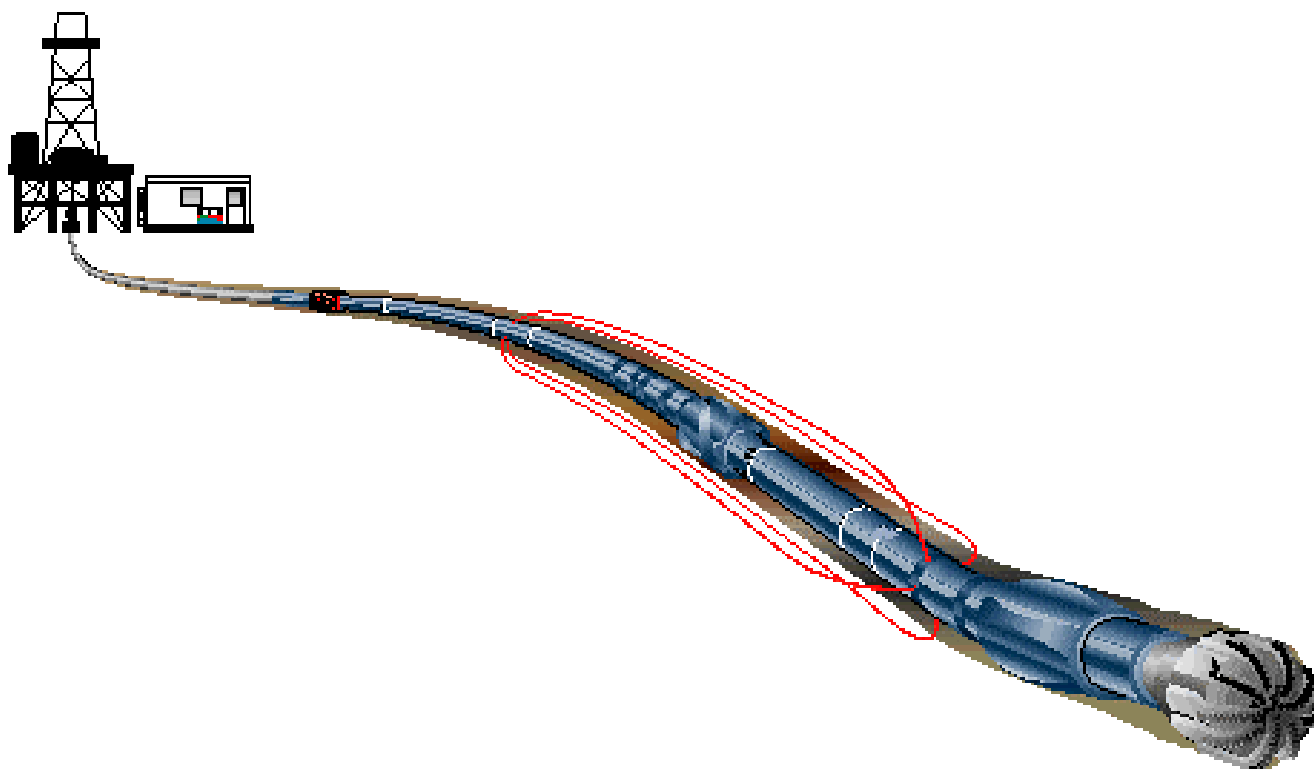




Geographe-1

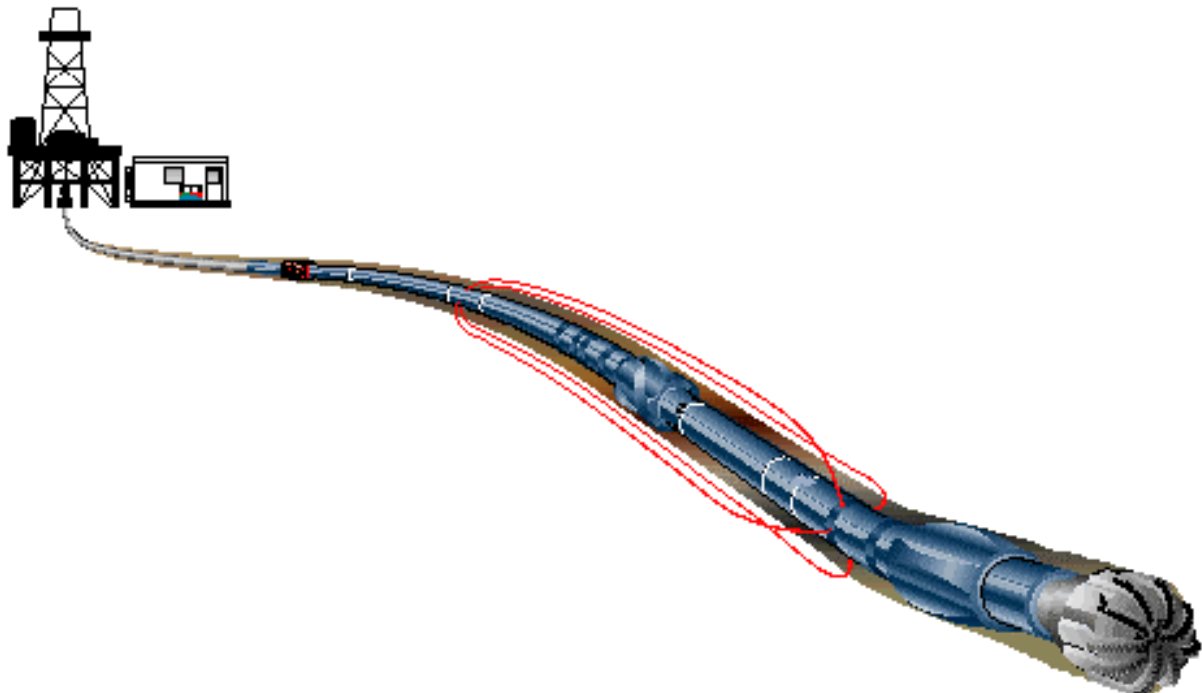
MWD – LWD End of Well Report



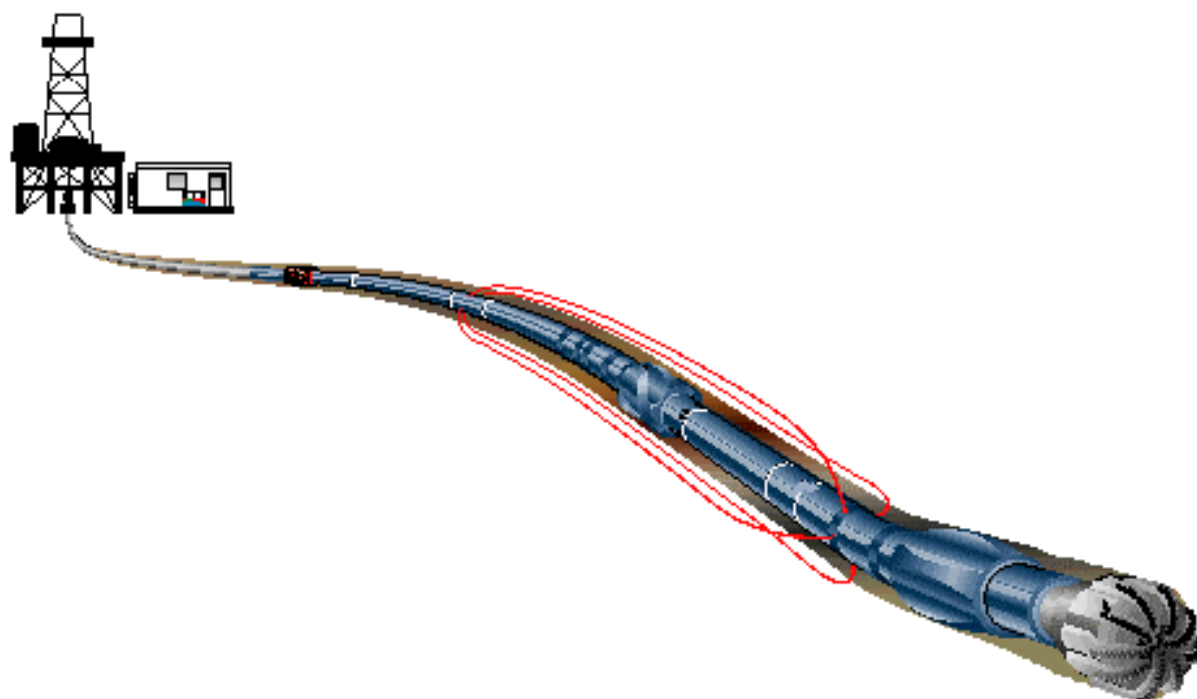
End of Well Report for Geographe-1

Contents

- General Information
- Logging Overview
- Geomagnetic and Survey Reference Criteria
- Survey Report
- Motor Run Summary
- Bit Run Summary
- Failure Report

