow area (Nozzles)	1.034 sq.ins
Nozzle velocity	94.4 m /sec
Hydraulic Impact	1445.0 lbs.wt.
Bit hydraulic power	406.7 HP
Total hydraulic horsepower	1764.6 HP
Theor .% HHP at bit	23.0
Actual % HHP at bit	25.4

PRESSURE LOSSES

Total annular pressure loss	55.3 psi
Drill string pressure loss	2305.7 psi
Surface equipment press. loss	93.5 psi
Bit pressure loss	735.1 psi
Total system pressure loss	3189.6 psi

LAG TIME

Annular volume	913. bbls
Lag time of mud in mins.	40.5 mins
Lag time of mud in strokes	8982. strks
Lag time of cuttings	44.8 mins

VELOCITIES

Max. annular velocity	118.4 m /min
Min. annular velocity	19.5 m /min
Ave. annular velocity	53.9 m /min
Ave. cuttings slip velocity	4.9 m /min

SECTIONAL VELOCITIES

Section	Size ins.	Ann.Vel m /min	Crit. Vel m /min	Pres. loss psi	Modified Reynolds No.	Cuttings slip Vel. m /min	Flow type
12.25"BIT / MOTOR / X/O OPEN HOLE	9.50 12.25	118.4	166.5	1.5	2153.0	6.6	Laminar
R/R / 8"DC / JARS / X/O OPEN HOLE	8.00 12.25	82.3	145.5	1.1	1518.4	5.8	Laminar
R/R / 8"DC / JARS / X/O CASING	8.00 12.41	78.7	143.8	6.3	1443.0	5.7	Laminar
HWDP OPEN HOLE	5.25 12.25	57.8	124.6	3.4	1122.1	5.0	Laminar
HWDP CASING	5.25 12.41	56.0	123.7	3.2	1080.6	4.9	Laminar
DRILL PIPE OPEN HOLE	5.13 12.25	57.2	123.9	19.1	1113.8	4.9	Laminar
DRILL PIPE CASING	5.13 12.41	55.5	123.1	20.3	1072.9	4.9	Laminar
DRILL PIPE MARINE RISER	5.13 19.75	19.5	99.1	0.4	302.0	3.6	Laminar

Critical Velocities Turbulent Reynolds No.

HALLIBURTON

DRILLING HYDRAULICS PROGRAM

BR4 BIT4 HTC ATM-GT-18 DRILLED DEPTH 1882. mt TRUE DEPTH 1882. mt

MUD PROPERTIES

Mud weight	1.20 SG	Actual standpipe pressure	3560 psi
PV/YP	16./ 22.	Pump rate	204 spm
Theta 300/600	38./ 54.	Flow rate	871.4 gpm
N	0.51	Hydrostatic head	3209.4 psi
K	1.61	Pore pressure	3022.2 psi
R Laminar	2775.87	Estimated overbalance	187.2 psi
R Turbulent	3575.87	M.A.A.S.P	1244.2 psi
E.C.D.	1.22 SG	Equivalent B.H.P	4453.65 psi
E.C.D. SHOE	1.22 SG		

BIT HYDRAULICS

Total flow area (Nozzles)	0.746 sq.ins	Total annular pressure loss	47.1 psi
Nozzle velocity	120.4 m /sec	Drill string pressure loss	1757.5 psi
Hydraulic Impact	1782.1 lbs.wt.	Surface equipment press. loss	84.1 psi
Bit hydraulic power	639.5 HP	Bit pressure loss	1257.9 psi
Total hydraulic horsepower	1599.7 HP	Total system pressure loss	3146.6 psi
Theor .% HHP at bit	40.0		
Actual % HHP at bit	35.3		

LAG TIME

Annular volume	844. bbls	Max. annular velocity	75.6 m /min
Lag time of mud in mins.	40.7 mins	Min. annular velocity	17.9 m /min
Lag time of mud in strokes	8298. strks	Ave. annular velocity	49.0 m /min
Lag time of cuttings	47.0 mins	Ave. cuttings slip velocity	6.1 m /min

SECTIONAL VELOCITIES

Section	Size ins.	Ann.Vel m /min	Crit. Vel m /min	Pres. loss psi	Modified Reynolds No.	Cuttings slip Vel. m /min	Flow type
12.25"BIT / 8" DC / JARS	8.00	75.6	141.8	8.2	1398.5	7.1	Laminar
OPEN HOLE	12.25						
HWDP	5.25	53.1	119.7	3.2	1062.9	6.2	Laminar
OPEN HOLE	12.25						
HWDP	5.25	51.5	118.8	2.5	1025.4	6.1	Laminar
CASING	12.41						
DRILL PIPE	5.13	52.6	119.1	8.6	1056.0	6.2	Laminar
OPEN HOLE	12.25						
DRILL PIPE	5.13	51.0	118.2	24.2	1019.1	6.1	Laminar
CASING	12.41						
DRILL PIPE	5.13	17.9	93.3	0.3	303.9	4.6	Laminar
MARINE RISER	19.75						
DRILL PIPE	5.13	55.5	123.1	20.3	1072.9	4.9	Laminar
CASING	12.41						
DRILL PIPE	5.13	19.5	99.1	0.4	302.0	3.6	Laminar
MARINE RISER	19.75						

Critical Velocities Turbulent Reynolds No.

SECTION 5 INCLUSIONS AND APPENDICES

5.1 LOG ENCLOSURES AND FORMATS

5.2 DATA DISK CONTENTS

5.3 BIT RUN DRILLING DATA LISTING

5.4 ABBREVIATIONS

5.5 SERVICES

5.6 PRESSURE ANALYSIS SERVICE

5.7 SAMPLE MANIFEST

5.1 LOG ENCLOSURES FOR CHAMPION-1

FORMATION EVALUATION LOG
PRESSURE EVALUATION LOG
DRILLING PARAMETER LOG

LOG FORMATS All depths measured below rotary table. Relevant information where appropriate

FORMATION EVALUATION LOG

Scale 1:500 from 50m to TD
Track (1) ROP m/hr, range 3-300 right to left, WOB Klbs, 3-300 right to left[logarithmic].
Track (2) Depth and Casing Shoes
Track (3) Lithology in Percent
Track (4) Interpreted Lithology
Track (5) Total Gas, Chromatographic break down, 0.001-10% left to right [logarithmic]
Track (6) Calcite in Percent 0-100% left to right, Dolomite in Percent 0-100% right to left.
Track (7) Lithology Descriptions , Mud Data and Survey Data

PRESSURE EVALUATION LOG

Scale 1:2500 from 50m to TD.
Track (1) Dxc Exponent, Bit Data, Drilling Parameters(WOB, RPM, GPM, PP)
Track (2) Measured Depth, Casing shoes.
Track (3) Interpreted lithology.
Track (4) Comments
Track (5) Flowline Temperature, Delta (-20°C to 20°C).
Track (6) Total Gas, Connection gas Peaks and Trip Gas Peaks. 0.001-10%
Track (7) Pore Pressure gradient, Equivalent Circulating Density (ECD), Overburden and Daines' Fracture gradient
Track (8) Pertinent Lithological descriptions, and mud data

DRILLING PARAMETER LOG

Scale 1:500 from 50m to TD
Track (1) Weight On Bit 0-100 kilopounds left to right
Bit Revolutions Per Minute 0-300 left to right
Torque 0-400 Amps left to right
Track (2) Rate Of Penetration 0-100 m/hr from right to left
Track (4) Depth and Casing Shoes
Track (5) Lithology %
Track (6) Mud flow in 0-1500 gpm
Stand pipe pressure 0-3500 psi
Track (7) Total gas, Trip gas, Connection gas: 0.001-10%
Track (8) Mud weight in/out, Equivalent circulating density 1.0-2.0 SG
Track (9) Text. Bit data, Mud data etc

5.2 ASCII DATA DISC CONTENTS

Enclosed with this well report is an MS-DOS format data disc containing ASCII format data collected by Halliburton Australia during the drilling of CHAMPION-1. The following is a brief guide to help locate the required data.

On the disc are eight files containing the following parameters all referenced to measured depth below drill floor.

CALCIM.ASC
MD m RT
Calct - Calcite (%)
Dolom - Dolomite (%)

DRLDAT.ASC
MD - m RT
ROP - Rate of Penetration (m/hr)
WOB - Weight on Bit (Klb)
RPM - Revs per minute
TRQ - Torque (Amps)
SPM - Strokes per minute
SPP - Standpipe pressure (psi)
MFI - Mud flow in (g/min)
Ave ROP - (m/hr)
Rothrs - Rotating hours
Krevs - Total bit Revs (,000)

DXCFPG.ASC
MD - m RT
Dxc - Drilling Exponent Corrected
FPG - Formation Pressure Gradient (sg)
FGE - Eaton Fracture Gradient (sg)
OBG - Overburden Gradient (sg)

GASDAT.ASC
MD - m RT
LTG - Lagged Total gas (%)
LC1 - LC5 (%)
Gaswh - Gas wetness
Gasb - Gas Balance
Gasch - Gas Character
TrGas - Trip Gas (%)

MUDATA.ASC	MD - m RT MTI - Mud Temperature In (°C) MTO - Mud Temperature Out (°C) MWI - Mud Weight In (sg) MWO -Mud Weight Out (sg) ECD - Effective Circulating Density (sg)
LITH.SEQ	MD-m RT % Cuttings Lithology
ILIP.SEQ	MD m RT Interpreted Lithology
LCODE.SEQ	MD m RT Lithology Codes.

5.3 BIT RUN DRILLING DATA LISTING

H A L L I B U R T O N

ENGINEERING DATA FOR BIT RUN 1

DATE 08-AUG-95

WELL NUMBER	CHAMPION-1	OPERATING COMPANY	BHP PETROLEUM
DEPTH TO SHOE	77.410	CASING SIZE	0.000
BIT SIZE	26.000	BIT NUMBER & TYPE	RR1 STC S3SJ
RIG COST/HR	7180.000	INITIAL COST	0.000
TRIP TIME	0.000	PUMP CAP BBLS.STK	0.119
BIT COST	0.000	JET SIZES	28 28 32 0
START DRILLING	77.000		

MUD DATA LISTING

WEIGHT SG	VISCOSITY SEC/Q	PL VISC C.P.	YIELD PT LB/100FT2	GEL 0/10	pH	FILTRATE ML/30MIN	CAKE 32ND	SOLIDS %	SAND %
1.06	0	0	0	0/ 0	0.0	0.00	0.00	0.00	0.00

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
79.0	13:28	156.5	146.9	4	185	58	63	0.0	0.01	118	121	594	1.03	1.05	14.7	17.3	0.30
80.0	13:28	128.6	100.3	6	183	58	60	0.1	0.02	101	124	509	1.03	1.05	14.7	17.4	0.36
81.0	13:32	14.8	34.3	3	186	60	40	0.3	0.09	120	125	604	1.03	1.05	14.7	17.4	0.65
82.0	13:36	17.1	27.4	3	186	60	43	0.5	0.15	103	132	520	1.03	1.05	14.7	17.3	0.63
83.0	13:38	22.4	26.2	3	186	68	50	0.7	0.19	82	221	412	1.03	1.05	14.7	17.3	0.60
84.0	13:42	17.1	24.1	2	187	68	51	0.9	0.25	80	233	401	1.03	1.05	14.7	17.2	0.62
85.0	13:53	15.1	22.2	4	186	64	42	1.2	0.32	100	219	504	1.03	1.05	14.7	17.2	0.68
86.0	13:53	276.9	25.1	0	192	67	26	1.2	0.32	126	316	633	1.03	1.05	14.7	17.2	0.17
87.0	13:54	200.0	27.8	0	192	66	50	1.2	0.32	123	342	617	1.03	1.05	14.7	17.2	0.20
88.0	13:54	20.0	30.8	1	190	64	49	1.2	0.32	122	362	614	1.03	1.05	14.7	17.1	0.53
89.0	13:59	95.0	26.7	2	189	63	48	1.5	0.41	104	349	523	1.03	1.05	14.7	17.2	0.37
90.0	13:59	55.0	28.7	3	188	81	131	1.5	0.42	121	509	611	1.03	1.05	14.7	17.1	0.51
91.0	14:00	66.7	30.0	4	187	100	112	1.6	0.43	147	732	739	1.03	1.05	14.7	17.1	0.53
92.0	14:01	72.0	31.3	4	187	100	109	1.7	0.45	195	984	980	1.03	1.05	14.8	17.1	0.51
93.0	14:02	81.8	32.6	5	186	100	126	1.7	0.46	289	1205	1450	1.03	1.05	14.8	17.1	0.50
94.0	14:02	90.0	34.0	5	186	100	119	1.8	0.47	297	1274	1492	1.03	1.05	14.8	17.2	0.49
95.0	14:03	81.8	35.2	4	187	101	101	1.9	0.48	299	1269	1502	1.03	1.05	14.8	17.2	0.50
96.0	14:04	53.7	35.9	3	188	102	92	2.0	0.50	301	1264	1510	1.03	1.05	14.8	17.2	0.55
97.0	14:05	73.5	36.9	5	186	100	109	2.1	0.52	301	1264	1511	1.03	1.05	14.8	17.2	0.52
98.0	14:06	102.9	38.1	5	186	101	107	2.1	0.52	315	1114	1583	1.03	1.05	14.8	17.2	0.47
99.0	14:07	49.3	38.5	6	185	101	99	2.3	0.55	323	1044	1620	1.03	1.05	14.8	17.2	0.61
100.0	14:08	58.1	39.1	6	185	101	96	2.4	0.56	325	1033	1630	1.03	1.05	14.8	17.2	0.58
101.0	14:09	73.5	39.9	4	187	100	105	2.5	0.58	308	1200	1548	1.03	1.05	14.8	17.3	0.52
102.0	14:09	112.5	41.0	5	186	102	86	2.6	0.58	306	1224	1538	1.03	1.05	14.8	17.3	0.46
103.0	14:10	61.0	41.6	3	188	102	83	2.7	0.60	306	1237	1534	1.03	1.05	14.8	17.3	0.52
104.0	14:11	83.7	42.4	4	187	101	110	2.7	0.61	306	1232	1534	1.03	1.05	14.8	17.3	0.49
105.0	14:11	133.3	43.5	4	187	100	121	2.8	0.62	326	1010	1636	1.03	1.05	14.8	17.3	0.42
106.0	14:12	64.3	44.0	7	184	100	119	2.9	0.64	317	852	1591	1.03	1.05	14.8	17.3	0.58
107.0	14:13	59.0	44.4	6	185	101	100	3.0	0.65	301	888	1510	1.03	1.05	14.8	17.3	0.58
108.0	14:14	72.0	45.0	4	187	101	107	3.0	0.67	302	1169	1517	1.03	1.05	14.8	17.3	0.51
109.0	14:15	87.8	45.7	4	187	101	101	3.1	0.68	302	1202	1515	1.03	1.05	14.8	17.3	0.48
110.0	14:16	66.7	46.1	4	187	101	104	3.2	0.69	302	1208	1515	1.03	1.05	14.8	17.3	0.53
111.0	14:17	57.1	46.4	5	186	102	86	3.3	0.71	304	1094	1528	1.03	1.05	14.8	17.3	0.58
112.0	14:18	62.1	46.8	4	187	102	86	3.4	0.73	287	953	1442	1.03	1.05	14.8	17.3	0.55
113.0	14:19	66.7	47.2	4	187	101	96	3.5	0.74	299	1117	1501	1.03	1.05	14.8	17.4	0.53
114.0	14:32	62.3	46.1	7	184	100	46	3.7	0.78	290	1146	1456	1.03	1.05	14.8	17.4	0.59
115.0	14:32	68.0	47.3	6	181	100	25	3.7	0.78	200	346	812	1.03	1.05	14.8	17.4	0.56
116.0	14:32	72.0	46.2	9	191	101	10	3.9	0.82	202	337	816	1.03	1.05	14.8	17.4	0.58
117.0	14:32	60.1	45.2	10	190	102	18	4.1	0.86	203	618	941	1.03	1.05	14.8	17.4	0.64
118.0	14:32	72.3	44.3	6	190	100	38	4.3	0.90	200	852	1298	1.03	1.05	14.8	17.4	0.54
119.0	14:33	73.1	43.5	10	193	102	39	4.5	0.94	203	1131	1476	1.03	1.05	14.8	17.4	0.60
120.0	14:33	72.6	42.7	11	193	102	39	4.7	0.98	203	1152	1484	1.03	1.05	14.8	21.6	0.61

H A L L I B U R T O N

ENGINEERING DATA FOR BIT RUN 2

DATE 10-AUG-95

WELL NUMBER	CHAMPION-1	OPERATING COMPANY	BHP PETROLEUM
DEPTH TO SHOE	119.000	CASING SIZE	20.000
BIT SIZE	17.500	BIT NUMBER & TYPE	BR2 HC MAX-05
RIG COST/HR	7180.000	INITIAL COST	1763200.000
TRIP TIME	240.000	PUMP CAP BBLS.STK	0.119
BIT COST	40000.000	TOTAL FLOW AREA	0.990
START DRILLING	120.000		

MUD DATA LISTING

WEIGHT SG	VISCOSITY SEC/Q	PL VISC C.P.	YIELD PT LB/100FT2	GEL 0/10	pH	FILTRATE ML/30MIN	CAKE 32ND	SOLIDS %	SAND %
1.05	66	11	22	4/ 11	10.3	7.20	1.00	4.00	0.01

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
121.0	15:20	92.3	92.3	6	200	62	49	0.0	0.01	200	1075	1005	1.05	1.06	16.3	21.4	0.45
122.0	15:21	57.1	70.6	5	201	62	51	0.1	0.03	199	1079	1000	1.06	1.08	16.3	21.6	0.52
123.0	15:22	54.5	64.3	4	202	63	40	0.1	0.05	199	1080	1002	1.06	1.08	16.2	21.5	0.51
124.0	15:23	73.5	66.4	4	202	63	48	0.2	0.06	200	1083	1004	1.06	1.07	16.2	21.5	0.46
125.0	15:23	81.8	69.0	5	201	63	43	0.3	0.07	199	1085	1002	1.06	1.08	16.2	21.5	0.45
126.0	15:24	62.1	67.7	4	202	63	42	0.3	0.09	199	1087	1001	1.06	1.08	16.2	21.4	0.49
127.0	15:25	97.3	70.8	5	201	63	43	0.3	0.10	232	1419	1164	1.06	1.08	16.1	21.4	0.42
128.0	15:26	70.6	70.8	4	202	63	42	0.4	0.11	247	1619	1239	1.06	1.07	16.1	21.3	0.46
129.0	15:26	100.0	73.1	4	202	63	42	0.5	0.12	266	1904	1337	1.06	1.08	16.1	21.3	0.41
130.0	15:27	80.0	73.8	5	201	63	46	0.5	0.14	268	1917	1344	1.06	1.08	16.0	21.3	0.46
131.0	15:28	102.9	75.7	5	201	63	46	0.5	0.15	280	2084	1406	1.06	1.08	16.0	21.3	0.42
132.0	15:28	78.3	75.9	5	201	63	42	0.6	0.16	280	2106	1405	1.06	1.08	16.0	21.3	0.47
133.0	15:30	46.8	72.4	5	201	63	38	0.6	0.18	274	2043	1375	1.06	1.07	15.9	21.7	0.55
134.0	15:30	76.6	72.7	5	201	63	41	0.7	0.19	255	1764	1282	1.06	1.08	15.8	21.6	0.46
135.0	15:31	73.5	72.8	5	201	63	46	0.7	0.21	255	1768	1279	1.06	1.08	15.8	21.8	0.48
136.0	15:32	94.7	73.8	6	200	63	42	0.8	0.22	253	1785	1271	1.06	1.08	15.8	21.9	0.44
137.0	15:33	81.8	74.3	6	200	68	51	0.8	0.23	238	1589	1197	1.06	1.08	15.8	22.0	0.49
138.0	15:33	97.3	75.3	6	200	84	48	0.8	0.24	237	1563	1189	1.06	1.07	15.9	22.2	0.49
139.0	15:34	97.3	76.2	6	200	83	53	0.9	0.25	237	1562	1189	1.06	1.08	15.9	22.2	0.49
140.0	15:35	85.7	76.6	6	200	84	49	1.0	0.26	237	1562	1189	1.06	1.08	16.0	21.6	0.50
141.0	15:46	76.6	76.6	5	202	82	32	1.0	0.27	232	1526	1164	1.06	1.08	16.4	21.7	0.51
142.0	15:46	150.0	78.3	2	205	77	51	1.1	0.28	228	1518	1145	1.06	1.08	17.0	21.7	0.34
143.0	15:47	138.5	79.8	4	203	78	62	1.1	0.29	228	1526	1145	1.06	1.08	17.0	21.7	0.39
144.0	15:47	112.5	80.8	6	201	77	61	1.2	0.30	229	1531	1149	1.06	1.08	17.0	21.7	0.45
145.0	15:48	225.0	82.9	9	199	78	77	1.2	0.30	229	1534	1149	1.06	1.08	17.0	21.6	0.35
146.0	15:48	150.0	84.4	10	197	80	73	1.2	0.31	229	1539	1152	1.06	1.08	17.1	21.6	0.45
147.0	15:49	124.1	85.4	8	199	78	70	1.3	0.32	230	1540	1153	1.06	1.08	17.1	21.6	0.46
148.0	15:49	163.6	86.9	9	198	78	73	1.3	0.32	229	1543	1152	1.06	1.08	17.1	21.7	0.42
149.0	15:49	138.5	88.0	11	197	79	69	1.3	0.33	237	1646	1193	1.06	1.08	17.2	21.7	0.46
150.0	15:50	92.3	88.2	14	193	75	97	1.4	0.34	240	1697	1208	1.06	1.08	17.2	21.4	0.56
151.0	15:50	142.5	90.7	16	191	76	99	1.4	0.34	241	1698	1210	1.06	1.08	17.2	21.4	0.49
152.0	15:50	138.0	93.1	17	191	81	89	1.4	0.34	241	1700	1211	1.06	1.08	17.2	21.4	0.51
153.0	15:50	161.2	95.2	17	191	76	75	1.4	0.35	241	1703	1211	1.06	1.08	17.2	21.4	0.46
154.0	15:51	171.4	96.5	14	194	122	109	1.4	0.35	241	1704	1213	1.06	1.08	17.3	21.4	0.53
155.0	15:51	133.3	97.2	13	195	135	88	1.4	0.36	242	1707	1215	1.06	1.08	17.3	21.4	0.60
156.0	15:52	189.5	98.6	13	195	139	63	1.4	0.37	242	1709	1215	1.06	1.08	17.3	21.4	0.53
157.0	15:52	112.5	98.9	15	193	137	84	1.6	0.37	242	1711	1216	1.06	1.08	17.4	21.5	0.65
158.0	15:52	163.6	99.9	15	192	143	93	1.6	0.38	242	1711	1217	1.06	1.08	17.4	21.5	0.59
159.0	15:53	97.3	99.9	16	191	140	106	1.7	0.39	242	1715	1216	1.06	1.08	17.5	21.7	0.70
160.0	15:53	225.0	101.3	15	193	144	81	1.7	0.40	242	1717	1216	1.06	1.08	17.5	21.8	0.52
161.0	15:54	100.0	101.2	16	191	141	75	1.7	0.41	242	1718	1216	1.06	1.08	17.5	21.8	0.70
162.0	15:54	124.1	101.7	18	190	140	91	1.9	0.41	242	1719	1216	1.07	1.09	17.6	21.9	0.65
163.0	15:55	128.6	102.2	16	191	142	111	1.9	0.42	242	1721	1215	1.07	1.09	17.6	21.7	0.64
164.0	15:55	124.1	102.6	16	191	141	93	2.1	0.43	242	1722	1216	1.07	1.09	17.7	22.0	0.65
165.0	15:56	189.5	103.6	17	191	142	119	2.1	0.43	242	1722	1215	1.07	1.09	17.7	22.1	0.56
166.0	15:56	156.5	104.4	20	187	137	96	2.1	0.44	241	1725	1213	1.07	1.09	17.7	22.1	0.62
167.0	15:56	163.6	105.2	19	189	142	95	2.2	0.45	242	1727	1214	1.07	1.09	17.7	22.1	0.60
168.0	15:57	120.0	105.5	18	190	136	87	2.2	0.46	241	1728	1212	1.07	1.09	17.7	22.5	0.66
169.0	16:08	67.9	104.3	5	203	115	61	2.3	0.47	239	1753	1201	1.07	1.08	18.1	22.6	0.59
170.0	16:08	124.1	104.7	4	205	134	86	2.4	0.48	239	1773	1200	1.07	1.09	18.3	22.6	0.49

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
170.0	16:08	124.1	104.7	4	205	134	86	2.4	0.48	239	1773	1200	1.07	1.09	18.3	22.6	0.49
171.0	16:09	112.2	106.5	5	204	134	87	2.4	0.48	239	1776	1200	1.07	1.09	18.3	22.7	0.53
172.0	16:09	133.8	108.2	4	205	134	73	2.4	0.48	239	1777	1202	1.07	1.09	18.3	22.7	0.48
173.0	16:09	141.5	109.9	6	203	134	99	2.4	0.48	239	1782	1199	1.07	1.08	18.3	22.6	0.50
174.0	16:09	198.1	110.8	5	204	134	84	2.4	0.49	239	1783	1200	1.07	1.09	18.3	22.7	0.43
175.0	16:09	150.0	111.4	6	204	133	100	2.5	0.49	239	1785	1200	1.07	1.09	18.3	22.7	0.48
176.0	16:10	144.2	111.9	6	203	133	98	2.5	0.50	239	1788	1199	1.07	1.09	18.3	22.8	0.50
177.0	16:10	212.2	112.9	7	203	132	125	2.5	0.50	239	1791	1200	1.07	1.09	18.3	22.8	0.43
178.0	16:10	163.6	113.5	5	204	134	92	2.7	0.51	239	1794	1200	1.07	1.09	18.4	22.9	0.47
179.0	16:11	163.6	114.1	6	204	134	91	2.7	0.52	239	1794	1199	1.07	1.09	18.4	22.9	0.47
180.0	16:11	171.4	114.8	5	204	134	73	2.7	0.52	239	1796	1200	1.07	1.09	18.4	22.9	0.46
181.0	16:12	156.5	115.3	5	204	134	84	2.8	0.53	239	1799	1199	1.07	1.08	18.4	22.9	0.47
182.0	16:12	138.5	115.6	7	202	133	106	2.8	0.54	239	1801	1199	1.07	1.09	18.5	22.9	0.52
183.0	16:12	138.5	115.9	5	204	133	90	3.0	0.54	239	1802	1199	1.07	1.09	18.5	22.8	0.49
184.0	16:13	128.6	116.1	6	203	134	84	3.0	0.55	239	1804	1200	1.07	1.09	18.5	22.8	0.52
185.0	16:13	138.5	116.4	7	203	133	107	3.0	0.56	239	1806	1199	1.07	1.09	18.6	22.8	0.51
186.0	16:14	133.3	116.6	7	202	133	100	3.1	0.57	239	1808	1199	1.07	1.09	18.6	22.9	0.53
187.0	16:14	128.6	116.7	11	199	134	119	3.1	0.57	239	1808	1199	1.07	1.09	18.7	22.9	0.57
188.0	16:15	180.0	117.4	10	199	132	94	3.1	0.58	239	1810	1199	1.07	1.09	18.7	23.1	0.50
189.0	16:15	171.4	117.9	11	198	131	130	3.3	0.59	239	1811	1199	1.07	1.08	18.7	23.0	0.52
190.0	16:15	150.0	118.3	10	199	133	113	3.3	0.59	239	1815	1199	1.07	1.08	18.7	23.1	0.54
191.0	16:16	189.5	118.9	10	200	134	111	3.3	0.60	239	1820	1203	1.07	1.09	18.7	23.2	0.49
192.0	16:16	156.5	119.3	10	199	133	97	3.4	0.60	239	1817	1203	1.07	1.08	18.8	23.2	0.53
193.0	16:16	133.3	119.5	10	199	133	104	3.4	0.61	239	1821	1202	1.07	1.09	18.8	23.3	0.56
194.0	16:17	171.4	119.9	10	199	133	115	3.4	0.62	239	1821	1200	1.07	1.08	18.8	23.3	0.52
195.0	16:17	100.0	119.6	12	197	132	128	3.6	0.63	239	1824	1202	1.07	1.09	18.9	23.4	0.64
196.0	16:18	240.0	120.4	9	200	134	86	3.6	0.63	239	1823	1203	1.07	1.09	18.9	23.4	0.44
197.0	16:18	211.8	121.1	12	197	135	62	3.6	0.64	239	1826	1202	1.07	1.09	18.9	23.3	0.49
198.0	16:18	208.5	122.5	7	202	112	75	3.6	0.64	239	1825	1201	1.07	1.09	18.9	23.7	0.41
199.0	17:48	144.0	122.7	4	228	132	85	3.6	0.64	240	2037	1203	1.07	1.09	20.3	23.8	0.46
200.0	17:48	189.5	123.3	4	223	130	118	3.6	0.65	240	2040	1203	1.07	1.09	20.3	23.9	0.41
201.0	17:49	124.1	123.3	4	222	130	120	3.7	0.66	240	2044	1203	1.07	1.09	20.3	23.9	0.48
202.0	17:49	225.0	124.0	4	220	129	125	3.7	0.66	240	2044	1203	1.07	1.09	20.3	23.9	0.38
203.0	17:50	138.5	124.1	5	218	129	133	3.7	0.67	240	2044	1203	1.07	1.09	20.3	23.9	0.48
204.0	17:50	163.6	124.5	5	218	129	126	3.8	0.67	240	2047	1203	1.07	1.09	20.3	23.9	0.45
205.0	17:50	276.9	125.3	5	218	129	130	3.8	0.68	240	2051	1203	1.07	1.08	20.3	23.9	0.36
206.0	17:51	163.6	125.6	4	220	130	116	3.8	0.68	240	2050	1203	1.07	1.08	20.3	23.9	0.44
207.0	17:51	112.5	125.5	4	219	130	111	4.0	0.69	240	2050	1203	1.07	1.09	20.4	23.9	0.50
208.0	17:51	200.0	126.0	4	220	131	116	4.0	0.70	240	2052	1203	1.07	1.09	20.4	24.0	0.40
209.0	17:52	133.3	126.1	4	221	131	100	4.1	0.71	240	2053	1203	1.07	1.09	20.4	24.0	0.47
210.0	17:52	211.8	126.7	4	219	130	110	4.1	0.71	240	2053	1203	1.07	1.09	20.4	24.0	0.39
211.0	17:52	225.0	127.3	5	218	129	121	4.1	0.71	240	2059	1203	1.07	1.07	20.4	24.0	0.41
212.0	17:53	189.5	127.7	11	220	130	112	4.1	0.72	240	2056	1203	1.09	1.09	20.4	24.0	0.50
213.0	17:53	163.6	128.0	15	219	130	112	4.2	0.73	240	2057	1203	1.09	1.09	20.4	24.0	0.56
214.0	17:53	276.9	128.8	21	213	128	138	4.2	0.73	240	2056	1203	1.08	1.09	20.4	24.3	0.48
215.0	17:54	211.8	129.3	19	215	130	142	4.2	0.73	240	2058	1203	1.08	1.09	20.4	24.2	0.53
216.0	17:54	150.0	129.5	16	218	130	120	4.4	0.74	239	2059	1203	1.09	1.09	20.4	24.3	0.59
217.0	17:54	189.5	129.9	15	219	131	95	4.4	0.75	240	2060	1203	1.09	1.08	20.4	24.4	0.53
218.0	17:55	211.8	130.4	15	219	130	109	4.4	0.75	240	2062	1203	1.08	1.09	20.5	24.5	0.51
219.0	17:55	124.1	130.4	16	218	129	135	4.5	0.76	240	2059	1203	1.09	1.08	20.5	24.6	0.63

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
219.0	17:55	124.1	130.4	16	218	129	135	4.5	0.76	240	2059	1203	1.09	1.08	20.5	24.6	0.63
220.0	17:55	150.0	130.5	16	218	131	106	4.5	0.77	240	2060	1203	1.09	1.09	20.5	24.8	0.59
221.0	17:56	180.0	130.9	16	218	130	124	4.5	0.77	240	2057	1203	1.08	1.09	20.5	24.8	0.55
222.0	17:56	138.5	131.0	15	219	130	117	4.6	0.78	240	2059	1203	1.09	1.09	20.5	25.0	0.60
223.0	18:06	94.7	130.5	9	226	117	74	4.7	0.79	238	2067	1197	1.09	1.08	20.7	25.3	0.59
224.0	18:07	144.0	130.6	8	227	129	106	4.7	0.80	239	2114	1202	1.09	1.09	20.8	25.4	0.52
225.0	18:07	180.0	130.9	10	226	130	97	4.7	0.80	240	2117	1203	1.09	1.09	20.8	25.4	0.49
226.0	18:07	133.3	131.0	12	224	130	106	4.8	0.81	240	2120	1207	1.09	1.08	20.9	25.4	0.57
227.0	18:08	138.5	131.0	13	223	130	120	4.8	0.82	240	2120	1205	1.09	1.09	20.9	25.4	0.58
228.0	18:08	156.5	131.2	12	224	129	121	4.8	0.82	241	2128	1208	1.09	1.09	20.9	25.4	0.54
229.0	18:09	171.4	131.5	12	224	130	107	5.0	0.83	241	2130	1209	1.09	1.09	20.9	25.4	0.53
230.0	18:09	200.0	131.9	14	222	130	120	5.0	0.83	241	2133	1212	1.09	1.09	20.9	25.5	0.51
231.0	18:09	156.5	132.1	13	223	130	107	5.0	0.84	241	2132	1212	1.09	1.09	21.0	25.6	0.55
232.0	18:10	180.0	132.4	14	221	130	114	5.1	0.85	241	2136	1211	1.09	1.09	21.0	25.6	0.53
233.0	18:10	138.5	132.5	15	220	129	120	5.1	0.85	241	2136	1210	1.09	1.09	21.0	25.8	0.60
234.0	18:10	133.3	132.5	15	220	129	126	5.1	0.86	241	2138	1209	1.09	1.09	21.0	25.8	0.60
235.0	18:11	128.6	132.4	15	220	130	118	5.3	0.87	241	2141	1209	1.09	1.09	21.1	25.8	0.61
236.0	18:11	150.0	132.6	17	219	124	206	5.3	0.87	240	2141	1208	1.09	1.09	21.1	25.9	0.58
237.0	18:12	105.9	132.3	15	221	129	119	5.4	0.88	241	2143	1209	1.09	1.09	21.1	25.9	0.65
238.0	18:12	144.0	132.4	15	221	129	125	5.4	0.89	241	2146	1209	1.09	1.09	21.2	25.9	0.58
239.0	18:13	138.5	132.4	15	221	129	133	5.5	0.90	240	2148	1208	1.09	1.09	21.2	25.8	0.59
240.0	18:13	180.0	132.7	15	221	130	121	5.5	0.90	240	2150	1208	1.09	1.08	21.3	25.7	0.54
241.0	18:14	124.1	132.6	17	219	129	131	5.5	0.91	240	2150	1208	1.09	1.09	21.3	25.7	0.63
242.0	18:14	171.4	132.9	17	218	128	143	5.7	0.92	240	2151	1208	1.09	1.09	21.3	25.7	0.56
243.0	18:14	163.6	133.1	16	219	129	129	5.7	0.92	240	2155	1208	1.09	1.08	21.4	25.7	0.57
244.0	18:15	138.5	133.1	18	218	128	145	5.7	0.93	240	2153	1208	1.09	1.09	21.4	25.8	0.61
245.0	18:15	128.6	133.1	19	217	129	132	5.8	0.94	240	2156	1208	1.09	1.09	21.5	25.8	0.64
246.0	18:15	211.8	133.5	17	219	130	121	5.8	0.94	240	2160	1208	1.08	1.09	21.5	25.9	0.56
247.0	18:16	211.8	133.9	15	220	130	115	5.8	0.95	240	2157	1208	1.09	1.09	21.5	25.9	0.55
248.0	18:16	171.4	134.1	15	221	130	94	5.9	0.95	240	2158	1208	1.09	1.09	21.6	26.0	0.59
249.0	18:16	225.0	134.5	15	221	130	103	5.9	0.96	240	2160	1208	1.08	1.09	21.6	26.0	0.53
250.0	18:26	87.8	134.0	12	224	110	54	6.1	0.97	240	2162	1204	1.09	1.09	21.7	26.2	0.68
251.0	18:26	144.0	134.1	10	228	129	128	6.1	0.98	236	2194	1185	1.08	1.08	22.1	26.0	0.58
252.0	18:27	180.0	134.3	11	226	128	128	6.1	0.98	236	2198	1185	1.08	1.08	22.1	26.0	0.55
253.0	18:27	211.8	134.7	12	226	128	129	6.2	0.99	236	2200	1185	1.08	1.09	22.1	26.0	0.52
254.0	18:27	180.0	134.9	14	224	129	128	6.2	0.99	236	2206	1185	1.08	1.09	22.1	26.0	0.57
255.0	18:28	128.6	134.9	14	223	129	122	6.2	1.00	236	2201	1185	1.09	1.09	22.2	26.0	0.65
256.0	18:28	105.9	134.6	17	221	128	136	6.3	1.01	236	2202	1184	1.09	1.09	22.2	26.1	0.72
257.0	18:29	171.4	134.8	18	220	128	145	6.3	1.02	236	2207	1185	1.09	1.09	22.2	26.2	0.62
258.0	18:29	124.1	134.7	20	218	127	149	6.5	1.02	236	2207	1185	1.09	1.09	22.2	26.4	0.71
259.0	18:30	150.0	134.8	20	218	127	152	6.5	1.03	236	2208	1184	1.09	1.09	22.3	26.4	0.67
260.0	18:30	152.5	134.9	19	219	128	142	6.5	1.04	236	2209	1183	1.09	1.09	22.3	26.5	0.66
261.0	18:30	133.3	134.9	18	219	128	139	6.6	1.04	236	2214	1184	1.09	1.08	22.3	26.5	0.68
262.0	18:31	171.4	135.1	18	220	128	141	6.6	1.05	236	2218	1184	1.09	1.09	22.3	26.5	0.62
263.0	18:31	109.1	134.9	18	220	128	140	6.7	1.06	236	2219	1183	1.08	1.09	22.3	26.6	0.72
264.0	18:32	124.1	134.8	18	220	128	138	6.7	1.07	236	2222	1183	1.09	1.08	22.3	26.6	0.70
265.0	18:32	116.1	134.7	19	219	127	145	6.9	1.08	235	2223	1183	1.08	1.08	22.3	26.7	0.72
266.0	18:33	102.9	134.4	20	218	127	155	6.9	1.09	235	2228	1182	1.08	1.09	22.3	26.7	0.76
267.0	18:33	116.1	134.2	20	218	127	161	7.0	1.10	235	2228	1182	1.08	1.09	22.3	26.6	0.73
268.0	18:34	102.9	134.0	21	217	127	155	7.0	1.10	235	2227	1181	1.05	1.07	22.3	26.6	0.78

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
268.0	18:34	102.9	134.0	21	217	127	155	7.0	1.10	235	2227	1181	1.05	1.07	22.3	26.6	0.78
269.0	18:35	63.2	133.0	18	220	128	130	7.1	1.12	235	2231	1182	1.05	1.07	22.4	26.6	0.87
270.0	18:36	85.7	132.5	19	218	127	152	7.2	1.13	235	2231	1181	1.05	1.07	22.4	26.6	0.81
271.0	18:36	112.5	132.3	19	219	128	142	7.2	1.14	235	2234	1182	1.05	1.06	22.5	27.0	0.74
272.0	18:37	116.1	132.2	18	219	128	135	7.4	1.15	235	2232	1180	1.05	1.07	22.5	26.9	0.73
273.0	18:37	100.0	131.9	19	219	128	141	7.5	1.16	235	2233	1181	1.05	1.06	22.5	27.1	0.77
274.0	18:38	105.9	131.7	18	219	128	142	7.5	1.17	235	2233	1182	1.05	1.07	22.6	27.0	0.75
275.0	18:39	90.0	131.3	19	219	128	138	7.6	1.18	235	2234	1182	1.05	1.07	22.6	27.1	0.80
276.0	18:39	92.3	131.0	19	218	128	139	7.6	1.19	235	2233	1181	1.05	1.07	22.6	27.1	0.79
277.0	18:40	109.1	130.8	21	216	128	141	7.8	1.20	235	2230	1182	1.05	1.07	22.7	27.1	0.77
278.0	18:58	72.0	130.1	15	236	128	122	7.9	1.21	256	2657	1285	1.05	1.06	23.1	27.2	0.80
279.0	18:59	73.5	129.5	10	230	131	118	7.9	1.23	263	2785	1319	1.05	1.07	23.2	27.3	0.73
280.0	19:00	92.3	129.2	15	225	130	125	8.0	1.24	264	2791	1324	1.05	1.06	23.3	27.0	0.75
281.0	19:00	81.8	128.7	16	223	129	148	8.1	1.25	264	2795	1328	1.05	1.07	23.3	27.3	0.79
282.0	19:01	78.3	128.2	16	224	129	148	8.3	1.26	265	2790	1332	1.05	1.07	23.3	27.4	0.80
283.0	19:02	97.3	128.0	15	225	129	135	8.3	1.27	266	2783	1335	1.05	1.06	23.4	27.5	0.74
284.0	19:02	94.7	127.7	14	226	130	125	8.4	1.28	267	2790	1339	1.05	1.07	23.4	27.6	0.73
285.0	19:03	67.9	127.0	14	225	130	122	8.5	1.30	267	2805	1343	1.05	1.07	23.4	27.3	0.81
286.0	19:04	81.8	126.6	14	225	130	117	8.5	1.31	268	2803	1345	1.05	1.06	23.5	27.7	0.77
287.0	19:05	60.0	125.7	16	223	130	131	8.7	1.33	268	2799	1345	1.05	1.06	23.5	27.7	0.87
288.0	19:06	69.2	125.1	15	224	130	124	8.8	1.34	268	2797	1345	1.05	1.07	23.6	27.7	0.82
289.0	19:07	67.9	124.5	14	226	130	122	8.9	1.36	268	2796	1344	1.05	1.07	23.7	27.7	0.81
290.0	19:08	72.0	124.0	14	225	130	129	9.1	1.37	268	2796	1345	1.05	1.07	23.7	27.8	0.74
291.0	19:08	76.6	123.5	15	225	130	127	9.2	1.38	268	2794	1348	1.05	1.06	23.8	27.8	0.73
292.0	19:09	58.1	122.7	15	224	130	133	9.3	1.40	268	2788	1347	1.05	1.07	23.8	27.9	0.79
293.0	19:10	92.3	122.5	15	224	130	127	9.3	1.41	268	2793	1348	1.05	1.07	23.9	28.0	0.69
294.0	19:11	92.3	122.3	15	224	130	137	9.5	1.42	269	2789	1349	1.05	1.07	23.9	28.1	0.69
295.0	19:11	81.8	121.9	15	224	130	132	9.6	1.44	268	2787	1348	1.05	1.07	24.0	28.2	0.72
296.0	19:12	87.8	121.7	14	225	130	122	9.6	1.45	269	2785	1349	1.05	1.07	24.0	28.1	0.70
297.0	19:13	73.5	121.2	14	226	131	117	9.7	1.46	268	2781	1347	1.05	1.06	24.1	28.6	0.73
298.0	19:14	76.6	120.8	14	225	130	124	9.8	1.47	268	2783	1347	1.05	1.07	24.1	28.6	0.72
299.0	19:15	72.0	120.4	15	224	130	138	10.0	1.49	268	2782	1347	1.05	1.07	24.2	28.6	0.75
300.0	19:15	97.3	120.2	16	224	129	139	10.0	1.50	268	2786	1348	1.05	1.07	24.2	28.5	0.69
301.0	19:16	85.7	119.9	16	223	129	141	10.1	1.51	268	2785	1347	1.05	1.07	24.3	28.6	0.72
302.0	19:16	120.0	119.9	16	224	129	139	10.1	1.52	268	2782	1346	1.05	1.06	24.4	28.6	0.64
303.0	19:17	163.6	120.1	12	228	131	107	10.2	1.52	268	2787	1346	1.05	1.07	24.4	28.7	0.54
304.0	19:17	124.1	120.1	11	228	131	108	10.2	1.53	268	2791	1345	1.05	1.07	24.5	28.6	0.59
305.0	19:29	64.3	119.6	8	231	131	103	10.4	1.55	268	2804	1346	1.05	1.06	24.6	28.7	0.69
306.0	19:30	120.0	119.6	6	235	130	105	10.4	1.56	269	2865	1352	1.05	1.06	25.0	28.8	0.54
307.0	19:30	125.1	119.6	9	232	130	118	10.5	1.56	270	2870	1354	1.05	1.06	24.9	29.2	0.57
308.0	19:31	138.5	119.7	11	230	130	111	10.5	1.57	271	2901	1360	1.05	1.07	24.7	29.3	0.57
309.0	19:31	105.9	119.6	14	228	129	130	10.7	1.58	273	2931	1369	1.05	1.07	24.5	29.6	0.65
310.0	19:32	112.5	119.5	15	226	129	134	10.7	1.59	273	2932	1371	1.05	1.07	24.3	29.6	0.65
311.0	19:32	102.9	119.4	16	225	129	141	10.8	1.60	274	2932	1376	1.05	1.06	24.1	29.7	0.68
312.0	19:33	94.7	119.3	15	226	129	138	10.8	1.61	274	2925	1375	1.05	1.06	24.0	29.9	0.69
313.0	19:33	100.0	119.2	17	224	128	148	10.9	1.62	274	2915	1375	1.05	1.07	23.9	30.0	0.69
314.0	19:34	109.1	119.1	17	224	128	147	10.9	1.63	274	2905	1377	1.05	1.07	23.8	30.2	0.67
315.0	19:35	66.7	118.6	17	224	129	145	11.1	1.64	274	2896	1378	1.05	1.07	23.8	30.2	0.78
316.0	19:36	94.7	118.5	17	224	129	136	11.2	1.65	274	2877	1378	1.05	1.06	23.8	30.3	0.70
317.0	19:37	60.0	117.9	16	226	136	139	11.3	1.67	276	2871	1384	1.05	1.06	23.8	30.2	0.80

