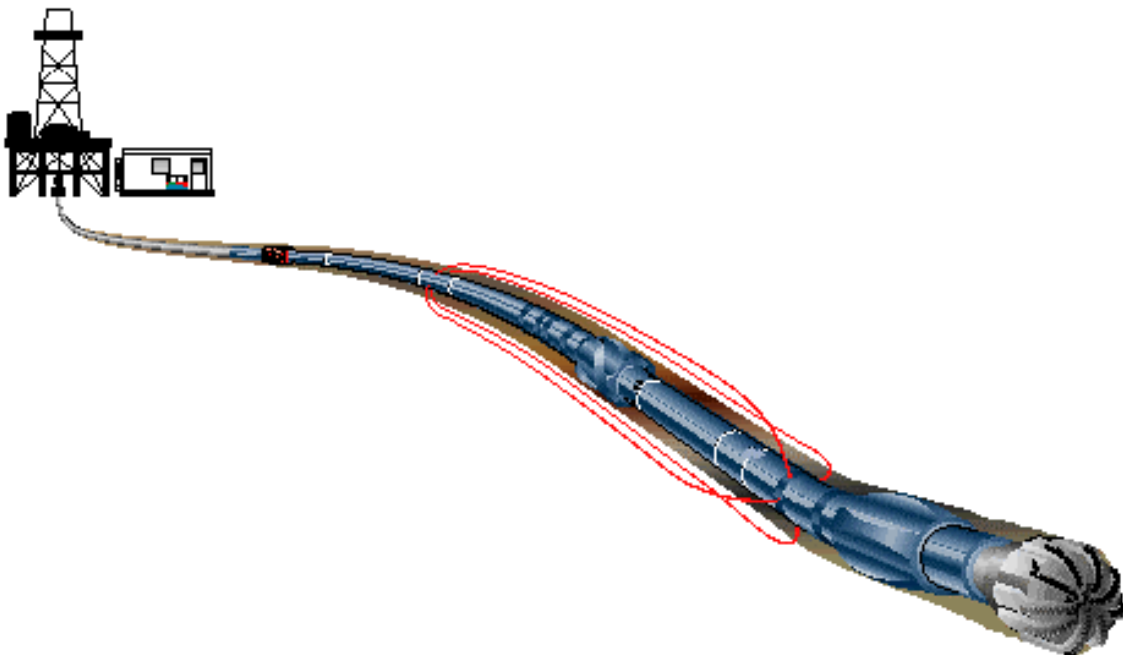


Santos

Callister-1

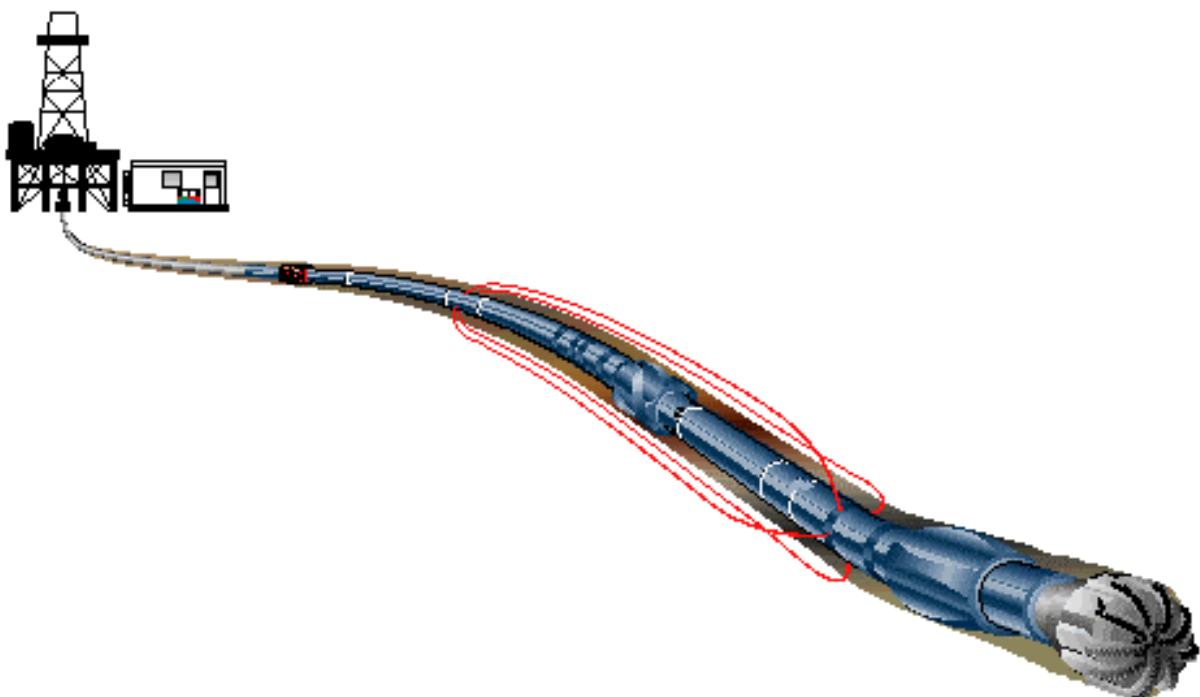
MWD – LWD End of Well Report



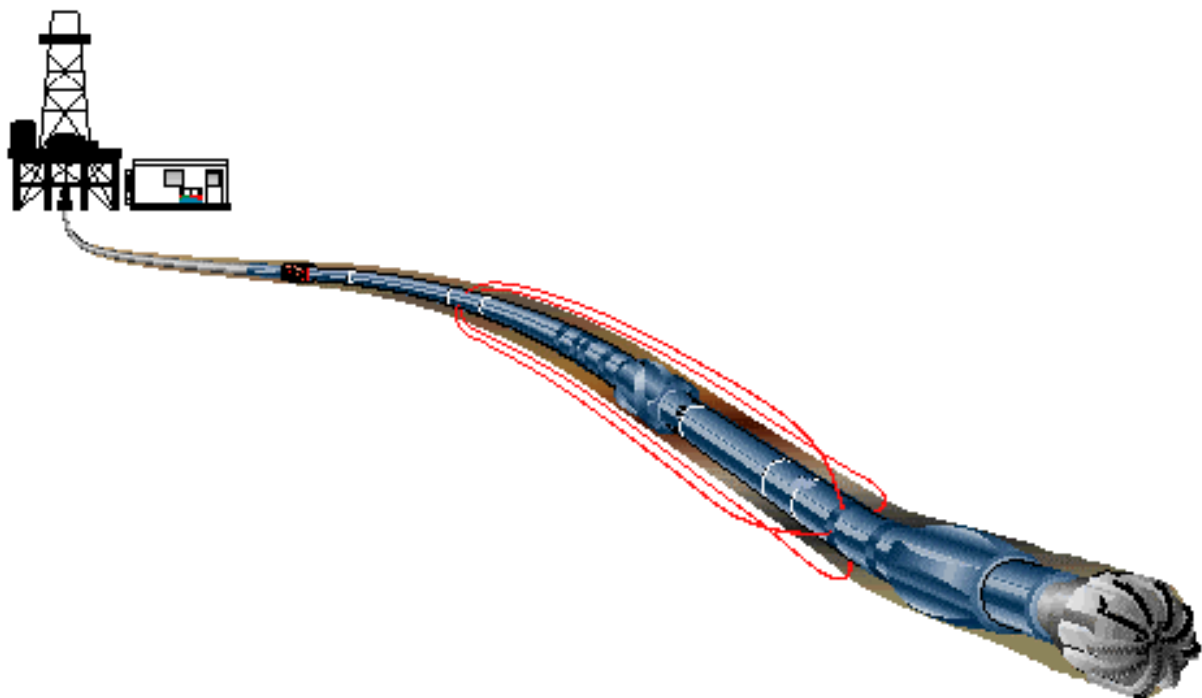
End of Well Report for Callister-1

Contents

- General Information
- Logging Overview
- Geomagnetic and Survey Reference Criteria
- Survey Report
- Bit Run Summary
- Performance Drilling Report