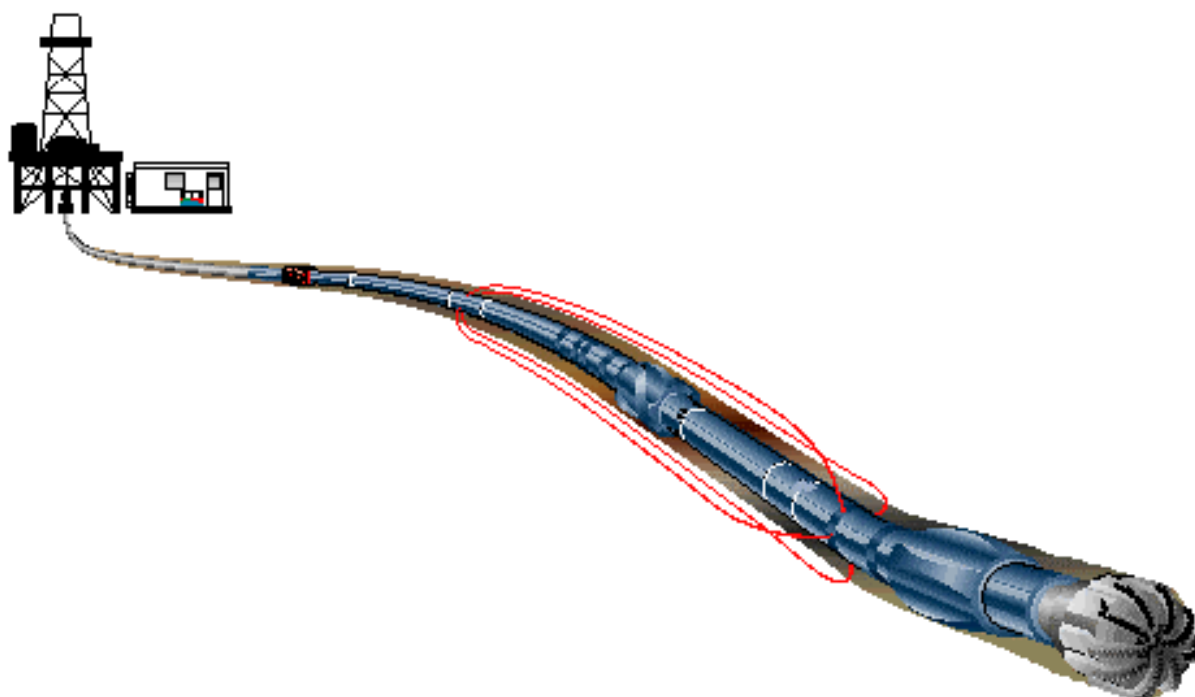


General Information

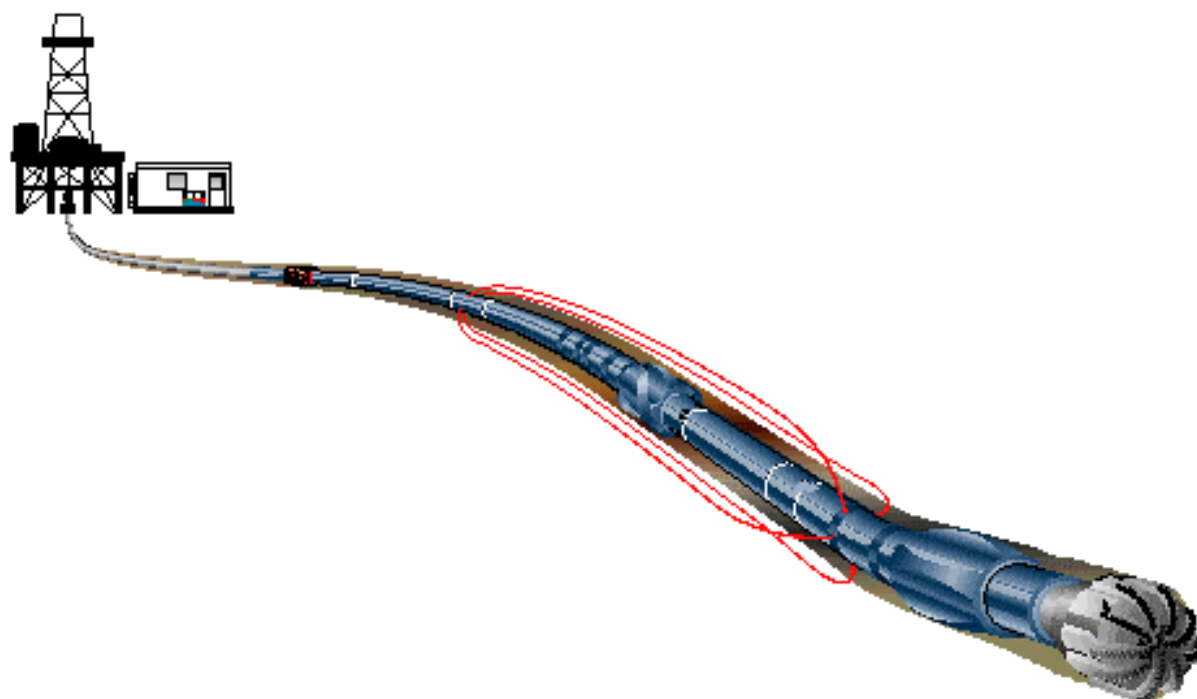


General Information

Well Name:	Geographe-1	
Rig:	Diamond Offshore Ocean Bounty	
Field:	Exploration / Permit VIC/P43	
Location:	Otway Basin, Offshore Victoria	
Country:	Australia	
Cell Members:	Lee Muskett	LWD Engineer
	Anthony Strahan	LWD Engineer
Town Contacts:	Ike Nitis	Location Manager - Australia
	Patrick Dassens	Engineer In Charge - Victoria
Company Representatives:	Dennis Bell	



Logging Overview



Logging Overview

8 ½" Section:

Schlumberger Drilling and Measurements provided MWD and LWD services using the PowerPulse and ARC6 tools in the 8 ½" section of Geographe-1. The PowerPulse was installed with an IWOB sensor that provided real-time DWOB and DTOR data to the client, data that could be used to optimize the drilling process. The MWD/LWD real-time shock data indicated that minimal low level shocks were present while drilling the cement plugs and casing shoe, and later while in the sands, but they were not deemed to be excessive and of no modifications to the drilling parameters were required. The ARC6 was installed with an APWD (Annular Pressure While Drilling) sensor to monitor annular pressure and temperature during the drilling and reaming operations.

The 8 ½" section was rotary drilled in five runs, and logged utilizing ARC6 and PowerPulse in three runs, the second and fourth runs being cored sections from 1814m-1850m and 1907m-1915m. The following formation evaluation data was provided in real-time:

- ☐ ARC6 2MHz Phase Shift Resistivity at 3 depths of investigation
- ☐ ARC6 Gamma Ray
- ☐ ARC6 Annular Pressure and Temperature
- ☐ MWD Directional Surveys (30m intervals / as required)
- ☐ MWD downhole WOB and torque
- ☐ MWD downhole RPM and stick-slip indicator

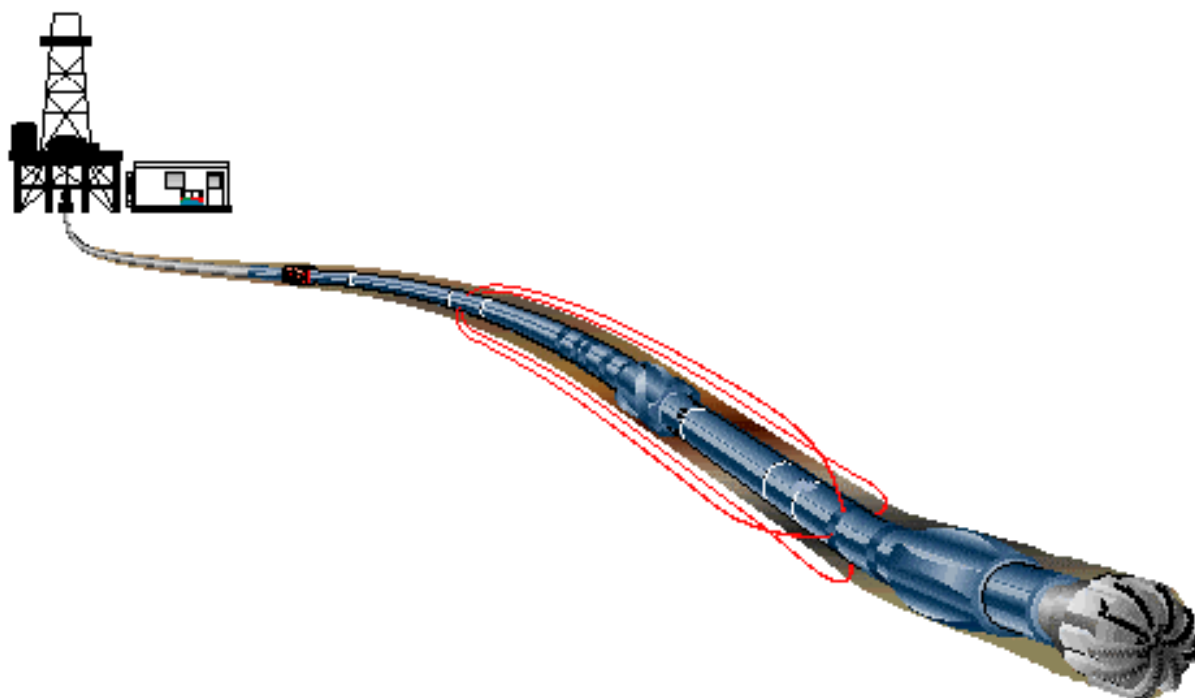
The following recorded mode formation evaluation measurements were provided once the LWD tools were on surface and the memory data retrieved:

- ☐ ARC6 2MHz Phase Shift Resistivity at 5 depths of investigation
- ☐ ARC6 2MHz Attenuation Resistivity at 3 depths of investigation
- ☐ ARC6 400kHz Phase Shift Resistivity at 5 depths of investigation
- ☐ ARC6 Gamma Ray
- ☐ ARC6 Annular Pressure and Temperature

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
1	8 ½	PowerPulse / ARC6	1666	1814
2	8 ½	PowerPulse / ARC6	1814	1907
3	8 ½	PowerPulse / ARC6	1907	2430

The MWD and LWD tools performed well throughout the 8 ½" section, and no problems were encountered. Shocks throughout the run were minimal, and of no consequence to the drilling oration or the MWD and LWD tools. Due to excessive rig heave as a result of bad weather surveying became "hit and miss" during Run3 in regards to being able to take an acceptable survey, which requires the drillstring to be stationary at the time when the survey is taken. Real-time data between 1648m and 1689m was lost due to a corrupt file within the Ideal software; however, the problem was identified at an early stage and corrected. Recorded mode data for this section was retrieved from the tool and processed without any further problems.

Geomagnetic and Survey Reference Criteria



Geomagnetic and Survey Reference Criteria

Geomagnetic Data

Magnetic Model:	BGGM version 2000
Magnetic Date:	5-June-2001
Magnetic Field Strength:	1223.19 HCNT
Magnetic Declination:	11.05 degrees
Magnetic Dip:	-70.29 degrees

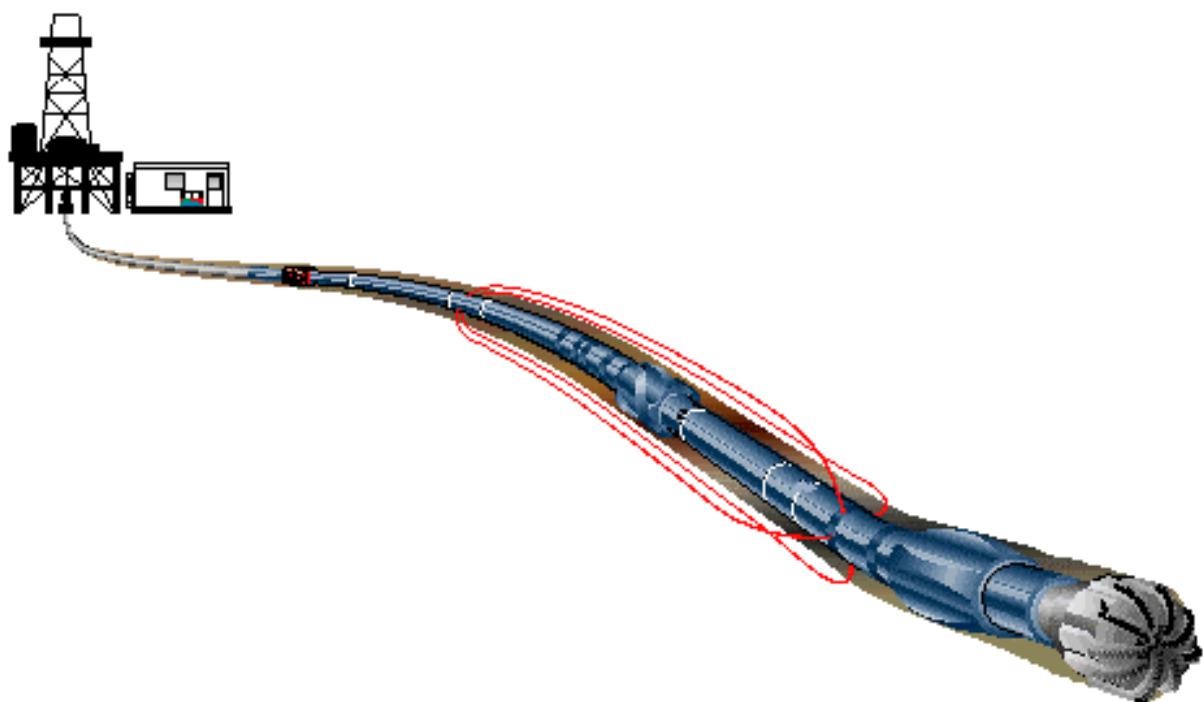
Survey Reference Criteria

Reference G:	1000.11 mgal
Reference H:	1223.19 HCNT
Reference Dip:	-70.29 degrees
G value Tolerance:	2.50 mgal
H value Tolerance:	6.00 HCNT
Dip Tolerance:	0.45 degrees

Survey Corrections Applied

Magnetic Declination:	11.05 degrees
Grid Convergence:	1.2 degrees
Total Azimuth Correction:	9.85 degrees

