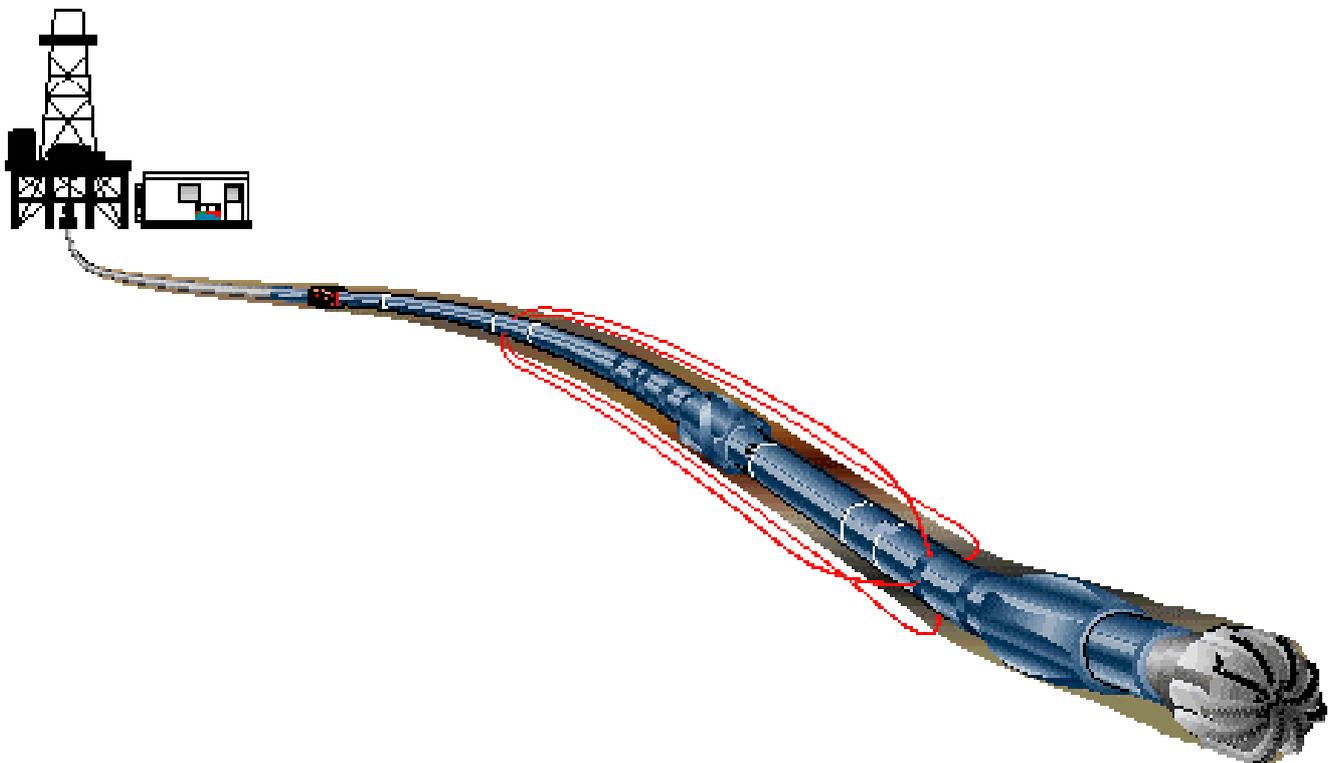




## Geographe-1

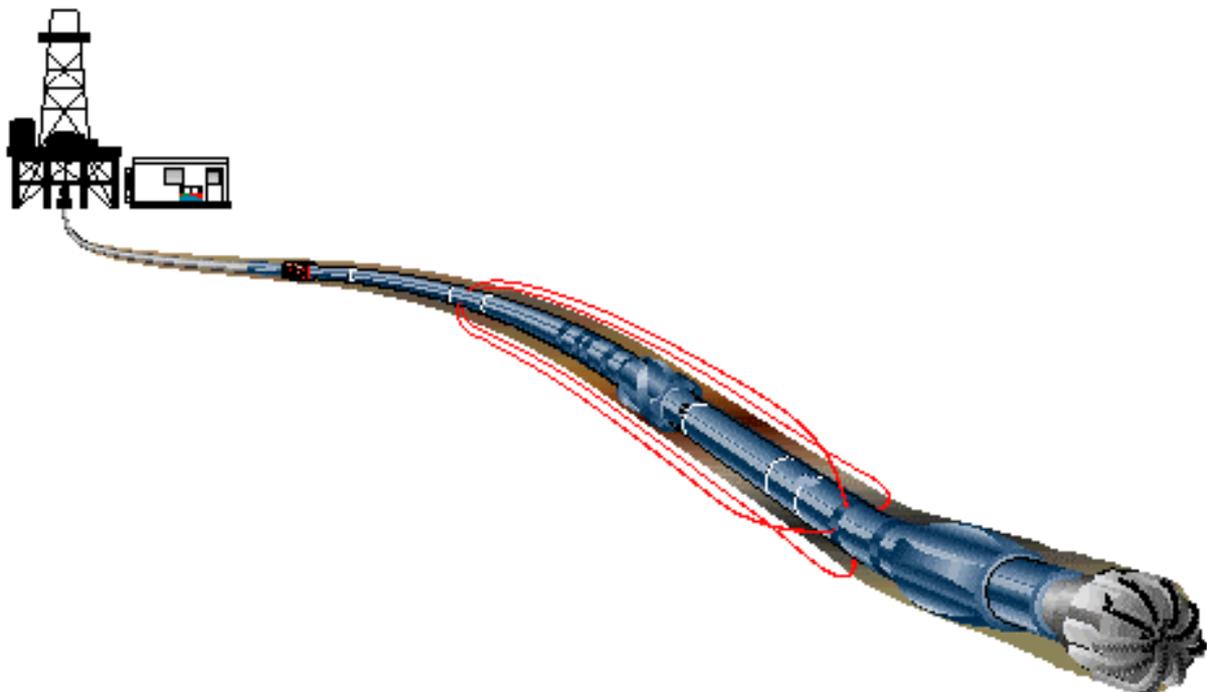
### MWD – LWD End of Well Report



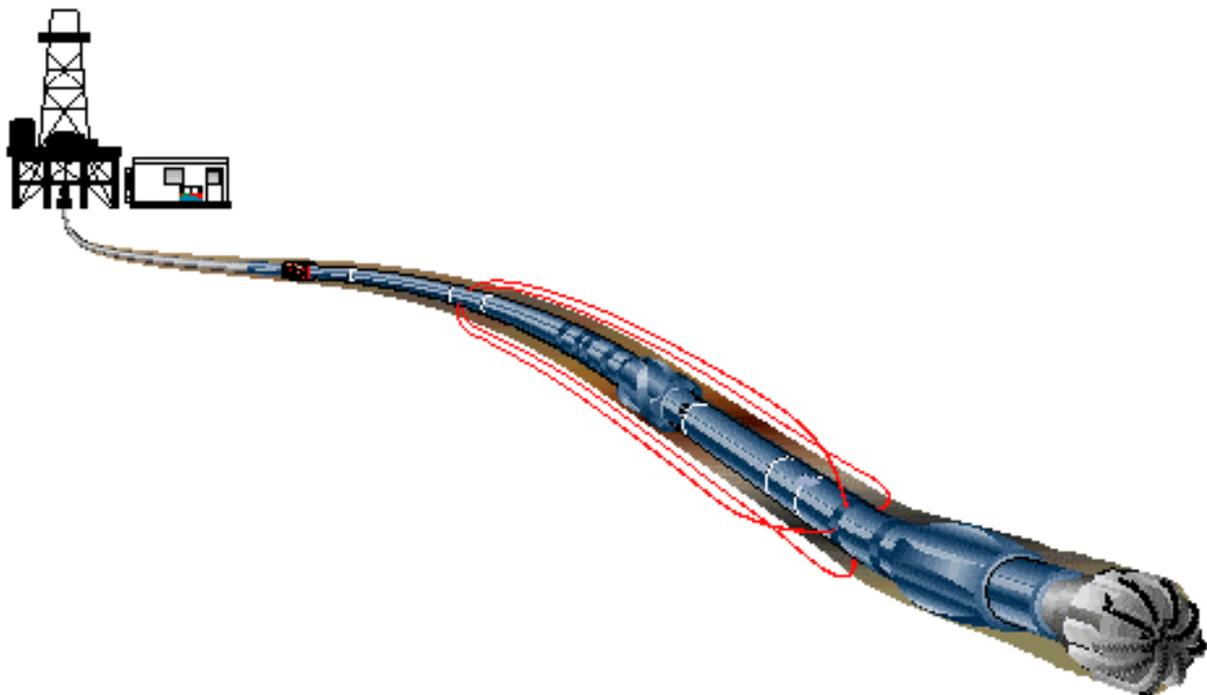