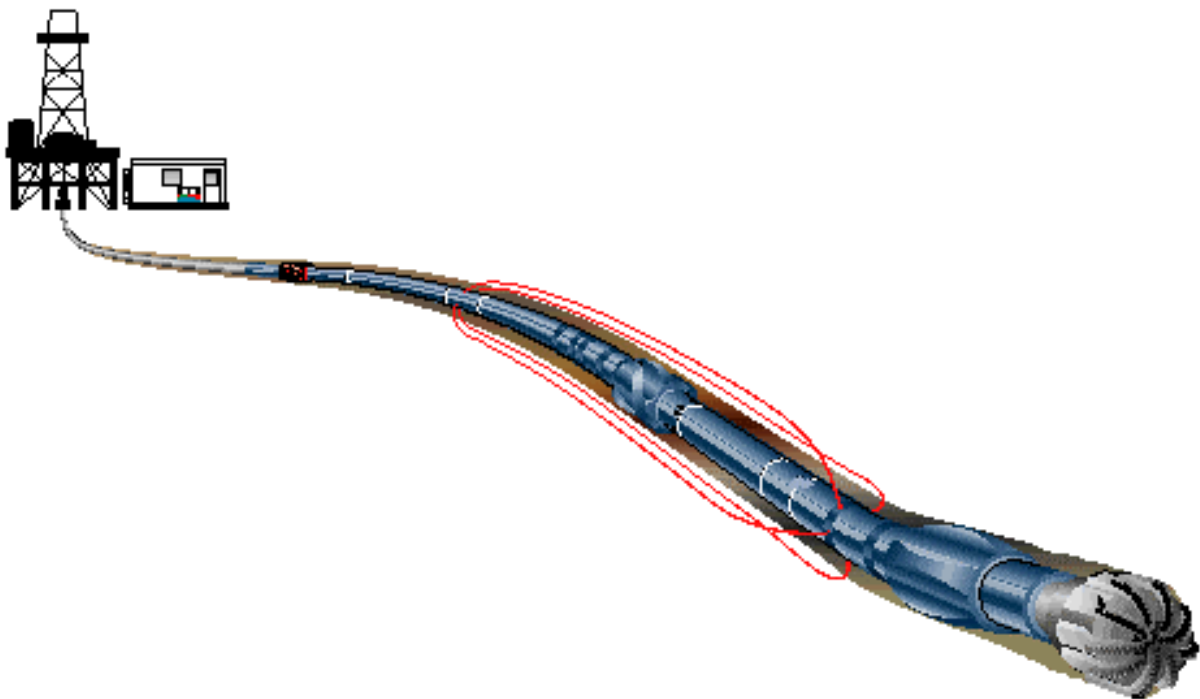
General Information



General Information

Well Name:	Callister-1	
Rig:	Jack Bates	
Field:	Exploration	
Location:	Otway Basin	
Country:	Australia	
Cell Members:	Achilles DeCastro Daniel Hastie Arnis Ahmad Bob Manjenic	MWD / LWD Engineer MWD / LWD Engineer MWD / LWD Engineer Directional Driller
Town Contacts:	Jim Thompson Hrvoje Spoljaric Alexander van den Tweel	Operations Manager Field Services Manager DD Coordinator
Company Representatives:	Brian Houston Jason Young Patrick King Ram Subramanian	Company Man Company Man Drilling Engineer Wellsite Geologist

Logging Overview



Logging Overview

Schlumberger Drilling and Measurements provided MWD, LWD and performance drilling services in the 12¼" and 8½" sections of the Callister-1 well.

In the 12¼" section, the following formation evaluation measurements were delivered in real-time and memory modes. The PowerPulse transmitted the survey data in real-time, however, this information is not recorded in the tool memory.

- CDR Gamma Ray, real-time
- CDR Phase Shift and Attenuation Resistivity, real-time
- CDR Annular Pressure and Temperature, real-time
- CDR Gamma Ray, recorded mode
- CDR Phase Shift and Attenuation Resistivity, recorded mode
- CDR Annular Pressure and Temperature, recorded mode
- Multi-Vibrational Chassis
- Performance Drilling

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
1	12¼"	PowerPulse / CDR / Performance Drilling	787.50	990.00

12¼" Section (Run 787.50 m to 990.00 m MD):

The PowerPulse and Compensated Dual Resistivity (CDR) tools were utilized for surveying, logging, and monitoring downhole conditions for the 12¼" section for Callister-1. The PowerPulse was programmed to transmit real-time data at 12Hz / 3 bits per second, and the CDR was configured with a 6-second record rate. These configurations enabled real-time formation evaluation updates every 23.5 seconds, and a recorded data density greater than the Schlumberger standard of two data points per foot. This feature enabled the generation of high quality recorded mode logs over the entire section. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi-Vibrational Chassis) were also used as part of an extensive monitoring process for borehole instability issues. All real-time and recorded mode data were transmitted/delivered to the client's office in town via Internet Web Witness (IWW).

The leak off test was carried out with the help of downhole measurements from the CDR and plotted in real-time, which is another valuable feature of the APWD. Drilling and downhole conditions provided an ideal setting for downhole transmission, as there were small or no noise present while drilling. It was noticed, however, that there was medium-level torsional shocks and stick-and-slip while drilling the first part of the section. ECD measurements were a good indication that there is good hole cleaning. From 871m MD, upon entering a new formation, lateral and torsional shocks increased abruptly as the CDR was sending shock level 3 for consecutive frames. Drilling parameters were change to minimize the effects of shocks to the tool. High WOB and low RPM were the best parameters to reduce this type of shock but this had not optimized rate of penetration. As a result, drilling parameters were changed back and drilling continued with high shock levels. 200m below, due to low ROP, it was decided to pull out of hole. The bit and found to be damaged on surface and was decided to changed. The CDR was dumped in the derrick while changing the bit (so that no rig time was used) and all recorded mode data were fully recovered. Resistivity measurements were affected in both real-time and recorded modes as seen in the Techlogs and recorded mode data. Although the tool was subjected to high shocks, it provided excellent data density through the run.

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
2	12¼"	PowerPulse / CDR / Performance Drilling	990.0	2550.00

12¼" Section (Run 990.00 m to 2550.00 m MD):

The same PowerPulse and Compensated Dual Resistivity (CDR) tools were used on the succeeding run of the 12¼" section for Callister-1. The PowerPulse programming configuration was kept at 12Hz / 3 bits per second, and the CDR was again configured to record every 6 seconds. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi-Vibrational Chassis) were again utilized to monitor hole cleaning and other downhole parameters. All real-time and recorded mode data were transmitted/delivered to the client's office in town via Internet Web Witness (IWW).

ECD was closely monitored as it ranged from 9.4ppg to 9.7ppg as drilling progressed. Downhole noise was not again present in this run. Small shocks were seen in the beginning of the run. Torsional shocks increased as the run progressed, and measured to as high as 3000ft-lbs but were not enough to inhibit logging or drilling. Relatively, high stick slip was seen beyond 1200m MD. Tools provided excellent real-time data throughout the entire run and all recorded mode memory was recovered while the tool was dumped in the derrick. The tools recorded a total of 25K of shocks for the entire 12¼" section.

In the 8½" section, the following formation evaluation measurements were delivered in real-time and memory modes. The PowerPulse transmitted the survey data in real-time, however, this information is not recorded in the tool memory.

- CDR Gamma Ray, real-time
- CDR Phase Shift and Attenuation Resistivity, real-time
- CDR Annular Pressure and Temperature, real-time
- CDR Gamma Ray, recorded mode
- CDR Phase Shift and Attenuation Resistivity, recorded mode
- CDR Annular Pressure and Temperature, recorded mode
- Multi-Vibrational Chassis

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
3	8½"	PowerPulse / CDR	2550.00	2662.00

8½" Section (Run 2550.00 m to 2662.00 m MD):

The PowerPulse and Compensated Dual Resistivity (CDR) tools were utilized for surveying, logging, and monitoring downhole conditions for the 8½" section for Callister-1. The PowerPulse was programmed to transmit real-time data at 12Hz / 3 bits per second, and the CDR was configured with a 10-second record rate. These configurations enabled real-time formation evaluation updates every 23.5 seconds, and a recorded data density greater than the Schlumberger standard of two data points per foot. This feature enabled the generation of high quality recorded mode logs over the entire section. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi-Vibrational Chassis) again were also used to evaluate for borehole conditions. All real-time and recorded mode data were transmitted/delivered to the client's office in town via Internet Web Witness (IWW).