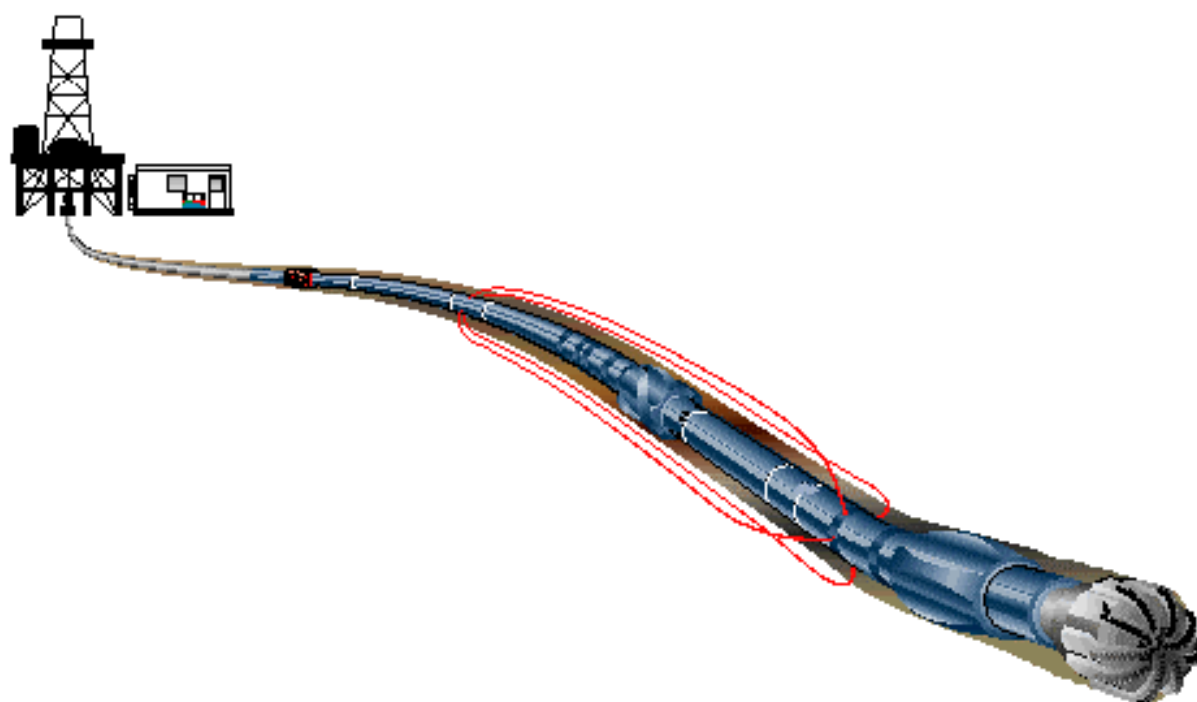
Survey Report



Survey Report

Seq #	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 10m)	Srvy tool type	Tool qual type
1	110.00	0.00	0.00	0.00	110.00	-6.20	-6.20	8.70	10.68	125.48	0.00	TIP	-
2	189.10	0.50	231.87	79.10	189.10	-6.41	-6.41	8.43	10.59	127.27	0.06	MS	-
3	218.10	0.56	238.20	29.00	218.10	-6.57	-6.57	8.21	10.51	128.66	0.03	MS	-
4	247.10	0.38	220.69	29.00	247.10	-6.71	-6.71	8.03	10.46	129.91	0.08	MS	-
5	276.10	0.35	249.81	29.00	276.10	-6.82	-6.82	7.88	10.42	130.86	0.06	MS	-
6	305.10	0.36	245.47	29.00	305.10	-6.89	-6.89	7.71	10.34	131.75	0.01	MS	-
7	334.10	0.36	242.38	29.00	334.10	-6.97	-6.97	7.55	10.27	132.69	0.01	MS	-
8	363.10	0.21	240.21	29.00	363.09	-7.03	-7.03	7.42	10.23	133.46	0.05	MS	-
9	392.10	0.28	233.99	29.00	392.09	-7.10	-7.10	7.32	10.20	134.14	0.03	MS	-
10	421.10	0.31	212.96	29.00	421.09	-7.21	-7.21	7.22	10.20	134.96	0.04	MS	-
11	450.10	0.24	173.99	29.00	450.09	-7.34	-7.34	7.18	10.27	135.60	0.07	MS	-
12	479.10	0.17	337.21	29.00	479.09	-7.36	-7.36	7.17	10.27	135.72	0.14	MS	-
13	508.10	0.22	183.67	29.00	508.09	-7.37	-7.37	7.15	10.27	135.87	0.13	MS	-
14	537.10	0.18	205.51	29.00	537.09	-7.47	-7.47	7.13	10.33	136.33	0.03	MS	-
15	560.10	0.13	125.20	23.00	560.09	-7.52	-7.52	7.14	10.36	136.49	0.09	MS	-
16	623.90	0.45	124.14	63.80	623.89	-7.70	-7.70	7.40	10.68	136.13	0.05	MS	-
17	652.80	0.42	116.52	28.90	652.79	-7.81	-7.81	7.59	10.89	135.82	0.02	MS	-
18	681.70	0.49	120.36	28.90	681.69	-7.92	-7.92	7.79	11.11	135.47	0.03	MS	-
19	710.70	0.51	109.34	29.00	710.69	-8.03	-8.03	8.02	11.35	135.02	0.03	MS	-
20	739.80	0.62	110.62	29.10	739.79	-8.12	-8.12	8.29	11.61	134.42	0.04	MS	-
21	768.70	0.79	99.81	28.90	768.69	-8.21	-8.21	8.63	11.92	133.57	0.07	MS	-
22	797.80	0.73	96.47	29.10	797.78	-8.27	-8.27	9.01	12.23	132.52	0.03	MS	-
23	826.90	0.71	102.56	29.10	826.88	-8.33	-8.33	9.38	12.54	131.61	0.03	MS	-
24	855.80	0.58	113.58	28.90	855.78	-8.43	-8.43	9.68	12.84	131.02	0.06	MS	-
25	884.70	0.50	169.10	28.90	884.68	-8.61	-8.61	9.84	13.07	131.17	0.18	MS	-
26	913.50	0.39	172.08	28.80	913.48	-8.83	-8.83	9.88	13.25	131.78	0.04	MS	-
27	942.60	0.10	201.84	29.10	942.58	-8.95	-8.95	9.88	13.33	132.16	0.11	MS	-
28	971.70	0.10	134.56	29.10	971.68	-8.99	-8.99	9.89	13.37	132.27	0.04	MS	-
29	1000.80	0.12	143.17	29.10	1000.78	-9.03	-9.03	9.93	13.42	132.30	0.01	MS	-
30	1029.90	0.19	237.08	29.10	1029.88	-9.08	-9.08	9.91	13.44	132.52	0.08	MS	-