# End of Well Report for Geographe-1

## Contents

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

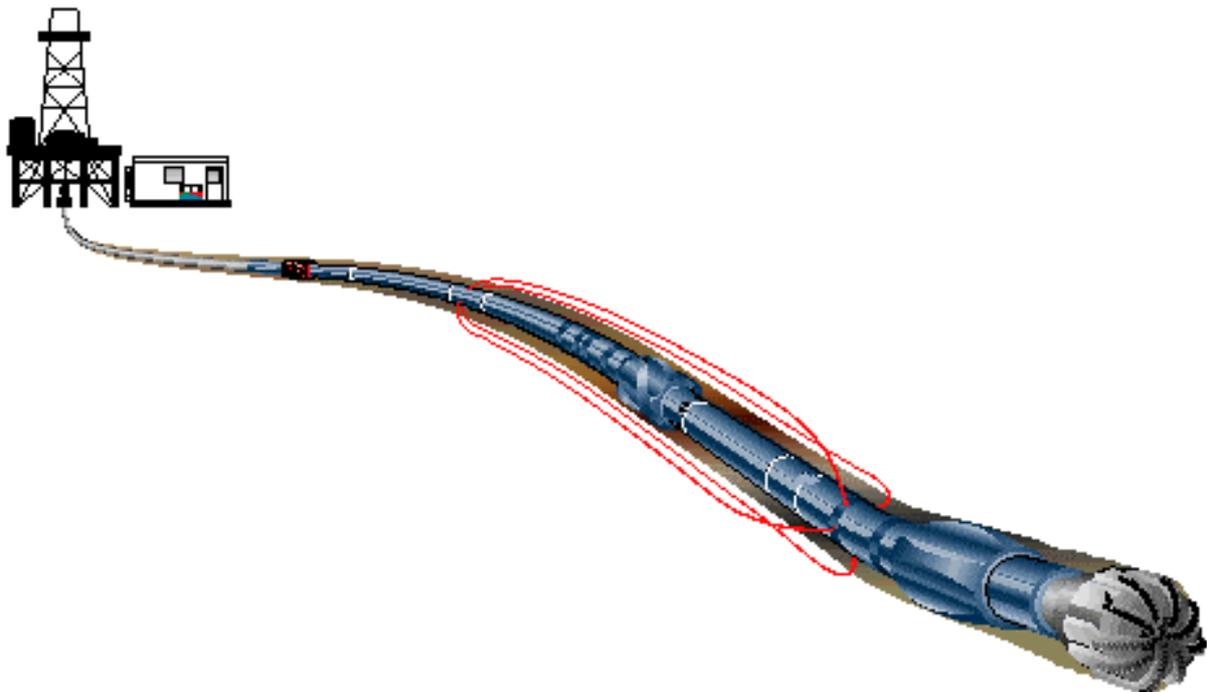