Drilling conditions were good, as there was minimal to no shocks present while drilling even though this section was drilled with a rotary BHA. Probably, the use of roller reamers contributed to minimize shocks and vibrations. Downhole noise was not present as well during the entire duration of the 8½" section. The APWD measurements provided clear indications of a good leak off test for the 8½" section. After 112m of drilling, penetration rate decreased instantly, and it was decided to pull out of hole and investigate. It was found out on surface that one of the bit nozzles was plugged. All data again was fully recovered from the CDR while the tool memory was dumped in the rotary table.

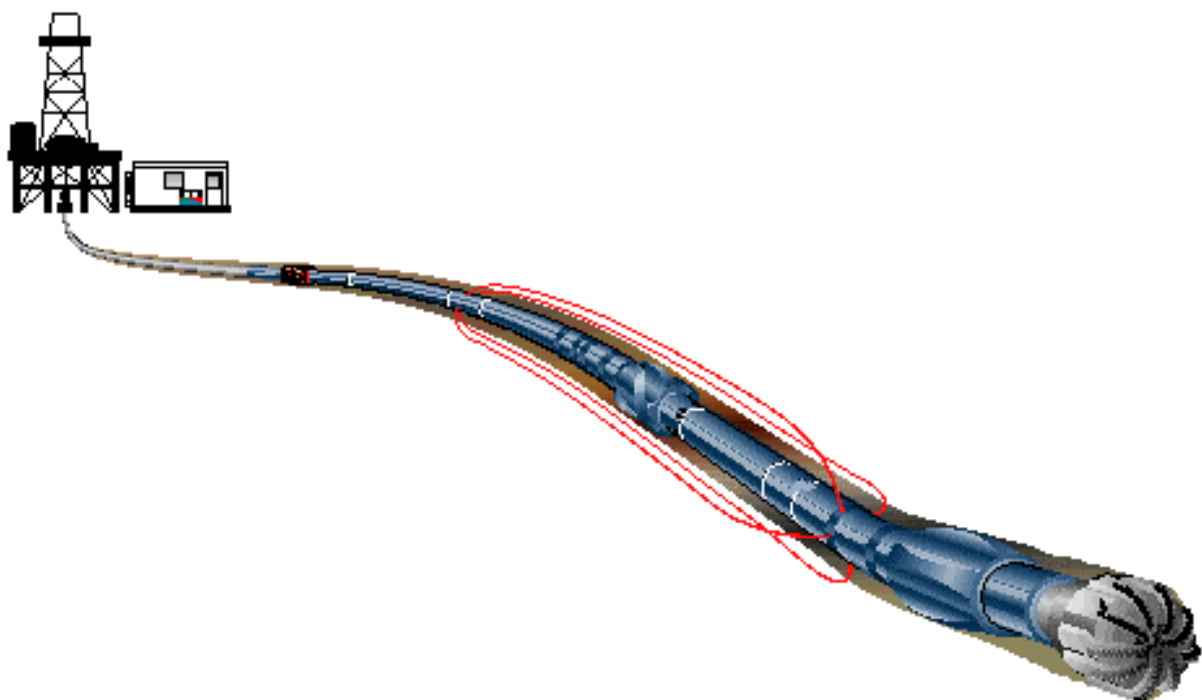
Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
4	8½"	PowerPulse / CDR	2662.00	3914.00

8½" Section (Run 2662.00 m to 3914.00 m MD):

The same set of PowerPulse and Compensated Dual Resistivity (CDR) tools were used for the second run of the 8½" section. The PowerPulse' s programming was kept to transmit real-time data at 12Hz / 3 bits per second, and the CDR was programmed to a 10-second record rate. These configurations enabled real-time formation evaluation updates every 23.5 seconds, and a recorded data density greater than the Schlumberger standard of two data points per foot. The CDR was programmed and monitored in the rotary table. This feature enabled the generation of high quality recorded mode logs over the entire section. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi-Vibrational Chassis) again were also used to evaluate for borehole conditions. All real-time and recorded mode data were transmitted/delivered to the client's office in town via Internet Web Witness (IWW).

Prior to tagging bottom, the borehole was washed to ensure that the hole is clean. Drilling commenced with an average ROP of 40m/hr. Downhole signal strength was high and there were no presence of noise while drilling. Shock level 3 was seen for 3 minutes as the tools entered the reservoir and then would dissipate. Stick slip was also prevalent through the entire run but this did not affect tool performance. Approximately at 3528m MD, there was an increase in connection gas (up to 2750 units) and thus the mud was weighed up to 12.0ppg. On a later reservoir, connection gas rose up to 5000 units, and the mud weight was increased to 12.2ppg. Shocks were also seen while entering reservoirs, and real-time ECD and Annular Pressure data were affected. The crew advised the driller from time to time to pick up off bottom, slow collar rpm, and recycle pumps. This was done to prevent an inadvertent lost of tool functionality. Close to TD, very high torsional shocks and torque were measured, but were again taken care of by proper and immediate action of both Schlumberger and drilling crew. After reaching TD, high gas levels were present in the well and mud weight was raised considerably in stages, reaching 13.6ppg. APWD / ECD monitoring provided vital information during this period so as not to break the formation and monitor wellbore stability. Downhole temperature (measured by the APWD sensor) was also closely monitored and showed that temperature was a bit lower than forecasted (105degC was the maximum recorded by the APWD). A wiper trip was done when the bit reached the 9-5/8" casing shoe and back to TD. Tools were laid out on the pipe deck and memory was fully downloaded. The Techlogs showed that the CDR was at its optimum performance throughout the entire length of the run.

Geomagnetic and Survey Reference Criteria



Geomagnetic and Survey Reference Criteria

Geomagnetic Data

Magnetic Model:	BGGM version 2004
Magnetic Date:	15 October 2004
Magnetic Field Strength:	1218.81 HCNT
Magnetic Declination:	10.27 degrees
Magnetic Dip:	-69.95 degrees

Survey Reference Criteria

Reference G:	1000.05 mgal
Reference H:	1218.81 HCNT
Reference Dip:	-69.95 degrees
G value Tolerance:	2.50 mgal
H value Tolerance:	6.00 HCNT
Dip Tolerance:	0.45 degrees

Survey Corrections Applied

Reference North:	Grid North
Magnetic Declination:	10.27 degrees
Grid Convergence:	-0.29 degrees
Total Azimuth Correction:	10.56 degrees
Vertical Section Azimuth:	0.00 degrees

Survey Reference Location

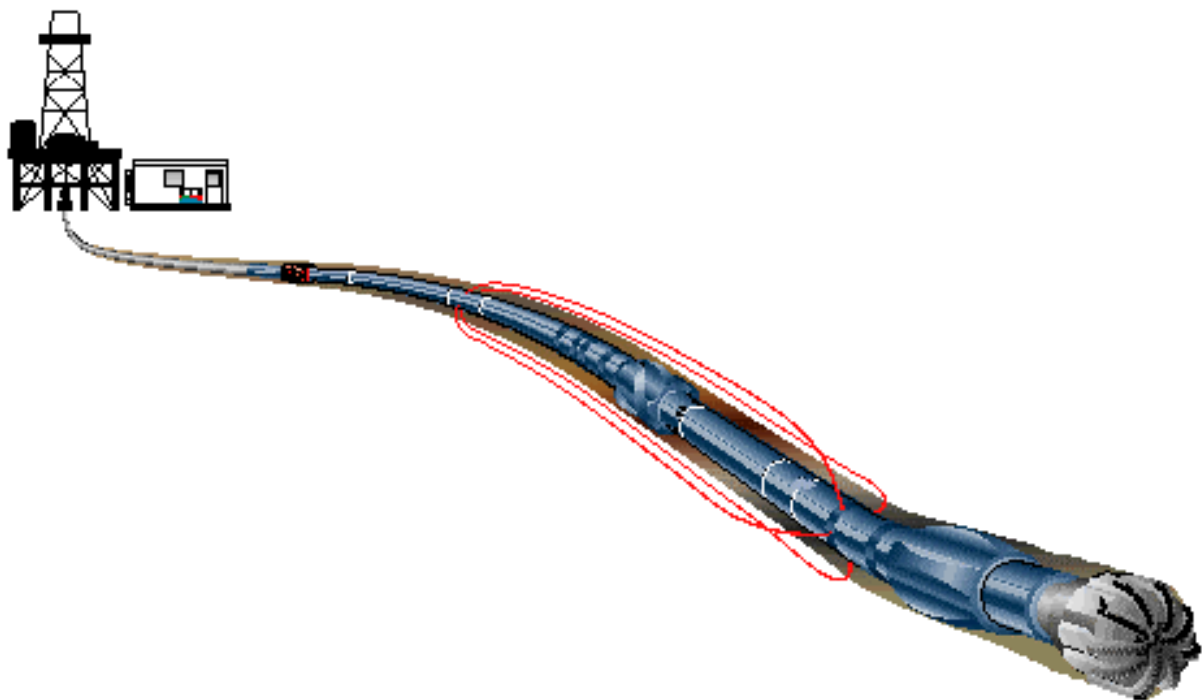
Callister-1 Final Coordinates

Latitude:	38° 31' 59.690"	South
Longitude:	141° 28' 23.462"	East
Easting:	541 241.70	meters
Northing:	5 734 911.30	meters
MGA:	Zone 54	