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
317.0	19:37	60.0	117.9	16	226	136	139	11.3	1.67	276	2871	1384	1.05	1.06	23.8	30.2	0.80
318.0	19:37	81.8	117.6	15	227	141	134	11.3	1.68	276	2862	1386	1.10	1.13	23.8	30.1	0.69
319.0	19:38	102.9	117.5	17	225	141	140	11.5	1.69	276	2854	1385	1.10	1.13	23.9	30.1	0.66
320.0	19:38	100.0	117.4	18	223	140	151	11.6	1.70	276	2848	1387	1.10	1.14	23.9	30.2	0.67
321.0	19:39	109.1	117.4	19	222	140	164	11.6	1.71	276	2846	1387	1.10	1.13	23.9	30.2	0.67
322.0	19:40	112.5	117.4	21	220	140	170	11.8	1.72	277	2843	1389	1.10	1.14	24.0	30.3	0.67
323.0	19:40	94.7	117.2	21	220	140	155	11.8	1.73	277	2842	1389	1.10	1.14	24.0	30.5	0.71
324.0	19:41	75.0	116.9	20	222	140	156	11.9	1.74	277	2841	1389	1.10	1.14	24.1	30.6	0.75
325.0	19:42	50.7	116.2	19	222	140	171	12.1	1.76	276	2836	1388	1.10	1.13	24.2	30.5	0.83
326.0	19:43	65.5	115.7	24	218	139	199	12.2	1.78	277	2832	1390	1.10	1.13	24.5	30.7	0.81
327.0	19:44	52.2	115.1	26	216	140	177	12.4	1.80	277	2833	1390	1.10	1.13	24.7	30.7	0.88
328.0	19:45	66.7	114.7	27	215	139	201	12.5	1.81	277	2837	1390	1.10	1.14	24.9	30.7	0.83
329.0	19:46	100.0	114.6	27	214	139	203	12.6	1.82	276	2837	1388	1.10	1.14	25.0	30.7	0.74
330.0	19:47	67.9	114.2	28	213	139	199	12.6	1.84	276	2838	1386	1.10	1.13	25.2	30.7	0.84
331.0	19:47	109.1	114.2	21	220	140	150	12.8	1.85	276	2843	1386	1.10	1.14	25.3	30.6	0.68
332.0	19:48	128.6	114.2	20	221	140	148	12.8	1.86	276	2847	1386	1.10	1.13	25.4	30.6	0.64
333.0	19:48	116.1	114.2	20	221	140	155	12.9	1.86	276	2851	1387	1.10	1.14	25.5	30.5	0.66
334.0	19:49	180.0	114.4	19	222	141	145	12.9	1.87	276	2850	1385	1.10	1.13	25.6	29.8	0.56
335.0	20:06	92.3	114.3	15	235	140	135	13.1	1.88	248	2431	1248	1.10	1.13	25.9	29.0	0.66
336.0	20:06	90.0	114.2	13	230	140	131	13.1	1.89	237	2261	1191	1.10	1.14	26.1	29.0	0.65
337.0	20:07	97.3	114.1	18	225	140	122	13.2	1.90	237	2266	1192	1.10	1.13	26.0	29.2	0.68
338.0	20:07	120.0	114.1	16	227	140	109	13.2	1.91	259	2630	1303	1.10	1.14	26.0	29.3	0.62
339.0	20:08	76.6	113.8	10	233	140	111	13.4	1.92	263	2703	1321	1.10	1.14	26.1	29.5	0.65
340.0	20:09	105.9	113.8	16	227	139	156	13.5	1.93	263	2709	1323	1.10	1.13	26.1	29.8	0.64
341.0	20:09	92.3	113.7	19	224	139	155	13.5	1.94	265	2738	1331	1.10	1.14	26.1	29.9	0.70
342.0	20:10	102.9	113.6	22	221	138	174	13.6	1.95	274	2911	1376	1.10	1.14	26.2	30.1	0.70
343.0	20:11	70.6	113.3	21	222	139	153	13.8	1.97	274	2916	1375	1.10	1.13	26.2	30.3	0.77
344.0	20:12	72.0	113.0	18	225	139	149	13.8	1.98	274	2918	1378	1.10	1.13	26.2	30.4	0.75
345.0	20:12	102.9	113.0	18	225	139	154	13.9	1.99	274	2921	1377	1.10	1.14	26.3	30.5	0.66
346.0	20:13	128.6	113.0	18	225	139	149	13.9	2.00	274	2922	1378	1.10	1.13	26.3	30.6	0.62
347.0	20:13	116.1	113.1	18	225	140	142	14.1	2.01	274	2925	1376	1.10	1.14	26.4	30.6	0.64
348.0	20:14	94.7	113.0	18	225	139	143	14.2	2.02	274	2923	1377	1.10	1.14	26.4	30.2	0.69
349.0	20:14	102.9	112.9	20	223	139	152	14.2	2.03	274	2925	1378	1.10	1.14	26.5	30.5	0.68
350.0	20:15	112.5	112.9	21	222	139	157	14.4	2.04	274	2928	1376	1.10	1.14	26.6	30.5	0.67
351.0	20:16	90.0	112.8	22	221	138	178	14.4	2.05	274	2928	1376	1.10	1.14	26.6	30.5	0.73
352.0	20:16	87.8	112.7	22	221	139	149	14.5	2.06	276	2962	1385	1.10	1.13	26.7	30.6	0.74
353.0	20:17	73.5	112.4	18	225	139	151	14.7	2.07	277	2975	1389	1.10	1.13	26.8	30.5	0.74
354.0	20:18	78.3	112.2	21	222	138	186	14.7	2.09	276	2978	1389	1.10	1.13	26.9	30.6	0.75
355.0	20:18	97.3	112.1	22	221	138	181	14.8	2.10	277	2983	1390	1.10	1.13	26.9	30.9	0.71
356.0	20:19	83.7	112.0	22	221	138	177	15.0	2.11	276	2987	1389	1.10	1.13	27.0	31.0	0.74
357.0	20:20	105.9	111.9	21	222	139	161	15.0	2.12	277	2994	1390	1.10	1.13	27.0	31.2	0.69
358.0	20:20	124.1	112.0	21	222	139	160	15.1	2.13	277	2986	1389	1.10	1.14	27.0	31.3	0.65
359.0	20:21	90.0	111.9	21	222	139	168	15.1	2.14	276	2984	1388	1.10	1.14	27.1	31.4	0.72
360.0	20:21	102.9	111.8	20	223	139	143	15.2	2.15	277	2990	1389	1.10	1.13	27.1	31.5	0.69
361.0	20:22	66.7	111.5	21	222	139	170	15.4	2.16	277	2991	1389	1.10	1.14	27.2	31.6	0.78
362.0	20:23	85.7	111.4	22	221	138	178	15.4	2.17	275	2982	1383	1.10	1.14	27.2	31.7	0.74
363.0	20:24	85.7	111.2	24	219	139	170	15.5	2.18	275	2969	1379	1.10	1.13	27.3	31.7	0.76
364.0	20:34	52.2	110.7	12	233	130	124	15.7	2.20	276	2615	1384	1.10	1.14	27.9	31.4	0.72
365.0	20:38	16.2	108.1	13	243	135	138	15.9	2.27	267	2865	1343	1.10	1.14	27.9	31.9	0.97
366.0	20:39	64.3	107.8	15	230	140	148	16.1	2.28	267	2864	1342	1.10	1.13	27.9	32.2	0.73

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
366.0	20:39	64.3	107.8	15	230	140	148	16.1	2.28	267	2864	1342	1.10	1.13	27.9	32.2	0.73
367.0	20:40	83.7	107.7	17	228	140	156	16.2	2.29	267	2863	1343	1.10	1.13	27.9	32.4	0.70
368.0	20:40	85.7	107.6	17	228	140	154	16.4	2.30	267	2855	1343	1.10	1.14	28.0	32.5	0.69
369.0	20:41	76.6	107.4	18	227	140	153	16.4	2.32	268	2855	1344	1.10	1.14	28.0	32.6	0.73
370.0	20:42	87.8	107.3	18	227	140	159	16.5	2.33	267	2849	1343	1.10	1.13	28.0	32.0	0.70
371.0	20:42	128.6	107.4	17	228	140	147	16.6	2.34	268	2847	1344	1.10	1.13	28.1	32.6	0.61
372.0	20:43	138.5	107.5	16	228	140	148	16.6	2.34	268	2846	1345	1.10	1.13	28.1	32.6	0.60
373.0	20:43	142.1	107.6	18	227	140	160	16.6	2.35	268	2844	1344	1.10	1.13	28.1	32.6	0.60
374.0	20:44	150.0	107.7	17	228	141	140	16.8	2.36	268	2846	1346	1.10	1.13	28.2	32.6	0.59
375.0	20:44	109.1	107.7	17	228	141	142	16.8	2.37	268	2847	1347	1.10	1.14	28.2	32.6	0.65
376.0	20:45	171.4	107.9	17	228	140	162	16.9	2.37	268	2845	1346	1.10	1.14	28.3	32.7	0.55
377.0	20:45	124.1	107.9	17	228	140	160	16.9	2.38	268	2838	1346	1.10	1.14	28.3	32.7	0.62
378.0	20:45	171.4	108.1	16	229	141	150	16.9	2.39	268	2842	1346	1.10	1.13	28.3	32.7	0.55
379.0	20:46	94.7	108.0	17	228	140	154	17.1	2.40	268	2841	1347	1.10	1.14	28.4	32.7	0.68
380.0	20:47	87.8	107.9	19	225	140	155	17.2	2.41	268	2839	1347	1.10	1.13	28.4	32.7	0.72
381.0	20:47	124.1	108.0	18	227	141	149	17.2	2.42	268	2837	1346	1.10	1.14	28.5	32.7	0.63
382.0	20:48	133.3	108.1	14	231	141	128	17.4	2.42	268	2834	1346	1.10	1.14	28.5	32.7	0.58
383.0	20:48	76.6	107.9	14	230	141	133	17.4	2.44	268	2838	1348	1.10	1.14	28.6	32.8	0.70
384.0	20:49	100.0	107.9	15	230	141	146	17.5	2.45	269	2839	1351	1.10	1.13	28.6	32.9	0.65
385.0	20:50	105.9	107.9	15	230	141	139	17.6	2.46	269	2837	1351	1.10	1.14	28.6	33.0	0.64
386.0	20:50	90.0	107.8	16	229	141	137	17.6	2.47	269	2837	1350	1.10	1.13	28.7	33.0	0.68
387.0	20:51	109.1	107.8	15	229	141	132	17.8	2.48	269	2835	1350	1.10	1.13	28.7	33.1	0.64
388.0	20:51	83.7	107.7	15	229	141	137	17.8	2.49	269	2837	1351	1.10	1.13	28.8	33.2	0.69
389.0	20:52	60.0	107.3	18	227	140	144	17.9	2.51	269	2831	1352	1.10	1.13	28.8	33.2	0.78
390.0	20:53	65.1	107.0	19	226	141	143	18.1	2.52	269	2829	1352	1.10	1.14	28.9	33.3	0.77
391.0	20:54	76.6	106.9	19	226	141	141	18.2	2.54	269	2824	1352	1.10	1.13	28.9	33.3	0.74
392.0	20:55	120.0	106.9	16	229	141	142	18.4	2.54	269	2823	1352	1.10	1.14	29.0	33.6	0.62
393.0	21:07	48.0	106.4	14	239	141	135	18.5	2.56	270	2804	1357	1.10	1.14	29.1	33.5	0.78
394.0	21:08	85.7	106.4	13	233	136	131	18.5	2.58	271	2800	1360	1.10	1.14	29.2	33.7	0.65
395.0	21:09	69.2	106.1	19	228	135	148	18.6	2.59	271	2795	1362	1.10	1.14	29.2	33.8	0.75
396.0	21:09	128.6	106.2	20	227	134	159	18.8	2.60	271	2790	1363	1.10	1.14	29.2	33.8	0.63
397.0	21:10	100.0	106.2	21	225	134	161	18.8	2.61	271	2782	1363	1.10	1.14	29.3	33.9	0.69
398.0	21:10	92.3	106.1	23	224	135	144	18.9	2.62	272	2776	1367	1.10	1.14	29.3	33.8	0.72
399.0	21:11	112.5	106.2	17	229	134	143	18.9	2.63	272	2776	1368	1.10	1.14	29.3	33.9	0.64
400.0	21:12	76.6	106.0	19	228	135	142	19.1	2.64	272	2775	1368	1.10	1.13	29.4	33.9	0.73
401.0	21:12	92.3	105.9	21	225	135	154	19.2	2.65	272	2770	1368	1.10	1.14	29.4	34.0	0.71
402.0	21:13	72.0	105.8	21	225	134	156	19.2	2.67	272	2770	1368	1.10	1.13	29.5	34.0	0.76
403.0	21:14	70.6	105.6	22	225	134	154	19.4	2.68	272	2775	1368	1.10	1.13	29.5	34.1	0.77
404.0	21:15	78.3	105.5	21	225	134	154	19.5	2.69	272	2775	1368	1.10	1.14	29.6	34.2	0.74
405.0	21:15	133.3	105.5	21	226	135	150	19.5	2.70	273	2776	1369	1.10	1.13	29.6	34.2	0.63
406.0	21:16	120.0	105.6	19	227	135	146	19.6	2.71	272	2779	1368	1.10	1.14	29.7	34.2	0.64
407.0	21:16	109.1	105.6	19	227	135	152	19.6	2.72	272	2782	1367	1.10	1.14	29.7	34.2	0.66
408.0	21:17	112.5	105.6	19	227	134	164	19.8	2.73	272	2780	1365	1.10	1.13	29.8	34.2	0.65
409.0	21:17	100.0	105.6	22	225	133	177	19.8	2.74	272	2785	1366	1.10	1.14	29.8	34.2	0.69
410.0	21:18	65.5	105.4	24	223	134	168	19.9	2.75	272	2787	1364	1.10	1.14	29.9	34.2	0.80
411.0	21:19	64.3	105.1	21	225	134	156	20.1	2.77	271	2788	1362	1.10	1.14	30.0	34.2	0.79
412.0	21:20	85.7	105.1	21	225	134	161	20.2	2.78	272	2797	1365	1.10	1.13	30.0	34.3	0.72
413.0	21:21	105.9	105.1	22	224	134	160	20.2	2.79	272	2803	1365	1.10	1.14	30.0	34.3	0.69
414.0	21:22	58.1	104.8	22	224	134	148	20.3	2.81	272	2803	1364	1.10	1.13	30.1	34.4	0.82
415.0	21:22	81.8	104.7	22	225	135	151	20.5	2.82	271	2804	1363	1.10	1.14	30.1	34.4	0.74

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
415.0	21:22	81.8	104.7	22	225	135	151	20.5	2.82	271	2804	1363	1.10	1.14	30.1	34.4	0.74
416.0	21:23	81.8	104.6	20	227	135	139	20.5	2.83	270	2804	1358	1.10	1.13	30.2	34.4	0.72
417.0	21:24	76.6	104.4	21	225	134	161	20.6	2.84	270	2803	1357	1.10	1.14	30.2	34.3	0.75
418.0	21:25	80.0	104.3	23	223	134	155	20.8	2.86	270	2807	1358	1.10	1.14	30.3	34.5	0.75
419.0	21:26	53.7	104.0	28	218	134	166	20.9	2.87	270	2808	1357	1.10	1.13	30.3	34.5	0.88
420.0	21:26	78.3	103.9	27	219	134	159	21.0	2.89	270	2809	1356	1.10	1.14	30.4	34.5	0.78
421.0	21:27	83.7	103.8	26	220	134	154	21.2	2.90	270	2814	1356	1.10	1.14	30.4	34.5	0.76
422.0	21:39	27.9	102.9	20	226	128	125	21.4	2.94	269	2785	1349	1.10	1.14	30.5	34.5	0.94
423.0	21:39	39.1	103.1	26	222	137	172	21.4	2.94	265	2683	1333	1.10	1.14	30.5	34.2	0.94
424.0	21:39	180.0	103.3	22	225	138	151	21.4	2.94	269	2730	1349	1.10	1.14	30.5	34.2	0.57
425.0	21:40	72.0	103.1	21	227	139	143	21.6	2.96	270	2763	1358	1.10	1.14	30.5	34.5	0.76
426.0	21:41	59.0	102.9	20	228	138	152	21.7	2.97	264	2760	1328	1.10	1.14	30.5	34.5	0.79
427.0	21:42	67.9	102.7	26	222	137	185	21.9	2.99	271	2753	1362	1.10	1.14	30.5	34.7	0.81
428.0	21:43	73.5	102.6	24	223	137	173	21.9	3.00	272	2739	1365	1.10	1.14	30.6	34.8	0.78
429.0	21:44	65.5	102.4	26	222	137	185	22.0	3.02	272	2729	1368	1.10	1.14	30.6	34.9	0.82
430.0	21:44	92.3	102.4	26	221	137	187	22.1	3.03	272	2722	1368	1.10	1.14	30.7	35.0	0.75
431.0	21:45	105.9	102.4	27	221	137	188	22.1	3.04	273	2715	1369	1.10	1.14	30.7	35.1	0.72
432.0	21:45	120.0	102.4	26	222	137	179	22.3	3.05	273	2706	1370	1.10	1.14	30.7	35.1	0.68
433.0	21:46	85.7	102.4	25	222	138	167	22.4	3.06	273	2697	1370	1.10	1.14	30.8	35.1	0.76
434.0	21:47	76.6	102.3	27	221	137	182	22.4	3.07	273	2695	1372	1.10	1.14	30.8	35.1	0.79
435.0	21:47	85.7	102.2	30	218	136	203	22.6	3.08	273	2691	1373	1.10	1.14	30.9	35.2	0.79
436.0	21:48	80.0	102.1	27	220	137	182	22.6	3.10	273	2681	1373	1.10	1.14	30.9	35.2	0.79
437.0	21:49	100.0	102.1	28	220	137	192	22.8	3.11	274	2673	1375	1.10	1.14	31.0	35.2	0.74
438.0	21:49	128.6	102.2	28	220	137	180	22.8	3.11	274	2666	1376	1.10	1.14	31.0	35.1	0.68
439.0	21:50	100.0	102.2	29	219	137	185	22.9	3.12	274	2668	1377	1.10	1.14	31.1	35.1	0.74
440.0	21:51	92.3	102.1	29	219	136	198	23.1	3.13	275	2674	1379	1.10	1.14	31.1	35.2	0.76
441.0	21:51	112.5	102.1	29	218	136	203	23.1	3.14	274	2664	1377	1.10	1.14	31.1	35.0	0.72
442.0	21:52	112.5	102.2	28	219	137	203	23.2	3.15	274	2669	1377	1.10	1.14	31.2	35.2	0.71
443.0	21:52	124.1	102.2	28	220	137	197	23.2	3.16	274	2672	1377	1.10	1.14	31.2	35.3	0.69
444.0	21:53	85.7	102.2	29	219	137	191	23.3	3.17	274	2673	1378	1.10	1.14	31.2	35.3	0.78
445.0	21:54	72.0	102.0	30	217	137	197	23.5	3.19	274	2673	1376	1.10	1.14	31.3	35.3	0.83
446.0	21:54	87.8	102.0	30	217	137	188	23.5	3.20	274	2675	1374	1.10	1.14	31.3	35.5	0.78
447.0	21:55	100.0	102.0	27	220	137	186	23.6	3.21	273	2676	1372	1.10	1.14	31.3	35.5	0.74
448.0	21:56	92.3	102.0	28	220	137	183	23.6	3.22	273	2686	1372	1.10	1.14	31.4	35.5	0.76
449.0	21:56	102.9	102.0	27	221	137	180	23.8	3.23	273	2688	1373	1.10	1.14	31.4	35.5	0.73
450.0	21:57	116.1	102.0	26	221	137	177	23.8	3.24	273	2690	1372	1.10	1.14	31.4	35.5	0.70
451.0	21:57	90.0	102.0	26	222	138	151	23.9	3.25	273	2689	1372	1.10	1.14	31.5	35.5	0.75
452.0	22:09	124.1	102.0	24	243	137	142	24.0	3.25	273	2700	1372	1.10	1.14	31.5	34.9	0.66
453.0	22:11	42.9	101.6	25	236	136	146	24.2	3.28	271	2729	1365	1.10	1.14	31.6	34.8	0.90
454.0	22:11	92.3	101.6	24	225	134	161	24.2	3.29	205	269	1353	1.10	1.14	31.6	35.0	0.73
455.0	22:12	83.7	101.5	25	225	133	177	24.3	3.30	269	2742	1353	1.10	1.14	31.6	35.2	0.75
456.0	22:12	133.3	101.6	25	224	133	178	24.4	3.31	270	2746	1355	1.10	1.14	31.6	35.3	0.65
457.0	22:13	102.9	101.6	26	224	133	182	24.4	3.32	270	2752	1356	1.10	1.14	31.6	35.4	0.71
458.0	22:13	120.0	101.6	25	224	133	190	24.6	3.33	270	2754	1355	1.10	1.14	31.7	35.5	0.67
459.0	22:14	156.5	101.7	24	225	133	182	24.6	3.33	270	2758	1356	1.10	1.14	31.7	35.6	0.61
460.0	22:14	138.5	101.8	25	224	133	189	24.6	3.34	269	2757	1351	1.10	1.14	31.7	35.6	0.64
461.0	22:15	171.4	101.9	23	226	134	166	24.7	3.35	269	2767	1352	1.10	1.14	31.7	35.6	0.58
462.0	22:15	189.5	102.1	23	226	134	176	24.7	3.35	270	2768	1354	1.10	1.14	31.7	35.7	0.56
463.0	22:15	138.5	102.1	23	226	134	171	24.7	3.36	270	2766	1354	1.10	1.14	31.7	35.7	0.63
464.0	22:16	94.7	102.1	24	225	133	176	24.9	3.37	269	2769	1352	1.10	1.14	31.7	35.7	0.72

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
464.0	22:16	94.7	102.1	24	225	133	176	24.9	3.37	269	2769	1352	1.10	1.14	31.7	35.7	0.72
465.0	22:17	116.1	102.1	25	225	134	177	24.9	3.38	270	2768	1354	1.10	1.14	31.7	35.7	0.68
466.0	22:17	109.1	102.2	26	223	133	185	25.0	3.39	269	2767	1352	1.10	1.14	31.8	35.7	0.70
467.0	22:17	138.5	102.2	26	223	133	190	25.0	3.39	270	2757	1354	1.10	1.14	31.8	35.7	0.65
468.0	22:18	97.3	102.2	28	221	133	192	25.1	3.40	270	2750	1356	1.10	1.14	31.8	35.8	0.74
469.0	22:19	67.9	102.1	29	220	132	195	25.3	3.42	270	2742	1357	1.10	1.14	31.8	35.8	0.83
470.0	22:20	97.3	102.1	29	220	132	202	25.3	3.43	270	2734	1357	1.10	1.14	31.9	35.8	0.75
471.0	22:20	87.8	102.0	29	220	132	195	25.4	3.44	270	2728	1356	1.10	1.14	31.9	35.8	0.77
472.0	22:22	40.9	101.6	31	218	133	185	25.6	3.46	270	2725	1356	1.10	1.14	32.0	35.6	0.96
473.0	22:23	69.2	101.5	29	220	133	191	25.7	3.48	270	2716	1356	1.10	1.14	32.1	35.9	0.83
474.0	22:23	75.0	101.4	29	220	132	196	25.8	3.49	270	2710	1356	1.10	1.14	32.1	35.9	0.81
475.0	22:24	78.3	101.3	30	219	132	195	26.0	3.51	270	2709	1356	1.10	1.14	32.2	35.9	0.80
476.0	22:25	64.3	101.1	31	219	132	200	26.1	3.52	270	2703	1356	1.10	1.14	32.2	35.9	0.85
477.0	22:27	34.0	100.5	32	217	133	190	26.2	3.55	270	2704	1356	1.10	1.14	32.3	35.9	1.02
478.0	22:28	94.7	100.5	29	221	133	186	26.4	3.56	271	2702	1361	1.10	1.14	32.3	35.9	0.75
479.0	22:28	63.2	100.4	30	220	133	189	26.5	3.58	271	2702	1361	1.10	1.14	32.3	35.9	0.85
480.0	22:29	65.5	100.2	31	218	133	191	26.6	3.59	271	2697	1361	1.10	1.14	32.4	35.8	0.85
481.0	22:42	60.0	100.0	23	228	118	148	26.7	3.61	272	2733	1365	1.10	1.14	32.2	35.7	0.78
482.0	22:43	83.7	100.0	25	226	138	197	26.8	3.62	272	2749	1365	1.10	1.14	32.2	35.8	0.76
483.0	22:45	36.4	99.5	29	222	137	209	27.1	3.65	272	2747	1365	1.10	1.14	32.2	36.2	0.98
484.0	22:45	85.7	99.5	33	218	137	226	27.1	3.66	272	2750	1364	1.10	1.14	32.2	36.4	0.81
485.0	22:46	73.5	99.4	36	215	137	240	27.2	3.67	272	2754	1365	1.10	1.14	32.3	36.5	0.86
486.0	22:47	49.3	99.1	39	211	136	243	27.3	3.69	272	2755	1365	1.10	1.14	32.3	36.6	0.99
487.0	22:48	64.3	98.9	37	214	137	237	27.5	3.71	272	2760	1366	1.10	1.14	32.4	36.7	0.90
488.0	22:49	92.3	98.9	32	218	137	229	27.6	3.72	272	2764	1366	1.10	1.14	32.4	36.7	0.79
489.0	22:50	70.6	98.8	31	219	137	224	27.6	3.73	272	2766	1365	1.10	1.14	32.5	36.7	0.84
490.0	22:51	76.6	98.7	30	221	138	191	27.8	3.75	271	2778	1363	1.10	1.14	32.5	36.8	0.82
491.0	22:51	102.9	98.7	28	223	138	186	27.9	3.76	272	2782	1364	1.10	1.14	32.6	36.8	0.73
492.0	22:52	60.0	98.6	30	221	138	192	28.1	3.77	271	2790	1362	1.10	1.14	32.6	35.9	0.87
493.0	22:53	85.7	98.5	30	221	139	206	28.1	3.79	271	2792	1361	1.10	1.14	32.7	36.9	0.79
494.0	22:54	78.3	98.5	30	221	139	204	28.2	3.80	271	2798	1361	1.10	1.14	32.8	36.8	0.82
495.0	22:54	87.8	98.4	30	221	140	197	28.4	3.81	271	2798	1361	1.10	1.14	32.8	36.8	0.79
496.0	22:56	52.9	98.2	33	218	139	212	28.5	3.83	271	2789	1362	1.10	1.14	32.8	36.8	0.93
497.0	22:56	72.0	98.1	34	217	138	231	28.6	3.84	271	2782	1360	1.10	1.14	32.9	36.8	0.86
498.0	22:57	150.0	98.2	37	213	137	260	28.6	3.85	275	2904	1383	1.10	1.14	32.9	36.9	0.70
499.0	22:57	133.3	98.3	37	213	138	246	28.6	3.86	276	2927	1387	1.10	1.14	32.9	36.9	0.73
500.0	22:58	112.5	98.3	37	214	138	251	28.8	3.87	276	2930	1387	1.10	1.12	32.9	36.9	0.78
501.0	22:58	115.2	98.3	38	213	138	240	28.8	3.87	276	2928	1388	1.10	1.12	33.0	37.0	0.78
502.0	22:59	124.1	98.4	40	211	138	235	29.0	3.88	276	2924	1387	1.10	1.12	33.0	37.0	0.77
503.0	22:59	94.7	98.4	40	210	138	245	29.0	3.89	276	2922	1387	1.10	1.12	33.0	37.1	0.85
504.0	23:00	80.0	98.3	42	209	138	254	29.1	3.91	276	2926	1388	1.10	1.12	33.0	37.1	0.90
505.0	23:01	85.7	98.3	44	207	137	268	29.2	3.92	276	2922	1388	1.10	1.12	33.0	37.2	0.89
506.0	23:02	90.0	98.3	44	207	137	269	29.2	3.93	276	2920	1384	1.10	1.12	33.1	37.2	0.88
507.0	23:02	73.5	98.2	45	206	137	266	29.4	3.94	276	2927	1385	1.10	1.12	33.1	37.2	0.94
508.0	23:03	67.9	98.1	42	209	138	238	29.5	3.96	276	2929	1385	1.10	1.12	33.1	37.2	0.94
509.0	23:16	27.1	97.4	28	222	146	194	29.8	3.99	273	2812	1371	1.10	1.12	32.9	37.3	1.07
510.0	23:17	102.9	97.4	38	212	143	234	29.8	4.00	275	2861	1381	1.10	1.12	32.9	37.4	0.82
511.0	23:18	46.2	97.1	41	209	143	227	30.1	4.02	275	2851	1382	1.10	1.12	32.9	37.6	1.04
512.0	23:19	53.7	96.9	47	203	139	249	30.3	4.04	275	2841	1382	1.10	1.12	32.9	37.8	1.03
513.0	23:20	120.0	97.0	42	208	136	272	30.3	4.05	275	2841	1383	1.10	1.12	32.9	37.8	0.79

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
513.0	23:20	120.0	97.0	42	208	136	272	30.3	4.05	275	2841	1383	1.10	1.12	32.9	37.8	0.79
514.0	23:21	55.4	96.8	46	204	137	268	30.4	4.07	276	2837	1385	1.10	1.12	33.0	37.9	1.02
515.0	23:22	64.3	96.7	46	204	139	257	30.5	4.09	277	2834	1392	1.10	1.12	33.0	37.9	0.98
516.0	23:22	138.5	96.8	44	206	154	278	30.5	4.09	276	2834	1387	1.10	1.12	33.0	37.9	0.79
517.0	23:23	120.0	96.8	43	207	150	293	30.7	4.10	276	2837	1384	1.10	1.12	33.0	37.9	0.82
518.0	23:24	83.7	96.8	45	205	152	279	30.8	4.11	275	2832	1381	1.10	1.12	33.1	37.9	0.92
519.0	23:24	70.6	96.7	47	203	149	291	30.8	4.13	276	2843	1384	1.10	1.12	33.1	37.9	0.98
520.0	23:25	116.1	96.7	49	201	146	299	31.0	4.14	274	2845	1374	1.10	1.12	33.2	37.9	0.85
521.0	23:26	94.7	96.7	43	207	151	285	31.1	4.15	274	2843	1374	1.10	1.12	33.2	37.9	0.88
522.0	23:27	69.2	96.6	47	205	150	283	31.1	4.16	274	2850	1374	1.10	1.13	33.2	37.9	0.98
523.0	23:27	80.0	96.6	47	206	151	285	31.3	4.17	274	2854	1374	1.10	1.13	33.3	37.9	0.95
524.0	23:28	116.1	96.6	47	206	152	284	31.4	4.18	274	2856	1374	1.10	1.13	33.3	37.9	0.84
525.0	23:28	102.9	96.6	48	205	150	297	31.4	4.19	274	2857	1374	1.10	1.12	33.4	37.9	0.88
526.0	23:30	52.2	96.4	49	204	153	275	31.6	4.21	274	2867	1374	1.10	1.12	33.4	37.9	1.08
527.0	23:30	83.7	96.4	49	204	151	285	31.8	4.22	274	2870	1374	1.10	1.12	33.5	37.9	0.95
528.0	23:31	73.5	96.3	44	209	154	262	31.9	4.24	274	2876	1374	1.10	1.12	33.6	37.9	0.96
529.0	23:32	72.0	96.2	43	210	154	267	32.1	4.25	273	2877	1372	1.10	1.12	33.6	37.9	0.96
530.0	23:33	65.5	96.1	44	209	154	265	32.1	4.27	272	2880	1367	1.10	1.12	33.7	37.7	0.99
531.0	23:34	43.9	95.8	49	204	151	288	32.4	4.29	272	2879	1365	1.10	1.12	33.7	37.8	1.12
532.0	23:35	64.3	95.7	51	202	153	274	32.5	4.30	272	2880	1365	1.10	1.12	33.8	37.8	1.03
533.0	23:37	36.4	95.4	49	204	154	270	32.7	4.33	272	2879	1366	1.10	1.12	33.8	37.9	1.18
534.0	23:38	67.9	95.3	47	206	153	275	32.9	4.35	272	2874	1365	1.10	1.12	33.9	36.3	0.99
535.0	23:39	65.5	95.2	47	206	153	274	33.0	4.36	272	2882	1365	1.10	1.12	33.9	36.8	1.01
536.0	23:39	70.6	95.1	47	206	153	274	33.2	4.38	272	2881	1365	1.10	1.12	33.9	37.0	0.98
537.0	23:40	57.1	94.9	47	206	156	250	33.3	4.39	272	2870	1369	1.10	1.12	34.0	37.8	1.05
538.0	00:04	18.4	94.0	17	237	151	121	33.8	4.45	272	2810	1369	1.10	1.12	33.2	37.0	1.04
539.0	00:05	50.0	93.8	36	218	152	214	33.9	4.47	272	2784	1369	1.10	1.13	33.2	37.5	1.00
540.0	00:07	36.4	93.4	41	213	149	246	34.2	4.49	272	2729	1369	1.10	1.12	33.3	37.5	1.12
541.0	00:08	50.7	93.3	47	207	148	262	34.4	4.51	272	2716	1369	1.10	1.13	33.4	37.9	1.07
542.0	00:10	36.0	92.9	49	206	150	241	34.6	4.54	272	2723	1369	1.10	1.12	33.5	38.0	1.17
543.0	00:12	26.1	92.3	49	205	148	261	34.9	4.58	272	2724	1369	1.10	1.13	33.6	38.1	1.26
544.0	00:14	34.3	92.0	50	205	152	211	35.2	4.61	272	2734	1369	1.10	1.13	33.8	38.2	1.20
545.0	00:17	28.6	91.5	49	206	150	248	35.4	4.64	272	2744	1369	1.10	1.12	33.9	38.3	1.24
546.0	00:18	42.4	91.2	51	204	144	274	35.7	4.67	272	2758	1369	1.10	1.12	34.1	38.3	1.13
547.0	00:18	41.1	91.4	50	205	148	254	35.7	4.67	272	2754	1369	1.10	1.12	34.1	38.0	1.14
548.0	00:19	38.7	91.1	46	209	151	223	36.0	4.70	273	2757	1370	1.10	1.12	34.1	38.3	1.13
549.0	00:20	92.3	91.1	45	210	147	267	36.0	4.71	273	2758	1370	1.10	1.12	34.1	38.4	0.89
550.0	00:22	26.7	90.6	48	206	150	247	36.3	4.75	273	2759	1371	1.10	1.12	34.2	38.4	1.25
551.0	00:23	63.2	90.5	46	209	148	257	36.4	4.76	273	2746	1371	1.10	1.12	34.2	38.5	1.00
552.0	00:24	80.0	90.5	47	207	148	261	36.6	4.77	274	2744	1374	1.10	1.12	34.2	38.5	0.95
553.0	00:25	51.4	90.3	49	206	147	273	36.7	4.79	274	2743	1374	1.10	1.12	34.2	38.6	1.07
554.0	00:27	32.1	89.9	49	206	149	253	37.1	4.83	272	2746	1364	1.10	1.13	34.3	38.6	1.20
555.0	00:28	87.8	89.9	47	208	148	263	37.1	4.84	272	2761	1364	1.10	1.12	34.4	38.6	0.92
556.0	00:29	32.1	89.6	49	206	149	247	37.4	4.87	272	2772	1364	1.10	1.12	34.4	38.6	1.20
557.0	00:31	31.3	89.2	49	206	150	247	37.7	4.90	272	2740	1364	1.10	1.12	34.6	38.5	1.21
558.0	00:32	63.2	89.1	47	208	146	276	37.8	4.92	272	2772	1364	1.10	1.12	34.6	37.8	1.00
559.0	00:34	35.3	88.8	50	205	148	259	38.0	4.94	272	2774	1364	1.10	1.12	34.7	37.8	1.18
560.0	00:36	30.5	88.4	47	207	151	231	38.3	4.98	272	2773	1364	1.10	1.12	34.8	38.4	1.21
561.0	00:37	75.0	88.4	47	208	146	282	38.5	4.99	272	2746	1364	1.10	1.12	34.9	38.6	0.95
562.0	00:39	35.6	88.1	49	206	149	253	38.6	5.02	272	2759	1364	1.10	1.12	34.9	38.8	1.17

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
562.0	00:39	35.6	88.1	49	206	149	253	38.6	5.02	272	2759	1364	1.10	1.12	34.9	38.8	1.17
563.0	00:39	75.0	88.0	46	209	146	273	38.8	5.03	272	2752	1364	1.10	1.12	35.0	38.9	0.95
564.0	00:40	61.0	88.0	47	208	147	268	39.0	5.05	272	2765	1364	1.10	1.12	35.0	38.9	1.01
565.0	00:42	40.9	87.7	48	207	149	252	39.1	5.07	272	2779	1364	1.10	1.13	35.1	38.9	1.13
566.0	00:43	40.4	87.5	49	206	148	264	39.4	5.10	272	2744	1364	1.10	1.12	35.2	38.9	1.14
567.0	00:57	32.4	87.2	37	218	126	205	39.6	5.13	272	2769	1364	1.10	1.12	35.2	38.4	1.07
568.0	00:58	50.0	87.0	39	217	148	222	39.8	5.15	272	2755	1364	1.10	1.12	35.2	38.4	1.01
569.0	01:00	39.6	86.8	45	211	154	259	39.9	5.17	270	2878	1355	1.10	1.12	35.3	38.6	1.13
570.0	01:00	85.7	86.8	45	211	155	277	40.1	5.18	271	2867	1359	1.10	1.12	35.3	38.7	0.92
571.0	01:02	35.3	86.5	45	211	156	257	40.2	5.21	271	2859	1362	1.10	1.12	35.3	38.9	1.16
572.0	01:03	56.3	86.4	46	210	151	295	40.4	5.23	271	2846	1363	1.10	1.12	35.4	39.2	1.03
573.0	01:04	58.1	86.3	42	214	156	261	40.6	5.25	272	2834	1367	1.10	1.12	35.4	39.3	1.01
574.0	01:06	45.6	86.1	45	211	157	256	40.9	5.27	272	2822	1365	1.10	1.12	35.5	39.5	1.10
575.0	01:07	43.9	86.0	47	209	156	268	41.1	5.29	272	2814	1367	1.10	1.12	35.5	39.6	1.12
576.0	01:08	48.6	85.8	45	212	154	282	41.2	5.31	272	2802	1368	1.10	1.12	35.6	39.6	1.07
577.0	01:09	72.0	85.8	44	213	157	268	41.4	5.33	272	2800	1365	1.10	1.12	35.6	39.6	0.97
578.0	01:10	47.4	85.6	44	213	156	268	41.6	5.35	272	2793	1366	1.10	1.12	35.7	39.7	1.08
579.0	01:11	50.0	85.5	45	212	155	272	41.7	5.37	272	2790	1367	1.10	1.12	35.7	39.7	1.07
580.0	01:12	67.9	85.4	47	209	150	301	41.9	5.38	272	2788	1366	1.10	1.12	35.7	39.7	0.99
581.0	01:13	61.0	85.4	48	208	137	318	42.0	5.40	272	2790	1364	1.10	1.12	35.7	38.7	1.01
582.0	01:14	56.3	85.3	47	209	138	308	42.2	5.42	272	2797	1364	1.10	1.12	35.8	38.7	1.02
583.0	01:15	67.9	85.2	44	212	158	307	42.3	5.43	272	2798	1364	1.10	1.12	35.8	38.5	0.99
584.0	01:16	54.5	85.1	46	210	94	320	42.4	5.45	271	2802	1359	1.10	1.12	35.8	38.9	0.93
585.0	01:19	23.7	84.7	22	235	113	158	42.6	5.49	271	2819	1359	1.10	1.12	35.8	39.4	0.98
586.0	01:20	55.4	84.6	43	213	145	250	42.8	5.51	271	2831	1359	1.10	1.12	35.8	39.8	1.01
587.0	01:21	61.0	84.5	45	212	144	259	42.9	5.53	271	2795	1359	1.10	1.12	35.8	39.8	1.00
588.0	01:22	48.0	84.4	45	211	145	256	43.1	5.55	271	2832	1359	1.10	1.12	35.8	39.9	1.06
589.0	01:23	65.5	84.3	44	212	146	241	43.2	5.56	271	2835	1359	1.10	1.12	35.8	39.9	0.98
590.0	01:24	47.4	84.2	44	212	144	262	43.4	5.58	271	2833	1359	1.10	1.12	35.9	40.0	1.06
591.0	01:26	52.2	84.1	46	210	144	264	43.5	5.60	271	2802	1359	1.10	1.12	35.9	40.1	1.05
592.0	01:26	70.6	84.0	48	208	142	289	43.7	5.62	271	2816	1359	1.10	1.12	36.0	40.1	0.98
593.0	01:27	58.1	83.9	46	210	145	249	43.8	5.63	271	2809	1359	1.10	1.12	36.0	40.1	1.02
594.0	01:28	63.2	83.9	49	207	142	287	44.0	5.65	271	2824	1359	1.10	1.12	36.0	40.2	1.01
595.0	01:40	46.8	83.7	32	225	88	175	44.1	5.67	271	2840	1359	1.10	1.12	36.1	40.1	0.86
596.0	01:41	54.5	83.6	43	215	140	247	44.3	5.69	270	2970	1358	1.10	1.12	36.2	40.1	1.01
597.0	01:42	66.7	83.6	46	211	137	280	44.4	5.71	270	2974	1357	1.10	1.12	36.2	40.2	0.97
598.0	01:43	81.8	83.6	46	212	140	252	44.4	5.72	270	2976	1355	1.10	1.12	36.2	40.3	0.92
599.0	01:44	56.3	83.5	47	211	138	276	44.6	5.74	270	2973	1354	1.10	1.12	36.3	40.4	1.02
600.0	01:45	57.1	83.4	49	209	139	262	44.7	5.75	270	2976	1354	1.10	1.12	36.3	40.4	1.03
601.0	01:46	58.1	83.4	49	209	138	274	44.8	5.77	270	2982	1354	1.10	1.12	36.3	40.4	1.03
602.0	01:47	50.7	83.2	52	206	144	257	45.0	5.79	270	2982	1354	1.10	1.12	36.4	40.4	1.09
603.0	01:48	61.0	83.2	48	209	151	265	45.1	5.81	270	2984	1354	1.10	1.12	36.4	40.4	1.03
604.0	01:50	50.7	83.1	48	210	151	261	45.3	5.83	270	2994	1358	1.10	1.12	36.5	40.4	1.08
605.0	01:51	57.1	83.0	47	210	151	266	45.5	5.84	271	2999	1359	1.10	1.12	36.5	40.4	1.04
606.0	01:52	64.3	82.9	46	212	151	275	45.6	5.86	270	3000	1358	1.10	1.12	36.6	40.4	1.00
607.0	01:52	67.9	82.9	48	209	150	289	45.8	5.87	270	3003	1356	1.10	1.12	36.6	40.4	1.00
608.0	01:53	78.3	82.9	46	212	151	269	45.9	5.89	269	3004	1353	1.10	1.12	36.6	40.5	0.95
609.0	01:54	56.3	82.8	45	212	151	267	46.1	5.90	269	3008	1351	1.10	1.12	36.7	40.5	1.04
610.0	01:55	59.0	82.8	50	208	149	304	46.3	5.92	269	3012	1349	1.10	1.12	36.7	40.5	1.05
611.0	01:56	75.0	82.7	51	207	149	302	46.3	5.93	268	3016	1348	1.10	1.12	36.8	40.5	0.99

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
611.0	01:56	75.0	82.7	51	207	149	302	46.3	5.93	268	3016	1348	1.10	1.12	36.8	40.5	0.99
612.0	01:57	59.0	82.7	49	209	150	286	46.4	5.95	269	3019	1349	1.10	1.12	36.8	40.5	1.05
613.0	01:58	57.1	82.6	48	210	150	283	46.6	5.97	268	3025	1348	1.10	1.12	36.9	40.5	1.05
614.0	01:59	52.9	82.5	47	211	151	264	46.7	5.99	268	3027	1346	1.10	1.12	36.9	40.5	1.06
615.0	02:00	51.4	82.4	45	213	151	260	46.9	6.01	268	3026	1346	1.10	1.12	37.0	40.5	1.06
616.0	02:02	48.0	82.3	45	213	151	265	47.2	6.03	268	3034	1344	1.10	1.12	37.0	40.6	1.07
617.0	02:03	52.2	82.2	47	211	151	261	47.4	6.05	267	3033	1342	1.10	1.12	37.1	40.9	1.06
618.0	02:04	60.0	82.1	49	209	150	285	47.5	6.06	268	3021	1345	1.10	1.12	37.1	40.9	1.04
619.0	02:05	56.3	82.0	52	206	150	288	47.7	6.08	269	2996	1353	1.10	1.12	37.1	41.0	1.08
620.0	02:06	49.3	81.9	50	208	151	266	47.8	6.10	270	2973	1354	1.10	1.12	37.2	41.0	1.10
621.0	02:07	49.3	81.8	50	208	151	265	48.0	6.12	270	2961	1354	1.10	1.12	37.2	41.0	1.10
622.0	02:08	52.9	81.7	49	209	152	254	48.1	6.14	270	2958	1356	1.10	1.12	37.3	41.1	1.07
623.0	02:10	51.4	81.6	50	208	150	284	48.3	6.16	270	2947	1357	1.10	1.12	37.3	41.1	1.09
624.0	02:20	52.2	81.6	40	218	107	201	48.5	6.18	270	2947	1355	1.10	1.12	37.4	41.1	0.93
625.0	02:21	48.6	81.4	37	222	146	235	48.6	6.20	269	2923	1349	1.10	1.12	37.6	41.1	1.01
626.0	02:22	39.6	81.3	33	226	148	215	48.8	6.23	269	2915	1349	1.10	1.12	37.6	41.3	1.03
627.0	02:23	54.5	81.2	43	217	145	261	48.9	6.24	268	2915	1345	1.10	1.12	37.6	41.3	1.02
628.0	02:24	55.4	81.1	48	212	144	274	49.1	6.26	268	2988	1345	1.10	1.12	37.6	41.3	1.04
629.0	02:26	55.4	81.0	47	213	145	262	49.2	6.28	268	2996	1345	1.10	1.12	37.7	41.3	1.04
630.0	02:27	47.4	80.9	49	210	143	289	49.4	6.30	268	2997	1345	1.10	1.12	37.7	41.3	1.09
631.0	02:28	52.9	80.9	51	208	144	276	49.5	6.32	267	2992	1341	1.10	1.12	37.7	41.4	1.07
632.0	02:29	46.8	80.7	46	213	147	255	49.8	6.34	265	2974	1332	1.10	1.12	37.7	41.4	1.08
633.0	02:30	52.2	80.6	48	212	150	283	50.0	6.36	265	2982	1332	1.10	1.12	37.7	41.4	1.07
634.0	02:32	48.0	80.5	45	214	151	261	50.1	6.38	265	2974	1332	1.10	1.12	37.8	41.5	1.08
635.0	02:33	51.4	80.5	47	212	150	274	50.3	6.40	265	2964	1333	1.10	1.12	37.8	40.0	1.07
636.0	02:34	64.3	80.4	48	211	150	272	50.4	6.42	265	2963	1332	1.10	1.12	37.9	41.0	1.02
637.0	02:35	62.1	80.4	48	211	150	283	50.6	6.43	265	2964	1332	1.10	1.12	37.9	41.3	1.02
638.0	02:36	49.3	80.3	49	211	150	271	50.8	6.45	265	2963	1332	1.10	1.12	37.9	41.3	1.09
639.0	02:37	63.2	80.2	49	211	150	273	50.9	6.47	265	2965	1333	1.10	1.12	37.9	41.4	1.03
640.0	02:38	45.0	80.1	47	212	151	244	51.1	6.49	264	2943	1328	1.10	1.12	37.9	41.5	1.11
641.0	02:39	58.1	80.1	40	219	152	222	51.2	6.51	258	2834	1295	1.10	1.12	38.0	41.7	1.00
642.0	02:40	52.9	80.0	44	215	151	244	51.4	6.53	258	2832	1295	1.10	1.12	38.0	41.7	1.05
643.0	02:41	57.1	79.9	48	211	150	275	51.5	6.54	266	2952	1334	1.10	1.12	38.0	41.6	1.05
644.0	02:42	65.5	79.9	51	209	150	288	51.7	6.56	266	2959	1336	1.10	1.12	38.1	41.6	1.03
645.0	02:43	54.5	79.8	48	211	151	264	51.8	6.58	266	2960	1336	1.10	1.12	38.1	41.6	1.06
646.0	02:44	59.0	79.8	47	213	150	271	52.0	6.60	266	2958	1336	1.10	1.12	38.1	41.8	1.03
647.0	02:45	63.2	79.7	48	211	150	278	52.1	6.61	266	2958	1335	1.10	1.12	38.2	41.8	1.02
648.0	02:46	57.1	79.7	50	210	150	294	52.3	6.63	266	2959	1335	1.10	1.12	38.2	41.6	1.06
649.0	02:47	70.6	79.6	52	208	149	289	52.4	6.64	266	2957	1336	1.10	1.12	38.2	41.6	1.01
650.0	03:14	28.3	79.4	34	225	100	162	52.7	6.68	266	2942	1336	1.10	1.12	38.2	41.7	1.02
651.0	03:15	47.4	79.3	41	218	140	249	52.8	6.70	246	2582	1234	1.10	1.12	38.0	41.7	1.03
652.0	03:17	37.5	79.1	49	211	141	242	53.1	6.73	249	2653	1250	1.10	1.12	38.0	41.7	1.15
653.0	03:29	21.7	78.7	35	225	114	191	53.4	6.77	261	2705	1309	1.10	1.12	37.9	41.7	1.14
654.0	03:30	47.4	78.6	32	229	143	171	53.5	6.79	261	2782	1309	1.10	1.12	37.9	41.7	0.97
655.0	03:31	47.4	78.5	47	214	146	237	53.7	6.81	261	2773	1309	1.10	1.12	37.9	41.7	1.08
656.0	03:34	26.7	78.2	48	213	146	237	54.1	6.85	261	2764	1309	1.10	1.12	37.9	41.7	1.25
657.0	03:35	50.0	78.1	50	211	145	257	54.2	6.87	261	2789	1309	1.10	1.12	37.9	41.7	1.09
658.0	03:37	30.3	77.9	49	212	147	231	54.5	6.90	261	2810	1309	1.10	1.12	38.0	41.7	1.22
659.0	03:39	27.9	77.7	51	210	147	235	54.8	6.94	261	2803	1309	1.10	1.12	38.0	41.7	1.25
660.0	03:41	32.7	77.5	51	210	145	251	55.1	6.97	261	2787	1309	1.10	1.12	38.1	41.7	1.21