## General Information

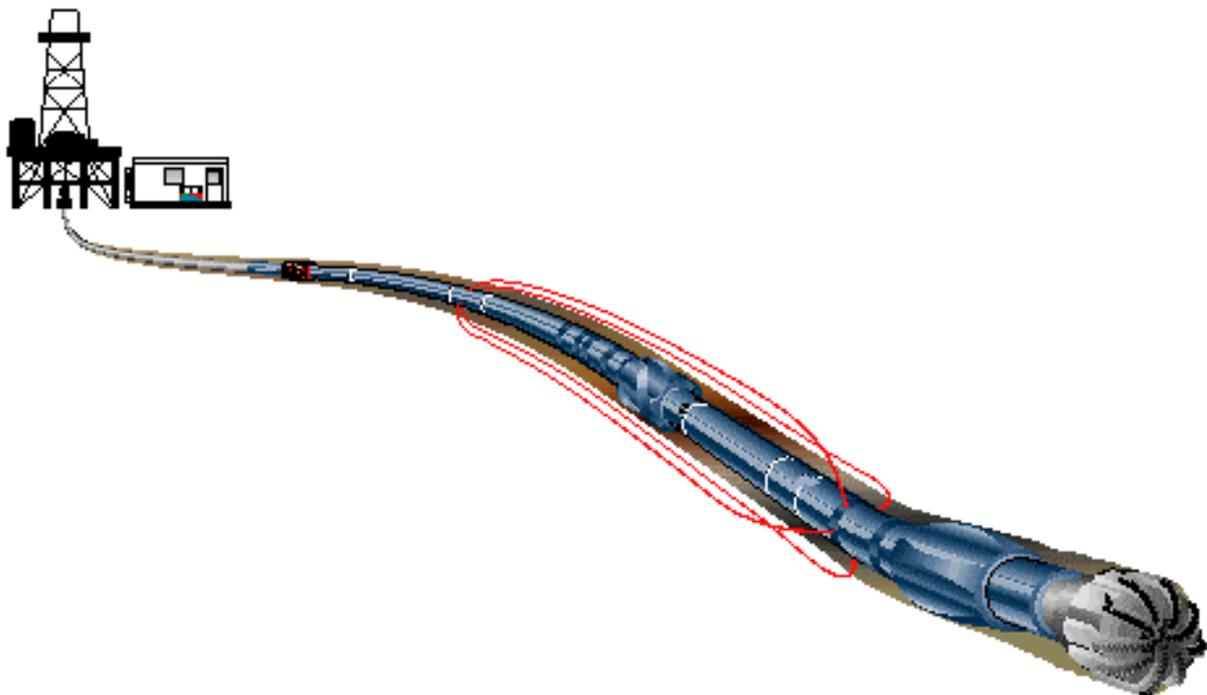


## General Information

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