Note:

Data as per SANTOS "Rig Position Field Report"

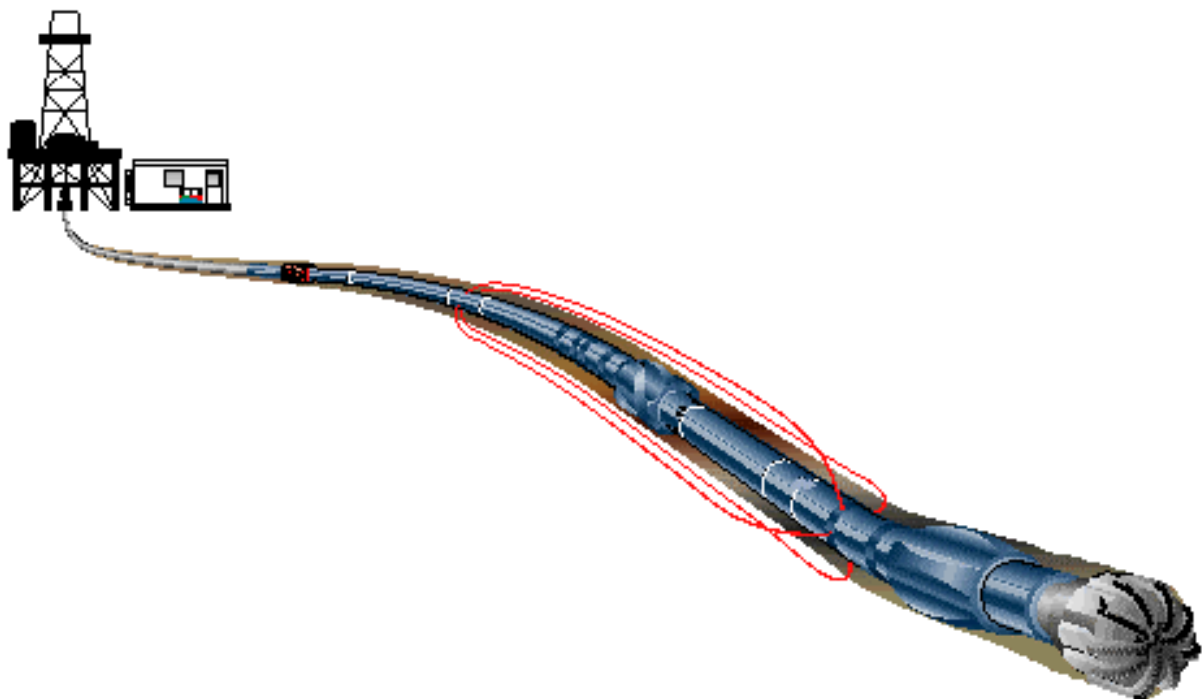
Survey Report



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/100f)	Srvy tool type	Tool Corr (deg)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	None
2	299.00	0.50	0.00	299.00	299.00	1.30	1.30	0.00	1.30	0.00	0.05	MWD_M	None
3	385.00	1.00	0.00	86.00	384.99	2.43	2.43	0.00	2.43	0.00	0.18	MWD_M	None
4	414.00	1.00	0.00	29.00	413.98	2.94	2.94	0.00	2.94	0.00	0.00	MWD_M	None
5	446.00	1.00	0.00	32.00	445.98	3.49	3.49	0.00	3.49	0.00	0.00	MWD_M	None
6	471.00	1.50	0.00	25.00	470.97	4.04	4.04	0.00	4.04	0.00	0.61	MWD_M	None
7	557.00	1.00	0.00	86.00	556.95	5.92	5.92	0.00	5.92	0.00	0.18	MWD_M	None
8	615.00	0.50	0.00	58.00	614.95	6.68	6.68	0.00	6.68	0.00	0.26	MWD_M	None
9	643.00	0.50	0.00	28.00	642.95	6.92	6.92	0.00	6.92	0.00	0.00	MWD_M	None
10	672.00	1.00	0.00	29.00	671.94	7.30	7.30	0.00	7.30	0.00	0.53	MWD_M	None
11	701.00	1.00	0.00	29.00	700.94	7.81	7.81	0.00	7.81	0.00	0.00	MWD_M	None
12	728.00	0.50	0.00	27.00	727.94	8.16	8.16	0.00	8.16	0.00	0.56	MWD_M	None
13	756.00	1.00	0.00	28.00	755.93	8.53	8.53	0.00	8.53	0.00	0.54	MWD_M	None
14	787.50	1.00	0.00	31.50	787.43	9.08	9.08	0.00	9.08	0.00	0.00	MWD_M	None
15	790.06	0.45	331.69	2.56	789.99	9.11	9.11	0.00	9.11	359.97	7.63	MWD	None
16	817.91	0.45	330.23	27.85	817.84	9.30	9.30	-0.11	9.30	359.32	0.01	MWD	None
17	847.21	0.69	337.63	29.30	847.14	9.56	9.56	-0.24	9.56	358.59	0.26	MWD	None
18	874.56	1.05	344.29	27.35	874.48	9.95	9.95	-0.37	9.96	357.90	0.42	MWD	None
19	903.94	1.25	333.65	29.38	903.86	10.50	10.50	-0.58	10.52	356.83	0.30	MWD	None
20	931.51	1.37	331.34	27.57	931.42	11.06	11.06	-0.87	11.09	355.49	0.14	MWD	None
21	959.28	0.22	170.41	27.77	959.19	11.30	11.30	-1.02	11.34	354.83	1.73	MWD	None
22	990.11	1.04	330.11	30.83	990.02	11.48	11.48	-1.15	11.54	354.27	1.23	MWD	None
23	1016.77	1.00	334.61	26.66	1016.67	11.90	11.90	-1.37	11.98	353.42	0.10	MWD	None
24	1037.31	1.03	330.72	20.54	1037.21	12.23	12.23	-1.54	12.32	352.82	0.11	MWD	None
25	1073.31	0.97	332.91	36.00	1073.20	12.78	12.78	-1.84	12.91	351.82	0.06	MWD	None
26	1101.55	1.29	326.69	28.24	1101.44	13.26	13.26	-2.12	13.43	350.91	0.37	MWD	None
27	1130.35	1.38	328.84	28.80	1130.23	13.82	13.82	-2.48	14.05	349.84	0.11	MWD	None
28	1159.59	1.19	326.05	29.24	1159.46	14.38	14.38	-2.83	14.65	348.87	0.21	MWD	None
29	1188.36	1.09	328.96	28.77	1188.23	14.86	14.86	-3.14	15.19	348.08	0.12	MWD	None
30	1216.58	1.00	326.02	28.22	1216.44	15.29	15.29	-3.41	15.67	347.42	0.11	MWD	None
31	1245.42	1.04	326.14	28.84	1245.28	15.72	15.72	-3.70	16.15	346.76	0.04	MWD	None
32	1274.17	1.16	320.05	28.75	1274.02	16.16	16.16	-4.03	16.66	345.99	0.18	MWD	None
33	1303.61	0.91	307.43	29.44	1303.46	16.53	16.53	-4.41	17.11	345.07	0.35	MWD	None
34	1332.69	0.59	319.05	29.08	1332.54	16.78	16.78	-4.69	17.43	344.39	0.37	MWD	None
35	1361.48	0.51	310.54	28.79	1361.32	16.98	16.98	-4.89	17.67	343.95	0.12	MWD	None
36	1390.36	0.53	314.61	28.88	1390.20	17.16	17.16	-5.08	17.89	343.51	0.04	MWD	None
37	1417.46	0.62	318.06	27.10	1417.30	17.35	17.35	-5.27	18.13	343.12	0.11	MWD	None
38	1447.76	0.51	316.13	30.30	1447.60	17.57	17.57	-5.47	18.40	342.72	0.11	MWD	None
39	1476.30	0.56	320.25	28.54	1476.14	17.77	17.77	-5.65	18.65	342.38	0.07	MWD	None
40	1503.90	0.49	302.77	27.60	1503.74	17.94	17.94	-5.83	18.86	341.99	0.19	MWD	None
41	1532.52	0.49	296.48	28.62	1532.36	18.06	18.06	-6.04	19.04	341.50	0.06	MWD	None
42	1560.05	0.41	312.01	27.53	1559.89	18.18	18.18	-6.22	19.21	341.11	0.16	MWD	None
43	1588.76	0.41	306.97	28.71	1588.60	18.31	18.31	-6.38	19.39	340.79	0.04	MWD	None
44	1674.20	0.58	302.18	85.44	1674.03	18.72	18.72	-6.99	19.99	339.53	0.06	MWD	None
45	1759.79	0.77	300.09	85.59	1759.62	19.24	19.24	-7.85	20.78	337.79	0.07	MWD	None
46	1847.14	0.95	294.58	87.35	1846.96	19.84	19.84	-9.02	21.79	335.55	0.07	MWD	None
47	1930.43	0.89	302.24	83.29	1930.24	20.47	20.47	-10.20	22.87	333.52	0.05	MWD	None
48	2017.36	0.91	307.00	86.93	2017.15	21.25	21.25	-11.32	24.07	331.95	0.03	MWD	None
49	2103.93	0.96	309.22	86.57	2103.71	22.12	22.12	-12.43	25.37	330.67	0.02	MWD	None
50	2187.51	0.94	306.90	83.58	2187.28	22.97	22.97	-13.52	26.66	329.52	0.02	MWD	None
51	2273.18	1.01	323.23	85.67	2272.94	24.00	24.00	-14.53	28.06	328.80	0.10	MWD	None
52	2358.91	0.97	322.75	85.73	2358.66	25.18	25.18	-15.43	29.53	328.51	0.01	MWD	None
53	2445.35	0.96	329.95	86.44	2445.08	26.39	26.39	-16.23	30.98	328.41	0.04	MWD	None
54	2524.68	1.01	330.09	79.33	2524.40	27.57	27.57	-16.91	32.35	328.48	0.02	MWD	None
55	2559.17	0.98	331.10	34.49	2558.89	28.09	28.09	-17.21	32.94	328.51	0.03	MWD	None