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
660.0	03:41	32.7	77.5	51	210	145	251	55.1	6.97	261	2787	1309	1.10	1.12	38.1	41.7	1.21
661.0	03:43	28.1	77.2	51	210	141	263	55.4	7.01	261	2779	1309	1.10	1.12	38.2	41.7	1.24
662.0	03:44	37.1	77.1	51	210	153	234	55.6	7.03	261	2773	1310	1.10	1.12	38.2	41.7	1.19
663.0	03:46	35.3	76.9	51	210	152	256	55.9	7.06	261	2764	1310	1.10	1.12	38.3	41.7	1.20
664.0	03:47	67.9	76.9	47	214	152	244	56.0	7.08	261	2760	1310	1.10	1.12	38.3	41.7	1.00
665.0	03:49	39.6	76.7	46	215	153	239	56.2	7.10	261	2759	1310	1.10	1.12	38.4	41.7	1.14
666.0	03:50	31.9	76.5	50	211	152	246	56.5	7.13	261	2758	1310	1.10	1.12	38.4	41.7	1.22
667.0	03:52	32.4	76.4	48	213	153	236	56.8	7.16	261	2767	1309	1.10	1.12	38.5	41.7	1.20
668.0	03:54	31.6	76.2	46	215	152	240	57.1	7.20	260	2793	1306	1.10	1.12	38.5	41.7	1.20
669.0	03:56	37.5	76.0	45	216	133	235	57.3	7.22	260	2804	1305	1.10	1.12	38.5	41.7	1.11
670.0	03:57	58.1	76.0	41	220	134	216	57.4	7.24	260	2809	1305	1.10	1.12	38.6	41.3	0.97
671.0	04:00	22.1	75.6	44	217	134	223	57.8	7.28	260	2815	1305	1.10	1.12	38.6	41.1	1.24
672.0	04:01	40.4	75.5	45	216	132	246	57.9	7.31	260	2820	1305	1.10	1.12	38.7	41.8	1.08
673.0	04:02	67.9	75.5	43	218	132	242	58.1	7.32	260	2822	1305	1.10	1.12	38.7	42.0	0.94
674.0	04:03	65.2	75.5	43	218	132	238	58.2	7.34	260	2824	1304	1.10	1.12	38.8	42.1	0.94
675.0	04:04	48.6	75.4	42	219	132	239	58.4	7.36	259	2829	1303	1.10	1.12	38.8	42.1	1.02
676.0	04:05	47.4	75.3	41	220	133	229	58.5	7.38	259	2827	1302	1.10	1.11	38.8	42.2	1.03
677.0	04:07	46.8	75.2	41	220	133	232	58.6	7.40	259	2835	1299	1.10	1.11	38.9	42.2	1.03
678.0	04:08	40.9	75.1	44	217	134	213	58.9	7.43	258	2836	1298	1.10	1.11	38.9	42.3	1.09
679.0	04:10	25.5	74.9	47	214	132	242	59.2	7.47	258	2836	1298	1.10	1.11	39.0	42.3	1.23
680.0	04:12	50.7	74.8	45	216	134	224	59.4	7.49	258	2834	1296	1.10	1.11	39.1	42.3	1.04
681.0	04:13	46.2	74.7	40	221	135	205	59.5	7.51	258	2832	1297	1.10	1.11	39.2	42.4	1.03
682.0	04:14	55.4	74.7	37	224	134	214	59.6	7.53	258	2833	1296	1.10	1.11	39.3	42.4	0.96
683.0	04:15	48.1	74.6	38	223	135	198	59.8	7.55	258	2835	1296	1.10	1.11	39.3	42.4	1.01
684.0	04:17	44.4	74.5	36	225	136	186	60.1	7.57	258	2838	1296	1.10	1.11	39.4	42.4	1.02
685.0	04:31	30.0	74.3	38	243	140	200	60.2	7.60	257	2874	1291	1.10	1.11	39.0	42.4	1.13
686.0	04:32	33.6	74.1	41	222	146	210	60.4	7.63	257	2899	1291	1.10	1.11	38.8	42.4	1.14
687.0	04:34	31.6	74.0	39	223	146	218	60.7	7.66	257	2902	1291	1.10	1.11	38.7	42.4	1.15
688.0	04:36	32.7	73.8	42	220	144	230	61.0	7.70	257	2902	1291	1.10	1.11	38.7	42.4	1.16
689.0	04:37	62.1	73.8	37	225	146	216	61.1	7.71	257	2902	1291	1.10	1.11	38.6	42.4	0.96
690.0	04:38	54.5	73.7	31	231	147	195	61.3	7.73	257	2907	1291	1.09	1.11	38.6	42.5	0.94
691.0	04:39	66.7	73.7	36	227	145	229	61.4	7.74	257	2909	1290	1.08	1.11	38.5	42.5	0.92
692.0	04:40	54.5	73.7	41	221	144	234	61.6	7.76	257	2913	1291	1.08	1.11	38.5	42.5	1.01
693.0	04:42	25.9	73.4	43	220	145	223	61.9	7.80	256	2916	1288	1.08	1.11	38.5	42.5	1.22
694.0	04:44	44.4	73.4	45	218	143	253	62.0	7.82	256	2920	1287	1.08	1.11	38.6	42.5	1.09
695.0	04:45	75.0	73.4	44	218	144	245	62.2	7.84	256	2923	1287	1.08	1.11	38.7	42.5	0.95
696.0	04:46	66.7	73.3	41	221	144	237	62.3	7.85	256	2923	1287	1.08	1.11	38.7	42.5	0.96
697.0	04:46	70.6	73.3	43	220	143	248	62.5	7.87	256	2923	1287	1.08	1.11	38.7	42.5	0.95
698.0	04:47	66.7	73.3	39	223	145	232	62.6	7.88	256	2927	1287	1.08	1.11	38.8	42.5	0.95
699.0	04:48	69.2	73.3	40	223	143	255	62.6	7.90	256	2925	1284	1.08	1.11	38.8	42.5	0.94
700.0	04:49	45.6	73.2	42	221	146	212	62.9	7.92	256	2934	1286	1.08	1.11	38.9	42.5	1.07
701.0	04:52	21.4	72.9	47	215	144	240	63.2	7.96	255	2934	1283	1.08	1.11	39.0	42.5	1.30
702.0	04:54	31.9	72.8	41	221	144	236	63.6	8.00	256	2927	1287	1.08	1.11	39.1	42.5	1.15
703.0	04:55	46.2	72.7	44	218	141	274	63.7	8.02	256	2913	1287	1.08	1.11	39.2	42.6	1.07
704.0	04:57	35.6	72.6	45	217	148	186	63.9	8.05	256	2904	1287	1.08	1.11	39.3	42.7	1.16
705.0	04:58	42.1	72.6	45	218	147	213	63.9	8.05	257	2894	1290	1.08	1.11	39.3	42.4	1.11
706.0	04:59	60.0	72.6	47	215	144	253	64.1	8.07	256	2898	1288	1.08	1.11	39.3	42.7	1.02
707.0	05:00	47.4	72.6	43	219	144	241	64.2	8.09	256	2891	1287	1.08	1.11	39.4	42.8	1.06
708.0	05:01	50.0	72.5	43	219	145	239	64.4	8.11	257	2872	1291	1.08	1.11	39.4	42.9	1.05
709.0	05:02	47.4	72.4	42	220	144	243	64.6	8.13	257	2865	1292	1.08	1.11	39.5	42.9	1.06

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
709.0	05:02	47.4	72.4	42	220	144	243	64.6	8.13	257	2865	1292	1.08	1.11	39.5	42.9	1.06
710.0	05:03	67.9	72.4	46	217	143	256	64.7	8.15	258	2859	1294	1.08	1.11	39.5	42.9	0.98
711.0	05:04	56.3	72.4	46	216	142	284	64.9	8.16	258	2857	1294	1.08	1.11	39.6	42.9	1.03
712.0	05:05	67.9	72.4	43	219	144	236	65.0	8.18	257	2851	1293	1.08	1.11	39.6	42.9	0.97
713.0	05:05	225.0	72.5	43	220	145	230	65.0	8.18	258	2857	1296	1.08	1.11	39.6	42.9	0.65
714.0	05:06	128.6	72.5	40	223	146	221	65.0	8.19	258	2858	1296	1.08	1.11	39.6	42.9	0.78
715.0	05:06	112.5	72.6	39	224	144	241	65.2	8.20	258	2858	1295	1.08	1.11	39.6	42.9	0.81
716.0	05:07	66.7	72.6	42	221	142	270	65.3	8.21	258	2861	1294	1.08	1.11	39.7	42.9	0.96
717.0	05:08	85.7	72.6	42	220	144	248	65.3	8.23	257	2866	1291	1.08	1.11	39.7	42.9	0.90
718.0	05:09	75.0	72.6	41	222	143	254	65.5	8.24	257	2864	1292	1.08	1.11	39.7	42.9	0.92
719.0	05:25	43.9	72.5	29	242	138	210	65.7	8.26	258	2844	1294	1.08	1.11	39.8	43.0	0.96
720.0	05:26	70.6	72.5	27	237	138	200	65.7	8.28	259	2845	1300	1.08	1.11	39.8	42.9	0.83
721.0	05:27	52.9	72.4	27	237	137	212	65.8	8.30	259	2839	1300	1.08	1.11	39.8	42.9	0.90
722.0	05:28	58.1	72.4	31	233	137	209	66.0	8.31	259	2832	1300	1.08	1.11	39.8	42.8	0.91
723.0	05:29	65.5	72.4	40	224	136	273	66.1	8.33	259	2832	1300	1.08	1.11	39.8	42.7	0.94
724.0	05:30	64.3	72.4	42	222	136	270	66.3	8.34	259	2835	1300	1.08	1.11	39.8	42.8	0.96
725.0	05:31	60.0	72.4	43	221	136	274	66.4	8.36	260	2854	1308	1.08	1.11	39.9	42.9	0.98
726.0	05:32	54.5	72.3	42	222	136	272	66.6	8.38	260	2862	1304	1.08	1.11	39.9	42.9	1.00
727.0	05:33	61.0	72.3	40	224	136	267	66.7	8.39	260	2872	1304	1.08	1.11	39.9	42.9	0.96
728.0	05:34	65.5	72.3	41	223	136	278	66.8	8.41	260	2867	1305	1.08	1.11	39.9	42.9	0.95
729.0	05:35	51.4	72.2	44	220	135	287	67.0	8.43	260	2874	1305	1.08	1.11	39.9	42.9	1.03
730.0	05:37	45.6	72.2	43	221	135	285	67.1	8.45	260	2873	1305	1.08	1.11	39.9	42.9	1.06
731.0	05:38	48.0	72.1	44	220	135	275	67.3	8.47	260	2870	1305	1.08	1.11	40.0	42.9	1.04
732.0	05:39	47.4	72.1	44	220	134	275	67.5	8.49	260	2870	1305	1.08	1.11	40.0	42.9	1.05
733.0	05:40	66.7	72.0	44	221	135	266	67.5	8.51	260	2869	1304	1.08	1.11	40.0	42.9	0.96
734.0	05:41	50.0	72.0	44	220	134	278	67.7	8.53	259	2872	1301	1.08	1.11	40.1	43.0	1.04
735.0	05:42	58.1	72.0	44	220	134	271	67.8	8.55	259	2878	1299	1.08	1.11	40.1	42.9	0.99
736.0	05:43	64.3	72.0	44	221	134	278	68.0	8.56	259	2881	1299	1.08	1.11	40.1	43.0	0.96
737.0	05:44	56.3	71.9	45	220	134	269	68.1	8.58	259	2883	1299	1.08	1.11	40.1	43.0	1.01
738.0	05:45	59.0	71.9	42	222	135	271	68.3	8.60	259	2890	1299	1.08	1.11	40.1	43.0	0.98
739.0	05:46	65.5	71.9	43	221	134	276	68.4	8.61	259	2892	1299	1.08	1.11	40.2	43.0	0.96
740.0	05:47	70.6	71.9	43	221	135	264	68.5	8.63	259	2896	1299	1.08	1.13	40.2	43.0	0.93
741.0	05:48	85.7	71.9	42	222	135	262	68.7	8.64	259	2898	1299	1.08	1.13	40.2	43.0	0.87
742.0	06:05	46.0	70.9	42	239	135	256	69.6	8.77	259	2892	1299	1.08	1.13	40.0	43.0	1.03
743.0	06:06	102.9	70.9	42	223	135	280	69.7	8.78	259	2931	1299	1.08	1.13	39.9	42.0	0.83
744.0	06:07	48.6	70.9	44	222	135	282	69.9	8.80	259	2932	1299	1.08	1.13	39.9	42.0	1.03
745.0	06:08	73.5	70.9	47	219	135	284	70.0	8.82	259	2927	1299	1.08	1.13	39.9	42.6	0.94
746.0	05:53	52.9	71.8	47	217	133	292	70.1	8.84	259	2912	1299	1.08	1.13	40.1	43.0	1.02
747.0	05:54	46.2	71.7	47	217	134	278	70.3	8.84	259	2912	1299	1.08	1.13	40.1	42.9	1.06
748.0	06:10	63.2	70.9	44	222	135	284	70.3	8.85	259	2906	1299	1.08	1.13	39.8	42.9	0.96
749.0	06:11	163.6	71.0	35	230	136	262	70.3	8.86	259	2907	1299	1.08	1.13	39.8	43.1	0.67
750.0	06:11	225.0	71.1	35	231	136	260	70.4	8.87	259	2906	1299	1.08	1.13	39.8	43.1	0.59
751.0	06:12	116.1	71.1	36	230	136	252	70.4	8.87	259	2903	1299	1.08	1.13	39.8	43.2	0.76
752.0	06:12	200.0	71.2	36	230	136	249	70.4	8.88	259	2902	1299	1.08	1.13	39.8	43.2	0.63
753.0	06:13	97.3	71.2	39	227	136	250	70.6	8.89	259	2903	1299	1.08	1.13	39.8	43.2	0.82
754.0	06:13	78.3	71.2	41	224	135	287	70.7	8.90	260	2909	1303	1.08	1.13	39.7	43.2	0.89
755.0	06:14	105.9	71.3	44	222	135	290	70.7	8.91	259	2911	1301	1.08	1.13	39.7	43.3	0.83
756.0	06:15	90.0	71.3	45	221	135	292	70.8	8.92	259	2910	1301	1.08	1.13	39.7	43.4	0.87
757.0	06:15	144.0	71.3	46	220	134	312	70.8	8.93	259	2914	1301	1.08	1.13	39.7	43.4	0.75
758.0	06:16	62.1	71.3	41	225	136	252	71.0	8.95	259	2914	1301	1.08	1.13	39.7	43.4	0.95

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
758.0	06:16	62.1	71.3	41	225	136	252	71.0	8.95	259	2914	1301	1.08	1.13	39.7	43.4	0.95
759.0	06:17	85.7	71.3	40	226	135	272	71.0	8.96	259	2915	1301	1.08	1.13	39.7	43.4	0.86
760.0	06:18	65.5	71.3	45	221	134	306	71.2	8.97	259	2914	1301	1.08	1.13	39.8	43.4	0.95
761.0	06:18	72.0	71.3	43	223	135	269	71.3	8.99	259	2916	1301	1.08	1.13	39.8	43.5	0.92
762.0	06:19	81.8	71.3	44	222	135	284	71.5	9.00	259	2923	1301	1.08	1.13	39.8	43.5	0.89
763.0	06:20	64.3	71.3	43	223	136	259	71.6	9.01	259	2921	1300	1.08	1.13	39.8	43.5	0.95
764.0	06:21	60.0	71.3	43	223	135	277	71.7	9.03	259	2923	1299	1.08	1.13	39.8	43.5	0.97
765.0	06:22	81.8	71.3	46	220	135	293	71.7	9.04	258	2929	1297	1.08	1.13	39.9	43.5	0.90
766.0	06:22	85.1	71.3	45	221	136	256	71.9	9.05	258	2934	1295	1.08	1.13	39.9	43.5	0.89
767.0	06:23	87.8	71.4	42	223	136	260	72.0	9.07	257	2939	1292	1.08	1.13	39.9	43.5	0.87
768.0	06:24	94.7	71.4	42	224	136	261	72.0	9.08	257	2941	1292	1.08	1.13	39.9	43.5	0.84
769.0	06:24	92.3	71.4	45	221	135	293	72.2	9.09	257	2946	1292	1.08	1.13	39.9	43.5	0.87
770.0	06:25	112.5	71.5	47	219	134	301	72.2	9.10	257	2945	1292	1.08	1.13	40.0	43.5	0.82
771.0	06:26	109.1	71.5	46	219	135	276	72.3	9.11	257	2949	1292	1.08	1.13	40.0	43.5	0.83
772.0	06:26	81.8	71.5	44	222	135	279	72.3	9.12	257	2952	1292	1.08	1.13	40.0	43.5	0.89
773.0	06:27	133.3	71.6	44	222	135	289	72.5	9.13	257	2958	1289	1.08	1.13	40.0	43.5	0.77
774.0	06:28	72.0	71.6	45	221	135	279	72.6	9.14	257	2962	1289	1.08	1.13	40.0	43.5	0.93
775.0	06:28	90.0	71.6	46	220	135	291	72.6	9.15	256	2967	1288	1.08	1.13	40.1	43.5	0.88
776.0	06:29	66.7	71.6	46	219	135	279	72.8	9.17	256	2972	1288	1.08	1.13	40.1	43.5	0.96
777.0	06:45	16.5	71.2	41	226	123	232	73.2	9.23	255	3013	1279	1.08	1.13	40.0	43.4	1.26
778.0	06:46	63.2	71.2	40	227	137	245	73.4	9.24	253	3016	1272	1.08	1.13	40.0	43.5	0.94
779.0	06:47	60.0	71.2	45	222	137	273	73.5	9.26	253	3013	1273	1.08	1.10	40.0	43.5	1.01
780.0	06:48	52.9	71.1	48	219	137	269	73.6	9.28	254	3010	1274	1.08	1.10	40.1	43.4	1.07
781.0	06:49	59.0	71.1	43	224	137	255	73.8	9.29	254	2996	1278	1.08	1.10	40.1	43.5	1.01
782.0	06:50	60.1	71.1	44	224	137	275	73.9	9.31	254	2991	1277	1.08	1.10	40.1	43.5	1.00
783.0	06:51	66.7	71.1	46	222	136	286	73.9	9.33	255	2985	1279	1.08	1.10	40.1	43.6	0.99
784.0	06:52	46.2	71.0	48	220	136	299	74.2	9.35	255	2978	1280	1.08	1.10	40.1	43.6	1.10
785.0	06:53	46.8	71.0	44	223	137	265	74.4	9.37	255	2971	1282	1.08	1.10	40.1	43.7	1.08
786.0	06:55	42.4	70.9	41	227	138	241	74.5	9.39	255	2966	1282	1.08	1.10	40.1	43.7	1.07
787.0	06:57	26.5	70.7	43	225	137	259	74.8	9.43	255	2961	1283	1.08	1.10	40.2	43.7	1.22
788.0	06:58	43.9	70.7	43	225	136	289	75.1	9.45	256	2957	1284	1.08	1.10	40.2	43.8	1.08
789.0	06:59	69.2	70.7	46	221	136	290	75.1	9.47	256	2958	1284	1.08	1.10	40.2	43.5	0.98
790.0	07:00	92.3	70.7	44	224	137	286	75.2	9.48	256	2956	1284	1.08	1.10	40.2	43.6	0.89
791.0	07:01	90.0	70.7	42	226	136	292	75.4	9.49	256	2955	1283	1.08	1.10	40.2	43.7	0.88
792.0	07:01	133.3	70.8	39	229	138	240	75.4	9.50	256	2957	1284	1.08	1.10	40.3	43.5	0.77
793.0	07:02	51.4	70.7	40	228	138	242	75.5	9.52	256	2956	1284	1.08	1.10	40.3	43.7	1.02
794.0	07:03	163.6	70.8	33	235	138	257	75.5	9.52	256	2958	1284	1.08	1.10	40.3	43.7	0.68
795.0	07:03	161.2	70.8	29	238	138	253	75.6	9.53	256	2958	1283	1.08	1.10	40.3	43.7	0.67
796.0	07:03	156.5	70.9	27	240	138	214	75.6	9.53	255	2964	1283	1.08	1.10	40.3	43.5	0.66
797.0	07:04	171.4	71.0	28	239	138	239	75.6	9.54	255	2961	1282	1.08	1.10	40.3	43.6	0.64
798.0	07:04	189.5	71.0	27	240	138	230	75.8	9.55	256	2963	1284	1.08	1.10	40.3	43.4	0.61
799.0	07:04	181.2	71.1	27	240	138	238	75.8	9.55	256	2968	1284	1.08	1.10	40.3	43.5	0.62
800.0	07:05	150.0	71.2	27	240	138	236	75.8	9.56	256	2964	1283	1.08	1.10	40.3	43.5	0.67
801.0	07:05	163.6	71.2	27	240	138	233	75.9	9.56	255	2968	1282	1.08	1.10	40.3	43.5	0.65
802.0	07:05	116.1	71.3	26	241	138	225	75.9	9.57	255	2968	1282	1.08	1.10	40.3	43.5	0.72
803.0	07:06	128.6	71.3	26	242	139	203	76.1	9.58	255	2965	1283	1.08	1.10	40.3	43.4	0.70
804.0	07:18	39.6	71.2	29	259	136	270	76.1	9.60	255	2960	1281	1.08	1.10	40.3	43.5	0.99
805.0	07:18	171.4	71.3	25	244	138	238	76.2	9.61	255	2944	1279	1.08	1.10	40.0	43.5	0.63
806.0	07:19	156.5	71.3	30	239	137	267	76.2	9.62	255	2944	1279	1.08	1.10	40.0	43.5	0.68
807.0	07:19	100.0	71.4	34	235	137	283	76.3	9.63	255	2940	1282	1.08	1.10	40.0	43.5	0.81

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
807.0	07:19	100.0	71.4	34	235	137	283	76.3	9.63	255	2940	1282	1.08	1.10	40.0	43.5	0.81
808.0	07:20	87.8	71.4	35	234	137	277	76.3	9.64	256	2942	1286	1.08	1.13	40.1	43.6	0.83
809.0	07:20	144.0	71.4	36	233	137	282	76.5	9.64	256	2938	1287	1.08	1.13	40.1	43.6	0.71
810.0	07:21	150.0	71.5	36	233	137	287	76.5	9.65	256	2936	1287	1.08	1.13	40.1	43.7	0.70
811.0	07:21	178.2	71.6	37	232	136	294	76.5	9.66	256	2933	1287	1.08	1.13	40.1	43.7	0.66
812.0	07:22	133.3	71.6	36	233	137	283	76.6	9.66	256	2934	1287	1.08	1.13	40.1	43.7	0.73
813.0	07:22	150.0	71.7	37	232	137	292	76.6	9.67	256	2933	1287	1.08	1.13	40.1	43.7	0.70
814.0	07:23	128.6	71.7	37	232	137	284	76.7	9.68	256	2930	1287	1.08	1.13	40.1	43.6	0.74
815.0	07:23	128.6	71.8	37	232	137	287	76.7	9.69	256	2930	1288	1.08	1.13	40.1	43.7	0.74
816.0	07:23	144.0	71.8	38	231	136	284	76.7	9.69	257	2927	1290	1.08	1.13	40.1	43.7	0.72
817.0	07:24	150.0	71.9	38	231	137	284	76.9	9.70	256	2929	1288	1.08	1.13	40.2	43.7	0.71
818.0	07:24	171.4	71.9	38	231	136	285	76.9	9.71	256	2928	1288	1.08	1.13	40.2	43.8	0.67
819.0	07:25	163.6	72.0	39	230	137	295	76.9	9.71	256	2926	1287	1.08	1.12	40.2	43.5	0.70
820.0	07:25	225.0	72.0	39	230	137	296	77.0	9.72	257	2932	1290	1.08	1.12	40.2	43.6	0.62
821.0	07:25	144.0	72.1	40	229	136	297	77.0	9.72	257	2932	1292	1.08	1.12	40.2	43.7	0.74
822.0	07:26	150.0	72.2	41	228	137	301	77.0	9.73	257	2931	1291	1.08	1.12	40.2	43.5	0.73
823.0	07:26	180.0	72.2	42	227	136	306	77.2	9.73	257	2934	1292	1.08	1.12	40.2	43.7	0.69
824.0	07:26	200.0	72.3	40	229	137	298	77.2	9.74	257	2932	1292	1.08	1.11	40.2	43.7	0.65
825.0	07:27	171.4	72.3	42	227	136	311	77.2	9.75	257	2933	1288	1.08	1.11	40.2	43.7	0.70
826.0	07:27	156.5	72.4	41	228	136	296	77.3	9.75	257	2932	1289	1.08	1.12	40.2	43.3	0.72
827.0	07:27	180.0	72.5	42	227	136	304	77.3	9.76	256	2934	1287	1.08	1.12	40.3	43.4	0.69
828.0	07:28	200.0	72.5	43	226	136	309	77.3	9.76	256	2933	1287	1.08	1.12	40.3	43.5	0.66
829.0	07:28	138.5	72.6	43	226	136	308	77.5	9.77	256	2941	1288	1.08	1.12	40.3	43.6	0.76
830.0	07:29	133.3	72.6	44	225	136	310	77.5	9.78	256	2946	1287	1.08	1.11	40.3	43.6	0.77
831.0	07:29	124.1	72.7	43	226	136	306	77.6	9.79	256	2948	1286	1.08	1.12	40.3	43.6	0.79
832.0	07:43	112.5	72.7	42	252	136	302	77.7	9.79	255	2924	1279	1.08	1.12	40.3	43.6	0.80
833.0	07:43	121.2	72.8	41	229	135	324	77.7	9.80	235	2623	1180	1.08	1.12	40.2	43.4	0.78
834.0	07:43	180.1	72.9	42	229	135	331	77.7	9.80	235	2623	1180	1.08	1.12	40.2	43.6	0.68
835.0	07:43	225.0	72.9	43	228	135	323	77.7	9.80	235	2624	1179	1.08	1.12	40.2	43.5	0.63
836.0	07:44	128.6	73.0	43	228	135	321	77.7	9.81	234	2624	1174	1.08	1.11	40.2	43.5	0.78
837.0	07:44	163.6	73.0	44	227	135	315	77.8	9.82	234	2625	1175	1.08	1.12	40.3	43.5	0.72
838.0	07:44	200.0	73.1	41	229	136	288	77.8	9.82	233	2627	1173	1.08	1.11	40.3	43.5	0.66
839.0	07:44	240.0	73.2	39	232	136	278	77.8	9.83	233	2627	1171	1.08	1.12	40.3	43.5	0.60
840.0	07:45	211.6	73.3	36	235	137	262	77.8	9.83	234	2631	1174	1.08	1.12	40.3	43.5	0.62
841.0	07:45	220.9	73.3	33	238	138	242	77.9	9.83	234	2633	1175	1.08	1.12	40.3	43.5	0.59
842.0	07:45	200.0	73.4	32	239	138	225	77.9	9.84	233	2633	1171	1.08	1.11	40.3	43.5	0.62
843.0	07:47	39.1	73.3	42	229	137	254	78.1	9.86	233	2638	1172	1.08	1.12	40.4	43.5	1.09
844.0	07:47	78.3	73.3	45	226	136	286	78.2	9.87	235	2669	1179	1.08	1.12	40.5	43.5	0.92
845.0	07:48	83.7	73.3	38	232	137	269	78.4	9.89	235	2681	1179	1.08	1.11	40.5	43.5	0.87
846.0	07:48	171.4	73.4	38	232	136	286	78.4	9.89	235	2688	1179	1.08	1.12	40.5	43.6	0.68
847.0	07:49	156.5	73.4	39	231	136	292	78.4	9.90	235	2691	1179	1.08	1.12	40.5	43.6	0.71
848.0	07:49	171.4	73.5	40	231	136	300	78.5	9.90	235	2673	1040	1.08	1.12	40.6	43.6	0.69
849.0	07:50	128.6	73.5	41	230	136	324	78.5	9.91	235	2680	929	1.08	1.12	40.6	43.6	0.77
850.0	07:50	163.6	73.6	42	229	136	316	78.7	9.92	235	2686	925	1.08	1.12	40.6	43.6	0.71
851.0	07:50	133.3	73.6	43	228	135	343	78.7	9.93	235	2670	924	1.08	1.12	40.6	43.6	0.77
852.0	07:51	87.8	73.7	40	231	136	290	78.8	9.94	235	2686	933	1.08	1.12	40.7	43.6	0.86
853.0	07:52	133.3	73.7	35	236	137	250	78.8	9.94	235	2687	1104	1.08	1.12	40.7	43.5	0.73
854.0	07:52	94.7	73.7	30	241	138	228	78.9	9.96	230	2621	1157	1.08	1.12	40.7	43.6	0.78
855.0	07:53	85.7	73.7	26	245	139	198	78.9	9.97	230	2633	1158	1.08	1.12	40.7	43.7	0.78
856.0	07:54	92.3	73.8	22	249	138	224	79.1	9.98	230	2649	1155	1.08	1.12	40.8	43.5	0.73

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
856.0	07:54	92.3	73.8	22	249	138	224	79.1	9.98	230	2649	1155	1.08	1.12	40.8	43.5	0.73
857.0	07:54	133.3	73.8	27	243	137	262	79.1	9.99	229	2666	1153	1.08	1.12	40.8	43.7	0.69
858.0	07:54	144.0	73.9	30	241	137	270	79.2	9.99	229	2669	1153	1.08	1.12	40.8	43.7	0.68
859.0	07:55	156.5	73.9	32	239	136	279	79.2	10.00	229	2671	1153	1.08	1.11	40.8	43.4	0.67
860.0	07:55	92.3	73.9	35	236	137	290	79.4	10.01	229	2681	1151	1.08	1.12	40.8	43.6	0.82
861.0	07:56	138.5	74.0	37	234	137	281	79.4	10.02	229	2676	1150	1.08	1.12	40.8	43.6	0.73
862.0	07:57	80.0	74.0	39	231	137	259	79.5	10.03	229	2669	1153	1.08	1.11	40.9	43.7	0.88
863.0	08:12	31.0	73.8	12	260	137	258	79.7	10.06	230	2859	1144	1.08	1.12	40.6	43.6	0.85
864.0	08:12	105.9	73.9	12	260	137	278	79.7	10.07	230	2750	1144	1.08	1.12	40.6	43.5	0.61
865.0	08:13	120.0	73.9	16	256	136	208	79.9	10.08	225	2679	1128	1.08	1.12	40.6	43.5	0.63
866.0	08:13	124.1	74.0	20	252	136	226	79.9	10.09	220	2586	1103	1.08	1.11	40.6	43.6	0.65
867.0	08:14	138.5	74.0	22	250	136	225	80.0	10.09	220	2586	1103	1.08	1.12	40.6	43.6	0.64
868.0	08:14	97.3	74.0	18	254	137	181	80.0	10.10	219	2585	1102	1.08	1.12	40.6	43.6	0.69
869.0	08:15	102.9	74.1	12	260	137	172	80.1	10.11	220	2585	1103	1.08	1.12	40.6	43.6	0.62
870.0	08:15	105.9	74.1	13	259	137	184	80.1	10.12	219	2591	1099	1.08	1.11	40.5	43.6	0.63
871.0	08:16	87.8	74.1	16	257	137	205	80.3	10.14	219	2588	1100	1.08	1.11	40.5	43.6	0.69
872.0	08:17	124.1	74.1	20	252	136	228	80.4	10.14	219	2586	1099	1.08	1.12	40.5	43.6	0.65
873.0	08:17	120.0	74.2	20	252	136	227	80.4	10.15	219	2588	1098	1.08	1.12	40.5	43.6	0.66
874.0	08:18	92.3	74.2	24	248	136	216	80.6	10.16	219	2588	1099	1.08	1.12	40.4	43.5	0.75
875.0	08:18	112.5	74.2	20	252	136	207	80.6	10.17	219	2590	1099	1.08	1.12	40.4	43.5	0.67
876.0	08:19	100.0	74.3	19	254	137	198	80.7	10.18	219	2587	1099	1.08	1.12	40.4	43.5	0.69
877.0	08:19	116.1	74.3	19	253	138	204	80.7	10.19	219	2586	1099	1.08	1.12	40.4	43.5	0.66
878.0	08:20	112.5	74.3	19	253	138	214	80.8	10.20	219	2588	1099	1.08	1.12	40.3	43.5	0.67
879.0	08:21	81.8	74.3	19	253	138	196	80.8	10.21	219	2588	1098	1.08	1.12	40.3	43.5	0.74
880.0	08:21	109.1	74.4	20	252	138	208	81.0	10.22	219	2581	1098	1.08	1.11	40.3	43.4	0.68
881.0	08:22	94.7	74.4	19	253	138	204	81.1	10.23	218	2578	1097	1.08	1.12	40.3	43.4	0.71
882.0	08:22	97.3	74.4	19	253	138	204	81.1	10.24	218	2578	1096	1.08	1.11	40.3	43.4	0.70
883.0	08:23	112.5	74.4	19	253	138	203	81.3	10.25	219	2579	1098	1.08	1.11	40.2	43.4	0.67
884.0	08:24	80.0	74.4	20	252	138	214	81.3	10.26	219	2579	1099	1.08	1.11	40.2	43.4	0.75
885.0	08:25	80.0	74.5	22	250	138	201	81.4	10.27	218	2573	1097	1.08	1.12	40.2	43.0	0.76
886.0	08:25	76.6	74.5	20	252	138	205	81.5	10.29	219	2573	1099	1.08	1.12	40.2	43.2	0.76
887.0	08:26	64.3	74.4	22	250	137	216	81.7	10.30	219	2568	1100	1.08	1.12	40.2	43.3	0.81
888.0	08:28	47.4	74.4	24	248	138	202	81.8	10.32	220	2573	1104	1.08	1.12	40.3	42.9	0.90
889.0	08:29	57.1	74.4	20	253	138	191	82.0	10.34	220	2565	1103	1.08	1.12	40.3	43.3	0.82
890.0	08:42	38.3	74.3	24	260	137	221	82.1	10.37	221	2571	1104	1.08	1.11	40.0	42.8	0.94
891.0	08:43	116.1	74.3	27	247	137	248	82.3	10.38	221	2575	1104	1.08	1.12	39.4	42.9	0.71
892.0	08:43	156.5	74.3	27	246	136	244	82.3	10.38	221	2578	1104	1.08	1.11	39.4	42.8	0.65
893.0	08:44	138.5	74.4	28	246	136	255	82.3	10.39	221	2570	1104	1.08	1.11	39.4	42.8	0.68
894.0	08:44	105.9	74.4	31	243	135	287	82.4	10.40	221	2578	1104	1.08	1.12	39.4	42.8	0.76
895.0	08:47	22.0	74.2	28	272	136	296	82.8	10.45	221	2578	1104	1.08	1.12	39.4	42.7	1.10
896.0	08:48	120.0	74.2	18	256	137	220	82.8	10.45	221	2578	1104	1.08	1.12	39.5	42.6	0.64
897.0	08:48	128.6	74.3	23	250	137	232	82.8	10.46	221	2571	1104	1.08	1.11	39.5	42.6	0.67
898.0	08:49	112.5	74.3	27	246	136	254	82.9	10.47	221	2574	1104	1.08	1.11	39.5	42.5	0.72
899.0	08:49	64.3	74.3	35	239	136	259	83.0	10.49	221	2573	1104	1.08	1.11	39.5	42.5	0.91
900.0	08:50	112.5	74.3	31	243	136	254	83.0	10.49	221	2576	1104	1.08	1.11	39.5	42.5	0.75
901.0	08:50	180.0	74.4	29	245	137	246	83.2	10.50	221	2579	1104	1.08	1.11	39.5	42.5	0.62
902.0	08:51	87.8	74.4	28	246	137	249	83.2	10.51	221	2571	1104	1.08	1.11	39.6	42.5	0.79
903.0	08:51	156.5	74.4	25	248	137	226	83.3	10.52	221	2577	1104	1.08	1.12	39.6	42.5	0.63
904.0	08:52	189.5	74.5	23	250	138	209	83.3	10.52	221	2573	1104	1.08	1.12	39.6	42.5	0.58
905.0	08:52	133.3	74.5	20	254	138	222	83.3	10.53	221	2578	1104	1.08	1.11	39.6	42.5	0.64

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
905.0	08:52	133.3	74.5	20	254	138	222	83.3	10.53	221	2578	1104	1.08	1.11	39.6	42.5	0.64
906.0	08:53	124.1	74.6	21	252	137	240	83.5	10.54	221	2574	1104	1.08	1.11	39.7	42.5	0.66
907.0	08:53	85.7	74.6	27	246	137	222	83.6	10.55	221	2570	1104	1.08	1.12	39.7	42.5	0.79
908.0	08:54	180.0	74.6	31	243	136	254	83.6	10.56	221	2576	1104	1.08	1.12	39.7	42.6	0.63
909.0	08:57	45.6	74.6	27	263	136	241	83.8	10.58	221	2573	1104	1.08	1.12	39.7	42.6	0.93
910.0	08:58	94.7	74.6	24	250	137	235	83.9	10.59	221	2579	1104	1.08	1.11	39.8	42.5	0.74
911.0	09:00	26.5	74.4	32	242	137	232	84.2	10.63	221	2577	1104	1.08	1.12	39.7	42.5	1.10
912.0	09:08	7.8	73.6	21	252	139	151	85.2	10.76	221	2573	1104	1.08	1.12	39.0	42.3	1.27
913.0	09:08	211.8	73.7	23	251	137	207	85.2	10.76	223	2551	1122	1.08	1.12	38.8	42.2	0.55
914.0	09:08	163.6	73.7	22	251	137	237	85.3	10.77	223	2550	1122	1.08	1.12	38.9	42.2	0.61
915.0	09:09	156.5	73.8	23	250	137	234	85.3	10.77	224	2543	1124	1.08	1.12	38.9	42.2	0.62
916.0	09:09	128.6	73.8	23	251	137	229	85.5	10.78	224	2540	1125	1.08	1.11	38.8	42.2	0.66
917.0	09:10	112.5	73.9	23	251	137	240	85.5	10.79	224	2533	1125	1.08	1.12	38.9	42.2	0.70
918.0	09:10	128.6	73.9	26	248	138	191	85.6	10.80	225	2521	1129	1.08	1.12	38.9	42.1	0.69
919.0	09:23	90.0	73.9	14	261	139	212	85.6	10.81	220	2352	1104	1.08	1.12	38.9	41.6	0.66
920.0	09:23	120.0	74.0	23	252	136	215	85.6	10.82	217	2264	1090	1.08	1.12	38.8	41.2	0.68
921.0	09:24	116.1	74.0	21	254	136	226	85.8	10.83	217	2261	1090	1.08	1.11	38.8	41.1	0.67
922.0	09:24	138.5	74.0	26	249	134	254	85.8	10.83	216	2242	1085	1.08	1.11	38.8	41.1	0.66
923.0	09:25	171.4	74.1	26	249	135	258	85.9	10.84	210	2133	1054	1.08	1.12	38.9	41.0	0.62
924.0	09:25	150.0	74.1	26	249	134	258	85.9	10.84	210	2129	1054	1.08	1.11	38.9	41.0	0.65
925.0	09:25	163.6	74.2	27	249	135	256	85.9	10.85	210	2128	1054	1.08	1.11	38.8	40.9	0.63
926.0	09:26	180.0	74.2	27	248	135	246	86.0	10.86	210	2128	1054	1.08	1.11	38.9	40.9	0.61
927.0	09:26	120.0	74.3	26	249	135	251	86.0	10.86	210	2124	1054	1.08	1.11	38.8	40.9	0.70
928.0	09:27	133.3	74.3	26	249	135	247	86.2	10.87	210	2127	1054	1.08	1.12	38.9	40.9	0.67
929.0	09:27	225.0	74.4	27	249	136	234	86.2	10.88	210	2127	1054	1.08	1.12	38.8	40.9	0.56
930.0	09:27	150.0	74.4	27	249	135	258	86.2	10.88	210	2128	1054	1.08	1.11	38.8	40.9	0.65
931.0	09:28	144.0	74.5	28	247	136	230	86.3	10.89	210	2126	1054	1.08	1.11	38.9	40.5	0.67
932.0	09:28	116.1	74.5	21	254	136	202	86.3	10.90	210	2130	1054	1.08	1.12	38.8	40.7	0.67
933.0	09:29	150.0	74.5	20	256	135	237	86.3	10.91	210	2133	1054	1.08	1.12	38.9	40.7	0.61
934.0	09:29	124.1	74.6	24	251	136	215	86.5	10.91	210	2125	1054	1.08	1.12	38.9	40.5	0.68
935.0	09:36	8.7	73.9	24	251	139	221	87.3	11.03	213	2178	1070	1.08	1.11	38.8	40.7	1.29
936.0	09:50	4.2	72.4	28	247	136	235	89.2	11.27	227	2479	1138	1.08	1.11	38.9	40.8	1.50
937.0	09:57	8.9	71.8	41	234	138	190	89.9	11.38	220	2477	1107	1.08	1.12	38.9	40.8	1.47
938.0	09:58	133.3	71.8	35	241	137	268	90.0	11.39	220	2488	1105	1.08	1.11	38.8	40.6	0.73
939.0	09:58	150.0	71.9	34	241	137	271	90.0	11.39	220	2491	1105	1.08	1.12	38.7	40.8	0.70
940.0	09:58	163.6	71.9	32	244	136	279	90.0	11.40	220	2496	1105	1.08	1.11	38.7	40.9	0.66
941.0	09:59	150.0	72.0	30	245	137	277	90.2	11.41	220	2497	1105	1.08	1.12	38.7	41.0	0.67
942.0	09:59	163.6	72.0	31	245	137	268	90.2	11.41	220	2496	1105	1.08	1.12	38.7	41.1	0.66
943.0	10:00	133.3	72.1	30	245	138	274	90.2	11.42	220	2489	1103	1.08	1.12	38.6	41.3	0.70
944.0	10:00	138.5	72.1	32	244	137	270	90.3	11.43	220	2493	1103	1.08	1.12	38.6	41.3	0.70
945.0	10:00	163.6	72.2	31	244	137	270	90.3	11.43	220	2496	1103	1.08	1.12	38.6	41.4	0.66
946.0	10:01	116.1	72.2	31	244	137	275	90.3	11.44	220	2488	1103	1.08	1.12	38.5	41.4	0.74
947.0	10:01	124.1	72.2	31	244	138	246	90.5	11.45	220	2496	1103	1.08	1.12	38.5	41.4	0.73
948.0	10:15	61.0	72.2	28	270	137	252	90.5	11.47	220	2426	1103	1.08	1.11	37.3	41.5	0.87
949.0	10:16	150.0	72.3	11	266	135	182	90.6	11.47	221	2514	1111	1.08	1.12	37.1	41.4	0.53
950.0	10:16	138.5	72.3	16	261	133	212	90.6	11.48	231	2678	1161	1.08	1.11	37.1	41.4	0.59
951.0	10:17	128.6	72.3	24	253	132	260	90.8	11.49	232	2676	1165	1.08	1.11	37.1	41.4	0.66
952.0	10:17	189.5	72.4	25	252	131	262	90.8	11.49	233	2680	1168	1.08	1.11	37.1	41.4	0.58
953.0	10:18	133.3	72.4	23	254	133	239	90.8	11.50	232	2679	1166	1.08	1.12	37.1	41.4	0.65
954.0	10:18	124.1	72.5	16	261	134	195	90.9	11.51	233	2678	1169	1.08	1.12	37.1	41.4	0.61

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
954.0	10:18	124.1	72.5	16	261	134	195	90.9	11.51	233	2678	1169	1.08	1.12	37.1	41.4	0.61
955.0	10:18	128.6	72.5	14	263	134	217	90.9	11.52	233	2675	1170	1.08	1.12	37.2	41.4	0.59
956.0	10:19	138.5	72.5	22	255	132	252	91.0	11.52	233	2677	1170	1.08	1.11	37.2	41.4	0.63
957.0	10:19	163.6	72.6	23	254	131	262	91.0	11.53	233	2678	1168	1.08	1.11	37.2	41.4	0.60
958.0	10:20	150.0	72.6	24	253	133	250	91.0	11.54	233	2672	1170	1.08	1.12	37.2	41.4	0.63
959.0	10:20	156.5	72.7	24	253	132	259	91.2	11.54	233	2676	1169	1.08	1.12	37.2	41.3	0.62
960.0	10:20	138.5	72.7	25	252	138	257	91.2	11.55	233	2673	1169	1.08	1.12	37.2	41.3	0.66
961.0	10:21	144.0	72.8	25	252	137	250	91.3	11.56	233	2670	1170	1.08	1.12	37.2	41.3	0.65
962.0	10:21	102.9	72.8	28	249	138	232	91.3	11.57	233	2672	1170	1.08	1.12	37.2	41.3	0.75
963.0	10:23	57.1	72.8	30	247	138	243	91.5	11.58	233	2668	1170	1.08	1.11	37.2	41.2	0.91
964.0	10:24	59.0	72.8	28	249	138	239	91.6	11.60	233	2665	1169	1.08	1.12	37.2	41.1	0.88
965.0	10:24	69.2	72.7	27	250	138	235	91.7	11.62	233	2663	1170	1.08	1.12	37.2	41.2	0.83
966.0	10:25	81.8	72.8	28	249	138	238	91.9	11.63	233	2663	1170	1.08	1.12	37.2	41.2	0.80
967.0	10:26	53.7	72.7	26	251	138	237	92.0	11.65	233	2664	1170	1.08	1.11	37.2	41.1	0.89
968.0	10:28	48.6	72.7	29	248	138	253	92.2	11.67	233	2664	1170	1.08	1.11	37.3	41.2	0.94
969.0	10:30	22.8	72.5	32	245	138	241	92.5	11.71	233	2662	1170	1.08	1.12	37.3	41.2	1.14
970.0	10:31	46.8	72.5	39	238	137	286	92.7	11.73	233	2672	1170	1.08	1.12	37.4	41.2	1.02
971.0	10:32	211.8	72.5	32	245	136	295	92.7	11.74	233	2672	1170	1.08	1.12	37.4	41.0	0.60
972.0	10:32	189.5	72.6	30	247	137	275	92.7	11.74	233	2675	1170	1.08	1.12	37.4	41.0	0.62
973.0	10:32	171.4	72.6	28	249	137	240	92.7	11.75	233	2676	1170	1.08	1.11	37.4	41.0	0.63
974.0	10:33	200.0	72.7	26	251	139	231	92.9	11.75	233	2678	1170	1.08	1.12	37.4	41.0	0.59
975.0	10:33	124.1	72.7	26	251	138	221	92.9	11.76	233	2678	1170	1.08	1.12	37.4	41.0	0.70
976.0	10:34	133.3	72.7	30	247	139	217	93.0	11.77	233	2678	1169	1.08	1.12	37.4	41.0	0.70
977.0	10:47	66.7	72.7	20	259	122	201	93.1	11.78	241	2823	1208	1.08	1.12	36.9	41.1	0.76
978.0	10:47	200.0	72.8	27	251	136	282	93.1	11.79	241	2874	1210	1.08	1.12	36.8	41.2	0.59
979.0	10:48	156.5	72.8	30	249	135	279	93.1	11.79	241	2871	1212	1.08	1.12	36.8	41.2	0.66
980.0	10:48	138.5	72.9	28	250	136	272	93.2	11.80	241	2870	1212	1.08	1.12	36.8	41.1	0.68
981.0	10:49	156.5	72.9	30	249	136	259	93.2	11.81	242	2870	1214	1.08	1.12	36.8	41.1	0.66
982.0	10:49	144.0	73.0	29	249	136	260	93.2	11.82	241	2871	1212	1.08	1.12	36.8	41.1	0.68
983.0	10:49	138.5	73.0	29	250	137	267	93.4	11.82	241	2871	1211	1.08	1.11	36.9	41.1	0.69
984.0	10:50	156.5	73.0	29	250	138	248	93.4	11.83	242	2869	1214	1.08	1.12	36.9	41.1	0.66
985.0	10:50	189.5	73.1	29	250	138	246	93.4	11.83	242	2868	1215	1.08	1.12	36.9	41.1	0.61
986.0	10:51	116.1	73.1	30	249	138	237	93.5	11.84	242	2868	1215	1.08	1.12	37.0	41.1	0.73
987.0	10:51	112.5	73.2	32	246	138	251	93.5	11.85	242	2864	1215	1.08	1.12	37.0	41.1	0.76
988.0	10:52	72.0	73.2	33	246	138	253	93.7	11.87	242	2863	1216	1.08	1.12	37.0	41.1	0.87
989.0	10:52	138.5	73.2	29	249	137	269	93.8	11.87	242	2861	1215	1.08	1.12	37.1	41.1	0.69
990.0	10:53	124.1	73.2	30	249	137	272	93.8	11.88	242	2862	1214	1.08	1.11	37.1	41.1	0.72
991.0	10:53	109.1	73.3	30	249	138	250	94.0	11.89	242	2863	1214	1.08	1.12	37.2	41.1	0.75
992.0	10:54	120.0	73.3	32	247	138	251	94.0	11.90	241	2862	1211	1.08	1.11	37.2	41.1	0.74
993.0	10:55	90.0	73.3	34	245	138	248	94.1	11.91	231	2682	1158	1.08	1.12	37.2	41.1	0.82
994.0	10:55	109.1	73.3	28	250	138	251	94.1	11.92	222	2569	1117	1.08	1.11	37.2	41.1	0.74
995.0	10:56	73.5	73.3	30	249	138	245	94.3	11.93	222	2566	1117	1.08	1.11	37.2	41.1	0.84
996.0	10:57	87.8	73.3	31	248	138	255	94.4	11.94	222	2568	1117	1.08	1.11	37.2	41.1	0.81
997.0	10:58	57.1	73.3	28	251	138	251	94.5	11.96	203	2222	1018	1.08	1.12	37.2	41.1	0.89
998.0	10:59	65.5	73.3	32	247	137	279	94.7	11.98	184	1862	925	1.08	1.11	37.2	41.0	0.88
999.0	10:59	76.6	73.3	36	243	136	302	94.7	11.99	184	1853	924	1.08	1.12	37.2	40.9	0.87
1000.0	11:00	64.3	73.3	31	247	137	293	94.8	12.00	184	1851	924	1.08	1.11	37.2	40.9	0.89
1001.0	11:01	61.0	73.3	32	246	136	294	95.0	12.02	184	1854	924	1.08	1.12	37.1	40.9	0.90
1002.0	11:02	64.3	73.3	33	245	137	274	95.1	12.04	183	1854	919	1.08	1.12	37.1	40.9	0.90
1003.0	11:03	60.0	73.3	29	250	137	261	95.3	12.05	175	1854	877	1.08	1.12	37.1	40.9	0.88