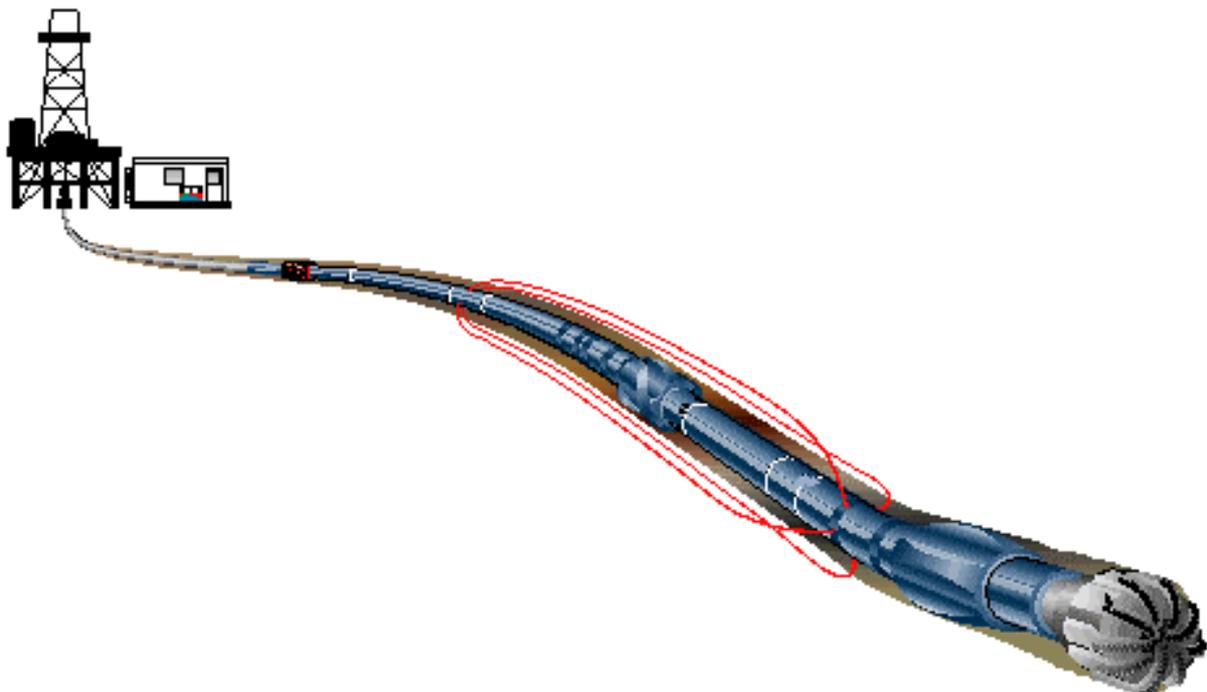
The following recorded mode formation evaluation measurements were provided once the LWD tools were on surface and the memory data retrieved:

- 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

---

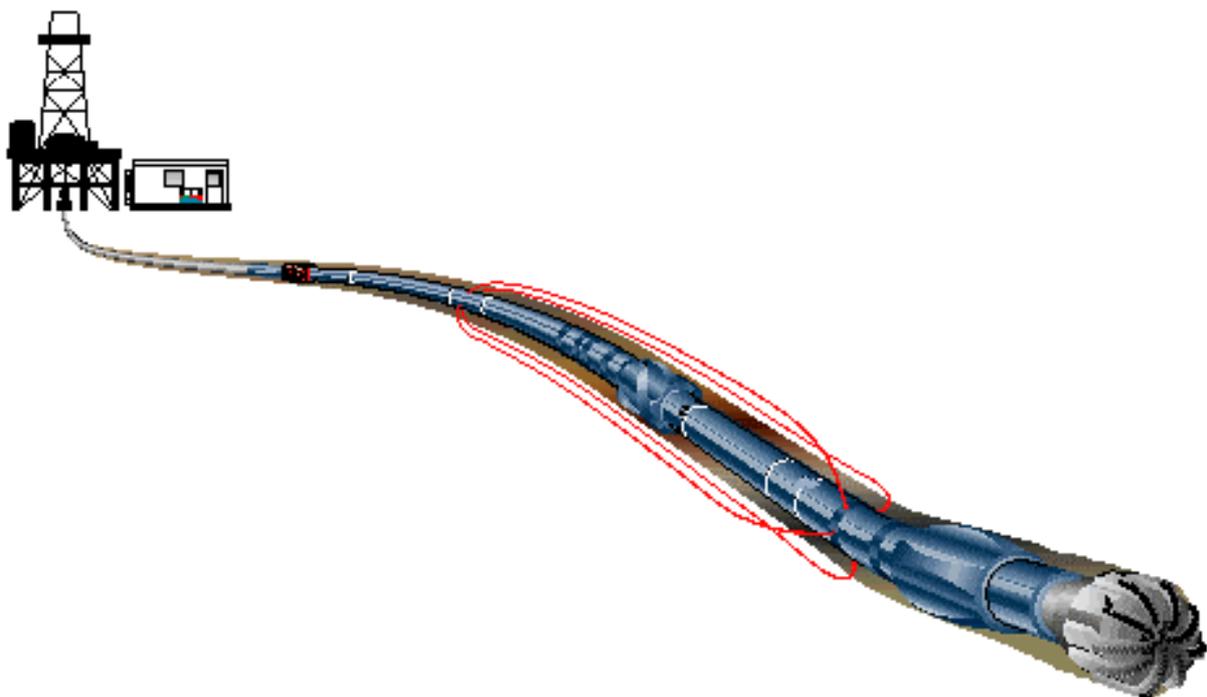
Reference G:	1000.11 mgal
Reference H:	1223.19 HCNT
Reference Dip:	-70.29 degrees
G value Tolerance:	2.50 mgal
H value Tolerance:	6.00 HCNT
Dip Tolerance:	0.45 degrees