31	1059.00	0.15	220.33	29.10	1058.98	-9.14	-9.14	9.84	13.43	132.88	0.02	MS	-
32	1088.00	0.37	305.43	29.00	1087.98	-9.11	-9.11	9.74	13.34	133.10	0.13	MS	-
33	1116.50	0.39	285.43	28.50	1116.48	-9.03	-9.03	9.57	13.16	133.35	0.05	MS	-
34	1145.50	0.43	350.19	29.00	1145.48	-8.90	-8.90	9.46	12.99	133.26	0.15	MS	-
35	1174.00	0.23	282.58	28.50	1173.97	-8.78	-8.78	9.38	12.85	133.11	0.14	MS	-
36	1203.20	0.28	267.73	29.20	1203.17	-8.77	-8.77	9.26	12.75	133.47	0.03	MS	-
37	1232.50	0.41	270.75	29.30	1232.47	-8.77	-8.77	9.08	12.63	134.02	0.04	MS	-
38	1261.70	0.56	273.94	29.20	1261.67	-8.76	-8.76	8.83	12.44	134.78	0.05	MS	-
39	1290.60	0.65	250.61	28.90	1290.57	-8.81	-8.81	8.54	12.27	135.90	0.09	MS	-
40	1319.60	0.58	232.53	29.00	1319.57	-8.95	-8.95	8.26	12.18	137.29	0.07	MS	-
41	1348.80	0.40	236.73	29.20	1348.77	-9.10	-9.10	8.06	12.16	138.45	0.06	MS	-
42	1378.00	0.44	196.58	29.20	1377.97	-9.26	-9.26	7.95	12.20	139.37	0.10	MS	-
43	1406.60	0.39	315.22	28.60	1406.57	-9.30	-9.30	7.85	12.17	139.84	0.25	MS	-
44	1435.70	0.22	329.68	29.10	1435.67	-9.18	-9.18	7.75	12.01	139.84	0.06	MS	-
45	1464.50	0.74	239.16	28.80	1464.47	-9.23	-9.23	7.56	11.93	140.67	0.27	MS	-
46	1493.00	0.49	244.45	28.50	1492.96	-9.37	-9.37	7.29	11.88	142.12	0.09	MS	-
47	1522.30	0.27	290.71	29.30	1522.26	-9.40	-9.40	7.11	11.79	142.89	0.12	MS	-
48	1551.30	0.54	354.50	29.00	1551.26	-9.24	-9.24	7.04	11.62	142.72	0.17	MS	-
49	1580.60	0.73	23.01	29.30	1580.56	-8.93	-8.93	7.10	11.41	141.54	0.12	MS	-
50	1609.70	0.52	2.07	29.10	1609.66	-8.63	-8.63	7.17	11.22	140.27	0.11	MS	-
51	1629.00	0.60	320.28	19.30	1628.96	-8.47	-8.47	7.11	11.06	139.97	0.21	MS	-
52	1644.90	0.82	304.70	15.90	1644.86	-8.34	-8.34	6.97	10.86	140.12	0.18	MS	-
53	1712.56	1.32	331.60	67.66	1712.51	-7.38	-7.38	6.20	9.63	139.96	0.10	MWD 6-axis	-
54	1771.96	2.31	281.29	59.40	1771.88	-6.54	-6.54	4.70	8.05	144.31	0.30	MWD 6-axis	-
55	1858.15	2.75	285.30	86.19	1857.98	-5.65	-5.65	1.00	5.74	169.97	0.05	MWD 6-axis	-
56	1892.08	2.74	285.94	33.93	1891.88	-5.22	-5.22	-0.56	5.25	186.18	0.01	MWD 6-axis	-
57	1982.51	3.40	279.36	90.43	1982.18	-4.19	-4.19	-5.29	6.75	231.63	0.08	MWD 6-axis	-
58	2069.37	3.67	272.00	86.86	2068.87	-3.67	-3.67	-10.61	11.23	250.91	0.06	MWD 6-axis	-
59	2217.19	4.06	267.99	147.82	2216.35	-3.69	-3.69	-20.57	20.89	259.83	0.03	MWD 6-axis	-
60	2314.68	4.18	272.34	97.49	2313.59	-3.67	-3.67	-27.57	27.81	262.43	0.03	MWD 6-axis	-
61	2430.00	4.18	272.34	115.32	2428.61	-3.32	-3.32	-35.96	36.12	264.72	0.00	MWD PROJ	-