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/100f)	Srvy tool type	Tool Corr (deg)
56	2616.28	1.09	335.82	57.11	2615.99	29.02	29.02	-17.67	33.97	328.67	0.07	MWD	None
57	2701.32	1.08	328.22	85.04	2701.01	30.44	30.44	-18.42	35.58	328.82	0.05	MWD	None
58	2786.73	0.87	334.96	85.41	2786.41	31.71	31.71	-19.12	37.03	328.91	0.09	MWD	None
59	2873.56	0.47	315.46	86.83	2873.24	32.56	32.56	-19.65	38.03	328.89	0.16	MWD	None
60	2960.21	0.37	282.26	86.65	2959.88	32.87	32.87	-20.17	38.57	328.47	0.09	MWD	None
61	3045.67	0.47	240.13	85.46	3045.34	32.76	32.76	-20.74	38.77	327.66	0.11	MWD	None
62	3129.38	0.54	224.15	83.71	3129.05	32.30	32.30	-21.31	38.70	326.58	0.06	MWD	None
63	3215.10	0.92	224.41	85.72	3214.76	31.52	31.52	-22.08	38.48	324.99	0.14	MWD	None
64	3303.12	1.31	213.64	88.02	3302.76	30.18	30.18	-23.13	38.02	322.53	0.15	MWD	None
65	3330.63	1.43	212.93	27.51	3330.27	29.63	29.63	-23.49	37.81	321.59	0.13	MWD	None
66	3358.35	1.62	214.79	27.72	3357.98	29.02	29.02	-23.90	37.59	320.52	0.22	MWD	None
67	3386.78	1.69	213.08	28.43	3386.39	28.33	28.33	-24.36	37.37	319.31	0.09	MWD	None
68	3414.60	1.67	214.65	27.82	3414.20	27.66	27.66	-24.81	37.16	318.10	0.05	MWD	None
69	3473.12	2.20	213.29	58.52	3472.69	26.02	26.02	-25.92	36.72	315.11	0.28	MWD	None
70	3528.68	2.23	216.78	55.56	3528.21	24.26	24.26	-27.15	36.41	311.78	0.08	MWD	None
71	3557.20	2.26	215.08	28.52	3556.71	23.36	23.36	-27.80	36.31	310.03	0.08	MWD	None
72	3586.67	2.18	216.17	29.47	3586.15	22.43	22.43	-28.47	36.24	308.23	0.09	MWD	None
73	3700.75	2.17	212.69	114.08	3700.15	18.86	18.86	-30.92	36.21	301.38	0.04	MWD	None
74	3787.16	2.50	209.01	86.41	3786.49	15.83	15.83	-32.71	36.34	295.83	0.13	MWD	None
75	3898.83	2.70	196.27	111.67	3898.05	11.18	11.18	-34.63	36.39	287.89	0.17	MWD	None
76	3914.50	2.70	196.27	15.67	3913.70	10.47	10.47	-34.84	36.38	286.73	0.00	Proj to TD	