### Survey Corrections Applied

---

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

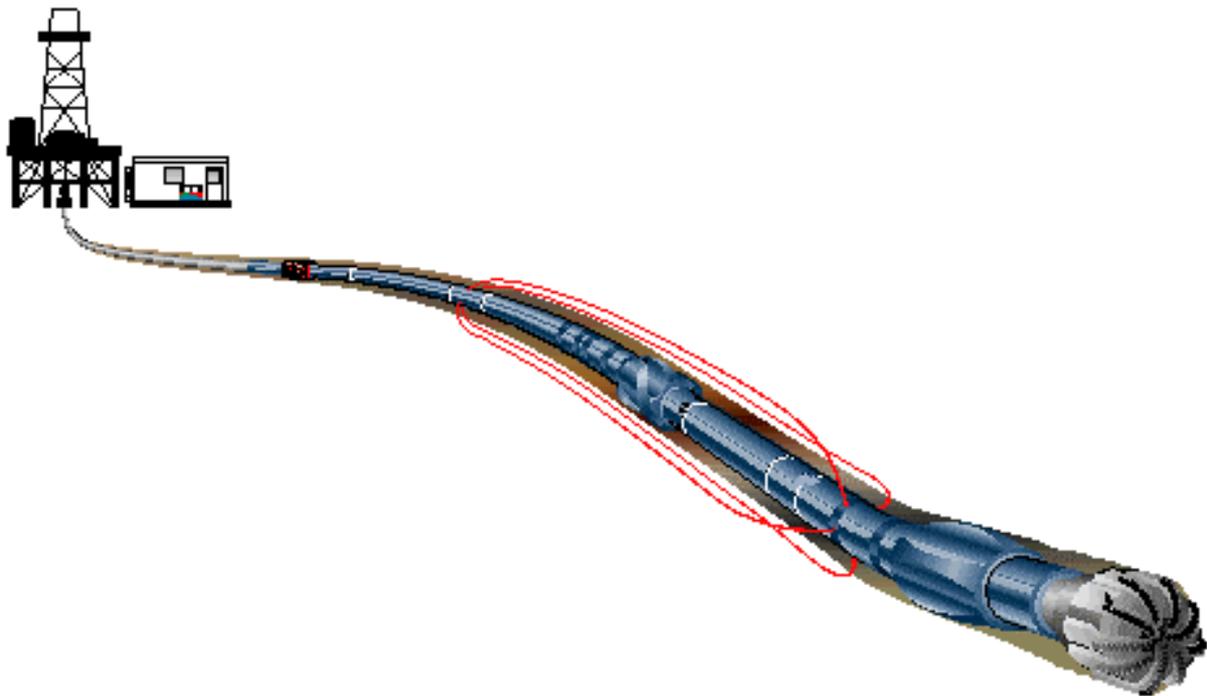
# Survey Report



# 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 :**  **Serial No :**  **Run No :**  **BHA No:**  Ft, Mt

<b>Company</b> Woodside Energy Ltd 152-158 St Georges Tce. Perth, WA 6000	<b>Well</b> <input type="text" value="Geographe - 1"/>	<b>Slot</b> <input type="text" value="2"/>	<b>Field</b> <input type="text" value="Geographe"/>
<b>Operator</b> <input type="text" value="Diamond Offshore"/>	<b>Location</b> <input type="text" value="Otway Basin, Vic"/>	<b>Country</b> <input type="text" value="Australia"/>	
	<b>Engineer</b> <input type="text" value="Baynes"/>	<b>Date</b> <input type="text" value="2-Jun-01"/>	

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
<input type="text" value="12.25"/>	<input type="text" value="HC"/>	<input type="text" value="HC605"/>	<input type="text"/>	<input type="text" value="5 x 14"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0.752"/>

**IADC CUTTING STRUCTURE**

Inner Row	Outer Row	Dull Char'	Location	Brg/Seals	Gauge	Others	Reason for Trip
<input type="text" value="2"/>	<input type="text" value="5"/>	<input type="text" value="BT"/>	<input type="text" value="S"/>	<input type="text" value="E"/>	<input type="text" value="In"/>	<input type="text" value="WT"/>	<input type="text" value="TD"/>

Motor Made By	Size	Model / Type	Rotor/Stator	Serial No	Hsg Stab OD	° Bent Hsg	° Bent Sub
<input type="text" value="Anadrill"/>	<input type="text" value="9 5/8"/>	<input type="text" value="A962GT"/>	<input type="text" value="7:8"/>	<input type="text" value="03400"/>	<input type="text" value="12 1/8"/>	<input type="text" value="0.0"/>	<input type="text" value="N/A"/>
<b>Type</b> — 1 = Straight; 2 = Steerable; <input type="text" value="1"/>	3 = Double Bend	<b>Stator Ser N°</b> <input type="text"/>	<b>Rotor Ser N°</b> <input type="text"/>	<b>Drig Cmt. Wash/Ream</b> <input type="text" value="1.38"/>			
	<b>Drig Hrs</b> <input type="text" value="29.60"/>	<b>Circ Hrs</b> <input type="text" value="7.25"/>	<b>Total Motor Circ Hrs</b> <input type="text" value="38.23"/>				