DEPTH	TIME	ROP	AVE	WOB	HKL	RPM	TORQ	KREV	HRS	SPM	SPP	MFI	MWI	ECD	MTI	MTO	DCEXP
METRE	HR:MN	MT/H	ROP	KLB	KLB		AMPS	BIT	BIT		PSI	GPM	SG	SG	DEG	DEG	
1003.0	11:03	60.0	73.3	29	250	137	261	95.3	12.05	175	1854	877	1.08	1.12	37.1	40.9	0.88
1004.0	11:04	59.0	73.2	32	247	137	285	95.4	12.07	162	1848	814	1.08	1.12	37.2	40.8	0.91
1005.0	11:05	66.7	73.2	28	251	137	266	95.5	12.09	183	1846	921	1.08	1.11	37.2	40.8	0.85
1006.0	11:18	70.6	73.2	29	261	138	260	95.6	12.10	197	2129	990	1.08	1.12	37.0	40.8	0.84
1007.0	11:19	61.0	73.2	30	250	136	241	95.7	12.12	219	2573	1098	1.08	1.12	36.7	40.8	0.88
1008.0	11:28	6.4	72.4	30	250	137	171	96.8	12.27	215	2570	1078	1.08	1.12	36.9	40.7	1.42
1009.0	11:43	4.2	71.1	44	237	132	156	98.4	12.51	178	2238	893	1.08	1.12	36.9	40.5	1.68
1010.0	11:49	10.1	70.6	45	236	135	186	99.1	12.61	212	2350	1064	1.08	1.12	35.9	40.4	1.46
1011.0	11:49	124.1	70.6	40	241	133	295	99.3	12.62	205	2206	1032	1.08	1.12	35.7	40.3	0.76
1012.0	11:51	25.7	70.5	37	243	136	224	99.5	12.66	205	2202	1032	1.08	1.12	35.6	40.2	1.16
1013.0	12:06	4.1	69.2	42	238	125	178	101.3	12.90	209	2256	1051	1.08	1.11	35.4	39.9	1.66
1014.0	12:19	4.8	68.2	36	245	129	169	102.9	13.11	215	2356	1080	1.08	1.11	35.3	40.0	1.55
1015.0	12:19	94.7	68.2	13	267	137	174	103.1	13.12	217	2329	1089	1.08	1.12	35.5	40.1	0.65
1016.0	12:20	83.7	68.2	15	266	137	187	103.1	13.13	216	2332	1087	1.08	1.12	35.5	40.1	0.69
1017.0	12:21	87.8	68.2	18	262	136	208	103.2	13.14	217	2339	1088	1.08	1.12	35.5	40.1	0.71
1018.0	12:21	69.2	68.2	22	258	136	217	103.3	13.16	216	2339	1087	1.08	1.11	35.6	40.1	0.79
1019.0	12:22	70.6	68.3	22	258	136	227	103.5	13.17	216	2338	1086	1.08	1.11	35.6	40.2	0.79
1020.0	12:23	64.3	68.2	23	258	136	226	103.6	13.19	216	2338	1086	1.08	1.12	35.6	40.0	0.81
1021.0	12:24	55.4	68.2	24	256	135	236	103.7	13.21	216	2338	1086	1.08	1.12	35.6	39.9	0.86
1022.0	12:25	51.4	68.2	24	256	135	247	103.9	13.22	217	2363	1092	1.08	1.12	35.7	39.4	0.88
1023.0	12:27	42.4	68.2	25	255	135	250	104.0	13.25	222	2467	1113	1.08	1.12	35.7	39.2	0.93
1024.0	12:28	41.9	68.1	28	252	134	261	104.3	13.27	222	2510	1113	1.08	1.11	35.8	39.5	0.96
1025.0	12:29	55.4	68.1	29	252	137	267	104.4	13.29	222	2509	1113	1.08	1.12	35.8	39.8	0.90
1026.0	12:30	240.0	68.1	21	259	138	254	104.4	13.29	222	2511	1113	1.08	1.11	35.9	39.8	0.52
1027.0	12:30	211.8	68.2	20	260	138	245	104.4	13.30	222	2516	1113	1.08	1.12	35.9	39.8	0.54
1028.0	12:30	171.4	68.2	18	263	138	241	104.4	13.31	222	2520	1113	1.08	1.12	35.9	39.8	0.57
1029.0	12:31	171.4	68.3	18	262	139	224	104.6	13.31	222	2520	1113	1.08	1.12	35.9	39.8	0.57
1030.0	12:31	87.8	68.3	19	261	138	237	104.6	13.32	222	2522	1113	1.08	1.12	35.9	39.9	0.72
1031.0	12:32	156.5	68.3	19	261	139	224	104.7	13.33	222	2521	1113	1.08	1.12	35.9	39.9	0.60
1032.0	12:32	128.6	68.4	20	261	138	258	104.7	13.34	222	2523	1113	1.08	1.12	35.9	39.9	0.64
1033.0	12:33	83.7	68.4	16	264	136	249	104.9	13.35	222	2520	1113	1.08	1.12	35.9	39.9	0.70
1034.0	12:33	105.9	68.4	15	266	139	222	104.9	13.36	222	2517	1113	1.08	1.12	35.9	39.9	0.64
1035.0	12:34	116.1	68.5	19	261	138	239	105.0	13.37	222	2515	1113	1.08	1.12	35.9	39.9	0.66
1036.0	12:46	80.0	68.5	20	270	139	234	105.1	13.38	222	2525	1113	1.08	1.12	36.0	40.0	0.74
1037.0	12:47	87.8	68.5	17	275	138	244	105.2	13.39	234	2677	1174	1.08	1.12	36.5	40.3	0.70
1038.0	12:47	90.0	68.5	18	264	137	236	105.3	13.40	233	2681	1171	1.08	1.12	36.5	40.3	0.70
1039.0	12:48	138.5	68.5	25	257	135	276	105.3	13.41	233	2685	1172	1.08	1.12	36.5	40.3	0.66
1040.0	12:48	124.1	68.6	27	255	135	286	105.4	13.42	233	2686	1173	1.08	1.12	36.5	40.3	0.70
1041.0	12:49	120.0	68.6	24	258	136	254	105.4	13.43	233	2690	1173	1.08	1.12	36.6	40.3	0.68
1042.0	12:49	121.2	68.6	23	259	136	256	105.6	13.43	233	2688	1171	1.08	1.11	36.6	40.3	0.68
1043.0	12:50	128.6	68.7	23	259	137	242	105.6	13.44	233	2689	1171	1.08	1.12	36.6	40.3	0.66
1044.0	12:50	94.7	68.7	23	259	136	250	105.7	13.45	233	2688	1173	1.08	1.12	36.6	40.3	0.73
1045.0	12:51	83.7	68.7	23	258	137	225	105.7	13.46	233	2685	1173	1.08	1.12	36.7	40.3	0.76
1046.0	12:52	92.3	68.7	23	259	137	223	105.8	13.47	233	2683	1171	1.08	1.11	36.7	40.2	0.74
1047.0	12:53	75.0	68.7	22	259	137	215	106.0	13.49	234	2685	1173	1.08	1.11	36.8	40.3	0.78
1048.0	12:54	55.4	68.7	23	259	138	214	106.1	13.51	233	2684	1172	1.08	1.11	36.8	40.3	0.86
1049.0	12:55	58.1	68.7	24	258	137	233	106.3	13.52	233	2683	1172	1.08	1.12	36.8	40.2	0.85
1050.0	12:56	52.2	68.7	26	256	136	265	106.4	13.54	233	2686	1172	1.08	1.12	36.9	40.3	0.89
1051.0	12:58	30.8	68.6	28	254	132	354	106.7	13.58	233	2686	1171	1.08	1.11	36.9	40.3	1.03
1052.0	12:59	70.6	68.6	29	252	136	261	106.8	13.59	234	2691	1174	1.08	1.12	37.0	40.3	0.85

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1052.0	12:59	70.6	68.6	29	252	136	261	106.8	13.59	234	2691	1174	1.08	1.12	37.0	40.3	0.85
1053.0	12:59	105.9	68.6	21	261	137	229	106.8	13.60	234	2696	1174	1.08	1.12	37.0	40.4	0.69
1054.0	13:00	112.5	68.6	20	262	137	235	107.0	13.61	233	2696	1172	1.08	1.11	37.0	40.5	0.67
1055.0	13:00	116.1	68.7	22	260	136	249	107.0	13.62	233	2698	1171	1.08	1.11	37.0	40.6	0.68
1056.0	13:01	128.6	68.7	21	261	137	233	107.1	13.62	233	2701	1171	1.08	1.12	37.0	40.6	0.65
1057.0	13:01	180.0	68.7	20	261	137	224	107.1	13.63	233	2698	1171	1.08	1.12	37.0	40.6	0.57
1058.0	13:02	97.3	68.8	20	262	137	228	107.2	13.64	233	2701	1171	1.08	1.12	37.0	40.6	0.71
1059.0	13:02	144.0	68.8	21	260	137	233	107.2	13.65	233	2703	1171	1.08	1.12	37.0	40.6	0.63
1060.0	13:03	156.5	68.8	21	260	137	230	107.2	13.65	233	2705	1171	1.08	1.12	37.0	40.6	0.61
1061.0	13:03	133.3	68.9	21	261	137	224	107.4	13.66	233	2706	1171	1.08	1.12	37.0	40.6	0.64
1062.0	13:03	128.6	68.9	21	260	137	235	107.4	13.67	233	2705	1171	1.08	1.12	37.1	40.6	0.65
1063.0	13:04	116.1	68.9	21	261	137	237	107.5	13.68	233	2710	1171	1.08	1.12	37.1	40.6	0.68
1064.0	13:05	97.3	69.0	21	261	137	225	107.5	13.69	233	2713	1171	1.08	1.12	37.1	40.6	0.71
1065.0	13:05	100.0	69.0	23	259	137	246	107.7	13.70	233	2712	1171	1.08	1.12	37.1	40.6	0.72
1066.0	13:17	156.5	69.0	27	277	137	263	107.7	13.70	233	2723	1170	1.08	1.11	37.1	40.7	0.64
1067.0	13:17	200.0	69.1	31	263	135	259	107.7	13.71	232	2784	1165	1.08	1.11	37.1	40.4	0.60
1068.0	13:18	120.0	69.1	32	262	134	268	107.7	13.72	232	2789	1166	1.08	1.12	37.0	40.6	0.73
1069.0	13:18	128.6	69.1	36	258	135	252	107.9	13.72	232	2791	1166	1.08	1.12	37.1	40.6	0.74
1070.0	13:19	116.1	69.2	30	264	137	216	107.9	13.73	232	2799	1166	1.08	1.11	37.1	40.4	0.74
1071.0	13:19	144.0	69.2	30	264	138	234	107.9	13.74	232	2797	1165	1.08	1.12	37.1	40.6	0.69
1072.0	13:20	116.1	69.2	31	263	138	235	108.0	13.75	232	2802	1165	1.08	1.12	37.1	40.7	0.74
1073.0	13:20	109.1	69.3	31	263	138	236	108.0	13.76	215	2527	1082	1.08	1.11	37.1	40.7	0.76
1074.0	13:21	112.5	69.3	31	263	138	229	108.2	13.77	195	2130	979	1.08	1.12	37.1	40.5	0.75
1075.0	13:21	124.1	69.3	32	262	138	253	108.2	13.78	194	2125	975	1.08	1.11	37.1	40.5	0.73
1076.0	13:22	120.0	69.4	33	261	138	250	108.3	13.78	194	2125	976	1.08	1.12	37.1	40.5	0.74
1077.0	13:22	120.0	69.4	34	260	138	257	108.3	13.79	194	2121	975	1.08	1.11	37.1	40.6	0.75
1078.0	13:23	97.3	69.4	31	263	139	217	108.5	13.80	194	2122	977	1.08	1.12	37.1	40.7	0.79
1079.0	13:23	92.3	69.4	32	262	138	241	108.6	13.81	195	2117	978	1.08	1.11	37.1	40.4	0.80
1080.0	13:24	112.5	69.5	32	262	138	254	108.6	13.82	217	2480	1088	1.08	1.11	37.1	40.5	0.76
1081.0	13:25	109.1	69.5	32	262	138	237	108.7	13.83	227	2668	1139	1.08	1.12	37.1	40.5	0.77
1082.0	13:25	189.5	69.5	33	261	138	240	108.7	13.84	227	2664	1139	1.08	1.11	37.1	40.6	0.63
1083.0	13:25	100.0	69.6	32	262	139	225	108.7	13.85	227	2659	1140	1.08	1.11	37.1	40.5	0.79
1084.0	13:26	75.0	69.6	32	262	138	239	108.9	13.86	227	2651	1139	1.08	1.12	37.1	40.5	0.85
1085.0	13:27	81.8	69.6	32	262	138	236	109.0	13.87	227	2647	1140	1.08	1.11	37.1	40.5	0.83
1086.0	13:28	92.3	69.6	30	264	139	228	109.0	13.88	227	2647	1139	1.08	1.12	37.1	40.5	0.79
1087.0	13:28	100.0	69.6	29	265	139	213	109.2	13.89	227	2644	1139	1.08	1.12	37.1	40.5	0.76
1088.0	13:29	65.5	69.6	28	266	140	181	109.3	13.91	210	2372	1055	1.08	1.12	37.1	40.5	0.86
1089.0	13:30	48.0	69.6	29	265	139	199	109.5	13.93	190	2007	955	1.08	1.12	37.1	40.5	0.94
1090.0	13:31	109.1	69.6	28	266	139	224	109.6	13.94	191	1997	959	1.08	1.12	37.1	40.5	0.74
1091.0	13:31	116.1	69.6	28	266	139	222	109.6	13.95	191	1993	960	1.08	1.12	37.1	40.5	0.72
1092.0	13:32	133.3	69.7	28	266	139	212	109.8	13.95	187	1936	940	1.08	1.12	37.1	40.5	0.69
1093.0	13:33	87.8	69.7	28	266	139	217	109.8	13.97	181	1829	911	1.08	1.11	37.1	40.5	0.79
1094.0	13:33	81.8	69.7	27	267	139	219	109.9	13.98	181	1829	912	1.08	1.12	37.2	40.4	0.80
1095.0	13:34	85.7	69.7	27	267	139	219	110.0	13.99	181	1827	911	1.08	1.12	37.2	40.4	0.79
1096.0	13:47	46.8	69.7	21	274	117	147	110.2	14.01	197	2124	992	1.08	1.11	37.1	40.4	0.84
1097.0	13:48	211.8	69.7	30	266	138	248	110.2	14.02	227	2665	1139	1.08	1.12	36.8	40.4	0.59
1098.0	13:48	116.1	69.7	31	264	137	252	110.2	14.02	226	2682	1137	1.08	1.12	36.8	40.4	0.74
1099.0	13:49	105.9	69.8	33	263	137	257	110.3	14.03	226	2688	1137	1.08	1.12	36.8	40.4	0.77
1100.0	13:49	112.5	69.8	34	261	137	259	110.3	14.04	173	1778	872	1.08	1.12	36.8	40.3	0.77
1101.0	13:50	102.9	69.8	33	262	137	257	110.5	14.05	173	1747	872	1.08	1.12	36.8	40.1	0.78

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1101.0	13:50	102.9	69.8	33	262	137	257	110.5	14.05	173	1747	872	1.08	1.12	36.8	40.1	0.78
1102.0	13:50	100.0	69.8	34	262	137	259	110.6	14.06	173	1740	871	1.08	1.12	36.8	40.3	0.80
1103.0	13:51	87.8	69.8	35	261	137	260	110.6	14.07	174	1730	874	1.08	1.13	36.8	40.3	0.82
1104.0	13:52	109.1	69.9	36	259	137	265	110.7	14.08	174	1725	875	1.08	1.13	36.8	40.1	0.78
1105.0	13:52	97.3	69.9	34	262	137	266	110.7	14.09	174	1723	875	1.08	1.13	36.8	40.3	0.79
1106.0	13:53	109.1	69.9	35	260	137	268	110.9	14.10	174	1723	875	1.08	1.13	36.8	40.4	0.77
1107.0	13:54	97.3	69.9	36	260	137	265	110.9	14.11	174	1722	875	1.08	1.13	36.8	40.4	0.81
1108.0	13:54	94.7	70.0	34	261	137	257	111.0	14.12	174	1722	875	1.08	1.13	36.7	40.2	0.80
1109.0	13:55	92.3	70.0	34	261	137	268	111.2	14.13	174	1722	875	1.08	1.13	36.6	40.2	0.81
1110.0	13:56	76.6	70.0	36	260	137	274	111.2	14.15	174	1721	875	1.08	1.13	36.5	40.2	0.87
1111.0	13:56	70.6	70.0	35	261	137	259	111.3	14.16	174	1723	875	1.08	1.13	36.5	39.6	0.88
1112.0	13:57	75.0	70.0	36	260	137	275	111.4	14.17	174	1724	875	1.08	1.13	36.4	40.0	0.87
1113.0	13:58	87.8	70.0	36	259	137	273	111.6	14.19	174	1728	875	1.08	1.13	36.3	40.3	0.83
1114.0	13:58	100.0	70.0	36	259	137	272	111.6	14.20	174	1728	875	1.08	1.13	36.3	40.3	0.80
1115.0	13:59	105.9	70.0	36	260	137	269	111.7	14.21	174	1728	875	1.08	1.13	36.2	40.3	0.78
1116.0	14:00	112.5	70.1	34	261	137	259	111.7	14.21	208	2295	1046	1.08	1.13	36.2	40.4	0.76
1117.0	14:00	94.7	70.1	34	262	138	245	111.9	14.22	213	2432	1072	1.08	1.13	36.2	40.4	0.80
1118.0	14:01	138.5	70.1	33	262	137	253	111.9	14.23	213	2443	1072	1.08	1.13	36.1	40.4	0.71
1119.0	14:01	83.7	70.1	33	263	138	247	112.0	14.24	213	2444	1072	1.08	1.13	36.1	40.4	0.82
1120.0	14:02	128.6	70.2	33	263	138	251	112.0	14.25	220	2566	1106	1.08	1.13	36.1	40.4	0.72
1121.0	14:02	124.1	70.2	32	264	138	248	112.2	14.26	232	2770	1166	1.08	1.13	36.1	40.4	0.72
1122.0	14:03	128.6	70.2	32	263	138	243	112.2	14.27	233	2774	1170	1.08	1.13	36.1	40.3	0.72
1123.0	14:04	76.6	70.2	32	263	137	253	112.3	14.28	233	2777	1169	1.08	1.13	36.1	40.2	0.84
1124.0	14:04	94.7	70.3	32	264	137	253	112.4	14.29	233	2778	1169	1.08	1.13	36.1	40.2	0.79
1125.0	14:05	200.0	70.3	34	261	138	226	112.4	14.30	233	2770	1171	1.08	1.13	36.1	40.2	0.62
1126.0	14:17	55.4	70.3	24	272	113	150	112.6	14.31	232	2767	1167	1.08	1.13	35.7	40.2	0.81
1127.0	14:17	225.0	70.3	30	267	139	222	112.6	14.32	233	2791	1168	1.08	1.13	35.2	40.2	0.58
1128.0	14:17	180.0	70.4	29	268	138	225	112.6	14.32	232	2793	1168	1.08	1.13	35.2	40.2	0.62
1129.0	14:18	109.1	70.4	27	270	139	209	112.7	14.33	233	2794	1170	1.08	1.13	35.2	40.2	0.73
1130.0	14:19	95.2	70.4	31	268	138	230	112.7	14.34	233	2797	1169	1.08	1.13	35.2	40.2	0.78
1131.0	14:19	90.0	70.4	33	266	138	241	112.9	14.35	213	2435	1069	1.08	1.13	35.2	40.2	0.81
1132.0	14:20	83.7	70.4	36	263	137	268	113.0	14.37	203	2241	1019	1.08	1.13	35.2	40.2	0.85
1133.0	14:21	92.3	70.5	41	258	137	277	113.0	14.38	203	2233	1018	1.08	1.13	35.3	40.2	0.85
1134.0	14:21	156.5	70.5	41	258	136	291	113.1	14.38	203	2232	1019	1.08	1.13	35.3	40.2	0.71
1135.0	14:22	83.7	70.5	41	258	138	241	113.1	14.39	203	2223	1018	1.08	1.13	35.3	40.1	0.88
1136.0	14:23	69.2	70.5	39	260	138	241	113.3	14.41	203	2220	1019	1.08	1.13	35.4	40.1	0.91
1137.0	14:24	53.7	70.5	40	259	137	278	113.4	14.43	203	2218	1019	1.08	1.13	35.5	40.1	0.98
1138.0	14:24	102.9	70.5	39	260	137	274	113.6	14.44	203	2211	1019	1.08	1.13	35.5	40.1	0.81
1139.0	14:25	99.5	70.5	38	261	137	267	113.6	14.45	203	2208	1019	1.08	1.13	35.5	40.1	0.81
1140.0	14:26	83.7	70.5	37	262	137	265	113.7	14.46	203	2205	1019	1.08	1.13	35.6	40.1	0.85
1141.0	14:26	80.0	70.6	37	262	138	246	113.9	14.47	203	2205	1019	1.08	1.13	35.7	40.1	0.86
1142.0	14:28	31.6	70.5	39	260	138	234	114.1	14.50	203	2198	1019	1.08	1.13	35.8	40.1	1.11
1143.0	14:29	61.0	70.5	37	262	137	266	114.3	14.52	203	2194	1019	1.08	1.13	35.9	39.8	0.93
1144.0	14:30	83.7	70.5	37	262	138	249	114.3	14.53	203	2194	1019	1.08	1.13	36.0	39.9	0.85
1145.0	14:31	69.2	70.5	35	264	138	233	114.4	14.55	203	2192	1019	1.08	1.13	36.0	40.0	0.89
1146.0	14:32	50.0	70.4	37	262	138	246	114.6	14.57	203	2193	1019	1.08	1.13	36.0	39.7	0.98
1147.0	14:33	83.7	70.4	38	261	138	241	114.7	14.58	203	2194	1019	1.08	1.13	36.1	40.0	0.85
1148.0	14:33	94.7	70.5	35	264	139	219	114.8	14.59	203	2196	1019	1.08	1.13	36.2	40.0	0.81
1149.0	14:34	97.3	70.5	32	267	137	254	114.8	14.60	203	2197	1019	1.08	1.13	36.3	40.0	0.79
1150.0	14:35	76.6	70.5	37	262	137	263	115.0	14.61	203	2200	1019	1.08	1.13	36.3	39.8	0.87

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1150.0	14:35	76.6	70.5	37	262	137	263	115.0	14.61	203	2200	1019	1.08	1.13	36.3	39.8	0.87
1151.0	14:35	97.3	70.5	37	262	137	282	115.1	14.62	203	2200	1018	1.08	1.13	36.3	39.6	0.81
1152.0	14:36	128.6	70.5	37	262	138	227	115.1	14.63	202	2202	1014	1.08	1.13	36.2	39.6	0.75
1153.0	14:36	112.5	70.6	37	262	138	243	115.3	14.64	202	2204	1015	1.08	1.13	36.2	39.7	0.78
1154.0	14:51	14.9	70.3	38	293	138	254	115.3	14.71	202	2200	1015	1.08	1.13	35.9	39.7	1.28
1155.0	14:51	81.8	70.3	35	290	122	255	115.4	14.72	204	2260	1023	1.08	1.13	35.7	39.7	0.81
1156.0	14:52	52.2	70.3	34	266	123	225	115.5	14.74	207	2325	1041	1.08	1.13	35.6	39.7	0.92
1157.0	14:54	51.4	70.3	45	256	119	299	115.7	14.76	210	2402	1054	1.08	1.13	35.4	39.7	0.99
1158.0	14:54	75.0	70.3	37	263	122	252	115.8	14.77	193	2091	967	1.08	1.13	35.3	39.7	0.85
1159.0	14:56	48.6	70.2	37	264	122	255	116.0	14.79	193	2087	968	1.08	1.13	35.2	39.7	0.95
1160.0	14:57	37.5	70.2	38	263	121	274	116.2	14.82	193	2079	968	1.08	1.13	34.8	39.6	1.03
1161.0	14:58	85.7	70.2	40	261	122	271	116.2	14.83	193	2077	968	1.08	1.13	34.7	39.6	0.83
1162.0	14:59	50.7	70.2	36	265	122	268	116.4	14.85	193	2074	968	1.08	1.13	34.5	39.6	0.94
1163.0	15:00	65.5	70.2	37	264	121	278	116.4	14.86	193	2077	968	1.08	1.13	34.4	39.6	0.88
1164.0	15:00	121.2	70.2	34	266	123	245	116.5	14.87	193	2076	968	1.08	1.13	34.2	40.3	0.72
1165.0	15:01	240.0	70.3	35	266	123	254	116.5	14.87	193	2074	968	1.08	1.13	34.2	39.6	0.55
1166.0	15:01	67.9	70.3	36	264	122	261	116.7	14.89	193	2075	968	1.08	1.13	34.2	39.6	0.87
1167.0	15:02	78.3	70.3	40	260	120	286	116.7	14.90	193	2078	968	1.08	1.13	34.1	39.6	0.85
1168.0	15:04	42.4	70.2	39	261	121	261	116.9	14.92	193	2080	968	1.08	1.13	34.2	39.6	1.01
1169.0	15:04	64.3	70.2	43	257	121	275	117.0	14.94	195	2146	978	1.08	1.13	34.3	39.6	0.93
1170.0	15:06	55.4	70.2	47	253	120	287	117.2	14.96	195	2192	978	1.08	1.13	34.2	39.6	0.99
1171.0	15:07	50.0	70.2	39	262	122	257	117.3	14.98	199	2226	1001	1.08	1.13	34.2	39.6	0.96
1172.0	15:08	52.2	70.2	38	263	122	260	117.4	14.99	199	2229	1001	1.08	1.13	34.2	39.5	0.94
1173.0	15:09	39.1	70.1	44	257	121	273	117.5	15.02	199	2235	1000	1.08	1.13	34.3	39.5	1.06
1174.0	15:12	25.5	70.0	41	260	123	235	117.9	15.06	199	2242	1000	1.08	1.13	34.3	39.6	1.15
1175.0	15:14	26.1	69.9	42	259	123	236	118.2	15.10	182	2107	912	1.08	1.13	34.2	39.7	1.15
1176.0	15:22	7.9	69.4	34	267	124	221	119.1	15.22	166	1852	837	1.08	1.13	34.3	39.8	1.38
1177.0	15:24	26.3	69.3	43	258	131	261	119.3	15.26	114	1717	572	1.08	1.13	34.3	39.8	1.18
1178.0	15:26	28.3	69.2	46	255	138	251	119.6	15.30	114	1711	572	1.08	1.13	34.3	39.7	1.19
1179.0	15:28	38.3	69.1	45	255	137	281	119.9	15.32	114	1711	572	1.08	1.13	34.2	39.7	1.11
1180.0	15:28	76.6	69.1	44	257	137	285	120.0	15.34	114	1708	572	1.08	1.13	34.2	39.6	0.92
1181.0	15:31	22.1	69.0	43	258	138	261	120.3	15.38	114	1698	572	1.08	1.13	34.2	39.6	1.23
1182.0	15:32	156.5	69.0	43	258	137	285	120.5	15.39	114	1692	572	1.08	1.13	34.3	39.6	0.72
1183.0	15:32	171.4	69.1	43	258	138	260	120.5	15.39	114	1690	572	1.08	1.13	34.3	39.6	0.70
1184.0	15:43	81.8	69.1	22	279	114	125	120.6	15.41	149	1807	747	1.08	1.13	34.2	39.5	0.71
1185.0	15:43	171.4	69.1	12	290	141	119	120.6	15.41	224	2501	1126	1.09	1.13	34.3	39.5	0.52
1186.0	15:45	28.8	69.0	25	277	139	163	120.8	15.45	224	2530	1125	1.09	1.13	34.2	39.5	1.01
1187.0	15:47	42.4	69.0	41	261	137	258	121.0	15.47	217	2413	1092	1.09	1.13	34.3	39.5	1.05
1188.0	15:48	40.9	68.9	47	256	136	283	121.3	15.50	204	2194	1027	1.09	1.13	34.4	39.5	1.10
1189.0	15:50	27.9	68.8	43	259	137	252	121.6	15.53	204	2187	1027	1.09	1.13	34.8	39.6	1.17
1190.0	15:52	30.8	68.8	43	259	136	273	121.8	15.56	204	2182	1027	1.09	1.13	35.2	39.6	1.15
1191.0	16:05	22.5	68.0	39	264	137	240	123.2	15.75	172	1711	866	1.09	1.13	35.8	39.7	1.19
1192.0	16:09	17.3	67.8	40	262	137	267	123.8	15.80	164	1578	826	1.09	1.13	36.2	39.8	1.28
1193.0	16:13	12.9	67.6	39	263	138	227	124.3	15.88	188	2021	942	1.09	1.13	36.5	40.0	1.34
1194.0	16:19	11.7	67.3	30	273	139	172	125.0	15.97	191	2155	959	1.09	1.13	36.7	40.1	1.27
1195.0	16:21	20.7	67.1	41	261	138	238	125.5	16.02	195	2181	978	1.09	1.13	36.8	40.3	1.24
1196.0	16:25	15.8	66.9	41	261	137	265	126.0	16.08	199	2262	998	1.09	1.13	36.9	40.3	1.30
1197.0	16:27	39.1	66.9	41	261	136	286	126.2	16.10	197	2248	990	1.09	1.13	36.8	40.3	1.07
1198.0	16:27	102.9	66.9	38	265	136	298	126.3	16.11	196	2245	987	1.09	1.13	36.7	40.3	0.80
1199.0	16:44	3.7	65.9	38	265	141	134	128.5	16.39	197	2228	991	1.09	1.13	36.5	40.5	1.65

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1199.0	16:44	3.7	65.9	38	265	141	134	128.5	16.39	197	2228	991	1.09	1.13	36.5	40.5	1.65
1200.0	17:17	2.5	64.3	42	260	138	148	131.8	16.78	206	2313	1035	1.09	1.13	36.6	40.7	1.79
1201.0	17:56	2.0	62.5	37	266	134	138	135.8	17.28	210	2496	1053	1.09	1.13	37.3	41.3	1.77
1202.0	17:56	124.1	62.6	30	271	137	269	135.8	17.29	214	2551	1073	1.09	1.13	37.7	41.7	0.71
1203.0	18:33	3.0	61.5	33	268	134	128	138.5	17.62	216	2624	1083	1.09	1.14	38.0	41.8	1.61
1204.0	18:43	8.6	61.1	31	270	118	195	139.3	17.74	222	2708	1113	1.10	1.14	38.4	42.5	1.31
1205.0	18:43	138.5	61.1	30	271	125	242	139.3	17.74	222	2705	1113	1.11	1.13	38.5	42.6	0.66
1206.0	18:44	100.0	61.2	30	271	127	209	139.5	17.75	222	2698	1113	1.11	1.14	38.5	42.6	0.74
1207.0	18:45	72.0	61.2	31	270	127	217	139.5	17.77	222	2693	1113	1.11	1.14	38.5	42.6	0.82
1208.0	18:46	42.4	61.2	33	268	127	225	139.7	17.79	222	2679	1113	1.11	1.14	38.5	42.6	0.96
1209.0	18:47	61.0	61.2	32	269	129	219	139.9	17.81	222	2673	1113	1.11	1.13	38.5	42.6	0.88
1210.0	18:48	43.4	61.1	33	268	129	212	140.0	17.83	222	2679	1113	1.11	1.13	38.5	42.6	0.97
1211.0	18:50	39.6	61.1	34	267	123	206	140.2	17.86	222	2678	1113	1.11	1.13	38.6	42.6	0.98
1212.0	19:03	28.3	61.0	34	283	131	199	140.5	17.89	222	2630	1112	1.11	1.14	38.8	42.7	1.07
1213.0	19:04	38.7	61.0	35	268	136	198	140.6	17.92	225	2733	1128	1.11	1.14	38.8	42.7	1.01
1214.0	19:07	22.4	60.9	34	268	136	192	141.0	17.96	225	2781	1128	1.11	1.13	38.8	42.8	1.15
1215.0	19:10	17.1	60.8	35	268	136	197	141.4	18.02	225	2757	1128	1.11	1.14	38.8	42.0	1.22
1216.0	19:13	26.7	60.7	33	270	136	204	141.7	18.06	225	2714	1128	1.11	1.13	38.8	42.1	1.09
1217.0	19:31	4.3	60.0	35	267	125	133	143.5	18.29	225	2755	1128	1.11	1.14	39.0	42.4	1.54
1218.0	19:34	22.2	59.9	36	267	120	213	143.8	18.33	225	2725	1128	1.11	1.13	39.4	42.6	1.13
1219.0	19:34	112.5	59.9	32	271	119	224	143.8	18.34	225	2727	1128	1.11	1.13	39.5	42.6	0.71
1220.0	19:36	32.4	59.9	33	270	120	205	144.1	18.37	225	2730	1128	1.11	1.14	39.5	42.6	1.02
1221.0	19:39	21.6	59.8	34	269	121	195	144.5	18.42	225	2737	1128	1.11	1.13	39.6	42.6	1.12
1222.0	19:40	59.0	59.8	31	271	120	209	144.6	18.44	225	2741	1128	1.11	1.14	39.7	42.6	0.86
1223.0	19:41	52.2	59.8	29	274	120	196	144.7	18.46	225	2743	1128	1.11	1.14	39.7	42.6	0.87
1224.0	19:43	46.2	59.7	30	273	121	196	144.8	18.48	225	2747	1128	1.11	1.13	39.7	42.6	0.91
1225.0	19:48	27.1	59.7	17	285	121	268	145.1	18.52	225	2747	1128	1.11	1.14	39.8	42.6	0.90

H A L L I B U R T O N

ENGINEERING DATA FOR BIT RUN 3

DATE 13-AUG-95

WELL NUMBER	CHAMPION-1	OPERATING COMPANY	BHP PETROLEUM
DEPTH TO SHOE	1216.140	CASING SIZE	13.375
BIT SIZE	12.250	BIT NUMBER & TYPE	BR3 BIT3 HTC AG526
RIG COST/HR	7180.000	INITIAL COST	188255.000
TRIP TIME	15.000	PUMP CAP BBLS.STK	0.102
BIT COST	80555.000	TOTAL FLOW AREA	1.033
START DRILLING	1225.000		

MUD DATA LISTING

WEIGHT SG	VISCOSITY SEC/Q	PL VISC C.P.	YIELD PT LB/100FT2	GEL 0/10	pH	FILTRATE ML/30MIN	CAKE 32ND	SOLIDS %	SAND %
1.14	65	17	19	4/ 14	9.3	4.80	1.00	9.00	2.00

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1226.0	11:12	36.4	36.4	5	285	141	93	0.3	0.03	130	1825	558	1.11	1.12	23.7	24.7	0.74
1227.0	11:13	171.4	53.3	5	286	165	207	0.3	0.04	167	1968	714	1.11	1.12	23.5	23.9	0.52
1228.0	11:13	225.0	71.5	6	286	170	179	0.3	0.04	166	1943	712	1.11	1.12	23.5	24.1	0.47
1229.0	11:13	163.6	83.2	5	287	167	254	0.5	0.05	169	1966	722	1.11	1.12	23.5	24.3	0.52
1230.0	11:14	200.0	94.2	6	286	167	228	0.5	0.05	165	1963	707	1.11	1.12	23.5	24.6	0.50
1231.0	11:14	128.6	98.6	11	280	172	198	0.5	0.06	166	1945	711	1.11	1.12	23.5	24.9	0.66
1232.0	11:29	140.9	94.4	9	283	176	200	0.8	0.07	164	1989	685	1.11	1.12	23.5	25.0	0.61
1233.0	11:29	167.4	105.9	4	287	113	188	0.8	0.08	164	2001	685	1.11	1.12	23.4	25.3	0.43
1234.0	13:32	29.8	82.7	5	286	224	63	1.2	0.11	228	2941	1388	1.11	1.12	22.4	29.9	0.85
1235.0	13:33	87.8	83.1	4	287	222	82	1.4	0.12	228	2923	976	1.11	1.13	22.6	29.9	0.64
1236.0	13:34	44.4	77.0	4	286	243	122	1.6	0.14	228	2906	977	1.11	1.15	22.7	30.0	0.78
1237.0	13:35	62.1	75.5	6	284	242	144	1.9	0.16	228	3000	974	1.11	1.15	22.9	30.0	0.75
1238.0	13:36	75.0	75.5	6	284	243	136	2.1	0.17	227	3015	971	1.11	1.15	22.9	30.0	0.72
1239.0	13:37	60.0	74.1	8	282	244	125	2.4	0.19	227	3000	971	1.11	1.15	23.0	30.0	0.80
1240.0	13:40	24.5	65.3	10	280	245	116	2.9	0.23	228	2935	974	1.11	1.15	23.2	30.1	1.03
1241.0	13:51	36.7	62.3	11	280	243	87	3.4	0.26	226	2888	968	1.11	1.15	23.7	30.2	0.95
1242.0	13:56	18.4	54.6	10	281	250	113	4.2	0.31	231	2906	988	1.11	1.15	24.2	30.4	1.09
1243.0	14:01	11.3	45.0	11	280	240	124	5.4	0.40	231	2962	989	1.11	1.15	24.3	30.6	1.20
1244.0	14:18	6.1	33.6	18	274	244	110	7.8	0.56	232	2952	992	1.12	1.14	24.7	31.0	1.49
1245.0	14:30	6.8	28.1	27	264	213	172	9.7	0.71	223	2995	956	1.13	1.14	26.0	31.5	1.60
1246.0	15:20	2.1	13.6	15	277	240	136	21.7	1.55	222	2889	951	1.13	1.15	28.1	33.8	1.65

H A L L I B U R T O N

ENGINEERING DATA FOR BIT RUN 4

DATE 13-AUG-95

WELL NUMBER	CHAMPION-1	OPERATING COMPANY	BHP PETROLEUM
DEPTH TO SHOE	1216.000	CASING SIZE	13.375
BIT SIZE	12.250	BIT NUMBER & TYPE	BR4 BIT4 HTC ATMGT-11
RIG COST/HR	7180.000	INITIAL COST	75080.602
TRIP TIME	7.170	PUMP CAP BBLS.STK	0.102
BIT COST	23600.000	TOTAL FLOW AREA	0.746
START DRILLING	1246.000		

MUD DATA LISTING

WEIGHT SG	VISCOSITY SEC/Q	PL VISC C.P.	YIELD PT LB/100FT2	GEL 0/10	pH	FILTRATE ML/30MIN	CAKE 32ND	SOLIDS %	SAND %
1.14	65	17	19	4/ 14	9.3	4.80	1.00	9.00	2.00

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1247.0	23:38	22.4	22.4	11	282	58	42	0.1	0.04	225	3242	963	1.15	1.15	25.8	31.8	0.77
1248.0	23:47	8.0	11.8	19	271	56	83	0.1	0.17	225	3178	964	1.15	1.15	26.2	34.9	1.10
1249.0	23:51	26.0	15.1	21	271	56	84	0.2	0.20	226	3246	966	1.15	1.15	26.5	34.3	0.85
1250.0	23:38	23.0	18.1	23	268	56	91	0.2	0.22	225	3294	963	1.15	1.15	26.8	34.3	0.90
1251.0	23:50	31.0	21.9	22	271	56	83	0.2	0.23	225	3240	964	1.15	1.15	26.2	34.9	0.82
1252.0	23:52	35.3	24.2	18	271	56	84	0.2	0.25	226	3192	966	1.15	1.15	26.5	34.3	0.75
1253.0	23:53	43.4	27.1	17	268	56	91	0.3	0.26	225	3208	963	1.15	1.15	26.8	34.3	0.70
1254.0	23:55	44.4	28.8	18	267	56	97	0.3	0.28	226	3177	967	1.15	1.15	27.0	34.3	0.70
1255.0	23:57	21.8	31.1	19	266	55	93	0.5	0.29	226	3197	969	1.15	1.15	27.4	34.3	0.87
1256.0	00:00	21.7	29.8	19	266	56	86	0.6	0.34	227	3165	975	1.15	1.15	28.0	34.3	0.87
1257.0	00:03	21.3	28.8	19	266	55	91	0.8	0.38	227	3191	979	1.15	1.15	28.6	34.4	0.87
1258.0	00:06	17.6	27.3	18	267	56	84	1.0	0.44	226	3173	967	1.15	1.15	29.2	34.5	0.91
1259.0	00:09	27.7	27.4	20	265	55	87	1.1	0.48	230	3188	982	1.15	1.16	29.6	34.6	0.82
1260.0	00:11	23.5	27.0	17	268	56	78	1.2	0.52	227	3163	971	1.15	1.16	30.0	34.6	0.83
1261.0	00:14	21.4	26.6	17	268	56	79	1.4	0.56	226	3175	969	1.15	1.16	30.3	34.7	0.85
1262.0	00:17	18.8	25.9	18	267	56	87	1.5	0.62	226	3163	968	1.15	1.16	30.5	34.8	0.89
1263.0	00:20	20.3	25.5	19	266	55	85	1.7	0.67	226	3157	969	1.15	1.16	30.7	35.0	0.88
1264.0	00:22	36.7	25.9	21	264	55	90	1.8	0.69	226	3159	966	1.15	1.16	30.9	35.1	0.76
1265.0	00:25	17.8	25.3	19	266	57	88	2.0	0.75	226	3147	967	1.15	1.16	31.0	35.2	0.92
1266.0	00:27	29.0	25.5	18	267	57	90	2.1	0.78	225	3163	964	1.15	1.16	31.1	35.3	0.80
1267.0	00:30	25.5	25.5	20	265	56	96	2.2	0.82	226	3173	967	1.15	1.16	31.2	35.1	0.85
1268.0	00:40	5.6	21.9	20	265	67	73	2.9	1.00	213	2884	911	1.15	1.16	31.4	35.4	1.24
1269.0	00:55	22.8	22.0	14	271	59	66	3.1	1.05	208	2772	890	1.15	1.16	31.6	35.8	0.81
1270.0	00:57	23.2	22.0	12	274	60	82	3.2	1.09	210	2796	898	1.15	1.16	31.8	35.9	0.78
1271.0	01:03	10.2	21.0	18	268	59	95	3.6	1.19	210	2805	898	1.15	1.16	31.8	35.9	1.04
1272.0	01:16	5.0	18.7	19	268	68	75	4.4	1.39	210	2825	899	1.16	1.16	32.1	36.1	1.23
1273.0	01:25	6.6	17.5	23	263	81	84	5.1	1.54	212	2893	908	1.16	1.16	32.4	36.4	1.28
1274.0	01:26	41.9	17.9	34	253	99	144	5.3	1.56	217	2986	930	1.16	1.16	32.6	36.5	0.99
1275.0	01:28	28.6	18.1	36	251	98	134	5.5	1.60	216	3007	926	1.16	1.16	32.6	36.5	1.10
1276.0	01:30	56.3	18.6	29	257	100	125	5.6	1.62	217	2953	929	1.16	1.16	32.7	36.6	0.88
1277.0	01:31	52.9	19.0	27	260	101	123	5.7	1.64	216	3010	924	1.16	1.16	32.7	36.6	0.87
1278.0	01:32	54.5	19.4	25	262	100	116	5.8	1.65	216	3011	925	1.16	1.16	32.8	36.7	0.85
1279.0	01:33	39.6	19.7	24	262	101	101	5.9	1.68	217	2972	928	1.16	1.16	32.8	36.7	0.92
1280.0	01:35	49.3	20.0	24	263	101	113	6.0	1.70	217	3022	927	1.16	1.16	32.9	36.8	0.86
1281.0	01:36	43.9	20.3	23	264	101	126	6.2	1.72	216	3008	925	1.16	1.16	32.9	36.9	0.88
1282.0	01:37	47.4	20.7	21	266	101	111	6.3	1.74	217	2981	930	1.16	1.16	33.0	36.9	0.84
1283.0	01:38	57.1	21.0	21	265	102	104	6.4	1.76	216	2991	924	1.16	1.16	33.0	37.0	0.81
1284.0	01:40	39.1	21.3	22	264	101	101	6.5	1.79	217	3008	927	1.16	1.16	33.0	37.0	0.90
1285.0	01:46	9.4	20.6	34	252	99	136	7.2	1.89	217	2985	928	1.16	1.16	33.1	37.1	1.38
1286.0	01:48	36.7	20.8	36	251	99	144	7.3	1.92	217	2967	929	1.16	1.16	33.2	37.2	1.04
1287.0	01:49	48.6	21.1	32	254	99	137	7.4	1.94	218	3016	931	1.16	1.16	33.3	37.2	0.93
1288.0	01:51	35.6	21.3	34	253	99	143	7.6	1.97	218	2964	929	1.16	1.16	33.3	37.2	1.03
1289.0	01:59	7.1	20.4	39	248	100	133	8.5	2.11	222	2969	949	1.16	1.16	33.4	37.2	1.51
1290.0	02:00	63.2	20.7	34	253	98	146	8.6	2.12	233	3002	996	1.16	1.16	33.5	37.3	0.87
1291.0	02:01	51.4	21.0	37	249	99	154	8.7	2.14	214	2979	916	1.16	1.16	33.6	37.3	0.96
1292.0	02:06	12.5	20.7	37	250	100	134	9.2	2.22	208	2985	888	1.16	1.16	33.6	37.2	1.33
1293.0	02:07	40.4	20.9	29	257	101	103	9.3	2.25	207	2983	886	1.16	1.16	33.7	37.3	0.96
1294.0	02:12	12.1	20.6	36	251	99	142	9.8	2.33	207	3010	886	1.16	1.16	33.8	37.4	1.33
1295.0	02:14	46.8	20.8	33	253	98	167	9.9	2.35	207	2965	885	1.16	1.16	33.9	37.2	0.95
1296.0	02:15	62.1	21.1	30	257	98	163	10.0	2.37	207	3032	885	1.16	1.16	34.0	37.3	0.85