Bit Run Summary



Job Number AWA-04-07		Company Rep. B. Houston/P. King		Date In 20-Oct-04		Date Out 21-Oct-04		D&M Run Number 1		Rig Run Number 3													
Company SANTOS Ltd.			Grid Corr -0.29		Brief Run Summary Good Run				Bit Run Number 3		Cell Manager Achilles DeCastro												
Rig Name Jack Bates			Tot Corr 10.56		Hole Depth From 787.5 m To 990 m				D&M Crew Daniel Hastie														
Well Name Callister-1			Location Otway Basin		Inclination (Drift) From 1.0 deg To 0.22 deg				Pumping Hours 19.4 hrs.		Below Rotary Tbl Hrs 44.75 hrs.												
Mapfile BGGM 2004		Mag Dec 10.27		PP Slot ID		Azimuth From 0.0 deg To 170.41 deg				Rotary Hours 8.6 hrs.		Rotary Distance 202.5 m											
BPS 3		Frequency 12 Hz		Mod Type QPSK		True Vertical Depth From 787.43 m To 989.91 m				Slide Hours 0.0 hrs.		Slide Distance 0.0 m											
Pump Type Triplex		Pump Output 4.2 gpm		Pump Strk Len. 12 in		Drilling Hours 8.6 hrs.				Drilling Distance 202.5 m													
Pump Liner ID 6.0 in		Min DLS 0.11		Max DLS 0.37		Hole Size 12.5 in		Water Depth 129.42 m		Air Gap 29.0 m		Reaming Hours 0.0 hrs.		Reaming Distance 0.0 m									
Bent Sub Angle deg		Bent HSG Ang 0.00 deg		Depth Max DLS 874.56 m		RKB Height 29.0 m		Ground Elev. -129.42 m		Mod Gap 0.158 in		On Bottom Hours 8.6 hrs.		Service APWD & Dir. Surveys									
Pulse Ht Thresh		Min Pulse Wdt		Max Pulse Wdt		Digit Time		T/F Arc 0.0 in		T/F Angle 0.00 deg		Conn Phase Ang deg		Rise Const Fail Const									
Conn Phase Ang deg		Rise Const		Fail Const		H2S In Well <input type="checkbox"/>		Damp Press 800 psi		Signal Streng. 16.4		Last Casing Size 13.375 in Depth 778.3 m											
Directional Driller(s) Bob Manjenic						Turbine RPM @ Min Flow Rate RPM 2356.00 FR 830 gpm				Turbine RPM @ Max Flow Rate RPM 3125.00 FR 1018 gpm													
Run Objective To drill and evaluate 12-1/4" section vertically to section TD.																							
Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Sensors Code		Real Time Hrs Fail Drilled		Recorded Time Hrs Fail Drilled			
A962M-2099		0 19				9.62										MDC-HC-693		19.4 202.5 44.75 202.5					
H524743-40040		0 19														RGM9-AC-9546		19.4 202.5 44.75 202.5					
H524743-40041		0 19																					
MDC-HC-693		0 19		7.0C00		9.50																	
NMDC900L-D173		0 19				9.62																	
RGM9-AC-9546		0 19		6.0B08		9.50																	
Surface Sys Version		IDEAL/SPM ID9_1C_01		IDEAL/SPM HSPM9_2C_08																			
Manufacturer Schlumberger		Stage Length 4.80 m		Bit to Bend Dist. 0.00 m		Bearing Gap In 0.00		Type A962GT		Rubber RM100		RSS Mfr RSS Type		Bearing Gap Out 0.00		Size 9.62		Sleeve Position RSS Size		Radial Bearing Play			
Serial Number 2099		Sleeve Size 12.13 in		RSS Size		Thrust Bearing Play		Lobe Config. 7:8		Motor Fail <input type="checkbox"/>		RSS SN											
Max Circ Temp 42.00 C		Avg ROP 23.55 m/hr		Min Actl FlowRt 747.00 gpm		Max Shock Dur 8569.00 sec.		Min Circ Temp 31.00 C		Max ROP 93.80 m/hr		Avg PmpPres 2117.00 psi		Total DH Shocks (k) 375.00 k		End Mud Wt 8.80 lb/gal		Avg Surf RPM 76.00		PmpPres On Bot 2761.00 psi		CHECK SHOT	
End Funnel Vis 43.00 CPS		Min RPM 61.00		PmpPres Off Bot 2550.00 psi		Type		End Plastic Vis 12.00 CPS		Max RPM 106.00		Avg Surf WOB 8.40 klbs		Depth		End Yield Point 15.00 CPS		Avg FlowRate 926.00 gpm		Avg Surf Torq 8040.00 ft-lbs		Inclination	
End Mud Resist 0.09		Max Actl FlowRt 1018.00 gpm		Max Shock Lev 3.00		Azimuth																	
Company MI Fluids		PH 11.00		Percent Sand 0.30 %		Additives Barite		Brand KCI/PHPA/Polym		Chlorides 42000.00		Percent Solids 3.80 %		Clean <input checked="" type="checkbox"/>		Type Fresh Water		Other		Percent Oil 0.00 %			
LCM Type		LCM Size		LCM Concentration		BHA Type Motor		Tur Rotor Prt #		Turbine Config 600-1200gpm		Surface Screen <input type="checkbox"/>		Int TF Offset 0.00		Stator Prt #		Pulser Config		DFS Used <input type="checkbox"/>		Low Oil Flag <input type="checkbox"/>	
DD Objectives Achieved <input checked="" type="checkbox"/>		If not, why?		Hrs @ Low Oil 0.00 hrs.		Stab Spacing in		Formation Claystone															
Bit Type PDC		Other		Manufacturer Reed-Hycalog		Model DSX194HGUV		IADC Code		No. of Jets 9		Size of Jets 11		Bit TFA 0.84		Total Revs 90526.00		Stick/Slip YES		Inner Row 8		Outer Row 8	
Dull Char RO		Location A		Brng/Seals X		Gauge (1/16") 1		Other Char ER		Reason Pulled PR		Trans Fail <input type="checkbox"/>		Jamming <input type="checkbox"/>		Client Inconv. <input type="checkbox"/>		Surface Noise <input type="checkbox"/>		Pres Incr @ Fail <input type="checkbox"/>		Jamming Time 0.00 hrs.	
D&M Trip <input type="checkbox"/>		Sync Hours 20.67 hrs.		Surface Vib <input type="checkbox"/>		Surface Sys Failure <input type="checkbox"/>		Lost Time 0.00 hrs.		Down Hole Noise <input type="checkbox"/>		Good run. POOH to change bit.											

RUN INFORMATION

EQUIPMENT DATA

DH MOTOR

OPERATING COND.

MUD

BHA

BIT

FAILURE

SUMMARY

DRILLING & MEASUREMENTS - BHA DATA

Job Number AWA-04-07
 Run Number 1
 BHA Number 3

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS					
					OD	Length				Size	Type	Size	Type			1	2	3	4	5	
UNITS																Date/Time	20-Oct-04	21-Oct-04			
1	PDC Bit	Reed Hycalog	Steel	207742				12.25				6.63	Reg P	0.29	0.29	Field Engineer	AMCastro	DHastie			
2	A962GT Mud Motor	Schlumberger	Steel	2099	9.63	1.07	12.13				6.63	Reg B	7.63	Reg B	10.03	10.32	Depth	760.14	903.37		
3	Float Sub	Schlumberger	Steel	3287		0.90		9.50	3.00	7.63	Reg P	7.63	Reg B	0.90	11.22	Average ROP	94.91	66.25			
4	Roller Reamer	Smith	Steel	XM 066	9.63		12.25	9.50	3.00	7.63	Reg P	7.63	Reg B	2.52	13.74	Avg. Std. Pres.	1464.16	2150.00			
5	CDR9	Schlumberger	Monel	9546	9.50	0.73		9.63	5.88	7.63	Reg P	7.63	H90 B	7.20	20.94	Desurger 1	800.00	800.00			
6	PowerPulse	Schlumberger	Monel	W693	9.50	0.50		9.00	4.25	7.63	H90 P	7.63	Reg B	8.46	29.40	Desurger 2	800.00	800.00			
7	Roller Reamer	Smith	Steel	XM 065	9.50	0.75	12.25	9.50	3.00	7.63	Reg P	7.63	Reg B	2.52	31.92	Tur. RPM @ FR	2460.94	3320.31			
8	NMDC	Schlumberger	Steel	D173	9.50	9.20		9.50	3.00	7.63	Reg P	7.63	Reg B	9.20	41.12	FR @ Tur. RPM	800.00	1000.00			
9	Crossover	TSF	Steel	X/O 2	9.50	1.32		9.50	3.00	7.63	Reg P	6.63	Reg B	1.32	42.44	Avg. RPM	82.00	66.00			
10	7 x 8" HWDC	TSF	Steel		8.00	66.00		8.00	2.88	6.63	Reg P	6.63	Reg B	74.15	116.59	Max RPM	90.00	75.00			
11	8" Jar		Steel	48907-C	8.00	0.61		8.00	3.00	6.63	Reg P	6.63	Reg B	9.78	126.37	Total Shocks	0.00	3.00			
12	2 x 8" DC	TSF	Steel		8.00	27.00		8.00	2.88	6.63	Reg P	6.63	Reg B	18.49	144.86	Max Shock	0.00	0.00			
13	8" Accelator		Steel	DAH 01586	8.00	0.61		8.00	3.00	6.63	Reg P	6.63	Reg B	10.90	155.76	Avg. Surf. WOB	12.00	18.00			
14	8" Drill Collar	TSF	Steel	DC 001	8.00	9.17		8.00	2.88	6.63	Reg P	6.63	Reg B	9.17	164.93	Max Surf. WOB	15.00	20.00			
15	Crossover	TSF	Steel	X/O 9	8.00	1.14		8.00	3.00	6.63	Reg P	4.50	IF B	1.14	166.07	Avg. DH WOB	11.50	7.61			
16	12 x 5" HWDP	TSF	Steel					6.63	3.00	4.50	IF P	4.50	IF B	110.77	276.84	Max DH WOB	14.00	8.31			
17																Avg. Surf. Torq.					
18																Max Surf. Torq.					
19																Avg. DH Torq.	2.30	3.40			
20																Max DH Torq.	5.60	4.40			
21																Formation Type	Cement	Claystone			
22																Friction					
23																Drag Up					
24																Drag Down					
PREDICTED BHA TENDENCY	BHA is expected to hold vertically while drilling the 12.25in section.							Hookload	119.25	klbs	Wt. Below Jars	35.00	klbs	Mud Weight	8.86	8.87					
	Pickup Wt.	74.20	klbs	Wt. Above Jars	16.00	klbs	Funnel Vis.														
	Slack Wt.	45.00	klbs	Total Air Wt.	51.00	klbs	Plastic Vis.														
							Circ. Temp	28.00	35.00												
							Signal Strength	15.10	16.00												
							Bit Deviation	1.00	1.05												
						Differential Pres.															
Stabilizer Description	Mid Pt To Bit	BLADE			GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs	
		Type	Length	Width	Length	In	Out	CDR	16.85 m	GR LWLD	19.16 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP	
UNITS		m	in	in	in	in	in	PPL	22.72 m	RES LWLD	15.68 m	H524743-40040	21.74		20.56		24.60	3.44	24.60	3.44	
									m	APWD LWLD	16.39 m	H524743-40041	21.71		20.56		24.60	3.44	24.60	3.44	
									m	D&I PPL	25.07 m										
									m												
									m												