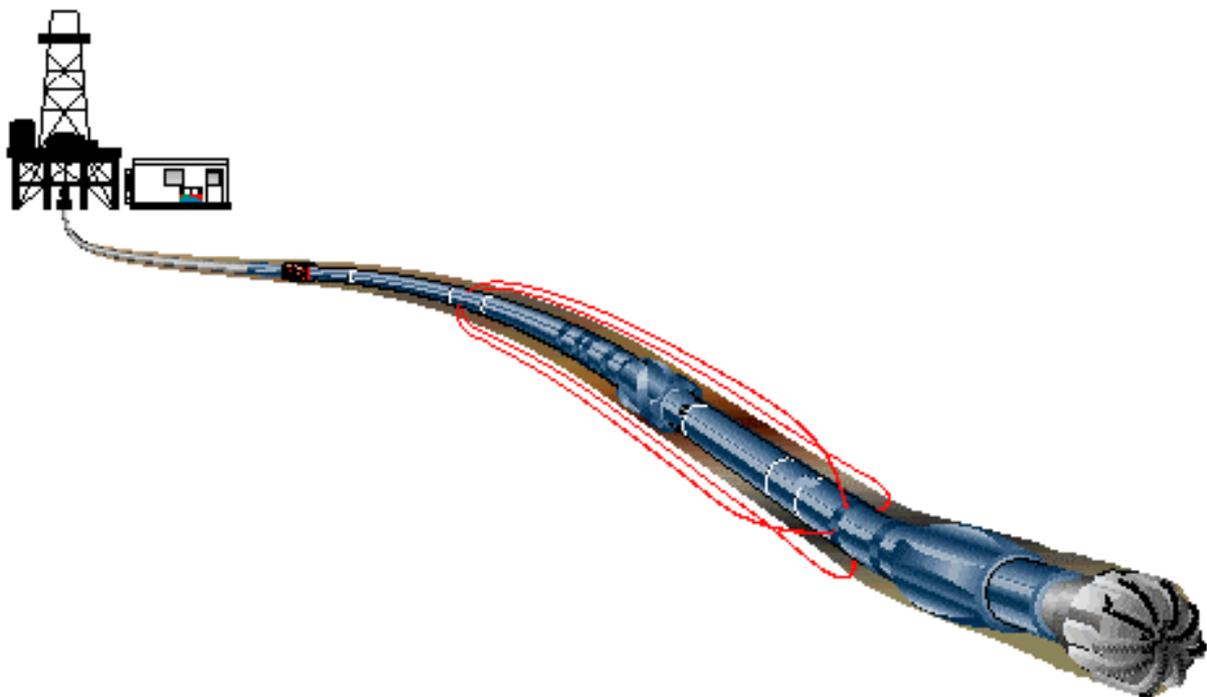
**Purpose of Run** Performance drill from 605m to 1685m.  
Drilling Hours are from BHI mudlogging.

<b>BHA</b> 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	<b>Surveys</b>	<b>MD IN</b> <input type="text" value="623.9"/>	<b>Inclin</b> <input type="text" value="0.45"/>	<b>Azim</b> <input type="text" value="124.14"/>	
		<b>MD OUT</b> <input type="text" value="1644.9"/>	<b>Inclin</b> <input type="text" value="0.82"/>	<b>Azim</b> <input type="text" value="304.70"/>	
	<b>Flow Rate</b> gal/min	<b>Off Bttm psi</b>	<b>On Bttm psi</b>	<b>RPM</b>	<b>WOB</b> Tonnes
	<input type="text" value="1000"/>	<input type="text" value="3375"/>	<input type="text" value="3700"/>	<input type="text" value="120"/>	<input type="text" value="20"/>
	<b>Mud Type</b> <input type="text" value="KCI PHPA"/>	<b>Mud Wt</b> <input type="text" value="1.22"/>	<b>SG</b>	<b>Mud Grad'</b> <input type="text" value="0.063"/>	<b>Vis</b> <input type="text" value="64"/>
	<b>PV</b> <input type="text" value="27"/>	<b>Filtrate</b> <input type="text" value="3.60"/>	<b>% Solids</b> <input type="text" value="9.00"/>	<b>Aniline Pt</b> <input type="text"/>	
	<b>YP</b> <input type="text" value="38"/>	<b>% Oil</b> <input type="text" value="3"/>	<b>% Sand</b> <input type="text" value="0.80"/>	<b>Circ Temp</b> <input type="text" value="55"/>	<b>C</b>
	<b>Depth In</b> <input type="text" value="605"/>	<b>Depth Out</b> <input type="text" value="1664"/>	<b>Inter'l Drld</b> <input type="text" value="1059"/>		
	<b>Date In</b> <input type="text" value="2-Jun-01"/>	<b>Date Out</b> <input type="text" value="5-Jun-01"/>	<b>ROP</b> <input type="text" value="35.78"/>		
	<b>Time In</b> <input type="text" value="17:30"/>	<b>Time Out</b> <input type="text" value="6:30"/>	<b>Time BRT</b> <input type="text" value="61.00"/>	<b>Hrs</b>	