Motor Run Summary



DOWN-HOLE MOTOR RUN REPORT

Motor Size : 9 5/8"

Serial No : 03400

Run No : 1

BHA No: 3

 Ft, Mt
Mt

Company

 Woodside Energy Ltd
152-158 St Georges Tce.
Perth, WA 6000

Well

Geographe - 1

Slot

2

Field

Geographe

Operator

Diamond Offshore

Engineer

Baynes

Date

2-Jun-01

Location

Otway Basin, Vic

Country

Australia

Bit Size

12.25"

Make

HC

Type

HC605

IADC
Jets

5 x 14

Jets
Jets
Jets
TFA

0.752

IADC CUTTING STRUCTURE
Inner Row

2

Outer Row

5

Dull Char'

BT

Location

S

Brg/Seals

E

Gauge

In

Others

WT

Reason for Trip

TD

Motor Made By

Anadrill

Size

9 5/8"

Model / Type

A962GT

Rotor/Stator

7:8

Serial No

03400

Hsg Stab OD

12 1/8"

° Bent Hsg

0.0°

° Bent Sub

N/A

Type — 1 = Straight; 2 = Steerable;

Stator Ser N°
Rotor Ser N°
Drig Cmt. Wash/Ream

1.38

1

3 = Double Bend

Drig Hrs

29.60

Circ Hrs

7.25

Total Motor Circ Hrs

38.23

Purpose of Run

 Performance drill from 605m to 1685m.
Drilling Hours are from BHI mudlogging.

BHA

 Bit 12 1/4"
Motor 12 1/8"
X/O
R. Reamer 12 1/4"
NMDC
R. Reamer 12 1/4"
DC x 8
Jars
DC x 2
X/O
HWDP x 15

Surveys
MD IN

623.9

Inclin

0.45

Azim

124.14

MD OUT

1644.9

Inclin

0.82

Azim

304.70

Flow Rate

gal/min

1000

Off Bttm psi

3375

On Bttm psi

3700

RPM

120

WOB

Tonnes

20

Mud Type

KCI PHPA

Mud Wt

1.22

SG
Mud Grad'

0.063

Vis

64

PV

27

Filtrate

3.60

% Solids

9.00

Aniline Pt
YP

38

% Oil

3

% Sand

0.80

Circ Temp

55

C

Depth In

605

Depth Out

1664

Inter'l Drld

1059

Date In

2-Jun-01

Date Out

5-Jun-01

ROP

35.78

Time In

17:30

Time Out

6:30

Time BRT

61.00

Hrs

FAILURE?