Job Number AWA-04-07		Company Rep. B.Houston, J.Young		Date In 21-Oct-04		Date Out 26-Oct-04		D&M Run Number 2		Rig Run Number 4											
Company SANTOS Ltd.			Grid Corr -0.29		Brief Run Summary Good Run				Bit Run Number 4		Cell Manager Achilles DeCastro										
Rig Name Jack Bates			Tot Corr 10.56		Hole Depth From 990 m To 2550 m				D&M Crew Daniel Hastie/Arnis Ahmad												
Well Name Callister-1			Location OTway Basin		Inclination (Drift) From 0.22 deg To 1.01 deg				Pumping Hours 76.10 hrs.		Below Rotary Tbl Hrs 116.00 hrs.										
Mag Dec 10.27		PP Slot ID		Azimuth From 170.41 deg To 330.09 deg				Rotary Hours 57.60 hrs.		Rotary Distance 1560.00 m											
BPS 3		Frequency 12 Hz		Mod Type QPSK		True Vertical Depth From 989.91 m To 2549.72 m				Slide Hours 0.00 hrs.		Slide Distance 0.00 m									
Pump Type Triplex		Pump Output 4.2 gpm		Pump Strk Len. 12 in		Hole Size 12.25 in		Water Depth 129.42 m		Air Gap 29.0 m		Drilling Hours 0 hrs.		Drilling Distance 0 m							
Pump Liner ID 6.0 in		Min DLS 0.01		Max DLS 1.22		Bent Sub Angle deg		Bent HSG Ang 0 deg		Depth Max DLS 990.11 m		RKB Height 29.0 m		Ground Elev. -129.42 m		Mod Gap .158 in		Reaming Hours 0.00 hrs.		Reaming Distance 0.00 m	
Pulse Ht Thresh		Min Pulse Wdt		Max Pulse Wdt		Digit Time		T/F Arc 0 in		T/F Angle 0 deg		On Bottom Hours 57.60 hrs.		Service APWD & Dir. Surveys							
Conn Phase Ang deg		Rise Const		Fall Const		H2S In Well <input type="checkbox"/>		Damp Press 800 psi		Signal Strong. 9		Last Casing Size 13.375 in Depth 778.3 m									
Directional Driller(s) Bob Manjenic				Turbine RPM @ Min Flow Rate RPM 2988.68 FR				Turbine RPM @ Max Flow Rate RPM 3215.34 FR				1000.00 gpm									
Run Objective Drill 12.25in section to section TD.																					
Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Sensors Code		Real Time Hrs Fail Drilled		Recorded Time Hrs Fail Drilled	
A962M-2099		19 96		9.62												MDC-HC-693		76.1 0			
H524743-40040		19 96														RGM9-AC-9546		76.1 0 116		0	
H524743-40041		19 96																			
MDC-HC-693		19 96		7.0C00		9.50															
NMDC900L-D173		19 96				9.50															
RGM9-AC-9546		19 96		6.0B08		9.50															
Surface Sys Version		IDEAL/SPM ID9_1c_01		IDEAL/SPM HSPM9_2C_08																	
Manufacturer Schlumberger		Stage Length 4.80 m		Bit to Bend Dist. 0.00 m		Bearing Gap In 0.00															
Type A962GT		Rubber RM100		RSS Mfr		Bearing Gap Out															
Size 9.62		Sleeve Position		RSS Type		Radial Bearing Play															
Serial Number 2099		Sleeve Size 12.13 in		RSS Size		Thrust Bearing Play															
Lobe Config. 7:8		Motor Fail <input type="checkbox"/>		RSS SN																	
Max Circ Temp 60.00 C		Avg ROP 35.10 m/hr		Min Actl FlowRt 35.10 gpm		Max Shock Dur 1.00 sec.															
Min Circ Temp 48.00 C		Max ROP 122.80 m/hr		Avg PmpPres 2513.00 psi		Total DH Shocks (k) 0.09 k															
End Mud Wt 9.10 lb/gal		Avg Surf RPM 99.00		PmpPres On Bot 2531.00 psi		CHECK SHOT															
End Funnel Vis 51.00 CPS		Min RPM 75.00		PmpPres Off Bot 2338.00 psi		Type															
End Plastic Vis 15.00 CPS		Max RPM 112.00		Avg Surf WOB 7.70 klbs		Depth															
End Yield Point 23.00 CPS		Avg FlowRate 867.00 gpm		Avg Surf Torq 8.40 ft-lbs		Inclination															
End Mud Resist 0.09		Max Actl FlowRt 1008.00 gpm		Max Shock Lev 2.00		Azimuth															
Company MI Fluids		PH 9.00		Percent Sand 0.75 %		Additives Barite															
Brand KCl/PHPA/Polym		Chlorides 46000.00		Percent Solids 6.00 %		Clean <input checked="" type="checkbox"/>															
Type Fresh Water		Other		Percent Oil 0.00 %																	
LCM Type		LCM Size		LCM Concentration																	
BHA Type Motor		Tur Rotor Prt #		Turbine Config 600-1200gpm		Surface Screen <input type="checkbox"/>															
Int TF Offset 0.00		Stator Prt #		Pulser Config		DFS Used <input type="checkbox"/>															
Low Oil Flag <input type="checkbox"/>		Hrs @ Low Oil 0.00 hrs.		Stab Spacing		Formation Claystone															
DD Objectives Achieved <input checked="" type="checkbox"/>		If not, why?																			
Bit Type PDC		Other																			
Manufacturer Reed-Hycalog		Model DSX104		IADC Code		No. of Jets 5		Size of Jets 14		Bit TFA 0.75		Total Revs 648710.00		Stick/Slip YES							
Inner Row 6		Outer Row 5		Dull Char WT		Location A		Brng/Seals X		Gauge (1/16") In		Other Char SS		Reason Pulled TD							
Trans Fail <input type="checkbox"/>		Jamming <input type="checkbox"/>		Client Inconv. <input type="checkbox"/>		Surface Noise <input type="checkbox"/>															
Pres Incr @ Fail <input type="checkbox"/>		Jamming Time 0.00 hrs.		Lost Time 0.00 hrs.		Down Hole Noise <input type="checkbox"/>															
D&M Trip <input type="checkbox"/>		Sync Hours 60.78 hrs.		Surface Vib <input type="checkbox"/>		Surface Sys Failure <input type="checkbox"/>															
SUMMARY												Good run. 12.25in section was drilled to section TD with the same set of tools.									