<b>FAILURE?</b> <input type="text" value="No"/>	<b>Slide Mts</b> <input type="text" value="0"/>	<b>Previous Hrs</b> <input type="text" value="45.80"/>	<b>Cumulative Hrs</b> <input type="text" value="84.03"/>
---	---	--	--

<b>Remarks / Failure Report.</b> <input style="width: 95%; height: 40px;" type="text" value="1/ Motor was in good condition at the completion of the run."/>	<b>Did Motor Stall</b>	<b>Bearing Play</b>	
	<b>Yes</b> <input type="text"/>	<b>No</b> <input type="text"/>	<b>In</b> <input type="text" value="2 mm"/>
	<b>Slide</b> <input type="text"/>	<b>Rty</b> <input type="text"/>	<b>Out</b> <input type="text" value="2 mm"/>
			<b>Condition</b> <input type="text" value="As New"/>

## Bit Run Summary







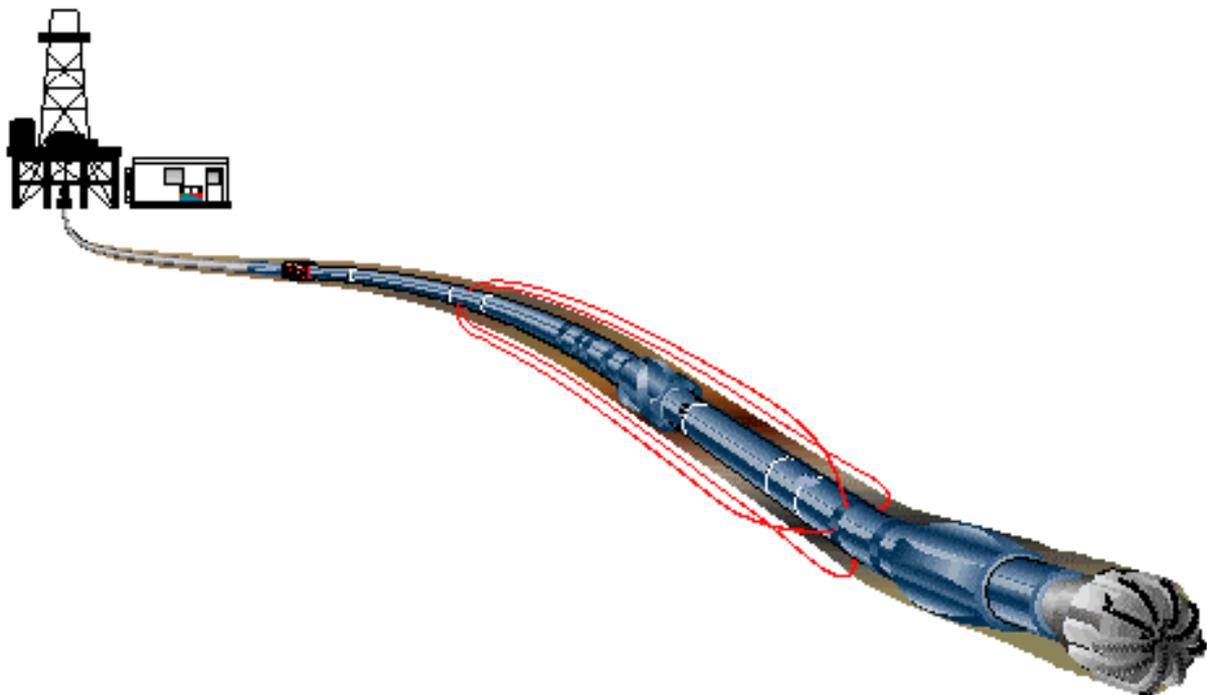








# Failure Report



Schlumberger

**FAILURE REPORT**

**Anadrill**

**FR No. : 1**

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

**EQUIPMENT & SERIAL No. :** IDEAL 6.1c\_03 software – DRILL\_1 CS DEPTH FILE

**FAILURE DESCRIPTION & SYMPTOMS (Include software version if applicable)**

IDEAL 6.1c\_03

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.

**Failure Group :**                    **Failure Category :**                    **Completed by :** Lee Muskett                    **Date :** 11-6-01

**REMEDIAL ACTION ATTEMPTED ON LOCATION**

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.

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.

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.

**Completed by :** Lee Muskett                    **Date :** 11-6-01

**FAILURE ANALYSIS (For completion during R&M repair)**

Failure Category :                    Completed by :                    Date :

**ACTION FOLLOW UP (For completion by FSM / DTM)**

Completed by :                    Date :

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