No

Slide Mts

0

Previous Hrs

45.80

Cumulative Hrs

84.03

Remarks / Failure Report.

1/ Motor was in good condition at the completion of the run.

Did Motor
Stall

Yes No

Slide Rty

Bearing Play

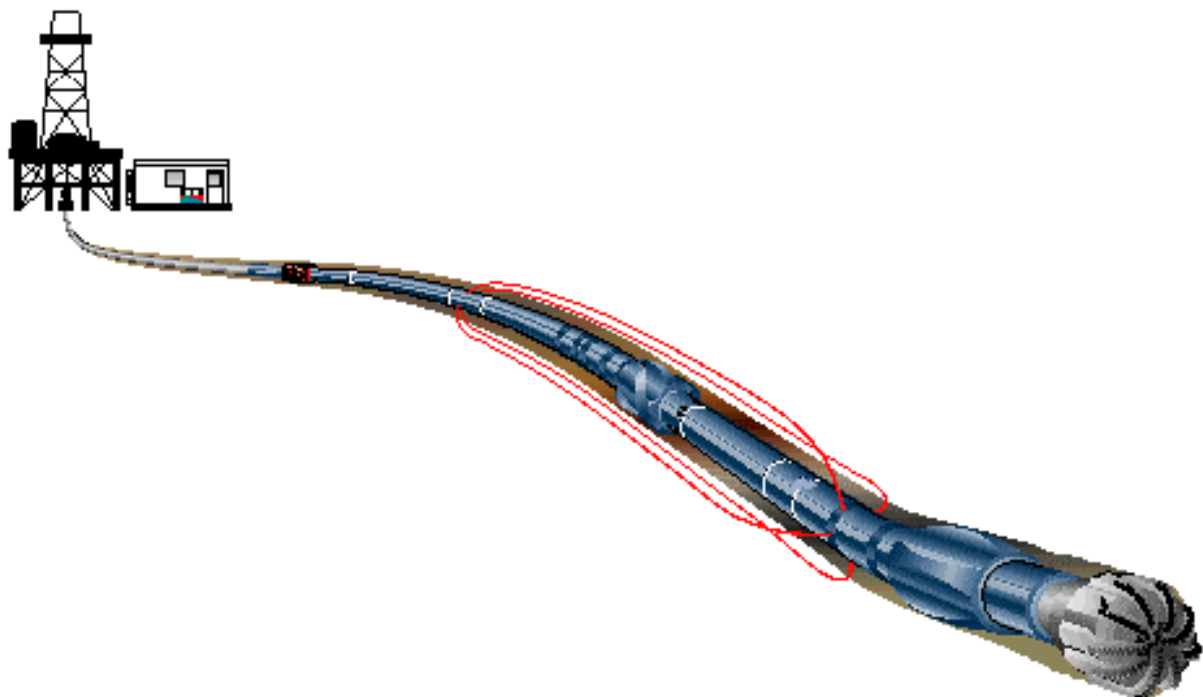
In 2 mm

Out 2 mm

Condition

As New

Bit Run Summary



Memory data from ARC provided without any problems

[illegible]

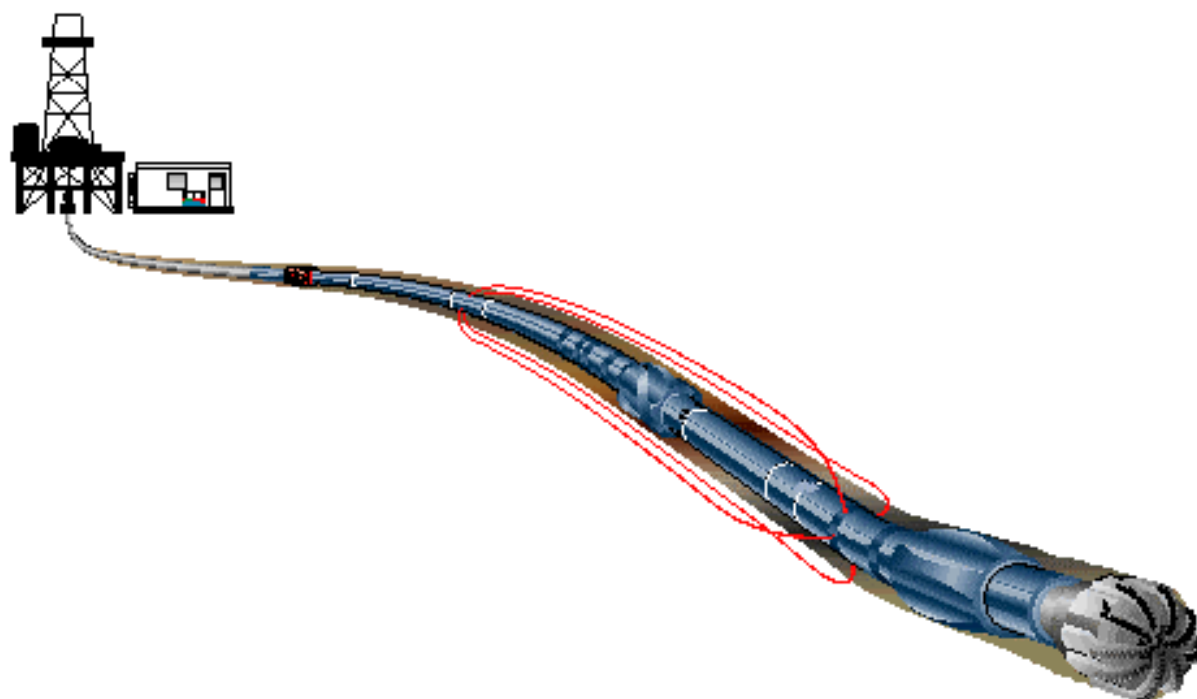
Very good signal from MWD for real-time logging data, minimal shocks recorded and good quality recorded mode logging data provided to the client.

[illegible]

Bad weather and large swells resulted in a considerable rig heave, this in turn made surveying difficult.