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1296.0	02:15	62.1	21.1	30	257	98	163	10.0	2.37	207	3032	885	1.16	1.16	34.0	37.3	0.85
1297.0	02:16	43.4	21.3	27	260	101	132	10.1	2.39	206	3019	884	1.16	1.16	34.0	37.4	0.92
1298.0	02:38	21.4	21.3	28	259	97	110	10.4	2.44	209	3022	894	1.16	1.16	34.1	37.8	1.09
1299.0	02:41	22.1	21.3	26	262	99	115	10.6	2.48	210	3168	897	1.16	1.16	34.3	38.0	1.07
1300.0	02:48	8.0	20.7	35	253	98	136	11.4	2.61	210	3168	900	1.16	1.16	34.5	38.1	1.43
1301.0	02:49	72.0	21.0	32	256	98	138	11.4	2.62	211	3114	904	1.16	1.17	34.6	38.2	0.83
1302.0	02:51	24.5	21.0	36	252	98	136	11.7	2.66	213	3101	911	1.16	1.17	34.6	38.3	1.14
1303.0	02:53	47.4	21.2	34	255	97	137	11.8	2.68	213	3125	911	1.16	1.17	34.6	38.5	0.94
1304.0	02:54	52.2	21.5	32	257	97	137	11.9	2.70	212	3128	907	1.16	1.17	34.6	38.5	0.90
1305.0	02:55	53.7	21.7	28	260	98	129	12.0	2.72	212	3085	908	1.16	1.17	34.6	38.6	0.87
1306.0	02:56	63.2	21.9	29	260	98	136	12.1	2.74	212	3144	907	1.16	1.17	34.6	38.6	0.83
1307.0	02:58	26.3	22.0	32	256	98	135	12.3	2.78	212	3119	907	1.16	1.17	34.7	38.6	1.08
1308.0	03:00	26.9	22.0	34	254	98	129	12.5	2.81	212	3118	907	1.16	1.17	34.7	38.6	1.10
1309.0	03:03	20.8	22.0	36	253	98	137	12.8	2.86	211	3116	901	1.16	1.17	34.8	38.7	1.18
1310.0	03:07	16.1	21.9	34	254	99	117	13.2	2.92	207	2934	887	1.16	1.17	34.8	38.8	1.23
1311.0	03:13	10.5	21.5	39	249	88	136	13.7	3.02	212	2864	908	1.16	1.17	35.0	38.9	1.37
1312.0	03:14	54.5	21.7	35	254	101	159	13.8	3.04	208	2879	889	1.16	1.17	35.1	39.0	0.92
1313.0	03:15	63.2	21.9	33	256	102	156	13.9	3.05	205	2904	879	1.16	1.17	35.1	39.0	0.87
1314.0	03:16	54.5	22.1	32	256	102	146	14.0	3.07	205	2898	879	1.16	1.17	35.1	39.1	0.91
1315.0	03:18	36.7	22.3	31	257	102	157	14.2	3.10	206	2874	880	1.16	1.17	35.2	39.1	1.00
1316.0	03:19	46.2	22.4	31	258	102	150	14.3	3.12	205	2866	879	1.16	1.17	35.2	39.2	0.93
1317.0	03:20	49.3	22.6	29	260	99	188	14.4	3.14	206	2879	881	1.16	1.17	35.3	39.2	0.89
1318.0	03:21	52.9	22.8	31	258	102	160	14.5	3.16	206	2898	880	1.16	1.17	35.3	39.3	0.90
1319.0	03:24	18.5	22.7	32	257	103	125	14.9	3.21	205	2886	863	1.16	1.17	35.4	39.3	1.18
1320.0	03:28	19.6	22.7	34	255	102	149	15.2	3.26	205	2897	870	1.16	1.17	35.5	39.4	1.18
1321.0	03:38	5.7	21.8	38	250	102	150	16.3	3.44	205	2865	876	1.16	1.17	35.7	39.5	1.56
1322.0	03:44	9.9	21.5	39	250	103	138	16.8	3.54	205	2849	860	1.17	1.17	36.0	39.6	1.42
1323.0	03:45	73.5	21.7	34	254	100	143	16.9	3.55	205	2826	876	1.17	1.17	36.1	39.7	0.84
1324.0	03:46	80.0	21.9	33	255	102	142	17.0	3.57	205	2828	877	1.17	1.17	36.1	39.8	0.82
1325.0	03:47	63.2	22.1	34	254	102	148	17.1	3.58	205	2859	876	1.17	1.17	36.2	39.8	0.88
1326.0	03:48	55.4	22.2	36	252	102	148	17.2	3.60	205	2844	863	1.17	1.17	36.2	39.8	0.93
1327.0	03:49	61.0	22.4	37	251	102	140	17.3	3.62	205	2874	869	1.17	1.17	36.2	39.8	0.91
1328.0	04:00	62.1	22.6	22	266	101	95	17.4	3.63	200	2843	857	1.17	1.17	36.3	40.0	0.79
1329.0	04:02	29.0	22.6	28	261	84	125	17.6	3.67	197	2889	844	1.17	1.17	36.4	40.2	0.98
1330.0	04:06	13.4	22.5	32	258	84	120	17.9	3.74	200	2890	856	1.17	1.17	36.5	40.2	1.21
1331.0	04:11	11.0	22.2	38	252	82	148	18.4	3.83	198	2894	849	1.17	1.17	36.6	40.3	1.32
1332.0	04:16	13.6	22.0	40	250	83	141	18.8	3.90	199	2899	850	1.17	1.17	36.6	40.4	1.29
1333.0	04:18	25.0	22.1	41	249	83	142	19.0	3.94	199	2897	852	1.17	1.17	36.7	40.4	1.13
1334.0	04:20	48.0	22.2	31	259	84	138	19.0	3.97	199	2905	851	1.17	1.17	36.7	40.5	0.87
1335.0	04:21	36.7	22.3	30	260	84	110	19.2	3.99	199	2890	852	1.17	1.17	36.8	40.5	0.94
1336.0	04:24	18.6	22.2	36	254	84	130	19.5	4.05	199	2883	852	1.17	1.17	36.8	40.6	1.16
1337.0	04:28	16.6	22.2	41	249	86	139	19.7	4.11	199	2890	853	1.17	1.17	36.9	40.6	1.25
1338.0	04:30	32.7	22.2	37	253	100	134	19.9	4.14	199	2879	852	1.17	1.17	37.0	40.6	1.07
1339.0	04:31	45.0	22.4	33	257	101	129	20.0	4.16	200	2844	854	1.17	1.17	37.1	40.6	0.95
1340.0	04:33	26.3	22.4	36	254	99	144	20.2	4.20	199	2911	853	1.17	1.17	37.1	40.6	1.11
1341.0	04:34	83.7	22.6	33	257	100	132	20.3	4.21	199	2876	854	1.17	1.17	37.2	40.7	0.79
1342.0	04:35	59.0	22.7	30	260	101	114	20.4	4.23	199	2906	851	1.17	1.17	37.2	40.7	0.86
1343.0	04:36	56.3	22.9	30	260	100	125	20.5	4.24	199	2902	852	1.17	1.18	37.2	40.7	0.87
1344.0	04:38	45.0	23.0	29	261	100	122	20.6	4.27	199	2898	853	1.17	1.18	37.3	40.6	0.92
1345.0	04:39	35.6	23.1	36	254	100	131	20.9	4.29	199	2893	853	1.17	1.18	37.3	40.7	1.04

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1345.0	04:39	35.6	23.1	36	254	100	131	20.9	4.29	199	2893	853	1.17	1.18	37.3	40.7	1.04
1346.0	04:41	31.3	23.1	40	250	99	133	21.1	4.33	199	2907	853	1.17	1.18	37.4	40.8	1.10
1347.0	04:43	35.3	23.2	37	253	100	134	21.2	4.35	199	2908	853	1.17	1.18	37.4	40.6	1.05
1348.0	04:44	38.3	23.3	36	254	100	135	21.4	4.38	199	2916	852	1.17	1.18	37.5	40.8	1.02
1349.0	04:46	41.4	23.4	30	260	100	122	21.5	4.41	200	2894	854	1.17	1.18	37.5	40.8	0.95
1350.0	04:47	38.3	23.5	28	262	101	115	21.7	4.43	199	2906	852	1.17	1.18	37.5	40.8	0.94
1351.0	04:49	42.4	23.6	34	256	100	135	21.8	4.45	200	2884	855	1.17	1.18	37.6	40.6	0.97
1352.0	04:50	50.0	23.7	35	255	99	148	21.9	4.47	199	2934	853	1.17	1.18	37.6	40.8	0.94
1353.0	04:51	65.5	23.8	35	255	99	142	22.0	4.49	199	2941	853	1.17	1.18	37.6	40.8	0.87
1354.0	04:52	61.0	24.0	34	256	99	145	22.1	4.51	200	2935	855	1.17	1.18	37.7	40.9	0.88
1355.0	04:53	51.4	24.1	34	256	100	136	22.2	4.53	200	2905	855	1.17	1.18	37.7	40.9	0.92
1356.0	04:57	14.9	23.9	38	252	99	134	22.6	4.59	199	2938	852	1.17	1.18	37.8	41.1	1.29
1357.0	05:11	15.8	23.8	31	260	93	111	22.9	4.66	199	2935	850	1.17	1.18	37.9	41.4	1.17
1358.0	05:14	21.1	23.8	28	264	90	109	23.2	4.70	200	2958	855	1.17	1.18	37.9	41.2	1.06
1359.0	05:16	25.7	23.8	34	257	98	139	23.4	4.74	200	2960	855	1.17	1.18	38.0	41.3	1.10
1360.0	05:18	34.0	23.9	34	258	99	131	23.6	4.77	201	2973	859	1.17	1.18	38.0	41.4	1.02
1361.0	05:22	15.9	23.8	37	255	97	145	24.0	4.84	201	2950	858	1.17	1.18	38.0	41.4	1.25
1362.0	05:23	65.5	23.9	36	256	80	152	24.1	4.85	201	2962	859	1.17	1.18	38.1	41.6	0.81
1363.0	05:24	55.4	24.0	33	259	98	137	24.2	4.87	201	2987	860	1.17	1.18	38.1	41.6	0.89
1364.0	05:26	34.0	24.1	31	260	99	131	24.3	4.90	201	2945	862	1.17	1.18	38.1	41.6	1.00
1365.0	05:30	13.7	23.9	38	254	90	147	24.7	4.97	201	2969	862	1.17	1.18	38.1	41.7	1.28
1366.0	05:33	22.5	23.9	39	252	77	152	24.9	5.02	201	2945	862	1.17	1.18	38.2	41.8	1.11
1367.0	05:34	57.1	24.0	35	257	93	147	25.0	5.03	202	2952	862	1.17	1.18	38.2	41.9	0.88
1368.0	05:35	65.5	24.2	34	257	101	140	25.1	5.05	202	2985	863	1.17	1.18	38.2	41.9	0.86
1369.0	05:36	35.3	24.2	35	257	101	147	25.3	5.08	202	2955	865	1.17	1.18	38.3	41.9	1.03
1370.0	05:41	11.4	24.0	39	253	100	151	25.8	5.16	202	2968	864	1.17	1.18	38.4	42.1	1.36
1371.0	05:43	58.1	24.1	37	255	100	153	25.9	5.18	200	2937	863	1.17	1.18	38.4	41.8	0.91
1372.0	05:43	63.2	24.2	31	261	101	133	26.0	5.20	200	2984	860	1.18	1.18	38.5	41.9	0.85
1373.0	05:45	38.7	24.3	33	258	101	144	26.1	5.22	200	2985	864	1.18	1.18	38.5	42.0	0.99
1374.0	05:47	36.0	24.4	37	255	100	159	26.3	5.25	200	2966	867	1.18	1.18	38.6	41.8	1.04
1375.0	05:48	48.0	24.5	37	255	100	150	26.4	5.27	200	2993	868	1.18	1.18	38.6	42.0	0.96
1376.0	05:49	83.7	24.6	31	260	101	146	26.5	5.28	200	2983	864	1.18	1.18	38.6	42.0	0.78
1377.0	05:50	62.1	24.7	30	262	102	133	26.6	5.30	200	2936	868	1.18	1.18	38.6	42.0	0.84
1378.0	05:51	34.3	24.8	34	257	101	135	26.7	5.33	200	2996	869	1.18	1.18	38.7	41.8	1.03
1379.0	05:54	20.3	24.7	39	253	101	142	27.0	5.38	200	3022	869	1.18	1.18	38.7	42.0	1.21
1380.0	05:56	32.7	24.8	33	258	101	144	27.2	5.41	200	3023	865	1.18	1.18	38.8	42.2	1.03
1381.0	05:58	29.5	24.8	33	258	101	138	27.4	5.44	200	2986	866	1.18	1.18	38.8	42.1	1.06
1382.0	05:59	53.7	24.9	32	260	100	139	27.6	5.46	200	3037	865	1.18	1.18	38.9	42.0	0.89
1383.0	06:02	26.1	24.9	31	261	101	131	27.8	5.50	200	3003	867	1.18	1.18	38.9	41.9	1.06
1384.0	06:03	45.6	25.0	35	257	101	147	27.9	5.52	198	2990	849	1.18	1.18	39.0	41.7	0.96
1385.0	06:04	52.9	25.1	38	253	100	151	28.0	5.54	199	2993	853	1.18	1.19	39.0	41.7	0.94
1386.0	06:06	34.0	25.1	38	254	100	160	28.2	5.57	201	3115	862	1.18	1.19	39.1	41.9	1.06
1387.0	06:17	43.9	25.2	26	273	99	142	28.3	5.59	202	3539	865	1.18	1.19	39.1	42.6	0.88
1388.0	06:18	40.9	25.3	26	267	99	144	28.5	5.62	235	3801	1006	1.18	1.19	39.2	43.0	0.90
1389.0	06:20	41.9	25.4	25	268	100	128	28.6	5.64	234	3889	1003	1.18	1.19	39.2	43.1	0.89
1390.0	06:21	55.4	25.4	26	267	100	126	28.7	5.66	235	3898	1006	1.18	1.19	39.2	43.0	0.83
1391.0	06:22	48.6	25.5	27	267	99	135	28.8	5.68	234	3818	1000	1.18	1.19	39.3	42.9	0.87
1392.0	06:23	57.1	25.6	26	268	99	137	28.9	5.70	230	3783	982	1.18	1.19	39.3	43.0	0.82
1393.0	06:24	65.5	25.7	26	267	100	142	29.0	5.71	230	3767	984	1.18	1.19	39.3	43.2	0.80
1394.0	06:31	63.2	25.8	25	268	99	135	29.1	5.73	226	3650	871	1.18	1.19	39.3	43.4	0.79

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1394.0	06:31	63.2	25.8	25	268	99	135	29.1	5.73	226	3650	871	1.18	1.19	39.3	43.4	0.79
1395.0	06:32	57.1	25.9	33	260	98	158	29.2	5.75	226	3472	966	1.18	1.19	39.3	43.4	0.88
1396.0	06:34	33.3	26.0	32	261	99	141	29.4	5.78	226	3558	966	1.18	1.19	39.3	43.4	1.01
1397.0	06:35	53.7	26.1	32	262	99	143	29.5	5.79	225	3510	965	1.18	1.19	39.4	43.5	0.88
1398.0	06:36	49.3	26.1	30	263	98	142	29.6	5.81	227	3526	971	1.18	1.19	39.4	43.5	0.89
1399.0	06:38	49.3	26.2	29	265	99	137	29.7	5.83	226	3548	967	1.18	1.19	39.4	43.6	0.88
1400.0	06:39	57.1	26.3	29	264	98	144	29.8	5.85	227	3541	970	1.18	1.19	39.4	43.6	0.85
1401.0	06:40	69.2	26.4	31	262	99	149	29.9	5.87	228	3471	976	1.18	1.19	39.5	43.6	0.81
1402.0	06:41	63.2	26.5	32	261	98	149	30.0	5.88	227	3542	973	1.18	1.19	39.5	43.7	0.84
1403.0	06:43	30.5	26.5	37	256	98	150	30.1	5.91	227	3529	972	1.18	1.19	39.5	43.8	1.07
1404.0	06:43	70.6	26.6	36	257	99	145	30.2	5.93	228	3451	975	1.18	1.19	39.5	43.8	0.84
1405.0	06:45	52.9	26.7	34	259	99	144	30.3	5.95	227	3532	971	1.18	1.19	39.6	43.9	0.90
1406.0	06:46	33.3	26.8	35	258	99	132	30.5	5.98	227	3530	970	1.18	1.19	39.7	44.0	1.03
1407.0	06:50	17.1	26.7	39	254	99	144	30.9	6.04	227	3518	972	1.18	1.19	39.8	44.0	1.24
1408.0	06:53	17.1	26.6	40	253	87	141	31.1	6.09	227	3505	970	1.18	1.19	39.9	44.1	1.22
1409.0	06:57	18.8	26.5	37	256	96	142	31.4	6.15	227	3510	969	1.18	1.19	40.1	44.2	1.19
1410.0	06:59	23.2	26.5	39	255	100	149	31.7	6.19	227	3516	969	1.18	1.19	40.2	44.0	1.16
1411.0	07:02	23.5	26.5	39	254	100	155	31.9	6.23	227	3476	969	1.18	1.19	40.2	44.2	1.16
1412.0	07:08	9.1	26.2	41	252	101	144	32.5	6.34	227	3499	969	1.18	1.19	40.2	44.1	1.43
1413.0	07:11	24.8	26.2	37	256	101	143	32.8	6.38	227	3514	969	1.18	1.19	40.3	44.4	1.13
1414.0	07:12	69.2	26.3	30	263	101	137	32.9	6.40	227	3516	970	1.18	1.19	40.4	44.4	0.81
1415.0	07:12	66.7	26.4	32	261	101	148	33.0	6.41	227	3447	970	1.18	1.19	40.4	44.4	0.83
1416.0	07:23	33.0	26.4	30	277	101	142	33.1	6.44	221	3397	944	1.18	1.19	40.4	44.4	0.99
1417.0	07:26	24.0	26.4	29	266	100	146	33.4	6.49	223	3445	953	1.18	1.19	40.3	44.4	1.06
1418.0	07:31	12.9	26.2	35	260	99	144	33.8	6.56	223	3477	955	1.18	1.19	40.3	44.4	1.27
1419.0	07:33	24.5	26.2	41	254	83	141	34.1	6.60	223	3488	956	1.18	1.19	40.4	44.4	1.11
1420.0	07:41	7.7	25.8	41	254	73	149	34.6	6.73	223	3498	954	1.18	1.19	40.4	44.4	1.39
1421.0	07:43	34.0	25.9	39	256	67	149	34.8	6.76	222	3489	952	1.18	1.19	40.5	44.4	0.95
1422.0	07:44	34.6	25.9	37	258	100	157	34.9	6.79	223	3496	953	1.19	1.19	40.5	44.4	1.04
1423.0	07:46	39.1	26.0	38	257	102	154	35.1	6.82	222	3505	950	1.19	1.19	40.6	44.4	1.02
1424.0	07:47	46.2	26.0	36	259	103	148	35.2	6.84	222	3515	950	1.19	1.19	40.6	44.4	0.96
1425.0	07:48	52.2	26.1	35	260	102	141	35.3	6.86	223	3498	955	1.19	1.19	40.6	44.5	0.92
1426.0	07:50	37.5	26.1	35	260	103	143	35.5	6.88	222	3503	950	1.19	1.19	40.7	44.5	1.00
1427.0	07:51	38.7	26.2	35	260	103	141	35.6	6.91	223	3513	955	1.19	1.20	40.7	44.5	0.99
1428.0	07:53	40.9	26.2	35	260	103	139	35.8	6.93	223	3508	952	1.19	1.20	40.8	44.6	0.98
1429.0	07:55	26.7	26.2	36	259	103	140	36.0	6.97	223	3513	954	1.19	1.20	40.8	44.6	1.10
1430.0	07:57	33.0	26.3	37	258	103	147	36.2	7.00	223	3539	952	1.19	1.20	40.9	44.7	1.05
1431.0	07:59	33.0	26.3	37	258	103	143	36.3	7.03	223	3512	953	1.19	1.20	40.9	44.8	1.05
1432.0	08:01	31.9	26.3	38	257	103	147	36.5	7.06	222	3523	950	1.19	1.20	41.0	44.8	1.07
1433.0	08:03	21.4	26.3	38	257	103	142	36.9	7.11	223	3525	953	1.19	1.20	41.0	44.9	1.18
1434.0	08:05	30.8	26.3	35	260	103	136	37.1	7.14	222	3543	951	1.19	1.20	41.1	44.9	1.06
1435.0	08:09	15.7	26.2	39	256	103	143	37.5	7.21	223	3512	952	1.19	1.20	41.1	45.0	1.27
1436.0	08:12	18.6	26.2	39	256	103	141	37.8	7.26	222	3543	951	1.19	1.20	41.2	45.1	1.23
1437.0	08:17	13.2	26.0	39	256	103	147	38.2	7.34	222	3521	952	1.19	1.20	41.2	45.2	1.31
1438.0	08:21	14.4	25.9	40	255	102	152	38.6	7.41	222	3527	952	1.19	1.20	41.3	45.2	1.30
1439.0	08:26	12.8	25.8	38	257	103	139	39.2	7.48	222	3510	951	1.19	1.20	41.4	45.2	1.31
1440.0	08:31	11.7	25.6	36	259	103	141	39.6	7.57	222	3513	950	1.19	1.20	41.4	45.3	1.31
1441.0	08:36	13.3	25.5	39	256	103	139	40.1	7.64	222	3525	950	1.19	1.20	41.5	45.3	1.31
1442.0	08:40	14.3	25.4	35	260	114	138	40.6	7.71	222	3532	950	1.19	1.20	41.6	45.3	1.27
1443.0	08:43	17.2	25.3	30	265	116	145	40.9	7.77	222	3520	949	1.19	1.20	41.6	45.3	1.18

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1443.0	08:43	17.2	25.3	30	265	116	145	40.9	7.77	222	3520	949	1.19	1.20	41.6	45.3	1.18
1444.0	08:47	14.7	25.3	33	262	116	133	41.4	7.84	222	3535	949	1.19	1.20	41.7	45.3	1.25
1445.0	08:51	17.7	25.2	35	260	116	149	41.9	7.90	222	3514	948	1.19	1.20	41.8	45.4	1.22
1446.0	09:07	12.3	25.1	29	279	106	128	42.3	7.98	223	3559	954	1.19	1.20	41.5	45.4	1.22
1447.0	09:10	17.0	25.0	28	269	106	124	42.7	8.04	225	3622	964	1.19	1.20	41.5	45.5	1.14
1448.0	09:15	13.7	24.9	34	263	106	139	43.2	8.11	225	3603	964	1.19	1.20	41.6	45.5	1.25
1449.0	09:18	17.4	24.9	35	261	105	143	43.5	8.17	225	3635	963	1.19	1.20	41.6	45.6	1.21
1450.0	09:22	15.5	24.8	35	262	105	149	43.9	8.23	225	3616	963	1.19	1.20	41.7	45.6	1.23
1451.0	09:25	20.1	24.8	36	261	104	160	44.2	8.28	225	3609	964	1.19	1.20	41.7	45.6	1.17
1452.0	09:28	18.5	24.7	36	260	104	158	44.6	8.34	225	3603	964	1.19	1.20	41.8	45.6	1.20
1453.0	09:30	36.0	24.7	33	263	105	155	44.7	8.36	226	3588	965	1.19	1.20	41.8	45.6	1.00
1454.0	09:32	24.7	24.7	35	261	105	152	44.9	8.40	225	3637	963	1.19	1.20	41.8	45.7	1.11
1455.0	09:34	47.4	24.8	34	262	105	141	45.1	8.43	225	3561	964	1.19	1.20	41.8	45.7	0.94
1456.0	09:35	48.6	24.9	31	265	105	145	45.2	8.45	225	3620	963	1.19	1.20	41.8	45.7	0.91
1457.0	09:36	69.2	24.9	27	269	106	123	45.3	8.46	225	3639	963	1.19	1.20	41.9	45.7	0.80
1458.0	09:38	28.1	25.0	31	265	106	138	45.5	8.50	225	3608	964	1.19	1.20	41.9	45.8	1.04
1459.0	09:42	13.8	24.9	38	258	105	144	45.9	8.57	225	3608	962	1.19	1.20	42.0	45.9	1.29
1460.0	09:46	14.4	24.8	34	263	105	147	46.4	8.64	224	3604	960	1.19	1.20	42.1	45.9	1.23
1461.0	09:51	13.8	24.7	35	262	105	151	46.8	8.71	225	3611	961	1.19	1.20	42.2	45.9	1.25
1462.0	09:54	16.4	24.6	36	260	104	152	47.2	8.77	225	3577	965	1.19	1.20	42.1	45.6	1.23
1463.0	09:59	13.2	24.5	37	260	104	155	47.7	8.85	226	3557	968	1.19	1.20	42.1	45.6	1.29
1464.0	10:02	17.7	24.5	33	263	106	132	48.0	8.90	226	3563	967	1.19	1.20	42.1	45.7	1.18
1465.0	10:06	14.4	24.4	34	262	106	135	48.4	8.97	227	3547	969	1.19	1.20	42.1	45.8	1.24
1466.0	10:10	17.4	24.4	38	258	105	151	48.9	9.03	226	3556	967	1.19	1.20	42.1	45.9	1.23
1467.0	10:13	17.8	24.3	38	258	105	153	49.2	9.09	226	3542	969	1.19	1.20	42.0	45.9	1.22
1468.0	10:18	12.2	24.2	36	261	106	139	49.7	9.17	226	3539	969	1.19	1.20	42.1	45.9	1.30
1469.0	10:22	13.9	24.1	34	262	106	135	50.2	9.24	227	3525	971	1.19	1.21	42.1	44.5	1.25
1470.0	10:27	14.4	24.1	34	263	106	136	50.6	9.31	227	3542	970	1.19	1.21	42.2	44.6	1.23
1471.0	10:30	20.5	24.0	33	264	105	136	50.9	9.36	227	3522	970	1.19	1.21	42.5	45.1	1.14
1472.0	10:32	20.6	24.0	36	260	105	146	51.1	9.41	227	3538	969	1.20	1.21	42.7	45.4	1.17
1473.0	10:36	14.9	24.0	34	262	105	140	51.6	9.47	226	3575	967	1.20	1.21	43.0	45.5	1.23
1474.0	10:39	20.5	23.9	32	264	106	134	51.9	9.52	226	3585	965	1.20	1.21	43.1	45.6	1.13
1475.0	11:01	26.5	24.0	26	272	106	112	52.1	9.56	220	3502	943	1.20	1.21	43.1	45.7	1.00
1476.0	11:06	12.4	23.9	28	270	106	120	52.6	9.64	223	3558	954	1.20	1.21	43.1	45.7	1.21
1477.0	11:10	16.7	23.8	35	264	105	149	53.0	9.70	224	3548	957	1.20	1.21	43.1	45.7	1.20
1478.0	11:14	16.0	23.8	38	260	104	154	53.3	9.76	225	3518	961	1.20	1.21	43.1	45.7	1.24
1479.0	11:18	12.7	23.7	39	259	105	150	53.9	9.84	226	3528	967	1.20	1.21	43.0	45.7	1.32
1480.0	11:22	14.5	23.6	37	261	105	155	54.3	9.91	226	3529	966	1.20	1.21	42.9	45.7	1.26
1481.0	11:26	17.6	23.6	38	260	104	158	54.6	9.97	226	3557	967	1.20	1.21	42.9	45.7	1.22
1482.0	11:30	14.2	23.5	38	260	104	160	55.1	10.04	225	3562	964	1.20	1.21	43.0	45.7	1.28
1483.0	11:34	17.1	23.5	34	265	106	140	55.4	10.10	208	3166	891	1.20	1.21	43.1	45.6	1.19
1484.0	11:37	16.4	23.4	32	266	106	140	55.8	10.16	208	3169	889	1.20	1.21	43.1	45.6	1.18
1485.0	11:41	16.6	23.4	36	262	105	144	56.2	10.22	208	3191	888	1.20	1.21	43.2	45.6	1.22
1486.0	11:44	16.7	23.4	36	262	105	147	56.6	10.28	208	3213	891	1.20	1.21	43.3	45.6	1.22
1487.0	11:48	17.7	23.3	37	261	104	157	56.9	10.33	208	3224	891	1.20	1.21	43.3	45.3	1.21
1488.0	11:51	16.7	23.3	37	261	105	153	57.3	10.39	207	3241	888	1.20	1.21	43.2	45.3	1.23
1489.0	11:55	17.6	23.3	38	260	104	160	57.7	10.45	207	3240	887	1.20	1.21	43.1	45.4	1.22
1490.0	11:57	28.3	23.3	37	261	105	144	57.9	10.49	207	3232	884	1.20	1.21	43.0	45.5	1.09
1491.0	12:00	18.9	23.2	36	262	105	146	58.2	10.54	207	3229	885	1.20	1.22	42.9	45.5	1.18
1492.0	12:03	20.7	23.2	36	262	105	147	58.5	10.59	207	3215	886	1.20	1.22	42.8	45.6	1.15

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1492.0	12:03	20.7	23.2	36	262	105	147	58.5	10.59	207	3215	886	1.20	1.22	42.8	45.6	1.15
1493.0	12:07	14.2	23.2	36	263	105	144	59.0	10.66	207	3202	886	1.20	1.22	42.8	45.6	1.24
1494.0	12:11	16.2	23.1	37	261	105	154	59.3	10.72	207	3208	887	1.20	1.22	42.7	45.6	1.22
1495.0	12:14	17.5	23.1	38	260	105	154	59.7	10.78	207	3191	887	1.20	1.22	42.6	45.6	1.21
1496.0	12:23	15.7	23.1	34	264	107	133	60.1	10.84	195	2926	834	1.20	1.22	42.6	45.0	1.21
1497.0	12:27	15.5	23.0	36	262	108	144	60.4	10.91	205	3108	876	1.20	1.22	42.5	45.3	1.23
1498.0	12:30	23.4	23.0	35	263	108	147	60.8	10.95	205	3110	877	1.20	1.22	42.5	45.3	1.12
1499.0	12:32	23.2	23.0	35	263	108	143	61.0	10.99	204	3111	875	1.20	1.22	42.4	45.3	1.12
1500.0	12:35	22.2	23.0	37	261	108	138	61.3	11.04	205	3103	878	1.20	1.22	42.4	45.3	1.15
1501.0	12:39	16.2	23.0	36	262	107	149	61.8	11.10	205	3100	876	1.20	1.22	42.4	45.3	1.22
1502.0	12:42	17.1	22.9	37	261	107	155	62.1	11.16	205	3086	876	1.20	1.22	42.4	45.3	1.22
1503.0	12:57	13.3	22.9	36	263	101	140	62.6	11.23	201	2933	862	1.20	1.21	42.4	45.3	1.26
1504.0	13:02	12.9	22.8	35	292	104	144	62.8	11.31	196	2637	841	1.20	1.22	42.2	45.3	1.25
1505.0	13:06	14.2	22.8	35	265	106	142	63.2	11.38	204	3070	874	1.20	1.22	42.3	45.3	1.24
1506.0	13:09	19.7	22.7	38	262	105	157	63.5	11.43	204	3083	875	1.20	1.22	42.4	45.3	1.18
1507.0	13:12	23.2	22.7	39	261	105	161	63.7	11.47	204	3081	874	1.20	1.22	42.4	45.3	1.15
1508.0	13:14	26.5	22.8	38	262	106	148	64.0	11.51	204	3114	873	1.20	1.22	42.4	45.3	1.11
1509.0	13:16	25.4	22.8	37	263	105	158	64.3	11.55	204	3110	875	1.20	1.22	42.5	45.3	1.11
1510.0	13:18	31.6	22.8	36	264	105	157	64.5	11.58	205	3106	877	1.20	1.22	42.5	45.3	1.05
1511.0	13:20	37.9	22.8	36	264	105	158	64.6	11.61	205	3108	876	1.20	1.22	42.5	45.3	1.00
1512.0	13:25	27.7	22.8	31	269	107	131	64.8	11.64	204	3079	875	1.20	1.22	42.5	45.3	1.03
1513.0	13:27	33.6	22.9	37	263	106	154	65.0	11.67	205	3041	876	1.20	1.22	42.5	45.3	1.04
1514.0	13:30	19.5	22.9	37	263	107	131	65.3	11.73	204	3048	875	1.20	1.22	42.6	45.3	1.18
1515.0	13:31	52.9	22.9	37	262	105	155	65.5	11.74	204	3039	872	1.20	1.22	42.6	45.3	0.92
1516.0	13:32	40.0	22.9	38	262	105	162	65.6	11.77	204	3055	872	1.20	1.22	42.7	45.3	1.00
1517.0	13:34	36.0	23.0	35	265	106	145	65.8	11.80	204	3033	874	1.20	1.22	42.7	45.3	1.00
1518.0	13:36	34.3	23.0	35	265	106	148	66.0	11.83	204	3057	871	1.20	1.22	42.8	45.2	1.02
1519.0	13:38	24.3	23.0	36	264	106	152	66.2	11.87	204	3059	873	1.20	1.22	42.8	45.3	1.11
1520.0	13:41	22.0	23.0	39	260	106	156	66.5	11.91	204	3039	872	1.20	1.22	42.9	45.4	1.17
1521.0	13:43	26.1	23.0	39	261	106	155	66.8	11.95	204	3048	872	1.20	1.22	43.0	45.1	1.12
1522.0	13:46	19.4	23.0	38	262	106	154	67.1	12.00	204	3023	873	1.20	1.22	43.0	45.4	1.18
1523.0	13:50	16.7	23.0	38	262	105	163	67.4	12.06	204	3034	872	1.20	1.22	43.1	45.4	1.23
1524.0	13:55	13.2	22.9	39	260	105	171	68.0	12.14	203	3034	871	1.20	1.22	43.1	45.4	1.30
1525.0	13:58	20.1	22.9	38	262	106	158	68.3	12.19	203	3041	871	1.20	1.22	43.0	45.2	1.18
1526.0	14:00	22.5	22.9	37	262	106	150	68.5	12.23	203	3036	869	1.20	1.22	43.0	45.3	1.14
1527.0	14:03	24.0	22.9	36	264	106	152	68.8	12.27	203	3054	869	1.20	1.22	43.0	45.2	1.12
1528.0	14:06	21.3	22.9	36	264	106	153	69.0	12.32	203	3083	867	1.20	1.22	42.9	45.3	1.14
1529.0	14:09	20.0	22.9	36	264	106	154	69.4	12.37	202	3073	866	1.20	1.22	42.9	45.4	1.16
1530.0	14:12	17.1	22.8	37	263	106	159	69.8	12.43	202	3062	865	1.20	1.22	42.9	45.4	1.21
1531.0	14:13	53.7	22.9	35	265	106	164	69.9	12.45	202	3054	866	1.20	1.22	42.9	45.4	0.90
1532.0	14:14	59.0	22.9	33	266	107	156	70.0	12.47	202	3078	863	1.20	1.22	42.9	45.4	0.87
1533.0	14:26	33.6	23.0	21	279	108	118	70.2	12.50	203	3128	868	1.20	1.22	42.9	45.5	0.89
1534.0	14:27	57.1	23.0	25	277	108	143	70.2	12.51	206	3163	881	1.20	1.22	42.7	45.5	0.81
1535.0	14:29	46.2	23.1	29	272	110	135	70.5	12.53	205	3198	879	1.20	1.22	42.6	45.5	0.90
1536.0	14:29	94.7	23.1	32	270	108	176	70.5	12.54	205	3209	878	1.20	1.22	42.6	45.5	0.74
1537.0	14:30	78.3	23.2	29	273	109	166	70.6	12.56	205	3213	879	1.20	1.22	42.7	45.5	0.77
1538.0	14:45	22.2	23.2	32	270	112	134	70.9	12.60	205	3173	879	1.20	1.22	42.7	45.5	1.11
1539.0	14:52	8.6	23.0	37	264	111	128	71.6	12.72	206	3191	881	1.20	1.22	42.5	45.5	1.40
1540.0	14:54	58.1	23.1	26	275	111	134	71.7	12.74	204	3221	875	1.20	1.22	42.2	45.5	0.82
1541.0	14:54	70.6	23.1	25	277	111	128	71.8	12.75	204	3203	875	1.20	1.22	42.1	45.5	0.77

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1541.0	14:54	70.6	23.1	25	277	111	128	71.8	12.75	204	3203	875	1.20	1.22	42.1	45.5	0.77
1542.0	14:57	23.8	23.1	31	270	110	142	72.2	12.79	207	3208	886	1.20	1.22	42.0	45.5	1.08
1543.0	15:00	21.6	23.1	30	271	110	133	72.4	12.84	205	3195	878	1.20	1.22	42.0	45.5	1.09
1544.0	15:02	23.7	23.1	30	272	110	134	72.7	12.88	205	3194	876	1.20	1.22	41.9	45.6	1.07
1545.0	15:06	16.9	23.1	30	272	110	137	73.1	12.94	205	3215	876	1.20	1.22	42.0	45.6	1.15
1546.0	15:09	17.6	23.1	33	268	110	149	73.4	13.00	204	3206	876	1.20	1.22	42.1	45.5	1.18
1547.0	15:13	16.1	23.0	37	265	109	152	73.9	13.06	204	3205	876	1.20	1.22	42.2	45.6	1.23
1548.0	15:16	18.6	23.0	35	267	109	158	74.2	13.11	204	3190	871	1.20	1.22	42.3	45.6	1.17
1549.0	15:19	22.2	23.0	37	264	108	164	74.4	13.16	204	3184	871	1.20	1.22	42.4	45.6	1.15
1550.0	15:23	15.4	23.0	37	265	109	155	74.9	13.22	204	3188	871	1.20	1.22	42.5	45.7	1.24
1551.0	15:26	17.2	23.0	35	267	109	149	75.2	13.28	204	3194	871	1.20	1.22	42.6	45.7	1.19
1552.0	15:30	16.7	22.9	33	268	110	140	75.6	13.34	204	3195	871	1.20	1.22	42.7	45.7	1.19
1553.0	15:34	16.1	22.9	35	267	109	149	76.1	13.40	204	3195	871	1.20	1.22	42.8	45.7	1.21
1554.0	15:37	16.6	22.9	36	265	109	160	76.4	13.46	204	3184	871	1.20	1.22	42.9	45.8	1.22
1555.0	15:41	16.2	22.8	36	265	109	162	76.7	13.53	204	3193	871	1.20	1.22	42.9	45.7	1.22
1556.0	15:44	18.9	22.8	36	265	109	161	77.1	13.58	204	3188	871	1.20	1.22	42.9	45.8	1.18
1557.0	15:48	16.2	22.8	36	266	109	152	77.6	13.64	204	3203	871	1.20	1.22	42.9	45.8	1.22
1558.0	15:52	14.0	22.8	38	263	109	162	77.9	13.71	204	3200	871	1.20	1.22	43.0	45.8	1.28
1559.0	15:56	14.9	22.7	37	265	109	159	78.4	13.78	204	3238	871	1.20	1.22	43.1	45.9	1.25
1560.0	16:00	14.3	22.7	37	265	109	165	78.8	13.85	204	3239	871	1.20	1.22	43.1	45.8	1.26
1561.0	16:04	15.4	22.6	38	264	108	167	79.3	13.91	202	3226	871	1.20	1.22	43.1	45.9	1.25
1562.0	16:19	13.3	22.6	32	270	106	141	79.7	13.99	202	3231	871	1.20	1.22	43.2	45.9	1.22
1563.0	16:22	20.1	22.6	31	272	104	142	80.1	14.04	204	3233	872	1.20	1.22	43.2	45.9	1.11
1564.0	16:25	17.7	22.6	36	267	104	157	80.4	14.09	204	3227	872	1.20	1.22	43.2	45.9	1.18
1565.0	16:29	14.9	22.5	35	268	104	149	80.8	14.16	204	3248	871	1.20	1.22	43.3	45.9	1.22
1566.0	16:32	19.4	22.5	37	266	102	157	81.1	14.21	203	3243	867	1.20	1.22	43.2	45.9	1.17
1567.0	16:35	23.5	22.5	42	261	116	170	81.4	14.26	203	3243	867	1.20	1.22	43.1	45.9	1.21
1568.0	16:38	22.2	22.5	43	260	116	171	81.7	14.30	203	3258	867	1.20	1.22	43.0	45.9	1.23
1569.0	16:40	23.8	22.5	43	261	117	165	82.0	14.34	203	3243	867	1.20	1.22	43.0	46.0	1.20
1570.0	16:43	18.8	22.5	42	261	117	158	82.3	14.40	203	3263	867	1.20	1.22	43.0	46.0	1.27
1571.0	16:46	19.3	22.5	43	260	117	158	82.7	14.45	203	3256	867	1.20	1.22	42.9	46.0	1.27
1572.0	16:49	20.1	22.5	41	262	117	158	83.0	14.50	203	3224	867	1.20	1.22	43.0	46.0	1.24
1573.0	16:52	20.2	22.5	44	260	116	166	83.4	14.55	203	3244	867	1.20	1.22	43.0	46.0	1.25
1574.0	16:55	21.4	22.5	43	260	116	172	83.8	14.59	203	3236	867	1.20	1.22	43.0	46.0	1.23
1575.0	16:58	21.7	22.5	43	260	117	156	84.0	14.64	202	3205	863	1.20	1.22	43.0	46.0	1.23
1576.0	17:01	17.5	22.5	43	260	117	162	84.4	14.70	202	3236	862	1.20	1.22	43.1	45.9	1.29
1577.0	17:05	16.9	22.4	43	260	117	165	84.9	14.76	202	3211	862	1.20	1.22	43.1	45.5	1.30
1578.0	17:09	15.7	22.4	44	259	117	175	85.3	14.82	202	3216	862	1.20	1.22	43.2	45.1	1.33
1579.0	17:10	73.5	22.4	41	262	115	177	85.3	14.83	201	3240	862	1.20	1.22	43.3	45.2	0.89
1580.0	17:11	54.5	22.5	40	263	115	188	85.4	14.85	202	3204	865	1.20	1.22	43.3	45.3	0.96
1581.0	17:11	90.0	22.5	45	259	116	163	85.5	14.86	202	3236	863	1.20	1.22	43.3	45.5	0.86
1582.0	17:12	70.6	22.6	43	260	115	184	85.6	14.88	202	3236	862	1.20	1.22	43.3	45.5	0.91
1583.0	17:14	40.4	22.6	45	258	116	176	85.8	14.90	202	3235	864	1.20	1.22	43.3	45.7	1.08
1584.0	17:16	25.7	22.6	46	257	116	169	86.0	14.94	202	3212	864	1.20	1.22	43.3	45.7	1.21
1585.0	17:20	14.5	22.6	43	261	117	165	86.5	15.01	202	3219	863	1.20	1.22	43.2	45.8	1.33
1586.0	17:23	18.0	22.6	46	258	117	170	86.9	15.07	202	3226	864	1.20	1.22	43.2	45.8	1.30
1587.0	17:27	16.8	22.5	45	258	116	169	87.3	15.12	202	3222	865	1.20	1.22	43.2	45.8	1.31
1588.0	17:30	20.0	22.5	45	259	116	171	87.7	15.17	202	3198	864	1.20	1.22	43.1	45.8	1.26
1589.0	17:33	20.0	22.5	46	257	116	171	88.1	15.22	202	3211	864	1.20	1.22	43.2	45.8	1.28
1590.0	17:36	18.1	22.5	45	258	117	163	88.4	15.28	202	3200	865	1.20	1.22	43.3	45.8	1.29

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1590.0	17:36	18.1	22.5	45	258	117	163	88.4	15.28	202	3200	865	1.20	1.22	43.3	45.8	1.29
1591.0	17:40	17.8	22.5	44	260	117	166	88.8	15.34	202	3191	866	1.20	1.22	43.3	45.9	1.29
1592.0	17:55	24.0	22.5	34	269	117	141	89.0	15.38	204	3220	871	1.20	1.22	43.1	45.9	1.13
1593.0	17:58	18.0	22.5	38	267	115	147	89.5	15.43	203	3211	868	1.20	1.22	42.8	45.9	1.22
1594.0	18:03	12.9	22.4	38	267	115	151	90.0	15.51	203	3223	869	1.20	1.22	42.9	46.0	1.31
1595.0	18:07	14.1	22.4	40	265	113	162	90.4	15.58	204	3211	871	1.20	1.22	42.9	45.8	1.30
1596.0	18:11	15.6	22.4	39	265	112	157	90.9	15.65	203	3216	867	1.20	1.22	42.8	46.0	1.27
1597.0	18:14	20.0	22.4	40	265	112	153	91.3	15.70	203	3222	868	1.20	1.22	42.8	46.0	1.21
1598.0	18:18	15.9	22.3	40	265	111	157	91.6	15.76	203	3217	869	1.20	1.22	42.8	46.0	1.27
1599.0	18:21	17.3	22.3	40	265	111	162	92.0	15.82	203	3195	867	1.20	1.22	42.8	46.1	1.25
1600.0	18:24	19.4	22.3	40	265	111	157	92.4	15.87	203	3227	868	1.20	1.22	43.0	46.1	1.22
1601.0	18:29	13.1	22.3	40	265	111	159	92.8	15.94	203	3204	868	1.20	1.22	43.0	46.1	1.32
1602.0	18:30	61.0	22.3	36	269	111	168	93.0	15.96	203	3242	867	1.20	1.22	43.1	46.1	0.89
1603.0	18:31	52.2	22.3	34	271	112	151	93.1	15.98	203	3235	867	1.20	1.22	43.1	46.1	0.91
1604.0	18:32	59.0	22.4	33	272	112	136	93.2	16.00	203	3213	867	1.20	1.22	43.1	46.1	0.88
1605.0	18:33	64.3	22.4	30	274	111	153	93.3	16.01	203	3210	869	1.20	1.22	43.1	46.1	0.83
1606.0	18:34	75.0	22.5	33	272	111	156	93.4	16.03	203	3225	871	1.20	1.22	43.2	46.1	0.81
1607.0	18:34	72.0	22.5	29	275	113	141	93.4	16.04	202	3222	866	1.20	1.22	43.2	46.1	0.80
1608.0	18:35	58.1	22.5	31	274	112	138	93.5	16.06	204	3239	872	1.20	1.22	43.2	46.1	0.87
1609.0	18:37	45.0	22.6	32	272	112	145	93.8	16.08	206	3213	883	1.20	1.22	43.2	46.1	0.94
1610.0	18:39	25.2	22.6	36	269	112	151	94.0	16.12	206	3242	880	1.20	1.22	43.2	46.1	1.12
1611.0	18:41	26.5	22.6	39	265	111	159	94.3	16.16	206	3222	880	1.20	1.22	43.2	46.1	1.13
1612.0	18:45	17.6	22.6	39	266	111	157	94.6	16.21	206	3232	880	1.20	1.22	43.3	46.1	1.24
1613.0	18:49	15.3	22.5	43	262	111	162	95.1	16.28	206	3234	880	1.20	1.22	43.3	46.1	1.31
1614.0	18:53	15.8	22.5	43	261	110	172	95.4	16.34	206	3246	880	1.20	1.22	43.3	46.1	1.30
1615.0	18:56	16.4	22.5	44	260	110	168	95.8	16.40	206	3245	880	1.20	1.22	43.3	46.2	1.30
1616.0	19:02	10.3	22.4	47	257	112	144	96.5	16.50	205	3223	878	1.20	1.22	43.3	46.3	1.46
1617.0	19:05	21.8	22.4	47	258	112	149	96.7	16.55	205	3230	879	1.20	1.22	43.4	46.3	1.25
1618.0	19:06	40.9	22.4	41	263	111	159	97.0	16.57	205	3203	879	1.20	1.22	43.4	46.3	1.03
1619.0	19:09	21.3	22.4	44	261	110	169	97.3	16.62	205	3223	876	1.20	1.22	43.4	46.3	1.23
1620.0	19:12	19.3	22.4	45	259	111	168	97.6	16.67	205	3205	876	1.20	1.22	43.4	46.3	1.27
1621.0	19:27	14.4	22.4	40	265	112	145	98.1	16.74	205	3214	876	1.20	1.22	43.4	46.3	1.30
1622.0	19:29	29.3	22.4	31	275	104	139	98.2	16.77	203	3206	868	1.20	1.22	42.8	46.4	1.02
1623.0	19:32	16.7	22.4	43	264	110	166	98.7	16.83	202	3232	866	1.20	1.22	42.6	46.4	1.28
1624.0	19:35	19.7	22.4	42	265	110	166	99.0	16.88	202	3238	863	1.20	1.22	42.6	46.3	1.23
1625.0	19:39	14.3	22.4	44	262	110	172	99.4	16.95	202	3234	864	1.20	1.22	42.6	46.4	1.34
1626.0	19:43	16.5	22.3	44	263	110	176	99.8	17.01	202	3218	864	1.20	1.22	42.7	46.4	1.29
1627.0	19:47	14.9	22.3	45	261	109	189	100.2	17.08	202	3243	863	1.20	1.22	42.9	46.4	1.33
1628.0	19:51	16.1	22.3	42	264	110	174	100.7	17.14	202	3250	863	1.20	1.22	43.1	46.5	1.28
1629.0	19:55	15.3	22.3	41	266	110	169	101.1	17.21	202	3239	864	1.20	1.22	43.1	46.5	1.29
1630.0	19:58	18.9	22.2	42	264	110	174	101.4	17.26	202	3246	863	1.20	1.22	43.2	46.4	1.24
1631.0	20:01	19.8	22.2	45	262	109	179	101.7	17.31	202	3242	863	1.20	1.22	43.2	46.4	1.25
1632.0	20:05	15.3	22.2	45	262	110	166	102.2	17.38	201	3297	859	1.20	1.22	43.3	46.4	1.32
1633.0	20:08	16.6	22.2	46	261	109	179	102.5	17.44	201	3271	860	1.20	1.22	43.3	46.4	1.31
1634.0	20:12	17.0	22.2	44	263	110	169	103.0	17.50	201	3254	861	1.20	1.22	43.3	46.4	1.29
1635.0	20:15	17.8	22.2	44	262	110	170	103.3	17.55	201	3257	860	1.20	1.22	43.3	46.4	1.28
1636.0	20:18	20.6	22.2	43	263	110	163	103.7	17.60	201	3268	860	1.20	1.22	43.2	46.5	1.23
1637.0	20:23	13.5	22.1	40	267	111	152	104.1	17.68	201	3244	862	1.20	1.22	43.2	46.4	1.31
1638.0	20:26	16.2	22.1	37	270	111	147	104.6	17.74	201	3244	862	1.20	1.22	43.3	46.5	1.23
1639.0	20:30	16.0	22.1	38	268	110	161	104.9	17.80	201	3248	861	1.20	1.22	43.3	46.5	1.25

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1639.0	20:30	16.0	22.1	38	268	110	161	104.9	17.80	201	3248	861	1.20	1.22	43.3	46.5	1.25
1640.0	20:33	18.5	22.1	39	267	110	172	105.3	17.85	201	3245	861	1.20	1.22	43.3	46.5	1.22
1641.0	20:38	12.7	22.0	40	266	109	177	105.8	17.93	201	3248	861	1.20	1.22	43.3	46.5	1.33
1642.0	20:43	12.3	22.0	38	268	110	175	106.4	18.01	201	3257	858	1.20	1.22	43.4	46.5	1.32
1643.0	20:47	13.8	21.9	39	268	110	158	106.8	18.09	201	3244	860	1.20	1.22	43.4	46.5	1.29
1644.0	20:50	19.8	21.9	40	266	110	159	107.2	18.14	201	3247	860	1.20	1.22	43.4	46.6	1.21
1645.0	20:54	17.5	21.9	41	266	110	160	107.5	18.19	201	3247	859	1.20	1.22	43.5	46.5	1.25
1646.0	20:58	15.4	21.9	43	264	110	162	108.0	18.26	201	3266	858	1.20	1.22	43.5	46.5	1.30
1647.0	21:03	10.5	21.8	44	263	112	134	108.5	18.35	199	3333	853	1.20	1.22	43.5	46.5	1.42
1648.0	21:09	11.6	21.8	47	259	110	165	109.1	18.44	201	3261	859	1.20	1.22	43.6	46.6	1.42
1649.0	21:13	14.5	21.8	44	263	110	168	109.6	18.51	200	3269	858	1.20	1.22	43.7	46.6	1.33
1650.0	21:16	17.6	21.8	42	264	110	167	110.0	18.57	201	3246	859	1.20	1.22	43.8	46.6	1.26
1651.0	21:31	33.0	21.8	41	283	109	166	110.1	18.60	201	3271	859	1.20	1.22	43.9	46.6	1.08
1652.0	21:33	24.3	21.8	41	267	108	165	110.4	18.64	201	3266	861	1.20	1.22	43.9	46.6	1.16
1653.0	21:36	18.5	21.8	43	265	112	172	110.8	18.69	201	3295	861	1.20	1.22	43.9	46.7	1.26
1654.0	21:39	20.9	21.8	44	264	114	171	111.1	18.74	202	3298	863	1.20	1.22	43.9	46.7	1.24
1655.0	21:42	19.7	21.8	44	264	113	175	111.5	18.79	201	3309	862	1.20	1.22	43.9	46.7	1.26
1656.0	21:46	17.3	21.8	44	264	113	173	111.8	18.85	202	3315	864	1.20	1.22	43.9	46.7	1.29
1657.0	21:50	15.3	21.7	41	267	114	164	112.3	18.91	202	3323	863	1.20	1.22	43.9	46.7	1.30
1658.0	21:53	17.0	21.7	40	268	114	158	112.6	18.97	202	3325	863	1.20	1.22	43.9	46.7	1.26
1659.0	21:57	15.9	21.7	41	267	108	164	113.1	19.03	201	3330	862	1.20	1.22	43.9	46.7	1.27
1660.0	22:01	15.8	21.7	40	268	109	160	113.5	19.10	202	3333	863	1.20	1.22	44.0	46.7	1.27
1661.0	22:04	15.9	21.7	41	267	109	163	113.9	19.16	201	3314	862	1.20	1.22	44.0	46.7	1.27
1662.0	22:08	15.9	21.6	39	269	109	158	114.3	19.22	201	3324	862	1.20	1.22	44.1	46.8	1.26
1663.0	22:11	18.5	21.6	38	270	109	156	114.6	19.28	201	3351	862	1.20	1.22	44.1	46.8	1.21
1664.0	22:15	15.3	21.6	37	271	109	154	115.1	19.34	202	3350	863	1.20	1.22	44.2	46.8	1.25
1665.0	22:19	18.5	21.6	39	270	109	160	115.4	19.40	201	3356	861	1.20	1.22	44.2	46.8	1.21
1666.0	22:23	14.5	21.6	40	268	109	167	115.9	19.47	201	3354	860	1.20	1.22	44.3	46.8	1.29
1667.0	22:27	14.2	21.5	41	267	109	163	116.3	19.54	201	3329	860	1.20	1.22	44.3	46.8	1.30
1668.0	22:30	17.0	21.5	43	265	108	173	116.7	19.60	201	3343	860	1.20	1.22	44.3	46.0	1.28
1669.0	22:34	18.7	21.5	44	264	108	181	117.0	19.65	201	3355	859	1.20	1.22	44.1	45.7	1.26
1670.0	22:37	19.0	21.5	43	265	108	169	117.3	19.70	201	3347	861	1.20	1.22	44.1	46.3	1.25
1671.0	22:40	21.8	21.5	42	266	108	171	117.7	19.75	202	3347	863	1.20	1.22	44.1	46.6	1.20
1672.0	22:43	19.4	21.5	44	264	108	176	118.0	19.80	202	3343	863	1.20	1.22	44.2	46.8	1.25
1673.0	22:46	19.3	21.5	43	265	108	170	118.3	19.85	202	3332	863	1.20	1.22	44.3	46.9	1.24
1674.0	22:49	19.0	21.5	44	264	108	175	118.6	19.90	202	3344	863	1.20	1.22	44.3	47.0	1.26
1675.0	22:52	19.4	21.5	42	266	108	172	119.0	19.96	202	3356	863	1.20	1.22	44.4	47.0	1.23
1676.0	22:55	17.7	21.5	42	266	108	170	119.3	20.01	202	3358	863	1.20	1.22	44.4	47.1	1.26
1677.0	22:58	21.4	21.5	44	264	109	164	119.6	20.06	201	3378	862	1.20	1.22	44.4	47.1	1.22
1678.0	23:02	18.0	21.5	43	265	109	166	120.0	20.11	201	3381	861	1.20	1.22	44.5	47.1	1.26
1679.0	23:05	16.4	21.5	43	265	108	170	120.3	20.18	201	3376	862	1.20	1.22	44.6	47.1	1.28
1680.0	23:29	34.6	21.5	22	286	103	102	120.6	20.20	201	3357	859	1.20	1.22	44.4	47.1	0.89
1681.0	23:32	25.0	21.5	40	269	104	164	120.8	20.24	201	3394	859	1.20	1.22	44.1	47.1	1.14
1682.0	23:36	15.8	21.5	41	269	104	165	121.2	20.31	201	3404	859	1.20	1.22	44.1	47.1	1.27
1683.0	23:39	18.4	21.5	43	266	108	169	121.6	20.36	201	3411	859	1.20	1.22	44.1	47.1	1.26
1684.0	23:42	20.2	21.5	45	265	108	172	121.9	20.41	201	3427	860	1.20	1.22	44.0	47.1	1.25
1685.0	23:45	19.3	21.5	45	265	108	175	122.2	20.46	201	3422	862	1.20	1.22	43.9	47.1	1.26
1686.0	23:48	18.0	21.4	44	266	108	175	122.5	20.52	202	3419	865	1.20	1.22	43.9	47.2	1.27
1687.0	23:51	21.8	21.4	46	264	108	183	122.9	20.56	202	3407	864	1.20	1.22	43.9	47.2	1.23
1688.0	23:54	23.1	21.4	46	264	108	178	123.1	20.61	202	3398	863	1.20	1.22	43.9	47.2	1.22

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1688.0	23:54	23.1	21.4	46	264	108	178	123.1	20.61	202	3398	863	1.20	1.22	43.9	47.2	1.22
1689.0	23:57	17.6	21.4	46	264	108	179	123.4	20.66	202	3420	864	1.20	1.22	44.0	47.2	1.29
1690.0	00:00	17.8	21.4	41	268	109	163	123.8	20.72	202	3412	864	1.20	1.22	44.0	47.3	1.25
1691.0	00:04	17.0	21.4	40	270	109	161	124.2	20.78	202	3409	863	1.20	1.22	44.1	47.3	1.25
1692.0	00:07	22.5	21.4	42	267	109	174	124.5	20.82	202	3423	863	1.20	1.22	44.2	47.3	1.20
1693.0	00:10	18.6	21.4	45	265	108	183	124.8	20.88	202	3418	864	1.20	1.22	44.2	47.3	1.27
1694.0	00:12	23.2	21.4	45	264	108	180	125.1	20.92	202	3413	865	1.20	1.22	44.3	47.3	1.21
1695.0	00:15	22.9	21.4	46	264	108	179	125.4	20.96	202	3400	864	1.20	1.22	44.3	47.8	1.22
1696.0	00:18	22.8	21.4	46	264	108	186	125.7	21.01	202	3420	863	1.20	1.22	44.3	47.6	1.22
1697.0	00:20	27.5	21.4	45	265	108	176	125.9	21.05	202	3415	865	1.20	1.22	44.3	47.7	1.16
1698.0	00:23	21.4	21.4	44	266	109	165	126.3	21.09	202	3424	865	1.20	1.22	44.3	47.7	1.22
1699.0	00:25	27.3	21.4	44	266	108	174	126.5	21.13	202	3412	863	1.20	1.22	44.3	47.6	1.15
1700.0	00:28	19.3	21.4	42	268	108	177	126.8	21.18	202	3414	864	1.20	1.22	44.4	47.7	1.23
1701.0	00:30	25.9	21.4	40	270	109	168	127.0	21.22	202	3408	865	1.20	1.22	44.4	47.7	1.14
1702.0	00:32	27.9	21.5	39	271	109	165	127.3	21.25	202	3437	863	1.20	1.22	44.4	47.7	1.11
1703.0	00:40	8.1	21.4	46	264	110	149	128.0	21.38	202	3420	864	1.20	1.22	44.5	47.6	1.50
1704.0	00:45	12.6	21.3	45	265	109	159	128.6	21.46	202	3426	864	1.20	1.22	44.5	47.5	1.38
1705.0	00:50	10.1	21.3	45	264	110	153	129.3	21.56	202	3421	864	1.20	1.22	44.6	47.5	1.44
1706.0	00:52	30.3	21.3	45	265	108	181	129.5	21.59	202	3418	865	1.20	1.22	44.6	47.5	1.13
1707.0	00:54	30.5	21.3	43	267	109	169	129.6	21.62	202	3421	864	1.20	1.22	44.7	47.5	1.12
1708.0	00:57	22.9	21.3	41	269	109	159	129.9	21.67	202	3443	864	1.20	1.22	44.7	47.5	1.18
1709.0	01:11	25.7	21.3	18	293	108	100	130.2	21.70	202	3498	866	1.20	1.22	44.6	47.5	0.92
1710.0	01:14	19.0	21.3	26	285	108	131	130.5	21.76	199	3442	850	1.20	1.22	44.5	47.6	1.08
1711.0	01:16	33.3	21.3	36	276	107	156	130.7	21.79	198	3453	848	1.20	1.22	44.5	47.6	1.03
1712.0	01:18	25.7	21.4	40	271	106	165	130.9	21.83	198	3442	849	1.20	1.22	44.5	47.6	1.14
1713.0	01:20	27.9	21.4	43	269	105	177	131.2	21.86	199	3449	850	1.20	1.22	44.5	47.7	1.13
1714.0	01:22	28.8	21.4	45	267	105	181	131.4	21.90	198	3445	848	1.20	1.22	44.4	47.7	1.14
1715.0	01:25	21.6	21.4	45	266	105	184	131.7	21.94	199	3449	850	1.20	1.22	44.4	47.7	1.22
1716.0	01:28	24.8	21.4	46	266	105	188	131.9	21.98	198	3447	849	1.20	1.22	44.3	47.7	1.19
1717.0	01:30	23.4	21.4	46	265	105	186	132.2	22.03	198	3450	849	1.20	1.22	44.2	47.8	1.21
1718.0	01:32	27.1	21.4	44	267	105	177	132.4	22.06	199	3434	850	1.20	1.22	44.2	47.9	1.15
1719.0	01:35	19.3	21.4	43	268	106	173	132.8	22.11	198	3444	849	1.20	1.22	44.3	48.0	1.24
1720.0	01:38	23.8	21.4	44	267	106	176	133.0	22.16	198	3444	849	1.20	1.22	44.4	48.0	1.19
1721.0	01:41	22.1	21.4	45	267	105	183	133.3	22.20	199	3423	850	1.20	1.22	44.4	47.7	1.21
1722.0	01:43	29.8	21.4	44	267	105	188	133.5	22.24	199	3418	850	1.20	1.22	44.5	47.8	1.13
1723.0	01:45	30.3	21.4	44	268	105	179	133.7	22.27	198	3451	850	1.20	1.22	44.6	47.8	1.12
1724.0	01:50	11.8	21.4	44	268	107	154	134.3	22.35	199	3406	851	1.20	1.22	44.6	47.7	1.38
1725.0	01:52	27.9	21.4	44	267	105	183	134.5	22.39	198	3420	849	1.20	1.22	44.7	47.8	1.14
1726.0	01:54	31.0	21.4	41	270	106	174	134.7	22.42	199	3413	851	1.20	1.22	44.7	47.6	1.09
1727.0	01:56	27.7	21.4	39	273	106	162	134.9	22.46	199	3425	850	1.20	1.22	44.8	47.8	1.10
1728.0	01:59	21.8	21.4	39	273	107	164	135.3	22.50	199	3397	850	1.20	1.22	44.8	47.8	1.16
1729.0	02:02	20.3	21.4	38	273	106	167	135.5	22.55	199	3413	850	1.20	1.22	44.8	47.9	1.18
1730.0	02:04	22.2	21.4	40	272	106	174	135.8	22.60	199	3411	850	1.20	1.22	44.9	48.0	1.17
1731.0	02:08	15.9	21.4	42	269	106	170	136.2	22.66	198	3419	849	1.20	1.22	44.9	48.1	1.28
1732.0	02:10	30.0	21.4	44	268	105	186	136.4	22.69	198	3429	849	1.20	1.22	44.9	48.2	1.12
1733.0	02:12	29.8	21.4	43	269	105	178	136.7	22.73	199	3422	850	1.20	1.22	44.9	48.2	1.12
1734.0	02:15	22.8	21.4	44	268	105	171	136.9	22.77	199	3407	850	1.20	1.22	44.9	48.3	1.20
1735.0	02:18	18.5	21.4	49	262	105	180	137.2	22.83	198	3414	849	1.20	1.22	44.9	48.3	1.30
1736.0	02:20	25.2	21.4	49	262	105	188	137.5	22.87	199	3428	850	1.20	1.22	45.0	48.2	1.21
1737.0	02:23	22.6	21.4	44	268	106	159	137.7	22.91	199	3411	850	1.20	1.22	45.0	48.2	1.20

DEPTH	TIME	ROP	AVE	WOB	HKL	RPM	TORQ	KREV	HRS	SPM	SPP	MFI	MWI	ECD	MTI	MTO	DCEXP
METRE	HR:MN	MT/H	ROP	KLB	KLB		AMPS	BIT	BIT		PSI	GPM	SG	SG	DEG	DEG	
1737.0	02:23	22.6	21.4	44	268	106	159	137.7	22.91	199	3411	850	1.20	1.22	45.0	48.2	1.20
1738.0	02:35	24.3	21.4	44	287	105	145	138.0	22.95	195	3324	836	1.20	1.22	45.0	48.2	1.17
1739.0	02:38	23.2	21.4	39	282	103	168	138.2	22.99	199	3470	851	1.20	1.22	44.9	48.4	1.14
1740.0	02:40	24.2	21.4	40	274	102	169	138.5	23.03	199	3477	850	1.20	1.22	44.8	48.5	1.13
1741.0	02:43	20.8	21.4	41	272	102	176	138.8	23.08	199	3452	851	1.20	1.22	44.8	48.6	1.19
1742.0	02:46	23.7	21.4	43	271	102	179	139.1	23.13	199	3448	851	1.20	1.22	44.8	48.6	1.17
1743.0	02:48	26.7	21.5	44	269	102	183	139.3	23.16	199	3464	853	1.20	1.22	44.8	48.7	1.15
1744.0	02:51	21.4	21.5	46	267	101	189	139.6	23.21	199	3463	851	1.20	1.22	44.8	48.7	1.22
1745.0	02:54	19.6	21.5	43	270	102	173	139.9	23.26	199	3456	853	1.20	1.22	44.8	48.7	1.22
1746.0	02:56	25.5	21.5	41	272	102	174	140.1	23.30	199	3457	853	1.20	1.22	44.8	48.7	1.14
1747.0	02:58	25.4	21.5	41	272	102	168	140.3	23.34	199	3468	852	1.20	1.22	44.8	48.7	1.14
1748.0	03:00	31.3	21.5	37	276	102	166	140.5	23.37	200	3443	854	1.20	1.22	44.9	48.7	1.04
1749.0	03:03	23.1	21.5	35	278	103	158	140.8	23.41	199	3457	853	1.20	1.22	44.9	48.5	1.11
1750.0	03:05	25.4	21.5	39	274	102	174	141.0	23.45	199	3463	851	1.20	1.22	45.0	47.5	1.12
1751.0	03:08	22.2	21.5	39	274	102	173	141.3	23.50	199	3450	853	1.20	1.22	45.0	47.3	1.15
1752.0	03:11	22.0	21.5	39	274	102	168	141.6	23.54	199	3445	852	1.20	1.22	45.1	47.6	1.16
1753.0	03:13	23.4	21.5	40	273	102	170	141.9	23.59	199	3470	852	1.20	1.22	45.2	48.1	1.15
1754.0	03:16	23.7	21.5	39	274	102	169	142.1	23.63	199	3465	851	1.20	1.22	45.3	48.4	1.14
1755.0	03:19	20.7	21.5	39	274	102	172	142.4	23.68	199	3472	851	1.20	1.22	45.3	48.5	1.17
1756.0	03:21	24.3	21.5	39	274	102	166	142.7	23.72	199	3451	850	1.20	1.22	45.4	48.6	1.13
1757.0	03:25	16.1	21.5	37	276	103	150	143.0	23.78	199	3464	850	1.20	1.22	45.4	48.7	1.22
1758.0	03:27	24.0	21.5	37	276	102	164	143.3	23.82	198	3470	849	1.20	1.22	45.4	48.7	1.12
1759.0	03:29	34.3	21.5	37	276	103	159	143.4	23.85	199	3425	850	1.20	1.22	45.5	48.8	1.03
1760.0	03:32	23.8	21.5	38	275	103	158	143.8	23.89	199	3467	851	1.20	1.22	45.5	48.8	1.13
1761.0	03:35	20.7	21.5	37	276	103	151	144.1	23.94	199	3459	850	1.20	1.22	45.5	48.7	1.16
1762.0	03:36	32.1	21.5	35	278	103	151	144.2	23.97	199	3435	851	1.20	1.22	45.6	48.8	1.02
1763.0	03:40	19.3	21.5	36	277	103	150	144.5	24.02	199	3460	850	1.20	1.22	45.6	48.8	1.16
1764.0	03:42	30.3	21.5	38	275	103	162	144.7	24.06	198	3464	849	1.20	1.22	45.7	48.8	1.07
1765.0	03:44	27.7	21.5	39	274	103	161	144.9	24.09	199	3465	850	1.20	1.22	45.7	48.7	1.10
1766.0	03:45	40.9	21.6	40	273	102	164	145.1	24.12	198	3464	849	1.20	1.22	45.7	48.7	1.00
1767.0	03:56	24.5	21.6	37	276	102	138	145.4	24.16	197	3400	842	1.20	1.22	45.8	48.9	1.11
1768.0	03:58	28.6	21.6	35	291	105	155	145.5	24.19	200	3519	858	1.20	1.22	45.8	49.0	1.05
1769.0	04:00	38.3	21.6	35	280	105	151	145.7	24.22	202	3531	865	1.20	1.22	45.7	49.0	0.99
1770.0	04:02	35.0	21.6	35	280	105	150	145.9	24.25	202	3539	864	1.20	1.22	45.7	49.1	1.00
1771.0	04:04	26.1	21.6	32	282	105	141	146.1	24.29	202	3524	865	1.20	1.22	45.6	49.1	1.06
1772.0	04:06	27.7	21.6	33	282	105	142	146.4	24.32	202	3522	864	1.20	1.22	45.6	49.0	1.05
1773.0	04:09	20.9	21.6	36	279	105	152	146.7	24.37	202	3534	864	1.20	1.22	45.5	49.0	1.14
1774.0	04:13	13.7	21.6	40	275	105	147	147.1	24.44	202	3526	864	1.20	1.22	45.5	49.0	1.29
1775.0	04:19	11.1	21.6	40	275	89	145	147.6	24.53	202	3512	864	1.20	1.22	45.5	49.0	1.31
1776.0	04:20	34.3	21.6	40	275	105	169	147.8	24.56	202	3534	863	1.20	1.22	45.5	48.8	1.06
1777.0	04:22	44.4	21.6	38	276	106	161	147.9	24.59	202	3501	865	1.20	1.22	45.6	48.7	0.98
1778.0	04:24	35.0	21.6	37	278	106	162	148.1	24.61	202	3552	863	1.20	1.22	45.6	48.9	1.03
1779.0	04:25	36.7	21.6	36	279	106	164	148.2	24.64	202	3525	865	1.20	1.22	45.7	48.0	1.01
1780.0	04:27	29.5	21.6	35	279	105	167	148.4	24.68	202	3539	863	1.20	1.22	45.7	48.2	1.06
1781.0	04:34	8.5	21.6	41	273	90	173	149.1	24.79	202	3519	863	1.20	1.22	45.8	48.0	1.39
1782.0	04:36	34.6	21.6	36	279	83	177	149.3	24.82	202	3501	863	1.20	1.22	45.9	48.7	0.96
1783.0	04:38	33.6	21.6	37	277	103	175	149.5	24.85	202	3543	863	1.20	1.22	45.9	48.9	1.03
1784.0	04:39	34.3	21.6	37	278	104	167	149.6	24.88	202	3513	864	1.20	1.22	46.0	49.0	1.03
1785.0	04:41	35.6	21.6	36	279	104	167	149.8	24.91	202	3539	863	1.20	1.22	46.0	49.1	1.01
1786.0	04:43	36.7	21.7	34	280	104	166	149.9	24.94	202	3521	864	1.20	1.22	46.0	49.1	0.99

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1786.0	04:43	36.7	21.7	34	280	104	166	149.9	24.94	202	3521	864	1.20	1.22	46.0	49.1	0.99
1787.0	04:45	34.6	21.7	32	282	105	151	150.1	24.96	202	3527	863	1.20	1.22	46.1	49.2	0.99
1788.0	04:47	22.5	21.7	31	284	105	149	150.3	25.01	202	3529	863	1.20	1.22	46.1	49.2	1.08
1789.0	04:49	31.6	21.7	31	283	105	155	150.6	25.04	202	3535	862	1.20	1.22	46.1	49.2	1.00
1790.0	04:50	50.7	21.7	33	282	105	157	150.7	25.06	202	3486	864	1.20	1.22	46.1	49.2	0.90
1791.0	04:51	53.7	21.7	32	283	105	157	150.8	25.08	202	3531	863	1.20	1.22	46.1	49.3	0.88
1792.0	04:54	22.2	21.7	33	282	104	162	151.1	25.12	202	3515	863	1.20	1.22	46.2	49.3	1.11
1793.0	04:56	31.3	21.7	32	282	105	158	151.3	25.16	201	3533	862	1.20	1.22	46.2	49.3	1.01
1794.0	04:59	22.6	21.7	35	279	104	169	151.5	25.20	202	3516	864	1.20	1.22	46.2	49.3	1.12
1795.0	05:00	34.3	21.8	34	281	103	181	151.7	25.23	202	3505	863	1.20	1.22	46.3	49.3	1.00
1796.0	05:25	31.3	21.8	25	290	100	166	152.0	25.26	195	3352	835	1.20	1.22	46.2	49.2	0.93
1797.0	05:27	30.3	21.8	21	295	107	157	152.1	25.29	203	3427	868	1.20	1.22	45.9	49.3	0.92
1798.0	05:29	31.9	21.8	29	288	113	162	152.3	25.33	203	3402	868	1.20	1.22	45.9	49.4	0.99
1799.0	05:31	28.6	21.8	29	287	113	169	152.5	25.36	202	3429	863	1.20	1.22	45.9	49.4	1.02
1800.0	05:33	29.8	21.8	30	287	113	164	152.8	25.39	201	3501	860	1.20	1.22	45.9	49.4	1.02
1801.0	05:35	27.7	21.8	30	287	113	165	153.0	25.43	201	3480	861	1.20	1.22	45.8	49.2	1.04
1802.0	05:37	35.0	21.8	29	287	113	161	153.2	25.46	201	3504	860	1.20	1.22	45.8	49.1	0.98
1803.0	05:43	9.4	21.8	34	282	97	151	153.8	25.57	201	3492	861	1.20	1.22	45.8	49.2	1.31
1804.0	05:46	24.7	21.8	37	279	115	161	154.1	25.61	201	3486	861	1.20	1.22	45.9	49.2	1.14
1805.0	05:47	45.6	21.8	36	281	110	181	154.3	25.63	201	3489	860	1.20	1.22	45.9	49.0	0.96
1806.0	05:51	16.1	21.8	32	284	113	150	154.6	25.69	201	3494	861	1.20	1.22	46.0	49.2	1.20
1807.0	05:52	37.9	21.8	26	290	117	146	154.9	25.72	201	3487	860	1.20	1.22	46.1	49.2	0.94
1808.0	05:54	31.0	21.8	26	290	117	149	155.1	25.75	201	3487	861	1.20	1.22	46.1	49.2	0.98
1809.0	05:56	29.8	21.8	26	290	117	146	155.3	25.78	201	3480	861	1.20	1.22	46.2	49.1	0.99
1810.0	05:58	32.1	21.8	26	290	117	140	155.5	25.81	201	3496	859	1.20	1.22	46.2	49.1	0.98
1811.0	06:00	31.9	21.9	25	291	117	134	155.7	25.85	201	3485	861	1.20	1.22	46.3	49.1	0.97
1812.0	06:02	24.7	21.9	25	292	118	130	156.1	25.89	201	3506	859	1.20	1.22	46.3	49.2	1.02
1813.0	06:05	22.2	21.9	26	291	118	131	156.3	25.93	201	3490	861	1.20	1.22	46.3	49.2	1.06
1814.0	06:08	22.5	21.9	27	289	117	136	156.7	25.98	201	3491	860	1.20	1.22	46.3	49.2	1.07
1815.0	06:11	20.2	21.9	27	289	117	139	157.0	26.02	201	3490	860	1.20	1.22	46.4	49.2	1.10
1816.0	06:13	23.2	21.9	28	289	117	142	157.3	26.07	201	3503	859	1.20	1.22	46.4	49.2	1.07
1817.0	06:15	41.4	21.9	25	292	117	136	157.5	26.09	201	3505	861	1.20	1.22	46.4	49.2	0.90
1818.0	06:17	29.0	21.9	21	296	118	133	157.8	26.13	201	3504	859	1.20	1.22	46.4	49.3	0.94
1819.0	06:18	61.0	21.9	21	295	117	139	157.8	26.14	201	3498	860	1.20	1.22	46.4	49.4	0.78
1820.0	06:19	51.4	21.9	22	294	117	141	158.0	26.16	201	3487	860	1.20	1.22	46.4	49.4	0.83
1821.0	06:20	49.3	22.0	29	288	116	160	158.1	26.18	201	3529	859	1.20	1.22	46.4	49.4	0.90
1822.0	06:21	60.0	22.0	30	286	116	161	158.2	26.20	200	3520	858	1.20	1.22	46.4	49.4	0.86
1823.0	06:22	59.0	22.0	32	284	115	170	158.4	26.22	201	3482	861	1.20	1.22	46.4	49.4	0.88
1824.0	06:23	58.1	22.0	35	281	115	184	158.5	26.23	201	3553	859	1.20	1.22	46.4	49.3	0.91
1825.0	06:46	45.6	22.1	30	286	114	169	158.6	26.26	196	3402	838	1.20	1.22	46.4	49.3	0.92
1826.0	06:47	54.5	22.1	13	305	98	134	158.6	26.27	199	3532	850	1.20	1.22	45.6	49.3	0.69
1827.0	06:49	31.3	22.1	18	300	112	144	158.9	26.31	199	3525	852	1.20	1.22	45.6	49.4	0.89
1828.0	06:50	47.4	22.1	25	293	112	154	159.0	26.33	199	3533	851	1.20	1.22	45.5	49.3	0.86
1829.0	06:51	61.0	22.1	31	287	111	167	159.1	26.34	199	3545	852	1.20	1.22	45.4	49.3	0.85
1830.0	06:52	59.0	22.2	32	286	110	176	159.2	26.36	200	3513	855	1.20	1.22	45.3	49.3	0.87
1831.0	06:53	54.5	22.2	33	285	111	167	159.3	26.38	199	3541	854	1.20	1.22	45.2	49.3	0.89
1832.0	06:56	23.8	22.2	36	282	112	156	159.7	26.42	200	3522	854	1.20	1.22	45.1	49.4	1.13
1833.0	06:58	25.2	22.2	33	285	112	155	159.9	26.46	200	3551	854	1.20	1.22	45.0	49.4	1.09
1834.0	07:00	28.3	22.2	34	284	112	153	160.1	26.50	200	3528	855	1.20	1.22	45.0	49.4	1.07
1835.0	07:03	24.3	22.2	32	286	112	151	160.5	26.54	200	3540	855	1.20	1.22	45.0	49.4	1.09

DEPTH METRE	TIME HR:MN	ROP MT/H	AVE ROP	WOB KLB	HKL KLB	RPM	TORQ AMPS	KREV BIT	HRS BIT	SPM	SPP PSI	MFI GPM	MWI SG	ECD SG	MTI DEG	MTO DEG	DCEXP
1835.0	07:03	24.3	22.2	32	286	112	151	160.5	26.54	200	3540	855	1.20	1.22	45.0	49.4	1.09
1836.0	07:05	21.4	22.2	34	284	112	165	160.7	26.58	200	3520	855	1.20	1.22	45.1	49.5	1.14
1837.0	07:08	22.5	22.2	31	287	119	151	161.1	26.63	200	3525	857	1.20	1.22	45.2	49.6	1.11
1838.0	07:10	36.4	22.2	30	288	110	161	161.2	26.66	200	3525	855	1.20	1.22	45.3	49.4	0.97
1839.0	07:12	51.4	22.2	33	285	109	167	161.3	26.67	200	3531	857	1.20	1.22	45.4	49.6	0.91
1840.0	07:12	61.0	22.3	35	283	110	165	161.5	26.69	200	3565	856	1.20	1.22	45.5	49.6	0.88
1841.0	07:13	47.4	22.3	35	283	109	166	161.6	26.71	200	3540	856	1.20	1.22	45.5	49.6	0.94
1842.0	07:14	52.9	22.3	35	283	109	174	161.7	26.73	200	3484	856	1.20	1.22	45.6	49.4	0.91
1843.0	07:15	52.9	22.3	33	285	110	169	161.8	26.75	200	3547	854	1.20	1.22	45.6	49.5	0.90
1844.0	07:17	48.0	22.3	33	285	110	164	162.0	26.77	200	3503	854	1.20	1.22	45.7	49.4	0.93
1845.0	07:19	25.5	22.3	35	283	110	162	162.2	26.81	200	3510	855	1.20	1.22	45.8	49.5	1.10
1846.0	07:21	34.6	22.4	41	277	109	187	162.4	26.84	200	3506	855	1.20	1.22	45.8	49.6	1.07
1847.0	07:23	29.0	22.4	44	274	109	187	162.6	26.87	200	3533	854	1.20	1.22	45.9	49.6	1.15
1848.0	07:25	24.5	22.4	37	281	110	166	162.8	26.91	200	3519	855	1.20	1.22	46.0	49.6	1.13
1849.0	07:27	30.8	22.4	31	287	111	148	163.1	26.95	199	3526	854	1.20	1.22	46.0	49.6	1.02
1850.0	07:31	18.2	22.4	30	288	111	146	163.4	27.00	200	3531	855	1.20	1.22	46.1	49.6	1.13
1851.0	07:33	22.8	22.4	31	287	111	150	163.8	27.05	200	3549	854	1.20	1.22	46.2	49.6	1.09
1852.0	07:35	31.6	22.4	33	285	110	160	164.0	27.08	199	3563	853	1.20	1.22	46.3	49.7	1.03
1853.0	07:37	25.5	22.4	34	284	110	163	164.2	27.12	199	3529	853	1.20	1.22	46.3	49.7	1.10
1854.0	07:39	29.3	22.4	35	283	110	165	164.5	27.15	199	3554	853	1.20	1.22	46.4	49.7	1.07
1855.0	07:50	29.3	22.4	27	291	111	140	164.7	27.18	198	3539	847	1.20	1.22	46.4	49.7	1.00
1856.0	07:52	30.0	22.4	26	294	113	139	164.9	27.22	203	3619	870	1.20	1.22	46.2	49.7	0.98
1857.0	07:54	32.7	22.4	32	288	112	163	165.1	27.25	204	3622	872	1.20	1.22	46.2	49.7	1.01
1858.0	07:56	26.3	22.4	34	286	112	153	165.4	27.29	204	3625	872	1.20	1.22	46.2	49.7	1.09
1859.0	07:58	29.8	22.4	37	283	111	180	165.6	27.32	203	3644	870	1.20	1.22	46.2	49.7	1.08
1860.0	08:01	20.0	22.4	41	278	111	188	165.9	27.37	204	3608	872	1.20	1.22	46.2	49.8	1.22
1861.0	08:03	32.7	22.4	37	282	121	169	166.1	27.40	204	3617	871	1.20	1.22	46.1	49.8	1.08
1862.0	08:06	17.3	22.4	36	284	117	165	166.6	27.46	204	3637	871	1.20	1.22	46.1	49.9	1.22
1863.0	08:09	23.1	22.4	36	284	119	165	166.8	27.50	204	3615	872	1.20	1.22	46.1	49.9	1.15
1864.0	08:11	29.0	22.4	36	284	119	163	167.1	27.54	204	3584	873	1.20	1.22	46.2	49.9	1.10
1865.0	08:14	21.8	22.4	36	284	119	156	167.3	27.58	204	3612	871	1.20	1.22	46.2	50.0	1.17
1866.0	08:17	20.5	22.4	34	286	119	158	167.7	27.63	204	3610	872	1.20	1.22	46.3	50.0	1.17
1867.0	08:19	21.3	22.4	36	286	119	159	168.1	27.68	204	3615	873	1.20	1.22	46.4	50.0	1.18
1868.0	08:24	12.0	22.4	37	286	120	141	168.7	27.76	204	3617	873	1.20	1.22	46.5	50.0	1.33
1869.0	08:28	15.7	22.4	39	284	120	152	169.1	27.83	204	3583	873	1.20	1.22	46.6	50.0	1.29
1870.0	08:32	14.8	22.4	40	283	120	151	169.6	27.89	204	3588	873	1.20	1.22	46.7	50.0	1.31
1871.0	08:36	17.3	22.4	41	282	110	162	170.0	27.95	204	3596	873	1.20	1.22	46.8	50.0	1.26
1872.0	08:39	17.7	22.4	38	285	110	161	170.3	28.01	204	3589	872	1.20	1.22	46.8	50.1	1.23
1873.0	08:43	14.0	22.3	40	283	115	159	170.8	28.08	204	3598	873	1.20	1.22	46.8	50.1	1.32
1874.0	08:46	20.1	22.3	40	283	118	164	171.2	28.13	204	3609	872	1.20	1.22	46.9	50.0	1.23
1875.0	08:49	21.4	22.3	38	285	119	154	171.6	28.17	204	3603	872	1.20	1.22	46.9	50.1	1.19
1876.0	08:52	22.8	22.3	41	282	118	173	171.8	28.22	204	3554	874	1.20	1.22	46.9	50.2	1.20
1877.0	08:53	38.3	22.3	39	284	118	162	172.0	28.24	204	3561	874	1.20	1.22	46.9	50.4	1.05
1878.0	08:56	24.8	22.3	37	286	118	158	172.3	28.29	205	3541	876	1.20	1.22	46.9	50.7	1.15
1879.0	08:58	27.9	22.4	42	281	117	189	172.5	28.32	205	3532	876	1.20	1.22	46.9	50.9	1.15
1880.0	09:03	12.2	22.3	40	283	119	152	173.1	28.40	205	3546	875	1.20	1.22	47.0	51.1	1.35
1881.0	09:06	18.7	22.3	36	287	119	151	173.5	28.46	204	3558	875	1.20	1.22	47.1	51.2	1.21
1882.0	09:09	17.5	22.3	34	289	119	145	173.9	28.51	204	3559	873	1.20	1.22	47.1	51.4	1.21

5.4 DRILLING ABBREVIATIONS

Standard Abbreviations used throughout.

Assy	Assembly
BHA	Bottom Hole Assembly
CIRC	Circulate
CMT	Cement
Cont	Continue
CSG	Casing
CXN	Connection
DC	Drill Collar
DP	Drill Pipe
FC	Flow Check
FIT	Formation Integrity Test
HiVis	High Viscosity
HWDP	Heavy Weight Drill Pipe
Jts	Joints
L/O	Lay Out
LOT	Leak Off Test
M/shot	Multi shot survey
MW	Mud Weight
M/U	Make Up
MWD	Measurement While Drilling
O/pull	Over Pull
O/shot	Over shot (fishing)
POH	Pull Out of Hole
P/U	Pick Up
R/D	Rig Down
R/U	Rig Up
RIH	Run In Hole
S/shot	Single shot survey
SICP	Shut In Csg Pressure
SIDP	Shut In Drill pipe Pressure
SPM	Strokes Per Minute
Std	Stand (drill pipe)
TGB	Temporary Guide Base
TOC	Top Of Cmt
Trq	Torque
Wt	Weight
X/O	Cross Over
bbl	Barrel

5.5 DATA ACQUISITION & OUTPUT SERVICE

Halliburton Drilling Systems SDL provided the facility for monitoring relevant parameters during drilling and tripping operations, and for running off-line programs.

The system is based on a DILOG PDP/11-73 22 bit server computer performing realtime data acquisition via 20 analogue signal input channels. Online data acquisition and offline engineering software were accessed in the logging unit via a VT220 console linked to a printer. Data was displayed continuously on the rig floor via a slaved video display.

Online real-time graphical data displays with offline engineering workstations linked to the DILOG computer via RS232 cables were provided in three locations; the Operator's office, the Toolpusher's office and in the Logging Unit. This enabled the user to view data from the logging in their own personal configuration on self-scrolling graphical display. A Smarterm 240 alpha-numeric VT320 terminal emulation package was also provided, giving access to online alpha-numeric data displays, offline engineering applications and also graphical data replay software with access to the time and depth based databases stored on the DILOG computer's hard disks.

An alarm program is provided with the realtime graphics system, providing audio-visual alarms on Gas Level, Trip Tank, Total Pit, Pump Pressure, Casing Pressure, Returning Mud Flow, Topdrive Torque and RPM.

A Hewlett Packard 7475A XY plotter was provided in the logging unit for plotted output.

A "WYSI-WYG" oriented Log Drawing System was used exclusively to draw the Formation, Drilling, Pressure Evaluation and Gas Ratio Logs. The system consisted of a 30mB 80486 IBM PC compatible computer with a VGA 1024x800 multifrequency VDU, Zeta 912 plotter and a BJ330 printer for either paper or sepia output. The system was linked to the databases stored on the PDP11/73 computer. A Maestro modem was setup to facilitate transmittal of the Log Drawing System data to the operations office.

DESCRIPTION OF ONLINE AND OFFLINE PROGRAMS.

THE DRILL MONITOR.

The drill monitor program was used during drilling and reaming operations. It is designed to relay drilling information to visual display units on a minute by minute basis and at specific depth intervals during drilling. Both instantaneous and depth-based data are recorded on paper. The program also stores the averaged parameters which make up the depth based data on disc for use in data reprint and plotting programs.

The following parameters are measured or calculated by the program, and stored on disc:

Time	**Total Bit Revs**	**Standpipe Pressure**
Depth	**Bit Hours on Bottom**	**Pump Strokes per Minute**
R.O.P.	**Metres Drilled**	**Mud Temperature in**
W.O.B	**Average R.O.P**	**Mud Temperature out**
R.P.M.	**Mud Flow in**	**Time since start of bit run**
Hook load	**Mud Weight in**	**Time in interval**
Min Torque	**Mud Weight out**	**Cost of Interval**
Max Torque	**d Exponent**	**Corrected d Exponent**
Ave Torque	**Total Pit Volume**	**Estimated Pore Pressure**
E.C.D.	**Active Pit Volume**	**Cost of bit run so far**
Date	**Record Number**	**Average cost per drilled Interval**
Bit Pressure Loss		

Any combination of these parameters may then be chosen for hard copy, either as a printed listing, or plotted against depth.

The visual output of the program allows a choice of three formats to be selected by means of a four channel digital information link to remote terminals. Channel one displays a combination of the major drilling parameters on a minute by minute basis, as well as the averaged readings recorded over the previous five depth intervals. A separate section of the display gives a section of the parameters displayed on an instantaneous basis.

The second channel displays a full selection of parameters recorded at the previous depth interval.

The third channel displays a broader section of instantaneous data, plus a section devoted to the Hydraulic Performance of the bit and bottom hole assembly. The data displayed here is again updated every few seconds.

TRIP MONITOR

This program is run when tripping in or out of the hole with either the drill string or with casing. The program reads bottom hole assembly dimensions from a data file stored on disc to take into account the string displacement and weight as tripping progresses.

The program measures or calculates the following parameters:

Depth of bit	**Number of stands to pull/run**
Maximum pipe speed	**String Weight**
Maximum pull, Klbs.	**Maximum Overpull,Klbs**
Trip Tank Vol.	**Active Pit Volume**
Total Pit Volume	**Actual Hole Fill**
Travelling Block Height Above Rig Floor	**Calculated Hole Fill Time**
Effective Mud Weight (from swab/surge calculations)	**Estimated time at bottom/surface/shoe**

The program outputs data as a stand by stand listing on a printer, and as a choice of two displays on the VDUs. One displays the data collected while pulling/running the previous eleven stands. The bottom section of the screen also gives an instantaneous readout of key parameters such as Hook Load, Pit Levels, Trip Tank Level, Bit Depth and Pipe Speed. An estimate of the time when the bit will be on bottom or at surface is also computed from the average time taken to pull or run stands. Swab and surge calculations also give the estimated bottom hole effective mud weight, assuming closed pipe. The second choice gives a graphical representation of the depth of the drill string in the hole, thus giving the viewer a clear picture of the trip progress. This display also gives instantaneous readings of key parameters, such as bit depth, maximum overpull, calculated hole fill, and pit levels.

THE PIT LEVEL MONITOR PROGRAM

This program is run at all times. The program measures the mud volume in the active pit, the trip tank, or the total pit system. Output is to channel four of the alpha-numeric display system and is primarily in the form of a bar graph for quick assessment of pit level stability. The pit volume and the rate of any volume change are also displayed numerically. An additional feature of this program is its alarm facility. This highlights pit level changes which exceed certain limits, and can be adjusted to suit any requirements. For example, if mud was being added to the active pit at a certain rate, the alarm threshold could be set to mark any level changes in excess of the rate of addition. While tripping out of the hole the program is switched to monitor the trip tank level, as an additional check on hole fill.

TIME BASED DATA STORAGE

A background online program constantly stores the following parameters every 15 seconds independent of operation. The data is stored for seven days before being overwritten. It is also possible to backup the data to diskette for permanent storage.

Time
Total Gas
SPM/SPP/CSIP
Hook Load/String Weight
RPM/Torque/WOB
Active Pit/Total Pit
Mud Weight In/Out
Mud Temp In/Out
Equivalent Circ Density
Bit Hours/Bit Revs/Bit Metres
Trip Tank
Block Position
Mud Flow Out
Tripping Calc Fill/Actual Fill
Tripping Overpull
Tripping Swab/Surge
Instantaneous Cost/Cost per Metre
Drilling Depth/TVD
Tripping Depth

INTEGRATED LAGGED GAS DATA ACQUISITION

A background program collates and stores all values calculated and on each injection by SpectraPhysics gas integrator against time and depth of returns. Data is output as a LIS ASCII file which can be imported to the Log Drawing System for Gas Ratio calculations.

OFF-LINE PROGRAMS.

Numerous offline programs are available. Most of these fall into four broad categories:

1) Drilling Data programs: These allow data stored on disc to be edited, reprinted, and plotted graphically in a variety of ways; as drilling parameter plots, cost plots, d exponent plots, and mud temperature plots.

2) Wireline interpretation/pressure evaluation programs: These allow readings taken from wireline logs to be manually input and stored on a data disc. The data can then be used to calculate and plot a variety of parameters useful for pore pressure evaluation, such as resistivity, sonic or overburden gradients.

3) Directional Survey Programs: Directional survey data is input manually and stored on disc. The data can then be used to produce plan and vertical plots of the wellbore, and to calculate the bit position.