DATE	TIME	DEPTH	COMMENTS					BHA DESCRIPTION						
14-Jun-01	00:00	Surface	Make-up BHA					ITEM	LENGTH	OD	ID	CONN		
	00:15	Surface	ARC initialised. Config. GR/2MHz/400KHz 10secs.					PDC Bit	0.32	8.5	-	4 1/2 Reg		
			12.8hrs/MB at 52MB = 665hrs memory fill.					DOG Sub	0.18	8.5	2.25	4 1/2 Reg		
	00:30	Surface	SHT at 500gpm.					Bit Sub	0.86	6.5	Float	4 1/2 IF		
	04:00	1902	Attach geolograph to TopDrive.					X/O	0.35	6.75	3.5	5 1/2 FH		
	04:10	1902	Ream down from 1902m re.Geologist instruction					ARC6	5.48	6.75	3.5	5 1/2 FH		
			at 45m/hr. Logging 7m overlap and 8m of					ILS	1.48	6.75	3.5	5 1/2 FH		
			cored section.					X/O	0.46	6.75	3.5	5 1/2 FH		
	04:35	1915	On bottom drilling.					MWD	7.49	6.75	3.5	5 1/2 FH		
	06:15	1930	Rig heave is too large to drill full stands. Top					XO	0.50	6.75	3.5	4 1/2 IF		
			single is laid down before the next stand is					Roll.Reamer	1.58	6.75	3.5	4 1/2 IF		
			made-up to the drillstring.					PBL Sub	2.46	6.75	3.5	4 1/2 IF		
	10:30	1987	Unable to attain a good survey due to rig heave,					6 1/2 DC	9.37	6.75	3.5	4 1/2 IF		
			swells av.5-6m, max.8m.					Roll.Reamer	1.62	6.75	3.5	4 1/2 IF		
	13:00	2020	Recording consistent shocks while drilling thru					12x6 1/2 DC	112.05	6.75	3.5	4 1/2 IF		
			sands. Predominantly shock Level1 with max					Jars	9.67	6.75	3.5	4 1/2 IF		
			shock rate recorded 16sh/sec. No shocks					2x6 1/2 DC	18.75	6.5	2 13/16	4 1/2 IF		
			registered by ARC.					15xHWDP	136.78	6.5	2 13/16	4 1/2 IF		
	14:10	2040	Finished drilling through sand section. Zero											
			shocks recorded by MWD and ARC.											
	20:30	2120	Rm=0.116, Rmf=0.093, Rmc=0.210 at 20degC.											
15-Jun-01	04:20	2201	Unable to attain a good survey due to rig heave.											
			Company Man requested that we drill ahead as											
			primary target has been drilled, but continue to											
			try and obtain surveys at connection.											
	20:00	2380	Rm=0.123, Rmf=0.083, Rmc=0.248 at 22degC.											
16-Jun-01	01:20	2430	TD, circulate bottoms up, POOH.											
	01:35	2430	Unable to attain a good survey due to rig heave.											
	06:00	1648	Tight-hole, wiper trip from casing shoe.											
	15:40	Surface	Download ARC memory data in rotary table - OK.											
			Batt B usage = 15.6hrs.											

Failure Report



	FAILURE REPORT	
Schlumberger	Anadrill	

FR No. : 1

Company : Woodside Energy Ltd.	Rig : Ocean Bounty	Failure date : 11-6-2001
Well : Geographe 1	District : ASQ	Job No. : ASQ-01
Cell Mgr. : A.Strahan	Service : MWD & ARC/APWD	Run No. : 1

EQUIPMENT & SERIAL No. : IDEAL 6.1c_03 software – DRILL_1 CS DEPTH FILE
--

FAILURE DESCRIPTION & SYMPTOMS (Include software version if applicable)
<p>IDEAL 6.1c_03</p> <p>Ideal was configured at the start of the run without any problems. BHA was picked-up and RIH and acquisition started above the cement plug within the 9 5/8 casing. The real-time depth log was started as part of the Engineers and also sent to the Geologists. This displayed the real-time data without incident. After 22m of new formation had been drilled, the Engineer attempted to append the DRILL_1 file; however, an 'invalid attribute' error resulted in the operation being aborted. It was then noticed that the file was not being updated with the real-time data, and on further examination the file was found to be corrupt. The depth.txt file which records bit depth Vs time for the generation of the memory (Recorded Mode) logs was being written to as normal and unaffected.</p>
<p>Failure Group : Failure Category : Completed by : Lee Muskett Date : 11-6-01</p>

REMEDIAL ACTION ATTEMPTED ON LOCATION
<p>The DRILL_1 file was 'scanned' in the hope that this would fix the problem, however, this had no effect. Acquisition was stopped, the file removed from the well folder, and acquisition restarted. However, a new DRILL_1 file was not created.</p> <p>Finally, a new well folder was created and the key files transferred. Acquisition was started and this resulted in a new DRILL_1 file being created. This file was updated with real-time data, and was successfully appended.</p> <p>Real-time logging data was lost from the shoe (1648m) to 1689m. Recorded mode data was provided over this interval once the tools were downloaded on surface.</p>
<p style="text-align: right;">Completed by : Lee Muskett Date : 11-6-01</p>

FAILURE ANALYSIS (For completion during R&M repair)
<p style="text-align: right;">Failure Category : Completed by : Date :</p>

ACTION FOLLOW UP (For completion by FSM / DTM)
<p style="text-align: right;">Completed by : Date :</p>

<p>Always Distribute with BRS and/or BHA Summary :</p> <p>CELL File (Fax to town)</p> <p>R&M (R&M Diagnosis ➡⚡ Maintenance file)</p> <p>R&M (R&M Diagnosis ➡⚡ CELL)</p> <p>FSM (Action plan ➡⚡ UNIT)</p> <p>NOTE: Failure reports must also be sent in with failed equipment.</p>	<p>CHECK LIST:</p> <p>Anadrill Management notified? <input type="checkbox"/></p> <p>Equipment marked RONG ? <input type="checkbox"/></p> <p>Full function test after repair ? <input type="checkbox"/></p> <p>History card filled in ? <input type="checkbox"/></p> <p>This FR returned to CELL ? <input type="checkbox"/></p> <p>Any calibration data to attach ? <input type="checkbox"/></p>
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