4) Engineering Programs: These include hydraulics programs for drilling, swab and surge programs, plus a number of others,
for example casing weight and cementing volume calculations. Hydraulics calculations based on the Power Law model were frequently run to calculate the following:

Estimated Static Overbalance
Estimated Dynamic Overbalance
Hydrostatic Pressure
Bit Hydraulic Horsepower
Annular Pressure Losses
Drill String Pressure loss
Cuttings Slip Velocity
Nozzle Velocity
Hole Volume
Bit Hydraulic Impact
Power Law n Factor
Power Law k Factor

In addition to the basic hydraulics program, hydraulics optimisation programs could be used to plan out the hydraulics performance in advance, so that the most suitable bit jet & sizes and flow rates could be selected.

The swab/surge program calculates the pressure fluctuations caused by the motion of the drill string during trips or casing runs. The kinetic pressures caused due to the breaking of mud gel strength are also taken into account. The program then outputs the effective mud weight at the bottom of the hole, at the bit, or at any specific zone of interest, for a variety of pipe or casing running speeds. This enables any running speed restrictions to be made to avoid swabbing formation fluids while pulling out or fracturing the formation while running in.

The Well Kill Program is designed to rapidly produce information needed to control the well should a kick occur. For speed of operation much of the necessary data, including the most recent slow circulation pressures, are stored on disc. The outputs from the program are:

1. Hole volumes and circulation times based on slow circulation measurements.
2. Formation Pressure, height and density of influx, kill mud density and surface pressure tolerance.
3. A table of fluid/fluid and fluid/gas interfaces and theoretical pressures while circulating out the influx.

A graphical output of this can also be quickly provided. The program caters for the use of both the "Driller's method", and the "Weight and Wait" methods of Kick Control.

5.6 FORMATION PRESSURE EVALUATION

Plots maintained during drilling include corrected drilling exponent, interpreted lithology, shale density, flowline temperature, differential temperature, total gas and mud weight. In addition other information pertinent to pressure detection such as hole condition during trips, cavings, trip gas and connection gas was also noted on the pressure log. This data is presented along with the estimated formation pressure gradient and leak off test results.

Drilling Exponent (DXC)

If a well was drilled through a good thickness of uniform, normally pressured shales, holding the parameters of bit size, weight on bit (WOB), rotary speed (RPM) and mud weight constant, a gradual reduction in the rate of penetration would be expected, due to the increasingly compacted nature of the sediments encountered and to the increasing differential bottom hole pressure (overbalance). If subsequently an overpressured zone was encountered, a reversal of the normal rate of penetration trend would be seen. This is firstly a result of the sediments being undercompacted and therefore more drillable, since pore pressure exerts forces which resist the compaction resulting from overburden stresses, and secondly a decrease in the pressure difference (overbalance) between the drilling mud and the formation pore fluid, reducing the tendency for drill cuttings to be held down against the formation.

Jordan and Shirley (1966) produced the 'd' exponent equation aimed at normalising the rate of penetration with respect to the variables of RPM, bit size, and WOB. The product is named the DC exponent, when "d" has been refined further by correcting it for the ECD of the drilling fluid.

$$d = \frac{\log\left(\frac{Penetration\ Rate(Ft/Hr)}{N(rpm)\cdot 60}\right)}{\log\left(\frac{12\cdot Weight\ On\ Bit(lbs)}{Bit\ Diam(ins)\cdot 6}\right)} \quad \text{or}$$

$$d = \frac{\log_{10}\left[\frac{R}{60N}\right]}{\log_{10}\left[\frac{12W}{10^6 D}\right]}$$

where R = ROP N = RPM W = WOB D = Bit size

A corrected 'd' exponent (DXC) related to the mud weight and 'normal' pore pressure makes reasonably accurate pore pressure prediction feasible.

$$dc = \frac{FPG \times d}{MW}$$

where dc = Modified d exponent FPG = Pore pressure MW = Mud Weight or ECD.

The DC exponent (DcExp) is particularly effective in identifying long transition zones. Bit wear can also be recognised through the analysis of DcExp trends. One disadvantage is that not all the parameters affecting the penetration rate are included in the equation.

The drilling exponent is largely dependent on lithology and rarely works well in sections other than those composed purely of shale or claystone. Poorly consolidated sands or silty mudstones or porous rocks such as silts and sandstone tend to reduce the DXC, whereas tight carbonates, marls, or calcareous or dolomitic cements tend to increase DXC values. Normal compaction trend lines are usually established in a top hole mudstone section. Deviation from this trend may indicate abnormal pressure.

Quantitative evaluation of the DcExp is achieved by the use of an **Eaton overlay**. A series of increasing pressure trend lines are constructed using the following equation:

$$Formation\ Pressure = S-[(S-Pn)'DCo\frac{}{DCn}^{1.2}]$$

Where S = overburden gradient (psi/ft)
Pn = normal pore pressure (psi/ft)
Dco = observed DC exp
Dcn = normal DC exp

The overburden gradient is best calculated using RHOB values from an adjacent well. If a density log has not been run, density values may be estimated from BHC sonic transit time using the Agip formula:

$$Bulk\ Density\ (S.G.) = 2.75 - [2.11 \frac{DT - 47}{DT + 200}]$$

For wildcat wells the overburden gradient may be estimated from prognosed seismic two way transit times.

Bit changes often cause shifts in the normal trend. These must be allowed for when estimating pore pressure from the DcExp.

The drilling exponent assumes optimum drilling conditions so that poor hydraulics and controlled drilling will affect the plot. Whilst the DXC will accommodate variations in mud weight, RPM, and WOB to a considerable extent, shifts in the plot are likely to occur when parameters are markedly changed. This is often the case when hole size is changed at casing points, and it becomes necessary to change the position but not the gradient, of the normal trend line. When a major stratigraphic or tectonic boundary is encountered, such as an unconformity, the normal trend may have to be re-established.

Occasionally the use of some types of PDC bit will yield a steeper DXC trend than that observed for an equivalent sized tri-cone "rock" bit. In such instances a new trend has to be established. Certain PDC bits which tend to drill most formations at similar drilling rates make the use of the DC exponent as a quantitative pore pressure analysis technique, extremely difficult. Changes in formation and formation pressure are not as accurately represented by these bit types.

Shale Density

A normal compaction trend can be established by plotting shale density versus depth. A departure from this trend to a lower density than would normally be expected may indicate undercompacted formation and thus overpressure. This test only works well on pure shale / claystone as any accessory minerals may affect readings, similarly large amounts of silt or sand or silt in the claystone will produce anomalous data.

Flowline Temperature

The geothermal gradient is expressed in °C/30m.

The geothermal gradient may be estimated thus:

$$Geothermal\ Gradient = 100 \cdot \frac{T2\text{-}T1}{D2\text{-}D1}$$

Where : T1 and T2 are the flowline temperatures at depths D1 and D2 respectively.

Undercompacted formations have an abnormally high water content. The thermal conductivity of water is about one third of that of most matrix minerals. As a result overpressured formations are comparatively poor thermal conductors. This leads to high geothermal gradients across overpressured zones.

Flowline temperature is the drilling parameter most affected by surface events such as adding water in the pits and least affected by downhole conditions. It is far easier to change the flowline temperature by adding water in the pits for example, than by a change in downhole temperature.

A more meaningful measurement is **ΔT** (the difference between temperature in and out). **ΔT** will normally decrease with depth due to longer circulation times at lower rates of penetration. An increase in **ΔT** may indicate entry into a transitional zone.

ΔT is less affected by surface temperature changes and mud system additions, such as water, barite, cool reserve mud, than raw temperature data.

Gas Levels

The level of hydrocarbon gases in the drilling mud often offers clear evidence of overpressuring. The following are the most common indicators:

- *Background gas*: During drilling gas enters the mud from drill cuttings and from the borehole wall via diffusion. In an overbalanced situation and especially when formation permeability is low, the gas levels are proportional to the amount of gas liberated from the drilled cuttings. In an overpressured section the formation generally contains more gas (measured at standard temperature and pressure) in a given volume of rock and would thus be marked by an increase in background gas even though sufficient overbalance is maintained. Should the overbalance be reduced to a near balance situation, then connection gases and large amounts of trip gas can be expected. In an underbalance situation gas will bleed into the mud from the borehole, especially if the formation permeability is high, causing background levels to rise. High gas levels do not necessarily indicate the presence of overpressure, particularly if a lithological change takes place or when drilling into hydrocarbon reservoir or source rock.

  Gas levels are sensitive to changes in mud weight and other mud properties, as well as the rate of penetration. Less gas will be recorded where mud viscosity is high due to the greater holding ability of the mud. Therefore a considerable degree of discrimination is required when interpreting background gas.

- *Connection Gas*: This indicates that the formation pore pressure is near balance with the hydrostatic pressure of the drilling mud, thus yielding a close estimate of the pore pressure. Increasing levels of connection gas with depth may indicate a continually rising pore pressure. Connection gas results from a decrease in effective mud density when circulation stops.

- *Trip Gas*: This enters the mud via diffusion from the borehole wall during trips. An increase in trip gas is sometimes noted in overpressured zones. In situations where the well is close to balance, large concentrations of trip gas may be swabbed into the hole indicating that the pore pressure is only fractionally below the mud weight. An increase in trip gas may also occur after reservoir units have been drilled.

Wireline Logs

When examining wireline logs for possible indications of overpressured formation, normal trend lines may have to be re-established should a major stratigraphic or tectonic boundary be encountered, such as an unconformity.

BHC Sonic:- For a given lithology, sonic transit time (delta t) is dependent on porosity (c.f. the Wyllie equation.). In a normally compacted sequence claystone porosity decreases exponentially with depth. Therefore delta t values for claystones should also decrease exponentially and a logarithmic plot should yield a linear normal compaction trend. Any increase from this trend for claystone units indicates an abnormally high porosity and hence overpressure.

Formation Resistivity (ILD or LLD): Values for normally compacted claystones show a linear trend when plotted on a logarithmic scale. Increases from this trend indicate an overpressured zone, where claystone may have a high water content. This method of overpressure detection is limited by variations in the salinity of the pore fluids i.e decreasing salinity gives an increased resistivity reading.

Formation Density (RHOB): Where values of DRHO are not excessive, the value of RHOB can be used to plot the density of the formation. It is particularly useful in thick argillaceous sequences in assessing and cross checking shale density anomalies. It is difficult to establish a Normal Compaction Trend for RHOB as the log is rarely run in top-hole.

Gamma Ray : Used to isolate shaly sections and other intervals of uniform lithology and to assess the Poisson's Ratio of the formation for Fracture Gradient determination in clastic sequences (Eaton, B.A (1969)). Cutbacks have been observed in some undercompacted sequences but do not occur in all instances (Mouchet & Mitchell (1989)). Transmitted M.W.D. gamma ray data is particularly useful in assessing the developing Corrected Drilling Exponent plot.

Eaton overlays, based on a method published by B.A. Eaton in 1972 may be used for quantitative analysis of the sonic and resistivity plots. The sonic log generally yields the more accurate pore pressure estimates. These logs can be filtered using the gamma ray log so that only claystone readings are shown on the plots. This may not be possible in areas where the non-argillaceous lithologies contain radioactive minerals (e.g. micas, glauconite). (Eaton, B.A. (1972))

Wireline logs from adjacent wells may help in anticipating overpressured zones before drilling a well. Logs run during a well may be used to revise pore pressure estimates while drilling and calibrate the position of the Corrected Drilling Exponent normal compaction trend

Other Data

Additional data, such as cuttings size and shape, size and shape of cavings, amount of torque, amount of overpull, hole fill on trips, pump pressures etc, may provide useful information for pressure estimation. However, great care should be exercised in using some of these parameters in directional holes: overpull, torque, and the amount of caving are all increased by the drag of the drill string in the hole, and higher normal values are to be expected.

FRACTURE PRESSURE ESTIMATION

Several methods exist for estimating fracture pressure while drilling. The method most commonly used by Halliburton Drilling Systems is the Eaton Method.
Eaton (1969) determined that:

$$\frac{F}{D} = \left(\frac{m}{1 - m}\right) s + \frac{P}{D}$$

Where
= Poisson's Ratio , σ = Effective Stress and D = Depth F/D = Eaton Fracture Gradient.

Effective Stress given by:

$$s = \frac{S}{D} - \frac{F}{D}$$

Where S = Variable Overburden Pressure, P = Formation pressure and D = Depth

For a given formation, the Poisson's Ratio maybe determined from Gamma Ray data using the formula:

$$m = 0.125 \times \left(\frac{GR_{log} - GR_{min}}{GR_{max} - GR_{min}}\right) + 0.27$$

Poisson's Ratio may also be estimated from the type of lithology present. Daines (1982) published a table of experimentally determined Poisson's ratio for specific rock types. This determination is most useful while drilling ahead.

PE600535

This is an enclosure indicator page.
The enclosure PE600535 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600535 has the following characteristics:

ITEM_BARCODE	= PE600535
CONTAINER_BARCODE	= PE900615
NAME	= Champion 1 Appendix 4 Enclosure Drilling Parameter Log
BASIN	= Otway
PERMIT	= *
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Champion 1 Appendix 4 Enclosure Drilling Parameter Log
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W1139
WELL_NAME	= Champion 1
CONTRACTOR	= Haliburton
CLIENT_OP_CO	= BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600537

This is an enclosure indicator page.
The enclosure PE600537 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600537 has the following characteristics:

ITEM_BARCODE	= PE600537
CONTAINER_BARCODE	= PE900615
NAME	= Champion 1 Appendix 4 Enclosure Pressure Evaluation Log
BASIN	= Otway
PERMIT	= *
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Champion 1 Appendix 4 Enclosure Pressure Evaluation Log
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W1139
WELL_NAME	= Champion 1
CONTRACTOR	= Haliburton
CLIENT_OP_CO	= BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600527

This is an enclosure indicator page.
The enclosure PE600527 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600527 has the following characteristics:

ITEM_BARCODE	= PE600527
CONTAINER_BARCODE	= PE900615
NAME	= Champion 1 Appendix 4 Enclosure Formation Evaluation Log
BASIN	= Otway
PERMIT	= *
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Champion 1 Appendix 4 Enclosure Formation Evaluation Log
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W1139
WELL_NAME	= Champion 1
CONTRACTOR	= Haliburton
CLIENT_OP_CO	= BHP

(Inserted by DNRE - Vic Govt Mines Dept)

5

6.5 APPENDIX 5 Final Well Report (MWD)

The MWD report

was not ready at the time this well completion report

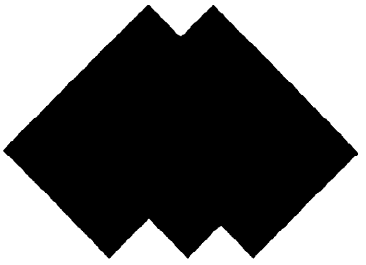
was compiled and will be sent at a later date.

6.6 APPENDIX 6 Rig Positioning Report

POSITIONING REPORT

FOR

BHP PETROLEUM PTY LTD



RIG MOVE OF THE DRILLING RIG

OCEAN BOUNTY

LOCATION	:	CHAMPION-1
BLOCK	:	VIC/P30
DATED	:	3rd - 9th AUGUST 1995
REPORT REF	:	A2422

CONTENTS

APPENDICES

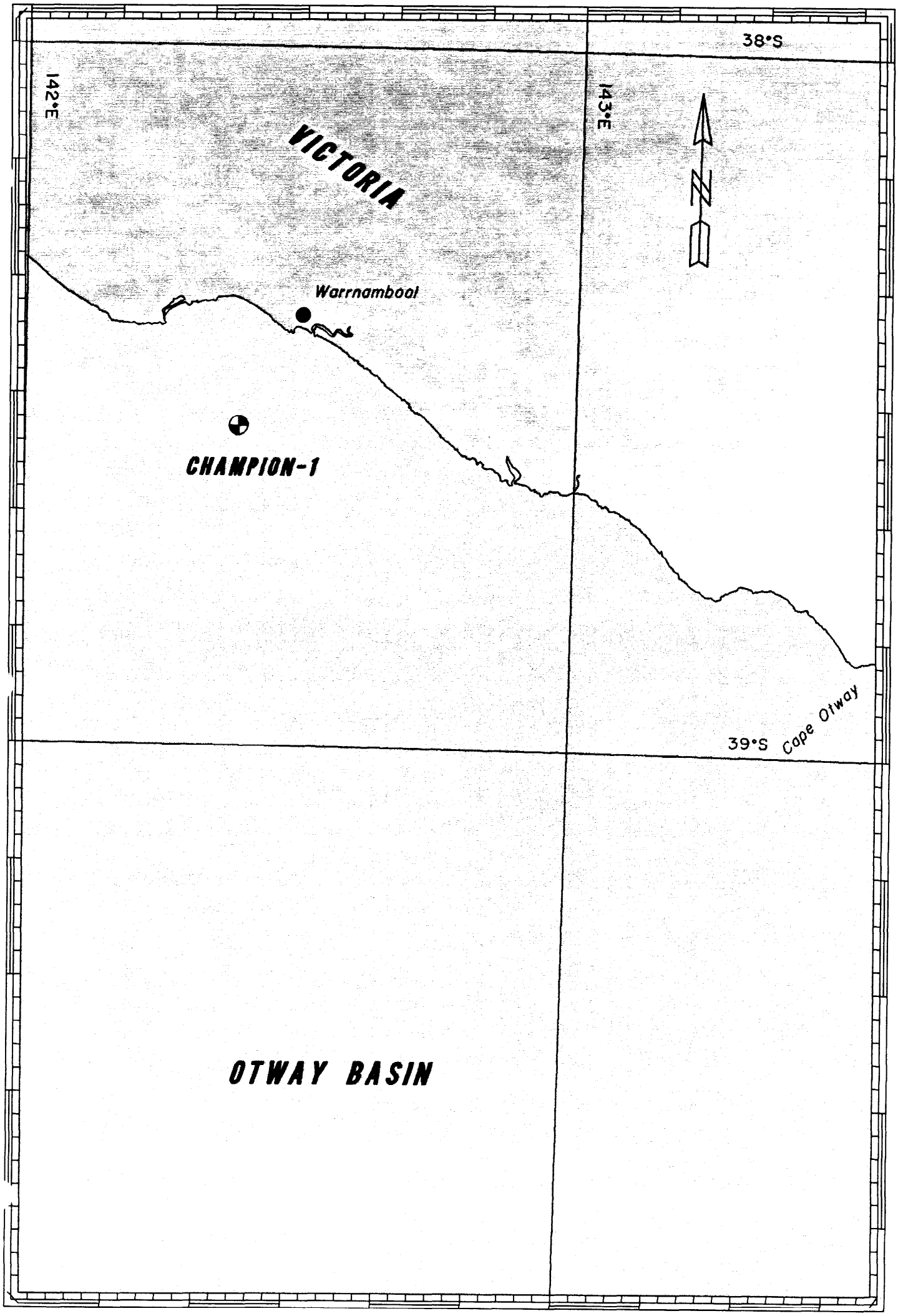
A - OFFSET DIAGRAM - OCEAN BOUNTY

B - ANCHOR PATTERN DETAILS

C - DAILY LOG SHEETS

D - GNS SYSTEM SET-UP PARAMETERS

E - GNS FINAL FIX PRINTOUTS



LOCATION DIAGRAM

Scale 1:750 000

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 Ocean Bounty, over the Champion-1 location in the Otway Basin in the Bass Strait, for BHP Petroleum Limited (BHPP).

Racal personnel L. Kemp (Surveyor), D. Bell (Electronics Engineer) and BHPE representative B. Edmonds arrived on board the Ocean Bounty on the 4th August 1995. Racal equipment was mobilised and operational on the 4th July, 1995.

Positioning of the Ocean Bounty during the approach to and over the location was provided by Racal's SkyFix Differential GPS (DGPS), interfaced to Racal's multiple reference station software, MultiFix 2, which provided a network solution from three DGPS reference stations. Racal's LandStar DGPS was utilised as the secondary differential system for onboard positioning of the rig.

The drilling rig Ocean Bounty was positioned over the Champion-1 location on the 7th of August, 1995.

Champion-1 Well Head location

The co-ordinates of the Champion-1 wellhead, were provided by BHPP as follows

Datum AGD 84

Latitude : 38° 32' 33.5" South
Longitude : 142° 23' 18.2" East

AMG Zone 54 C.M. 141° East

Easting : 620 997.3m
Northing : 5 733 046.5m

Intended Rig Heading : 225°T

Final Differential GPS Position Champion-1

The final DGPS position of the Ocean Bounty was derived between 1927 and 2031 hours on the 9th of August, 1995. The final DGPS position was as follows:

Datum AGD 84

Latitude : 38° 32' 33.544" South
Longitude : 142° 23' 18.664" East

AMG Zone 54 C.M. 141° East

Easting : 621 007.48m
Northing : 5 733 045.38m

Final Rig Heading : 224.2°T

The final DGPS position is 10.24 metres on a bearing of 095.43° (T) from the intended location of Champion-1.

1. SUMMARY OF EVENTS

Racal Surveyor L.Kemp departed Perth for Melbourne during the evening of the 3rd of August, 1995. L.Kemp arrived in Melbourne at 2300 and checked into the Airport Travelodge, where D. Bell (Racal Engineer) had arrived earlier in the evening.

Personnel arrived at the BHP check-in, at Essendon Airport, at 1100 on the 4th of August. The helicopter departed the airport an hour later and arrived onboard the rig at 1305 after which personnel were given a brief safety induction and allocated lifeboats. Mobilisation of the positioning equipment commenced at 1410, with all equipment being operational by 1620. Anchor recovery operations at the Conan-1 location commenced at 1800.

Position fixing of the rig commenced at 1300 on the 5th of August with fixes being observed and logged at 15 minute intervals. At 1340 the last anchor, #6 was recovered and the rig was ontow to the Champion-1 location. Fix intervals were increased to 2 minutes at 1420 at the Client Representatives request.

At 0100 on the 6th of August, 1995 the tow vessel turned to port for the final run-in to location. The weather conditions at the time consisted of strong winds with a 5 metre swell. The vessels Master expressed concern about deploying anchors under such conditions, and consequently the tow speed was reduced to the slowest possible, whilst still having steerage. The weather was monitored at regular intervals but conditions did not improve before the rig arrived at the Anchor #7 drop point.

On the 7th of August the swell and wind speed had dropped sufficiently for anchor deployment operations to be carried out. A course correction to port was initiated at 0410, and the rig was towed towards the 3nm run-in point. At 0800 the rig was again turned to port and lined up on the Anchor #7 approach line. The Anchor #7 was deployed from the rig at 0950 as the rig was towed towards the intended location. The rig was over the location at 1044. Anchor deployment operations continued until 2214 on the 7th of August, when all anchors had been deployed.

Tensioning of the anchors started at 2045, and was completed at 0240 on the 8th of August. Only anchors #4 and #8 reached storm tension's. It was decided to deploy secondary anchors on the primary anchors. Only two secondary anchors were on board the rig, and these were attached to anchors #2 and #3. The remaining secondary anchors were in Portland, and they were brought out to the rig by the MV Bonavista. Both secondary anchors #2 and #3 were deployed by 1300, on the 8th of August, and were successfully storm tensioned.

A final Differential GPS fix was attempted at 0020 on the 9th of August but aborted soon after due to the position of the rig being adjusted. A second attempt was made at 0128 and was successfully concluded at 0219. The position was released to the BHPE representative and the positioning equipment was demobilised.

At 0800 preparations were made to deploy the secondary anchors #6 and #7. Racal personnel were informed, at 0845, that the vertical angle on the 36" hole exceeded the tolerances for the stack to be installed and it would be necessary to respud. The positioning equipment was re-mobilised and was fully operational by 0942. At 1010 the rig was moved from the first spud-in position whilst anchors were pre-tensioned. Further adjustment of the position was delayed until 1155 when both secondary anchors had been deployed. At 1225 the rig was approximately 10m to the east of the intended location and anchors were slackened to working tensions.

Confirmation that the drilling of the 36" hole was completed and that the stack had been successfully installed was given at 1845. The final Differential GPS fix started at 1926 and continued until 2030. The final drillstem position was calculated and published to BHP shortly afterwards. The positioning equipment was demobilised and packed into a BHP container.

Racal personnel departed the rig for Melbourne at 1130 on the 10th of August.

2. GEODETIC PARAMETERS

The location co-ordinates are defined on Australian Geodetic Datum 1984 (AGD 84).

The Global Positioning System (GPS) is referenced to World Geodetic System 1984 (WGS 84).

2.1 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

2.2 PROJECTION

Projection	:	Universal Transverse Mercator
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

2.3 DATUM TRANSFORMATION

The following 7-parameter datum transformation was used to convert WGS 84 co-ordinates to AGD 84 co-ordinates:

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

Note: The sign conventions used in Racal software in the datum transformations were derived as follows:

GNS Survey Software:
The convention used is that used by the US Department of Defence and by Higgins (Transformation from WGS 84 to AGD 84 - An Interim Solution), where a positive rotation about the Z axis is an anti-clockwise movement of the X and Y axes (when viewed from the North Pole looking towards the centre of the Earth).

2.4 GEOID/SPHEROID SEPARATION

The computed Geoid/Spheroid (WGS-84) separation (N) for the Champion-1 location is -2.27 metres.

3. FINAL DRILLSTEM POSITION

The final differential GPS position of the drillstem over Champion-1 location was determined using Racal's MultiFix-2, with LandStar as the differential link.

Observations were obtained between 1927 and 2031 on the 9th of August, 1995. The final fix analysis in the GNS Rig Move software was used to obtain the DGPS observations and compute the position of the drillstem.

Differential corrections from the SkyFix reference stations in Adelaide (495.1km), Melbourne (220.3km) and Sydney (941.6km) were used in a network solution. Fixes were observed at 5 second intervals.

The final co-ordinates for the Champion-1 well, determined from DGPS observations were as follows:

Constellation	Samples	Satellites
A	9	12,09,24,07,05,04
B	48	12,09,24,07,20,05,04
C	17	12,09,24,20,05,04
D	25	12,20,09,05,04
E	309	12,20,09,24,05,04
F	60	12,20,09,24,06,05,04
G	8	20,09,24,06,05,04
H	58	12,20,24,09,05,04
I	8	20,24,09,05,04

Total number of samples used = 542

The computed antenna position, with constellations given equal weights, was as follows:

Antenna Position

Datum WGS 84

Latitude	:	38° 32' 29.164" South	(s.d. 0.12m)
Longitude	:	142° 23' 22.489" East	(s.d. 0.11m)
Spheroidal Height	:	23.33m	(s.d. 0.66m)

Transforming the above WGS 84 co-ordinates to AGD 84 using the parameters in section 2, gives the following antenna co-ordinates:

Antenna Position

Datum AGD 84

Latitude	:	38° 32' 34.461" South
Longitude	:	142° 23' 17.527" East
Spheroidal Height	:	40.48m

Applying the antenna to datum offsets to the above co-ordinates gives the following drillstem position over the Champion-1 well:

Drillstem Position

Datum AGD 84

Latitude	:	38° 32' 33.544" South
Longitude	:	142° 23' 18.664" East

AMG Zone 54 C.M. 141° East

Eastings	:	621 007.48m
Northings	:	5 733 045.38m
Rig Heading	:	224.2° (T)

This position is 10.24 metres on a bearing of 095.43° (T) from the intended location of Champion-1.

4. SAFETY

Racal personnel employed on this project were in possession of current identity cards and had completed the Industrial Foundation of Accident Prevention's One Day Basic Sea Survival and Helicopter Simulator Training Course.

No safety incidents/accidents occurred during the project as a result of Racal operators/equipment.

5. DISCUSSION

5.1 EQUIPMENT PERFORMANCE

DGPS

The DGPS rig installation consisted of a Trimble 4000 DL II 9 channel receiver interfaced to a Compaq portable 486/66 computer operating Racal's MultiFix 2 multiple reference station software. The MultiFix 2 software was used on the drilling rig to provide a differentially corrected position to the General Navigation System (GNS) utilising raw data from the Trimble GPS receiver and RTCM 104 messages from of three SkyFix reference stations.

The SkyFix Differential GPS reference stations consist of two Trimble DS 12 channel receivers interfaced to Compaq desktop 386 computers operating Trimble RS4000 reference station software. The reference stations are controlled via modem by the Singapore SkyFix control centre.

The DGPS performance on the rig was reliable. Some evidence of multipath was observed during rig move operations, when multipath was evident the satellite concerned was disabled. The reception of differential corrections was maintained throughout the rig move as RTCM 104 data was available on the IOR and POR Inmarsat satellite, and from the Optus satellite using LandStar.

Navigation System

The drilling rig Ocean Bounty installation consisted of a Compaq portable 486/66 computer operating Racal's General Navigation System (GNS) rig move software version GNS309D. Associated peripheral equipment included printer and a Compaq 486 notebook computer operating Racal's GRREP graphics repeater software.

The navigation system worked satisfactorily through out the whole project.

5.2 CONCLUSIONS AND RECOMMENDATIONS

All DGPS and positioning equipment worked faultlessly through out the project. It has know been confirmed that the Ocean Bounty will be fully installed with Racal's positioning equipment on a semi permanent basis. It would therefore be beneficial for a suitable goose neck to be fabricated in the pilot house so that the cables can be run neatly and not through the window as is the case at present.

6. PERSONNEL AND EQUIPMENT

6.1 PERSONNEL

The following personnel were employed on this project:

For : Racal Survey Australia Limited

L. Kemp	-	Surveyor
D. Bell	-	Engineer

For : BHP PETROLEUM PTY LTD

B. Edmonds	-	BHPE Client Representative

6.2 EQUIPMENT

The following equipment was provided for this project:

2 x Trimble 4000DL II GPS Receivers

2 x SkyFix Decoders

2 x SkyFix Demodulators

1 x Rig Portable Inmarsat Dish

1 x LandStar MKII Receiver

2 x Compaq 486 Desk Top Computers

1 x Compaq 486 Portable Computer

1 x 486 Notebook Computers

1 x V.D.U.

1 x S.G. Brown 1000 Survey Gyro Compass

2 x Thinkjet Printers

plus all associated software (GNS PC R309D MultiFix II V207), cables, consumables etc.

7. DISTRIBUTION

Copies of this report have been distributed as follows:

BHP Petroleum Pty Ltd - Melbourne Attn: Mr. K. Bauer	: 1 copy 1 unbound copy
BHP Engineering Pty Ltd - Wollongong Attn: Petroleum Business Group	: 1 copy 1 disk
Racal Survey - Perth	: 1 copy

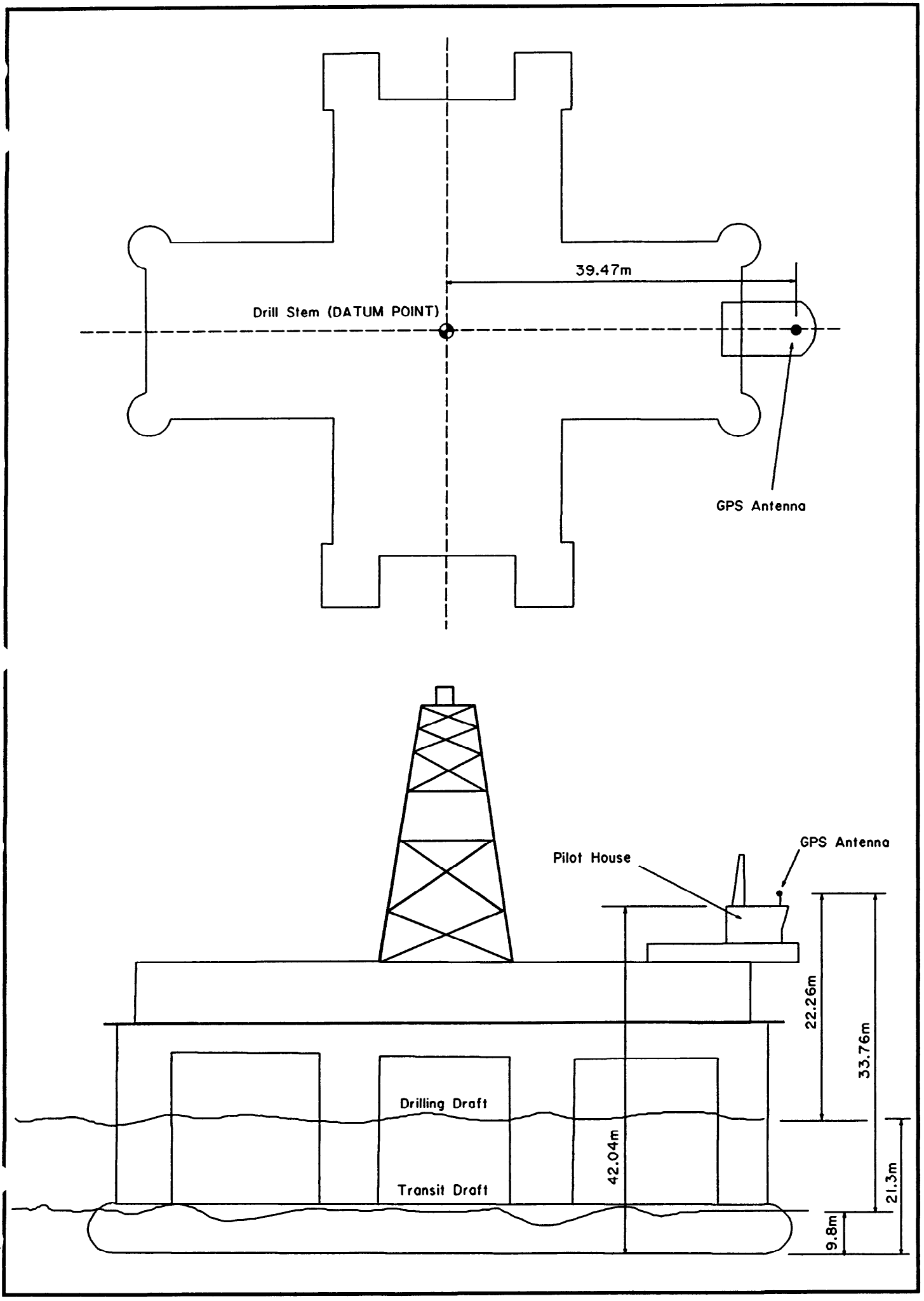
Lewis Kemp
Surveyor

Gareth Jones
Area Surveyor

APPENDIX A

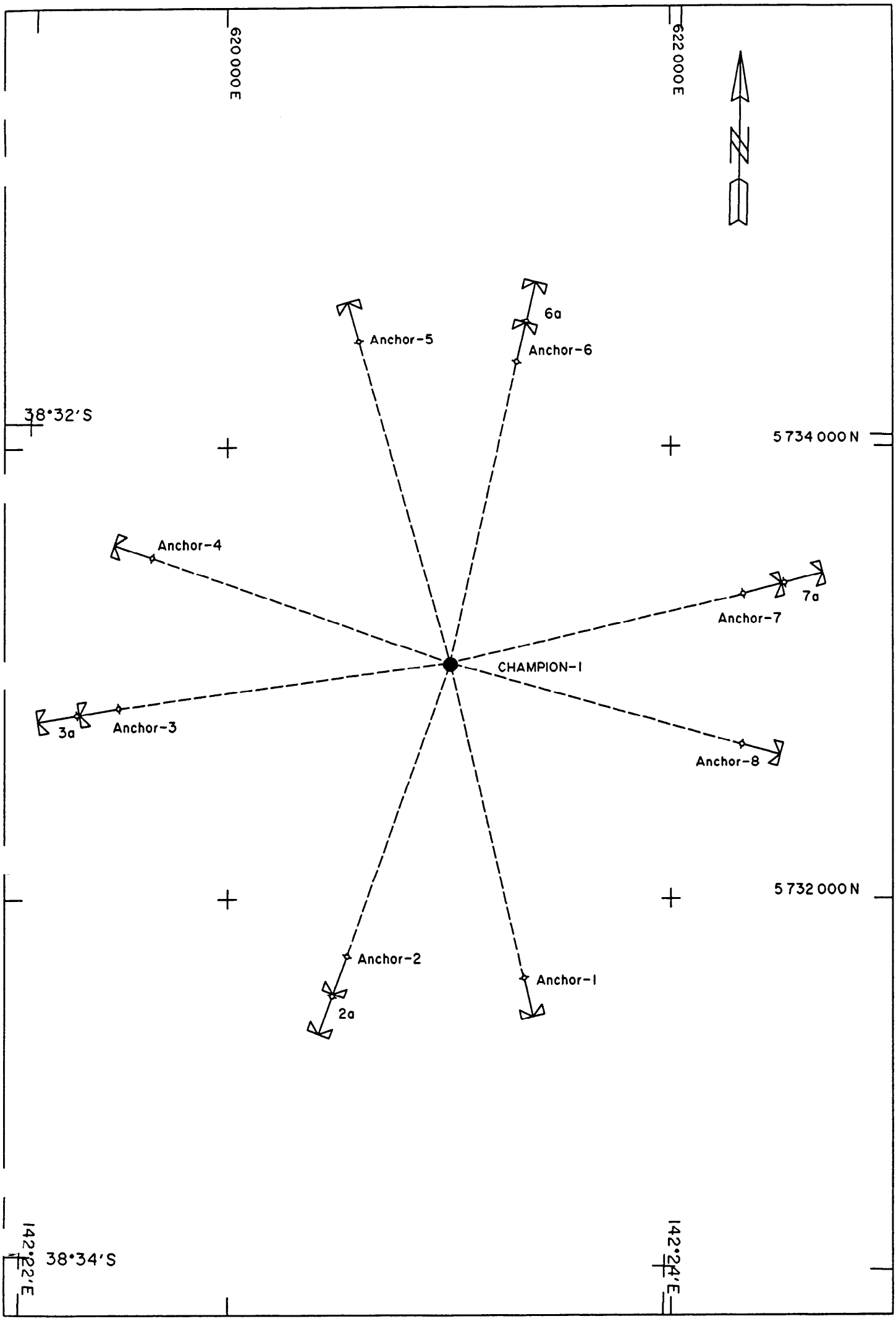
OFF-SET DIAGRAM - OCEAN BOUNTY

OCEAN BOUNTY OFFSET DIAGRAM



NOT TO SCALE

APPENDIX B
ANCHOR PATTERNS



ANCHOR PATTERN DIAGRAM

APPENDIX C

DAILY LOG SHEETS

RACAL SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

A2422-01

WX	Sea State		Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : A2422			Date : 3/8/95	Vessel : OCEAN BOUNTY			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	USED	REMAIN	Laid	Recovered
SKYFIX	✓		STD 12 / VELOCITY PROBE			L. KEMP	ITEM				
SYLEDIS			ECHO SOUNDER (20/25)			D. BELL	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER				
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER				
GNS	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			B. EDMONDS					
SONARDYNE COMPATTS			LANDSTAR	✓							
SONARDYNE PAN											
SONARDYNE(Dunker/Winch/Fish)											

DIARY OF OPERATIONS: EST = UTC + 10

3/8/95

1735 - L.KEMP DEPARTS PERTH FOR MELBOURNE 2300 - ARRIVE MELBOURNE, CHECK INTO AIRPORT TRAVELODGE. D.BELL ALREADY CHECKED INTO HOTEL.

4/8/95

1100 - ALL SURVEY PERSONNEL CHECK INTO BHP AT ESSENDON AIRPORT 1200 - DEPART ESSENDON BY HELICOPTER FOR OCEAN BOUNTY. 1305 - ARRIVE ONBOARD OCEAN BOUNTY, NEW ARRIVALS GIVEN SAFETY BRIEF 1410 - START MOBILISATION. 1620 - MOBILISATION COMPLETE (LESS SKYFIX) GNS ONLINE. 1805 - ± RECOVERY COMMENCED. 2050 - SKYFIX INSTALLED AND OPERATIONAL.

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

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

Signature _____ SURVEYOR/~~ENGINEER~~

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature _____ CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P 239

RAC L SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

A2422-02

WX	Sea State		Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : A2422			Date : 5/8/95	Vessel : OCEAN BOUNTY			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	USED	REMAIN	Laid	Recovered
SKYFIX	✓		STD 12 / VELOCITY PROBE			L. KEMP	ITEM				
SYLEDIS			ECHO SOUNDER (20/25)			D. BELL	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER				
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER				
GNS	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			B. EDMONDS.					
SONARDYNE COMPATTS			LANDSTAR	✓							
SONARDYNE PAN											
SONARDYNE (Dunker/Winch/Fish)											

DIARY OF OPERATIONS : EST = UTC + 10.

5/8/95

1300 - START FIXING EVERY 15 min (LOGGING TO DISC MOBILE1.002) 1340 - LAST ⚓ #6 OFF THE BOTTOM - RIG ON TOW TO CHAMPION-1 LOCATION. 1420 - FIXING SET TO 2min INTERVALS.

6/8/95

0100 - TOW VESSELS START TURN TO PORT FOR FINAL RUN-IN (FIX 329) WX CONDITIONS POOR, N.E. LARGE SWELL AND 30-40 KT WINDS. TOW VESSEL'S REPORT TO ROUGH FOR ⚓ DEPLOYMENT. 0200 - VESSELS SET TO MIN STEERING SPEED, RIG MAKING VERY SLOW PROGRESS DOWN APPROACH LINE. RIGS POSITION CONSTANTLY UPDATED TO TOW VESSELS. 1800 - RIG CONTINUES AT VERY SLOW SPEED TOWARDS #7 ⚓ DROP POINT. WX CONDITIONS ~~SF~~ REMAIN POOR #7 DROP POINT AND LOCATION PASSED. SAIL INTO WX.

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

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

Signature _____ SURVEYOR/~~ENGINEER~~

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature W. Edmonds. CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P240

RACAL SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

A2422-03

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : A2422			Date : 7/8/95	Vessel : OCEAN BOUNTY			Anchors / ~~Tpdrs~~	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	USED	REMAIN	Laid	~~Recovered~~
SKYFIX	✓		STD 12 / VELOCITY PROBE			L. KEMP	ITEM			0950	#7 ±
SYLEDIS			ECHO SOUNDER (20/25)			D. BELL	SIDESCAN PAPER			1205	#2 ±
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER			1255	#3 ±
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER			~~1413~~	
GNS	✓		SPARKER (DELPH / EPC)				DISKS			1422	#6 ±
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.			1530	#5 ±
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS			1611	#8 ±
TELEMETRY			UNDERWATER TRACKING			B. EDMONDS				1655	#4 ±
SONARDYNE COMPATTS			LANDSTAR	✓						2214	#1 ±
SONARDYNE PAN											
SONARDYNE (Dunker/Winch/Fish)											

DIARY OF OPERATIONS : EST = UTC + 10

7/8/95 0410 - START TURN TO PORT RIG TOWED BACK TOWARD 3nm RUN-IN POSITION
0800 - TURN TO PORT FOR FINAL RUN ON TO #7 ± DROP POINT. WX CONDITIONS ABATED.
* 0950 - DROP #7 ± AS RIG RUNS TO LOCATION. 1044 - RIG OVER LOCATION, STOP PAYOUT ON #7 ±.
1045 - STOP FIXING + LOGGING. 1152 - RUNNING #2 ±, (BONAVISTA). 1205 - RADAR FIX ON #2 ±
1241 - RUNNING #3 ± (LADY DAWN) 1255 - RADAR FIX ON #3 ±, #2 PENANT PASSED BACK. 1342 - #3
PENANT PASSED BACK 1413 - RUNNING #6 ± (LADY DAWN) 1422 - RADAR FIX ON #6 ± 1425 - #1 PENANT
PASSED TO BONAVISTA. 1445 - #1 PENANT PARTED. 1505 - PENANT PASSED TO L.DAWN. 1520 - RUNNING
#5 ±. 1530 - RADAR FIX ON #5 ± 1545 - #8 PENANT TO BONAVISTA 1555 - RUNNING #8 ±.
1611 - RADAR FIX ON #8 ± 1630 - #4 PENANT TO LADY DAWN. 1640 - RUNNING #4 1655 - RADAR FIX
ON #4 ± 1710 - #1 ± LOWERED TO SEABED, UNDER FAIRLEAD. 1745 - MOVE OFF LOCATION TO LAY OUT
#1 ±. 1900 - BONAVISTA GRAPPLING #1 ± 1945 - #1 ± ON DECK. 2000 - MOVING RIG BACK OVER
LOCATION. 2045 - START TENSIONING ±'s. 2100 - RUNNING #1 2140 - AT #1. 2214 - RADAR FIX ON #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 _____ SURVEYOR/~~ENGINEER~~

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature W. Edmonds. CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P241

RAC^L SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

A2422-04

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP | Job No : A2422 | Date : 8/8/95 | Vessel : OCEAN BOUNTY | Anchors / Tpdrs

RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp
SKYFIX	✓		STD 12 / VELOCITY PROBE		
SYLEDIS			ECHO SOUNDER (20/25)		
MICROFIX			SIDESCAN (595/531/PINGER)		
ARGO			BOOMER (DELPH/EPC)		
GNS	✓		SPARKER (DELPH/EPC)		
GYRO	✓		CORING (GRAVITY/GRAB)		
TRIMBLE SST'S			THEODOLITE/EDM		
TELEMETRY			UNDERWATER TRACKING		
SONARDYNE COMPATTS			LANDSTAR	✓	
SONARDYNE PAN					
SONARDYNE(Dunker/Winch/Fish)					

RACAL Personnel: L. KEMP; D. BELL

CLIENT Personnel: B. EDMONDS

Consummables	USED	REMAIN	Laid	Recovered
ITEM				
SIDESCAN PAPER				
E/SOUNDER PAPER				
ELICS PAPER				
DISKS				
PRINTER CART.				
EPC ROLLS				

DIARY OF OPERATIONS: EST = UTC + 10

8/8/95

0240 - FINISH PRE-TENSIONING ±'s ±4 & ±8 WERE ONLY ±'s HOLDING. 6 ±'s WILL NEED TO BE PIGGY BACKED. LADY DAWN PREPARED FOR PIGGY BACK DEPLOYMENT. 0400 - BONAVISTA DEPARTS LOCATION FOR PORTLAND. 0510 - LADY DAWN STRIPPING BACK #3 ± 0524 - L. DAWN AT #3 MAIN ±. 0614 - STRETCHING OUT #3 MAIN ±. 0755 - #3 PIGGY DEPLOYED BUOY IN WATER. 1030 - L. DAWN STRIPPING OUT #2 ±. 1045 - #2 MAIN ± ON DECK, REQUIRES MAINTANENCE. 1234 - #2 PIGGY BACK ± LOWERED TO BOTTOM. 1310 - RIG MOVED CLOSER TO INTENDED LOCATION. PRE-TENSIONING OF ± #2 AND #3 ±. TENSIONS GOOD. AWAITING ARRIVAL OF PIGGY BACK ANCHORS FROM PORTLAND

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

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

Signature _____ SURVEYOR/~~ENGINEER~~

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature W. Edmonds
CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P2422

RACAL SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

A2422-05

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : A2422			Date : 9/8/95	Vessel : OCEAN BOUNTY			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables	USED	REMAIN	Laid	Recovered
SKYFIX	✓		STD 12 / VELOCITY PROBE			L. KEMP	ITEM				
SYLEDIS			ECHO SOUNDER (20/25)			D. BELL	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER				
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER				
GNS	✓		SPARKER (DELPH/EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			B. EDMONDS.					
SONARDYNE COMPATTS			LANDSTAR	✓							
SONARDYNE PAN											
SONARDYNE (Dunker/Winch/Fish)											

DIARY OF OPERATIONS: EST = UTC +10

9/8/95

0020 - START FINAL FIX 0112 - ABORTED DUE TO ADJUSTMENT TO RIG POSITION. TO ENABLE RE-ENTRY OF HOLE. 0127 - START LOGGING MULTI FIX II DATA 220-1527.GPS 0128 - START FINAL FIX FIXES OBSERVED AT 5 SEC INTERVALS, DIFFERENTIAL CORRECTIONS FROM MELBOURNE (220.3km), SYDNEY (941.6km) AND ADELAIDE (495.1km) WERE USED IN THE NETWORK SOLUTION. 0219 - END FINAL FIX - POSITION CALCULATED AND PUBLISHED TO BHP. START DEMOBILISATION. 0810 - BONAVISTA STRIPPING BACK #6 ⚓ TO DEPLOY SECONDARY #6 ⚓. * 0845 - INSTRUCTED BY BHP TO RE-MOBILISE POSITIONING EQUIPMENT - 36" HOLE MIS-ANGNED AND ABANDONED - RE-SPUDDING REQUIRED. 0930 - POSITIONING EQUIPMENT FULLY MOBILISED. LANDSTAR USED. WAIT FOR GYRO. 0942 - GYRO RUNNING, INFORM OIM THAT ALL EQUIPMENT IS OPERATIONAL. 1007 - LADY DAWN STRIPPING BACK #7 ⚓ TO DEPLOY SECONDARY #7 ⚓. 1010 - RIG MOVED OFF SAUDIN LOCATION. TEST TENSION SECONDARY ANCHORS. 1052 - RIG MOVE STOPPED - AWAIT DEPLOYMENT OF —

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

Signature _____ SURVEYOR/~~ENGINEER~~

WHITE : Commercial Office
BLUE : Operations
YELLOW : Clients Representative

Signature _____ CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P243

RACAL SURVEY AUSTRALIA LIMITED

RACAL

DAILY RECORD SHEET

CONT.

A2422-06

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

Client : BHP			Job No : A2422			Date : 9/8/95	Vessel : OCEAN BOUNTY			Anchors / Tpdrs	
RACAL Equipment on Board	Op	NonOp	RACAL Equipment on Board	Op	NonOp	RACAL Personnel	Consummables			Laid	Recovered
SKYFIX	✓		STD 12 / VELOCITY PROBE			L. KEMP	ITEM	USED	REMAIN		
SYLEDIS			ECHO SOUNDER (20/25)			D. BELL	SIDESCAN PAPER				
MICROFIX			SIDESCAN (595/531/PINGER)				E/SOUNDER PAPER				
ARGO			BOOMER (DELPH / EPC)				ELICS PAPER				
GNS	✓		SPARKER (DELPH / EPC)				DISKS				
GYRO	✓		CORING (GRAVITY / GRAB)				PRINTER CART.				
TRIMBLE SST'S			THEODOLITE / EDM			CLIENT Personnel	EPC ROLLS				
TELEMETRY			UNDERWATER TRACKING			B. EDMONDS.					
SONARDYNE COMPATTS			LANDSTAR	✓							
SONARDYNE PAN											
SONARDYNE (Dunker / Winch / Fish)											

DIARY OF OPERATIONS : EST = UTC + 10 9/8/95 CONT.

- SECONDARY ±' #6 + #7. 1125 - SECONDARY ±' DEPLOYED. 1150 - ALL ±' STORM TENSIONED LESS #5 ±. #5 ± WILL BE PIGGY BACKED AT A LATER DATE. DURING TENSIONING RIG MOVED TO SOUTH 20m FROM INTENDED LOCATION. 1155 - RIG MOVED CLOSER TO INTENDED LOCATION. 1225 - RIG APPROX 10m TO EAST OF INTENDED LOCATION. ±'s SLACKENED TO WORKING TENSION. AWAIT CONFIRMATION OF SPUD-IN BEFORE FINAL FIX IS COMENCED.

1926 - START FINAL FIX. - FIXES AT 5s INTERVALS 15° ELEVATION. - NETWORK SOLUTION ~~USED~~ WITH DIFFERENTIALS FROM MELBOURNE (220.3km), SYDNEY (941.6km) AND ADELAIDE (495.1 km)

2030 - STOP FINAL FIX - COMPUTE FINAL DRILLSTEM POSITION. START TO DEMOBILISE POSITIONING EQUIPMENT 2145 - ALL POSITIONING EQUIPMENT DEMOBILISED AND PACKED IN BHP CONTAINER

10/8/95 - 1130 - SURVEY PERSONNEL DEPART RIG FOR MELBOURNE.

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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 W. Edmonds. CLIENTS REPRESENTATIVE

CMPN 1 / PE900615 / P244

APPENDIX D

GNS SYSTEM SET-UP PARAMETERS

Ready Use Data (Stored on disc GN5309) on 9 Aug 1995 at 20:49:48

Job Number: 2422 Description: OCEAN BOUNTY TO CHARPION-1 FOR BHP

Spheroidal Data

Spheroid :- AUST NAT (84)
Eccentricity ^2= 0.006694542
Semi-major axis= 6378160.000 Metres

Projection Parameters UTM/TM

Grid scale const = 0.9996000
Unit Conv. Factor = 1.0000000
False Easting = 500000.00 Metres
False Northing = 10000000.00 Metres
Central Meridian =141 DEG 00 MIN 00.000 SEC E
Lat of Origin = 00 DEG 00 MIN 00.000 SEC

System Type Definition

A ONAUN
B Not Defined
C Not Defined
D Not Defined

Spheroid Data :- System Type A ONAUN
Name : WGS 84
Semi Axis : 6378137.00 metres
Eccentr^2 : .00669438
Parameter Shifts :- to AUST NAT (84) Spheroid
DX : +116.000 in Metres
DY : +50.470 -"-
DZ : -141.690 -"-
Rotation (X) : +.2300 in seconds
(Y) : +.3900 in seconds
(Z) : +.3440 in seconds
Scaling (ppm) : -.0983

Station Data for System Type B : Not Defined
No Station Data

Station Data for System Type C : Not Defined
No Station Data

Station Data for System Type D : Not Defined
No Station Data

Pattern Corrections and Standard Deviations

System A ONAUN
C-O Corrections :-
Latit. +0.000 Secs
Long. +0.000 Secs
Height +0.000 M

System B Not Defined
No Data

System C Not Defined
No Data

Pattern Corrections and Standard Deviations

System D Not Defined
No Data

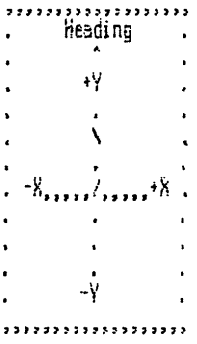
Mobile System Assignments

Sys	Mobile	System Type	Status
1	OCEAN BOUNTY	ONAUN	ON

Receiver Pattern Codes

Sys 1 OCEAN BOUNTY
ONAUN
Receiver1
ON
Geogs 1

```
    X       Y    Height
  +0.00   +0.00   +0.00
```



* WARNING ! Offset for System 1 Receiver 1 outside of OCEAN BOUNTY shape. **

Offset 1=\ Offset 2=/

Winch Offsets (X,Y)

```
 -39.3   +12.6
 -39.3   +16.6
 +39.3   +16.6
 +39.3   +12.6
 +39.3   -12.6
 +39.3   -16.6
 -39.3   -16.6
 -39.3   -12.6
  +0.0    +0.0
  +0.0    +0.0
  +0.0    +0.0
  +0.0    +0.0
```

Laser System

Laser 1 : Not Selected Laser 2 : Not Selected

Laser Stns set-up as 'MOBILE' Stations -
X,Y based on Local Metric grid (as with Antenna offsets)

#	X	Y	Desc	
1	0.00	0.00	DATUM	
1	0.00	35.80	RADAR	** WARNING ! Offset outside of vessel shape. **

Receiver Interface Addresses

OCEAN BOUNTY:-
Sys 1 BNAUN
Rx 1 : 3201

P = Prioritised Receiver : 2 seconds.

Peripheral Interface Addresses

Inputs	Outputs	
SOKKIA 1	Link to TUGNAV	
SOKKIR 2	Link to GRREP	3202
Time Sync	Shell QC Output	
Fish Depth/Hdg	C-O Output	
	ROV Overlay	
	Nav. Echo	
	Grid Position	
	Mobile Position	
	USBL Cal. Link	
	UTS System	
	KP Output	
	Ulvertech Scanner	
	Pseudo Nav String	
	PEP-CTD Output	

Comms Configuration

Digiboard 1: Addresses 3201 - 3208

Addr	Baud	Data Bits	Parity	Stop Bits	Term Char	Term Count
3201	9600	8	NONE	1	10	0
3202	9600	8	NONE	1	10	0
3203	9600	8	NONE	1	10	0
3204	9600	8	NONE	1	10	0
3205	9600	8	NONE	1	10	0
3206	9600	8	NONE	1	10	0
3207	9600	8	NONE	1	10	0
3208	9600	8	NONE	1	10	0

Digiboard 2: Addresses 3301 - 3308

Not Interfaced

Digiboard 3: Addresses 3401 - 3408

Not Interfaced

Digiboard 4: Addresses 3501 - 3508

Not Interfaced

Comms Ports 1 and 2 : Addresses 9 and 11

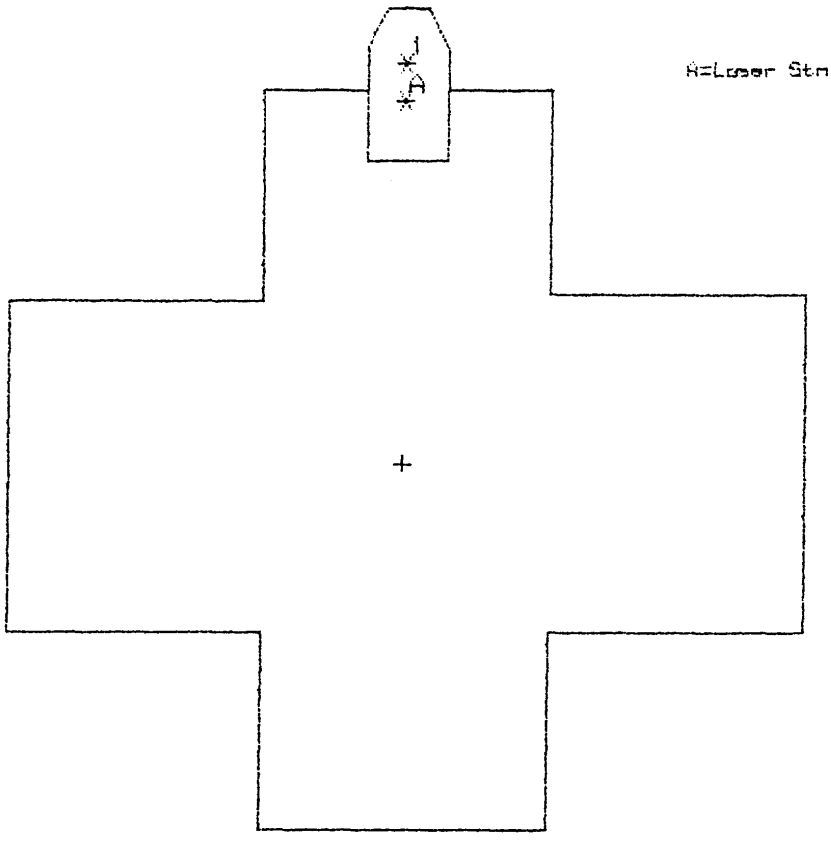
Addr	Baud	Data Bits	Parity	Stop Bits	Term Char	Term Count
9	19200	8	NONE	1	10	0
11	9600	8	NONE	1	10	0

Shape Definition: OCEAN BOUNTY

Antennae Positions

1=Sys1,Recvr1

A=Laser Stn 1 RADAR



Scale: ——— = 10 grid units

CURRENT OFFSET Posn : DRILL STEM
+0.00 X, +0.00 Y

Waypoint Co-ordinates:

1	CHAMPION-1	E	620997.30	N	5733046.50
2	3nm START	E	627721.00	N	5734821.00
3	No. 7 ANCHOR	E	10.00	N	10.00
4	CONAN-1 DGPS	E	654520.90	N	5696035.94
5	1ST SPUD	E	10.00	N	10.00

4 ANC-7 TO CHAMPION-1 0.000 622351.00, 5733422.00 620997.00, 5733046.00

Anchor Co-ordinates (Drop):

Main anchors:-					First back-up:-					Second back-up:-				
Anchor: 1	E	621343.13	N	5731641.87	Anchor: 1A		Undefined			Anchor: 1B		Undefined		
Anchor: 2	E	620537.23	N	5731737.06	Anchor: 2A	E	620499.00	N	5731622.00	Anchor: 2B		Undefined		
Anchor: 3	E	619502.32	N	5732845.99	Anchor: 3A	E	619383.00	N	5732825.00	Anchor: 3B		Undefined		
Anchor: 4	E	619653.13	N	5733515.96	Anchor: 4A		Undefined			Anchor: 4B		Undefined		
Anchor: 5	E	620592.08	N	5734475.23	Anchor: 5A		Undefined			Anchor: 5B		Undefined		
Anchor: 6	E	621309.55	N	5734385.66	Anchor: 6A	E	621337.00	N	5734502.00	Anchor: 6B		Undefined		
Anchor: 7	E	622335.00	N	5733348.00	Anchor: 7A	E	622450.00	N	5733381.00	Anchor: 7B		Undefined		
Anchor: 8	E	622329.72	N	5732680.74	Anchor: 8A		Undefined			Anchor: 8B		Undefined		
Anchor: 9		Undefined			Anchor: 9A		Undefined			Anchor: 9B		Undefined		
Anchor: 10		Undefined			Anchor: 10A		Undefined			Anchor: 10B		Undefined		
Anchor: 11		Undefined			Anchor: 11A		Undefined			Anchor: 11B		Undefined		
Anchor: 12		Undefined			Anchor: 12A		Undefined			Anchor: 12B		Undefined		

Anchor Co-ordinates (Intended):

Main anchors:-					First back-up:-					Second back-up:-				
Anchor: 1	E	621371.00	N	5731684.00	Anchor: 1A		Undefined			Anchor: 1B		Undefined		
Anchor: 2	E	620658.00	N	5731681.00	Anchor: 2A		Undefined			Anchor: 2B		Undefined		
Anchor: 3	E	619632.00	N	5732707.00	Anchor: 3A		Undefined			Anchor: 3B		Undefined		
Anchor: 4	E	619635.00	N	5733420.00	Anchor: 4A		Undefined			Anchor: 4B		Undefined		
Anchor: 5	E	620623.00	N	5734408.00	Anchor: 5A		Undefined			Anchor: 5B		Undefined		
Anchor: 6	E	621336.00	N	5734411.00	Anchor: 6A		Undefined			Anchor: 6B		Undefined		
Anchor: 7	E	622362.00	N	5733385.00	Anchor: 7A		Undefined			Anchor: 7B		Undefined		
Anchor: 8	E	622359.00	N	5732672.00	Anchor: 8A		Undefined			Anchor: 8B		Undefined		
Anchor: 9		Undefined			Anchor: 9A		Undefined			Anchor: 9B		Undefined		
Anchor: 10		Undefined			Anchor: 10A		Undefined			Anchor: 10B		Undefined		
Anchor: 11		Undefined			Anchor: 11A		Undefined			Anchor: 11B		Undefined		
Anchor: 12		Undefined			Anchor: 12A		Undefined			Anchor: 12B		Undefined		

Verified by: _____ _____ 9 Aug 1995 20:52:28
(sign) (print)

APPENDIX E

GNS FINAL FIX PRINTOUTS

DATA TRANSFER SEQUENCE TO ONLINE OPERATION COMPLETE - SNS3090

FINAL POSITION ANALYSIS: OCEAN BOUNTY TO CHAMPION-1 FOR BHP
WGS 84 Spheroid
GNS v R 309

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-Final Position A Constellation:(12,09,24,07,05,04)
19:27:05 9 Aug 1995 to 19:28:13 9 Aug 1995
No samples: 9 1 to 9
No samples used: Lat/Long 9 Height 9
P.D.O.P Minimum 3.8 Maximum 3.8
H.D.O.P Minimum 1.8 Maximum 1.8
3D error Minimum 1.0m Maximum 1.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.163 SEC S (S.D. .15m)
Longitude 142 DEG 23 MIN 22.497 SEC E (S.D. .17m)
Height 24.97 m (S.D. .79m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-final Position B Constellation:(12,09,24,07,20,05,04)
19:28:50 9 Aug 1995 to 19:33:06 9 Aug 1995
No samples: 48 10 to 57
No samples used: Lat/Long 48 Height 48
P.D.O.P Minimum 2.3 Maximum 2.4
H.D.O.P Minimum 1.3 Maximum 1.4
3D error Minimum 2.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.151 SEC S (S.D. .24m)
Longitude 142 DEG 23 MIN 22.474 SEC E (S.D. .24m)
Height 23.66 m (S.D. 1.23m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-final Position C Constellation:(12,09,24,20,05,04)
19:33:42 9 Aug 1995 to 19:35:16 9 Aug 1995
No samples: 17 58 to 74
No samples used: Lat/Long 17 Height 17
P.D.O.P Minimum 2.9 Maximum 2.9
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.156 SEC S (S.D. .63m)
Longitude 142 DEG 23 MIN 22.464 SEC E (S.D. .40m)
Height 23.12 m (S.D. 4.20m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-final Position C Constellation:(12,09,24,20,05,04)
19:33:42 9 Aug 1995 to 19:35:16 9 Aug 1995
No samples: 17 58 to 74
No samples used: Lat/Long 17 Height 17
P.D.O.P Minimum 2.9 Maximum 2.9
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.156 SEC S (S.D. .63m)
Longitude 142 DEG 23 MIN 22.464 SEC E (S.D. .40m)
Height 23.12 m (S.D. 4.20m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-final Position D Constellation:(12,20,09,05,04)
19:36:42 9 Aug 1995 to 19:38:39 9 Aug 1995
No samples: 22 75 to 96
No samples used: Lat/Long 22 Height 22
P.D.O.P Minimum 2.9 Maximum 2.9
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.185 SEC S (S.D. .35m)
Longitude 142 DEG 23 MIN 22.444 SEC E (S.D. .43m)
Height 17.45 m (S.D. 2.91m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN
Sub-final Position D Constellation:(12,20,09,05,04)
19:36:42 9 Aug 1995 to 19:39:04 9 Aug 1995

No samples: 25 75 to 99
No samples used: Lat/Long 25 Height 25
P.D.O.P Minimum 2.9 Maximum 2.9
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.183 SEC S (S.D. .40m)
Longitude 142 DEG 23 MIN 22.449 SEC E (S.D. .53m)
Height 18.24 m (S.D. 3.51m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - ONAUN
Sub-Final Position D Constellation:(12,20,09,05,04)
19:36:42 9 Aug 1995 to 19:39:04 9 Aug 1995
No samples: 25 75 to 99
No samples used: Lat/Long 25 Height 25
P.D.O.P Minimum 2.9 Maximum 2.9
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 2.0m
2D error Minimum 1.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.183 SEC S (S.D. .40m)
Longitude 142 DEG 23 MIN 22.449 SEC E (S.D. .53m)
Height 18.24 m (S.D. 3.51m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - ONAUN
Sub-Final Position E Constellation:(12,20,09,24,05,04)
19:42:11 9 Aug 1995 to 20:11:19 9 Aug 1995
No samples: 309 100 to 408
No samples used: Lat/Long 309 Height 309
P.D.O.P Minimum 2.5 Maximum 2.8
H.D.O.P Minimum 1.3 Maximum 1.5
3D error Minimum 0.0m Maximum 1.0m
2D error Minimum 0.0m Maximum 1.0m
Latitude 38 DEG 32 MIN 29.170 SEC S (S.D. .50m)
Longitude 142 DEG 23 MIN 22.478 SEC E (S.D. .37m)
Height 22.21 m (S.D. 1.41m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - ONAUN
Sub-Final Position F Constellation:(12,20,09,24,06,05,04)
20:11:56 9 Aug 1995 to 20:18:00 9 Aug 1995
No samples: 60 409 to 468
No samples used: Lat/Long 60 Height 60
P.D.O.P Minimum 2.2 Maximum 2.2
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 38 DEG 32 MIN 29.182 SEC S (S.D. .31m)
Longitude 142 DEG 23 MIN 22.487 SEC E (S.D. .26m)
Height 23.42 m (S.D. .70m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - ONAUN
Sub-Final Position G Constellation:(20,09,24,06,05,04)
20:18:36 9 Aug 1995 to 20:19:21 9 Aug 1995
No samples: 8 469 to 476
No samples used: Lat/Long 8 Height 8
P.D.O.P Minimum 3.0 Maximum 3.0
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 1.0m
2D error Minimum 0.0m Maximum 0.0m
Latitude 38 DEG 32 MIN 29.176 SEC S (S.D. .16m)
Longitude 142 DEG 23 MIN 22.479 SEC E (S.D. .24m)
Height 25.28 m (S.D. .46m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - ONAUN
Sub-Final Position G Constellation:(20,09,24,06,05,04)
20:18:36 9 Aug 1995 to 20:19:21 9 Aug 1995
No samples: 8 469 to 476
No samples used: Lat/Long 8 Height 8
P.D.O.P Minimum 3.0 Maximum 3.0
H.D.O.P Minimum 1.6 Maximum 1.6
3D error Minimum 1.0m Maximum 1.0m
2D error Minimum 0.0m Maximum 0.0m
Latitude 38 DEG 32 MIN 29.176 SEC S (S.D. .16m)
Longitude 142 DEG 23 MIN 22.479 SEC E (S.D. .24m)
Height 25.28 m (S.D. .46m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN

Sub-final Position 6 Constellation:(20,09,24,06,05,04)
20:18:36 9 Aug 1995 to 20:19:21 9 Aug 1995
No samples: 8 469 to 476
No samples used: Lat/Long 8 Height 8

P.D.O.P	Minimum	3.0	Maximum	3.0
H.D.O.P	Minimum	1.6	Maximum	1.6
3D error	Minimun	1.0m	Maximum	1.0m
2D error	Minimun	0.0m	Maximum	0.0m
Latitude	38 DEG 32 MIN 29.176 SEC S		(S.D.	.16m)
Longitude	142 DEG 23 MIN 22.479 SEC E		(S.D.	.24m)
Height	25.28 m		(S.D.	.46m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN

Sub-final Position H Constellation:(12,20,24,09,05,04)
20:24:20 9 Aug 1995 to 20:29:48 9 Aug 1995
No samples: 58 477 to 534
No samples used: Lat/Long 58 Height 58

P.D.O.P	Minimum	2.4	Maximum	2.4
H.D.O.P	Minimum	1.3	Maximum	1.3
3D error	Minimun	1.0m	Maximum	1.0m
2D error	Minimun	0.0m	Maximum	0.0m
Latitude	38 DEG 32 MIN 29.141 SEC S		(S.D.	.16m)
Longitude	142 DEG 23 MIN 22.532 SEC E		(S.D.	.18m)
Height	24.47 m		(S.D.	.44m)

PRIMARY COMPUTATION CONSTELLATION SUB FINAL POSITION - DNAUN

Sub-final Position I Constellation:(20,24,09,05,04)
20:30:24 9 Aug 1995 to 20:31:03 9 Aug 1995
No samples: 8 535 to 542
No samples used: Lat/Long 8 Height 8

P.D.O.P	Minimum	3.1	Maximum	3.1
H.D.O.P	Minimum	1.5	Maximum	1.5
3D error	Minimun	1.0m	Maximum	1.0m
2D error	Minimun	0.0m	Maximum	0.0m
Latitude	38 DEG 32 MIN 29.155 SEC S		(S.D.	.16m)
Longitude	142 DEG 23 MIN 22.544 SEC E		(S.D.	.18m)
Height	24.58 m		(S.D.	.18m)

Analysis data stored to file ANAL3

FINAL POSITION ANALYSIS: OCEAN BOUNTY TO CHAMPION-1 FOR BHP
GNS v R309 19:27:05 9 Aug 1995 to 20:31:03 9 Aug 1995
GPS Weighting Option - Constellations given equal weights
Mean Corrected Gyro...224.2 Gyro Correction... +0.0
Mean Grid Heading.....225.1 Convergence..... -0.865

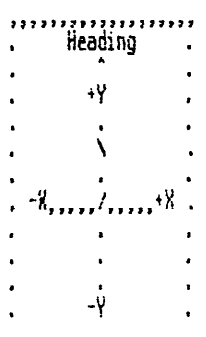
Antennae/Transducer/Beacon/Target Offsets

System 1 GNAVN
for OCEAN BOUNTY
Receiver 1

X	Y	Height
+0.00	+39.47	+22.26

Receiver 2

X	Y	Height
+0.00	+0.00	+0.00



* WARNING ! Offset for System 1 Receiver 1 outside of OCEAN BOUNTY shape. **

Offset 1=\ Offset 2=/

PRIMARY COMPUTATION - GNAVN

CONSTELLATIONS USED

Const.	# Samples	S.V.s
A	9	12,09,24,07,05,04
B	48	12,09,24,07,20,05,04
C	17	12,09,24,20,05,04
D	25	12,20,09,05,04
E	309	12,20,09,24,05,04
F	60	12,20,09,24,06,05,04
G	8	20,09,24,06,05,04
H	58	12,20,24,09,05,04
I	8	20,24,09,05,04

Total number of samples used = 542

INTENDED FINAL DATUM LOCATION
AUST NAT (84) Spheroid
Latitude 38 DEG 32 MIN 33.512 SEC S
Longitude 142 DEG 23 MIN 18.243 SEC E
UTM/TM
Eastings 620997.30 Metres
Northings 5733046.50 Metres

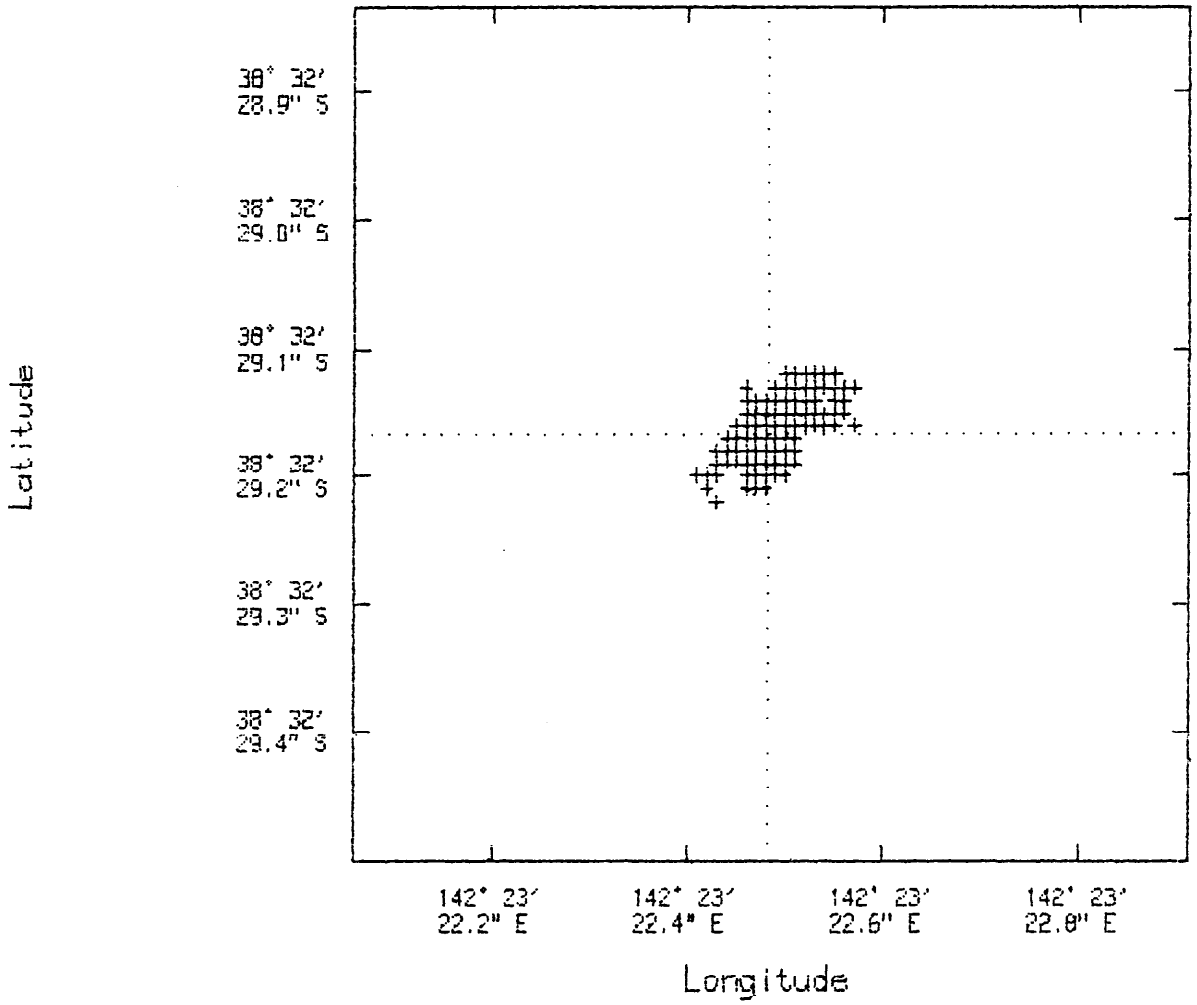
COMPUTED FINAL ANTENNA POSITION
WGS 84 Spheroid
Latitude 38 DEG 32 MIN 29.164 SEC S (S.D. .12 Metres)
Longitude 142 DEG 23 MIN 22.489 SEC E (S.D. .11 Metres)
Height 23.33 Metres (S.D. .66 Metres)

AUST NAT (84) Spheroid
Latitude 38 DEG 32 MIN 34.461 SEC S
Longitude 142 DEG 23 MIN 17.527 SEC E
Height 40.48 Metres
UTM/TM
Eastings 620979.53 Metres
Northings 5733017.50 Metres

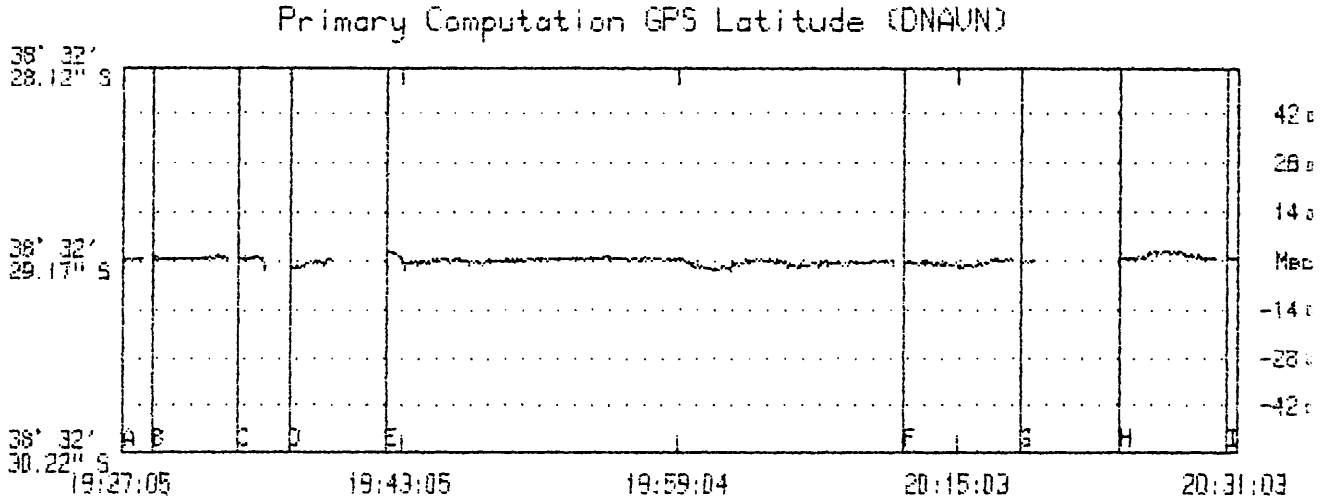
COMPUTED FINAL DATUM POSITION
AUST NAT (84) Spheroid
Latitude 38 DEG 32 MIN 33.544 SEC S
Longitude 142 DEG 23 MIN 18.664 SEC E
UTM/TM
Eastings 621007.48 Metres
Northings 5733045.38 Metres

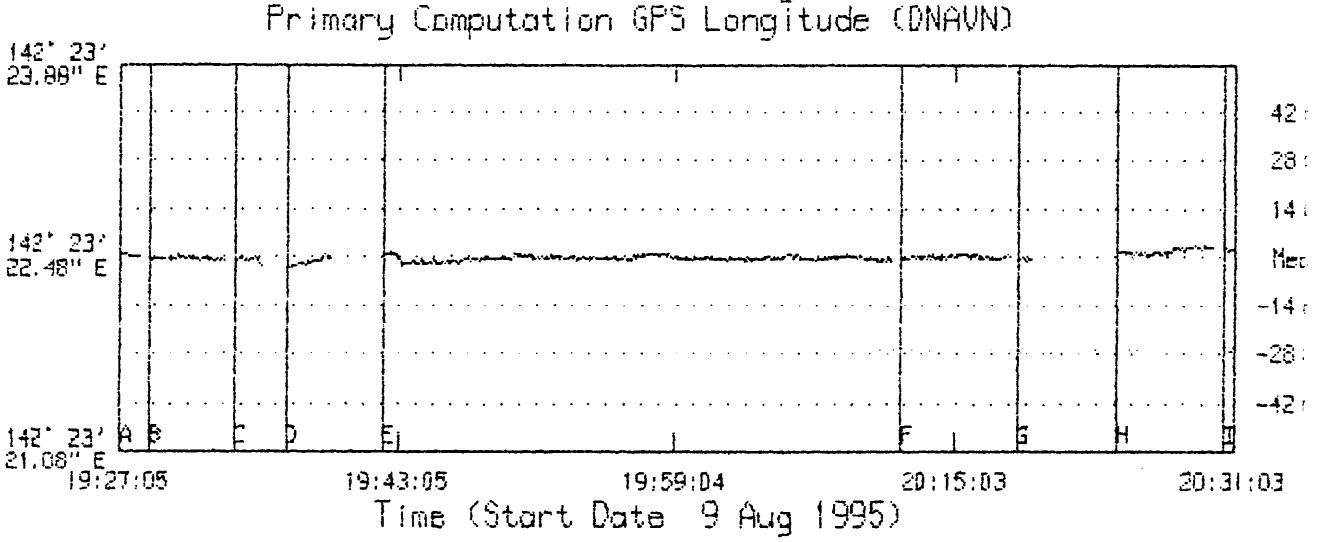
Final Datum Position is 10.24 Metres (spheroidal distance) bearing 095.43 T from the Intended Loc.

Primary Computation GPS Scatter Plot (DNAUN)

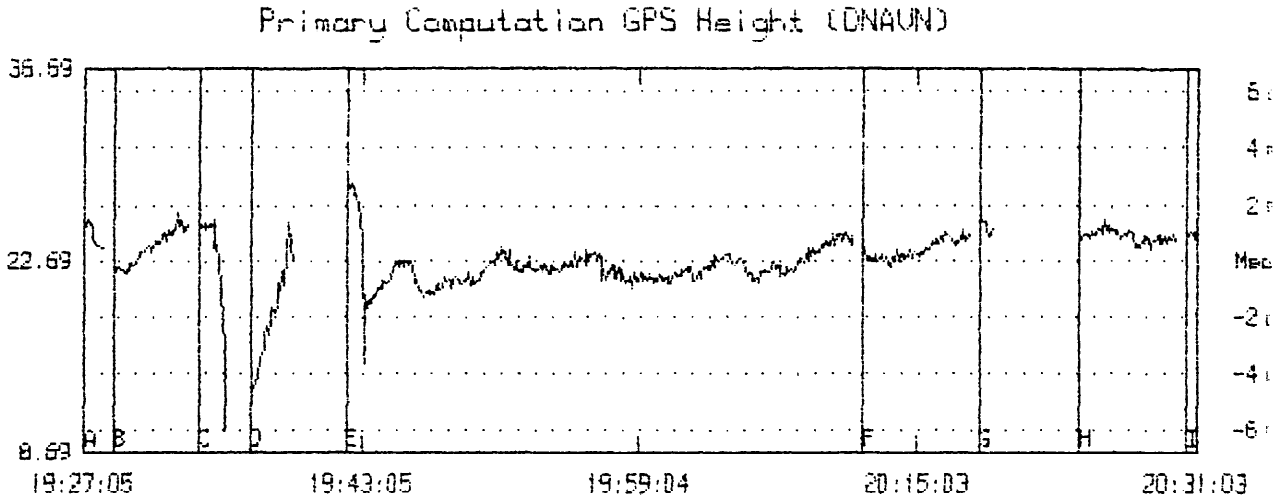


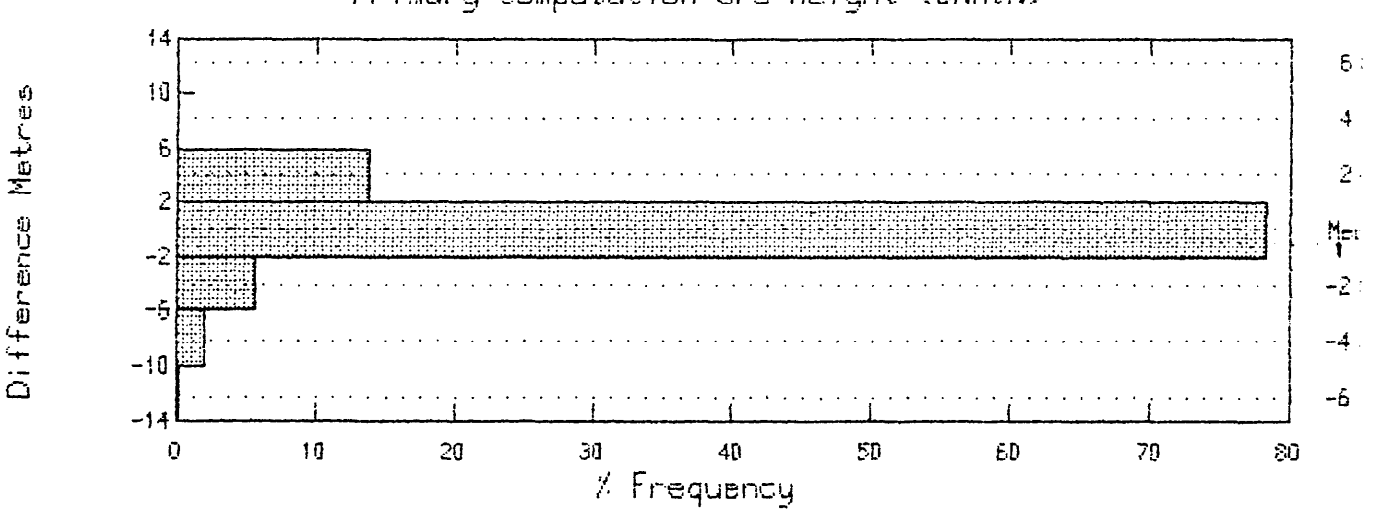
Centred on mean antenna position (passes 1 to 542).
WGS 84 Spheroid
Latitude 38 DEG 32 MIN 29.167 SEC S
Longitude 142 DEG 23 MIN 22.484 SEC E



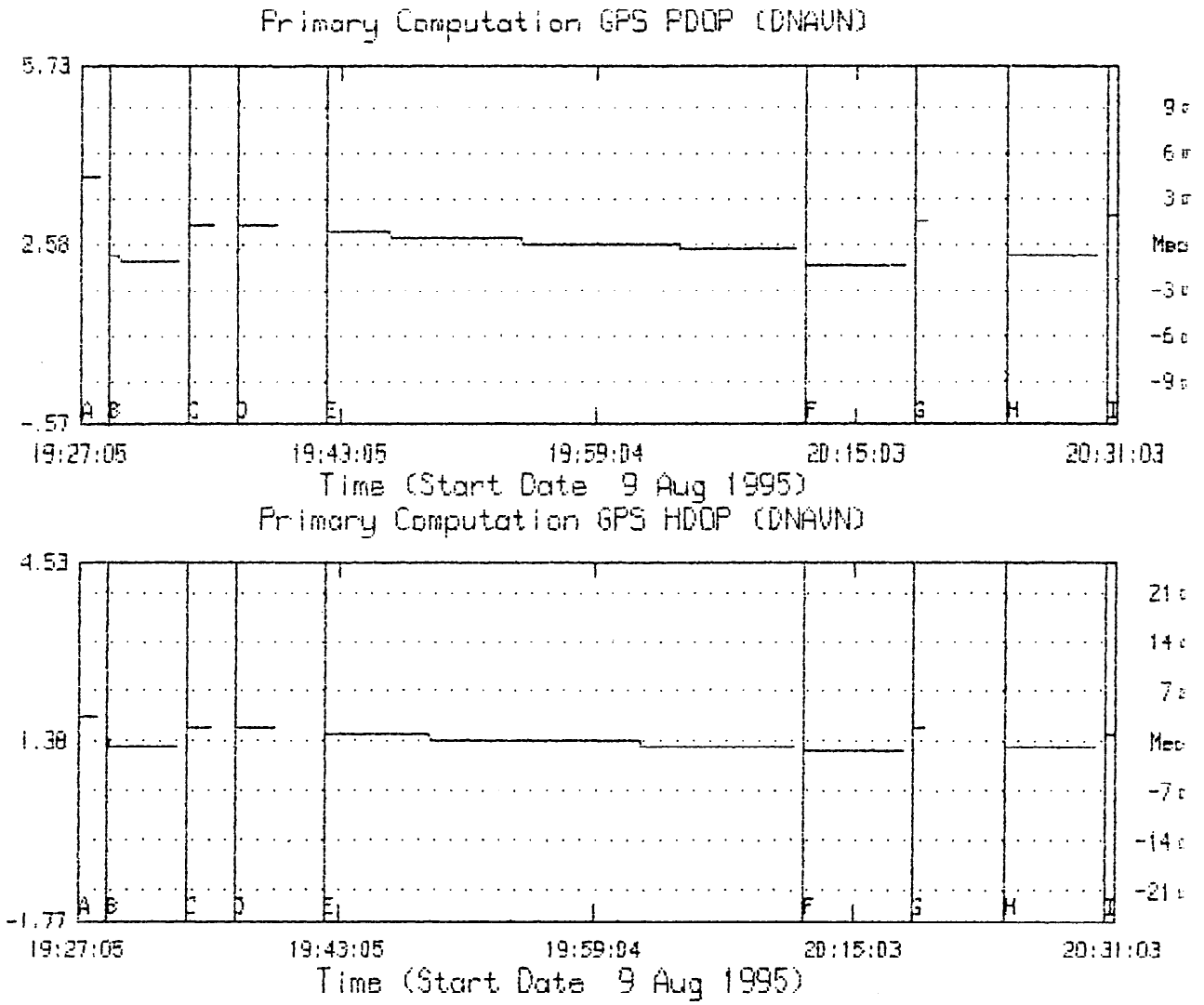


Primary Computation (WGS 84 - DNAUN)
Centred on mean of antenna position (passes 1 to 542).
Latitude 38 DEG 32 MIN 29.167 SEC S Sd .586 Metres
Longitude 142 DEG 23 MIN 22.484 SEC E Sd .608 Metres

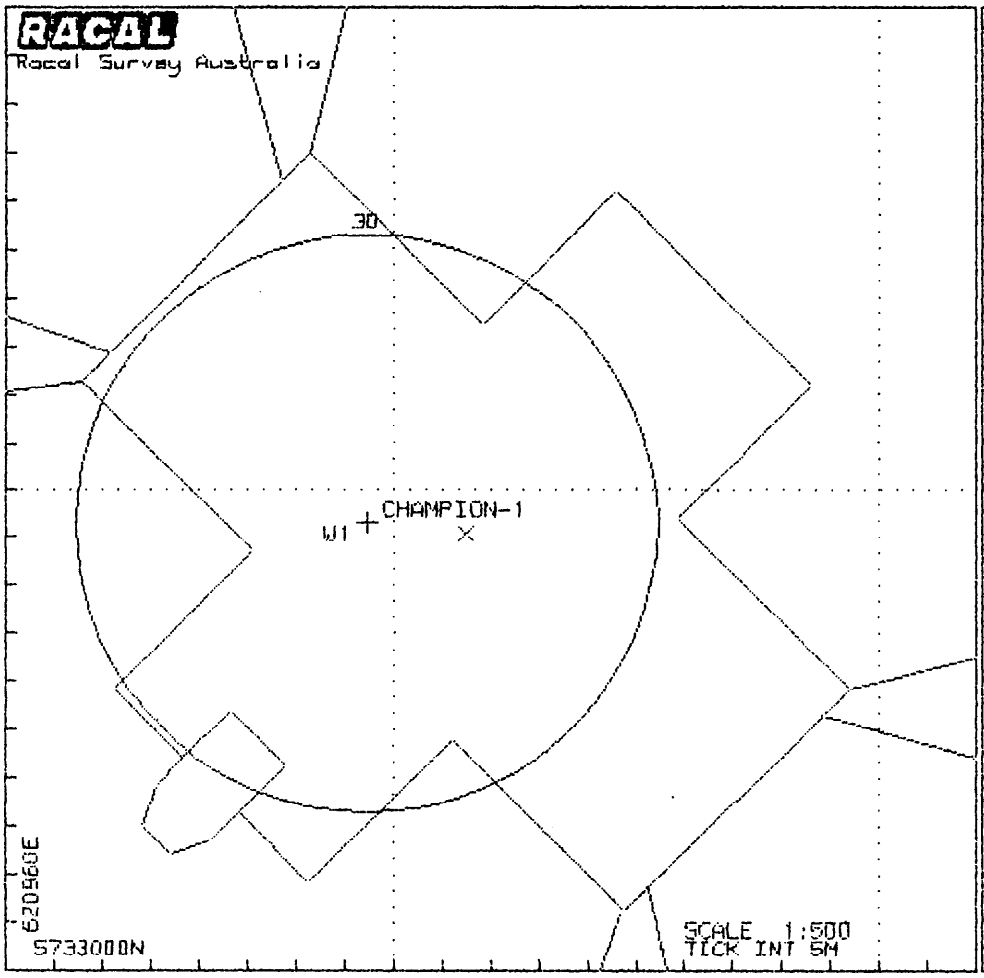




Primary Computation (WGS 84 - DNAUN)
Centred on mean of antenna position (passes 1 to 542).
Height +22.69 Sd 2.049 Metres



Primary Computation (WGS 84 - DNAUN)
Centred on mean of antenna position (passes 1 to 542).
PDOP 2.6 Sd .269
HDOP 1.4 Sd .125



20:45:38 9 Aug 95
OCEAN BOUNTY
DRILL STEM
E 621007.48
N 5733045.38

@ 038 32 33.54S
λ 142 23 18.66E

Hdg 224.2 T

CHAMPION-1 #1
Wp R 10.2 M
Wp B 275.4 T

#	R(F)	B(T)
A1	4603	166.1
A2	4458	200.1
A3	4060	260.0
A4	4570	288.1
A5	4752	343.2
A6	4393	012.9
A7	4353	075.2
A8	4368	104.2

Enclosures

Enclosure 1 **Dual Propagation Resistivity, Gamma Ray Logs (Scales 1:200, 1:500 and 1:1000)**

PE600538

This is an enclosure indicator page.
The enclosure PE600538 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600538 has the following characteristics:

ITEM_BARCODE	PE600538
CONTAINER_BARCODE	PE900615
NAME	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:200
BASIN	Otway
PERMIT	*
TYPE	WELL
SUBTYPE	WELL_LOG
DESCRIPTION	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:200
REMARKS	
DATE_CREATED	8/15/95
DATE_RECEIVED	8/30/95
W_NO	W1139
WELL_NAME	Champion 1
CONTRACTOR	Baker Hughes
CLIENT_OP_CO	BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600539

This is an enclosure indicator page.
The enclosure PE600539 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600539 has the following characteristics:

ITEM_BARCODE	PE600539
CONTAINER_BARCODE	PE900615
NAME	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:500
BASIN	Otway
PERMIT	*
TYPE	WELL
SUBTYPE	WELL_LOG
DESCRIPTION	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:500
REMARKS	
DATE_CREATED	8/15/95
DATE_RECEIVED	8/30/95
W_NO	W1139
WELL_NAME	Champion 1
CONTRACTOR	Baker Hughes
CLIENT_OP_CO	BHP

(Inserted by DNRE - Vic Govt Mines Dept)

PE600540

This is an enclosure indicator page.
The enclosure PE600540 is enclosed within the container PE900615 at this location in this document.

The enclosure PE600540 has the following characteristics:

ITEM_BARCODE	PE600540
CONTAINER_BARCODE	PE900615
NAME	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:1000
BASIN	Otway
PERMIT	*
TYPE	WELL
SUBTYPE	WELL_LOG
DESCRIPTION	Champion 1 Enclosure Dual Propagation Resistivity, Gamma Ray 1:1000
REMARKS	
DATE_CREATED	8/15/95
DATE_RECEIVED	8/30/95
W_NO	W1139
WELL_NAME	Champion 1
CONTRACTOR	Baker Hughes
CLIENT_OP_CO	BHP

(Inserted by DNRE - Vic Govt Mines Dept)