DRILLING & MEASUREMENTS - BHA DATA

Job Number AWA-04-07
Run Number 2
BHA Number 4

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS						
					OD	Length				Size	Type	Size	Type			1	2	3	4	5		
UNITS																Date/Time	23-Oct-04	24-Oct-04	25-Oct-04	25-Oct-04		
1	PDC Bit	Reed Hycalog	Steel	10893				12.25				6.63	Reg P	0.32	0.32	Field Engineer	AMCastro	A.Ahmad	A.Ahmad	AMCastro		
2	A962GT Mud Motor	Schlumberger	Steel	2099	9.63	1.07	12.13				6.63	Reg B	7.63	Reg B	10.03	10.35	Depth	1692.96	1904.00	2078.00	2413.79	
3	Float Sub	Schlumberger	Steel	3287		0.90			9.50	3.00	7.63	Reg P	7.63	Reg B	0.90	11.25	Average ROP	19.98	25.00	25.00	20.58	
4	Roller Reamer	Smith	Steel	XM 066	9.63		12.25	9.50	3.00	7.63	Reg P	7.63	Reg B	2.52	13.77	Avg. Std. Pres.	2551.90	2500.00	2600.00	2905.63		
5	CDR9	Schlumberger	Monel	9546	9.50	0.73			9.63	5.88	7.63	Reg P	7.63	H90 B	7.20	20.97	Desurger 1	800.00	800.00	800.00	800.00	
6	PowerPulse	Schlumberger	Monel	W693	9.50	0.50			9.00	4.25	7.63	H90 P	7.63	Reg B	8.46	29.43	Desurger 2	800.00	800.00	800.00	800.00	
7	Roller Reamer	Smith	Steel	XM 065	9.50	0.75	12.25	9.50	3.00	7.63	Reg P	7.63	Reg B	2.52	31.95	Tur. RPM @ FR	3125.00	3125.00	3164.00	3125.00		
8	NMDC	Schlumberger	Steel	D173	9.50	9.20			9.50	3.00	7.63	Reg P	7.63	Reg B	9.20	41.15	FR @ Tur. RPM	900.00	875.00	895.00	900.00	
9	Crossover	TSF	Steel	X/O 2	9.50	1.32			9.50	3.00	7.63	Reg P	6.63	Reg B	1.32	42.47	Avg. RPM	98.00	100.00	100.00	98.00	
10	7 x 8" HWDC	TSF	Steel		8.00	66.00			8.00	2.88	6.63	Reg P	6.63	Reg B	74.15	116.62	Max RPM	102.00	103.00	105.00	105.00	
11	8" Jar		Steel	48907-C	8.00	0.61			8.00	3.00	6.63	Reg P	6.63	Reg B	9.78	126.40	Total Shocks	0.75	0.09	0.09	0.09	
12	2 x 8" DC	TSF	Steel		8.00	27.00			8.00	2.88	6.63	Reg P	6.63	Reg B	18.49	144.89	Max Shock	0.00	0.00	0.00	0.00	
13	8" Accelator		Steel	DAH 01586	8.00	0.61			8.00	3.00	6.63	Reg P	6.63	Reg B	10.90	155.79	Avg. Surf. WOB	3.50	5.00	5.00	11.00	
14	8" Drill Collar	TSF	Steel	DC 001	8.00	9.17			8.00	2.88	6.63	Reg P	6.63	Reg B	9.17	164.96	Max Surf. WOB	5.00	10.00	15.00	15.00	
15	Crossover	TSF	Steel	X/O 9	8.00	1.14			8.00	3.00	6.63	Reg P	4.50	IF B	1.14	166.10	Avg. DH WOB	2.76	3.00	6.00	8.60	
16	12 x 5" HWDP	TSF	Steel						6.63	3.00	4.50	IF P	4.50	IF B	110.77	276.87	Max DH WOB	5.40	5.00	10.00	11.45	
17																	Avg. Surf. Torq.	3.00	3.00	3.00	8.00	
18																	Max Surf. Torq.	5.00	5.00	6.00	10.00	
19																	Avg. DH Torq.	2.30	2.00	2.00	8.44	
20																	Max DH Torq.	4.00	3.00	4.00	10.30	
21																	Formation Type					
22																	Friction					
23																	Drag Up					
24																	Drag Down					
PREDICTED BHA TENDENCY	BHA is expected to hold vertically while drilling the 12.25in section.							Hookload	119.25	klbs	Wt. Below Jars	35.00	klbs	Mud Weight	9.09	9.01	9.01	9.01				
	Pickup Wt.	74.20	klbs	Wt. Above Jars	16.00	klbs	Funnel Vis.	49.00	47.00	49.00	49.00											
	Slack Wt.	45.00	klbs	Total Air Wt.	51.00	klbs	Plastic Vis.	13.00	17.00	14.00	14.00											
							Circ. Temp	46.00	50.00	52.00	57.00											
							Signal Strength	12.60	11.50	10.50	5.89											
							Bit Deviation	0.41	0.95	0.91	0.97											
							Differential Pres.	200.00	200.00	200.00	200.00											
Stabilizer Description		Mid Pt To Bit	BLADE		GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs		
UNITS		m	Type	Length	Width	Length	In	Out	CDR	16.88 m	GR LWLD	19.19 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP	
				in	in	in	in	in	PPL	22.74 m	RES LWLD	15.71 m	H524743-40040	21.74		20.56		19.00	3.44	43.00	6.88	
										m	APWD LWLD	16.42 m	H524743-40041	21.71		20.56		40.00	6.40	64.00	10.28	
										m	D&I PPL	25.09 m										
										m												
										m												
										m												

Job Number AWA-04-07		Company Rep. B.Houston, J.Young		Date In 29-Oct-04		Date Out 30-Oct-04		D&M Run Number 3		Rig Run Number 5											
Company SANTOS Ltd.			Grid Corr -0.29		Brief Run Summary Good Run				Bit Run Number 5		Cell Manager Achilles DeCastro										
Rig Name Jack Bates			Tot Corr 10.56		Hole Depth From 2550 m To 2662 m				D&M Crew Arnis Ahmad												
Well Name Callister-1			Location OTway Basin		Inclination (Drift) From 1.01 deg To 1.09 deg				Pumping Hours 16.8 hrs.		Below Rotary Tbl Hrs 43.0 hrs.										
Mapfile BGGM 2004		Mag Dec 10.27		PP Slot ID		Azimuth From 330.09 deg To 335.82 deg				Rotary Hours 5.3 hrs.		Rotary Distance 112 m									
BPS 3		Frequency 12 Hz		Mod Type QPSK		True Vertical Depth From 2549.72 m To 2661.71 m				Slide Hours 0.0 hrs.		Slide Distance 0.0 m									
Pump Type Triplex		Pump Output 4.2 gpm		Pump Strk Len. 12 in		Hole Size 8.5 in		Water Depth 129.42 m		Air Gap 29.0 m		Drilling Hours 5.3 hrs.		Drilling Distance 112 m							
Pump Liner ID 6.0 in		Min DLS 0.03		Max DLS 0.07		RKB Height 29.0 m		Ground Elev. -129.42 m		Mod Gap 0.105 in		Reaming Hours 0.0 hrs.		Reaming Distance 0.0 m							
Bent Sub Angle deg		Bent HSG Ang deg		Depth Max DLS 2616.28 m		RKB Height 29.0 m		Ground Elev. -129.42 m		Mod Gap 0.105 in		Reaming Hours 0.0 hrs.		Reaming Distance 0.0 m							
Pulse Ht Thresh		Min Pulse Wdt		Max Pulse Wdt		Digit Time		T/F Arc 0 in		T/F Angle 0 deg		On Bottom Hours 5.3 hrs.		Service APWD & Dir. Surveys							
Conn Phase Ang deg		Rise Const		Fall Const		H2S In Well <input type="checkbox"/>		Damp Press 800 psi		Signal Streng. 4.3		Last Casing Size 9.625 in Depth 2538.00 m									
Directional Driller(s)						Turbine RPM @ Min Flow Rate RPM 1875 FR 450 gpm				Turbine RPM @ Max Flow Rate RPM 3505 FR 700 gpm											
Run Objective To drill 8-1/2in section vertically to well TD.																					
Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Equipment Code		Pump Hrs Start Cum		SW Vers		Tool Size		Sensors Code		Real Time Hrs Fail Drilled		Recorded Time Hrs Fail Drilled	
CDR6-AA-606		0 17		6.0B08		6.75										CDR6-AA-606		5.3 112		43 112	
H524743-40042		0 17														MDC-AC-880		5.3 112		43 0	
H524743-40043		0 17																			
MDC-AC-880		0 17		7.0C00		6.75															
Surface Sys Version		IDEAL/SPM ID9_1C_01		IDEAL/SPM HSPM9_2C_08																	
Manufacturer		Stage Length m		Bit to Bend Dist. m		Bearing Gap In															
Type		Rubber		RSS Mfr		Bearing Gap Out															
Size		Sleeve Position		RSS Type		Radial Bearing Play															
Serial Number		Sleeve Size in		RSS Size		Thrust Bearing Play															
Lobe Config.		Motor Fail <input type="checkbox"/>		RSS SN																	
Max Circ Temp		61.00 C		Avg ROP 28.18 m/hr		Min Actl FlowRt 395.00 gpm		Max Shock Dur 2400.00 sec.													
Min Circ Temp		59.00 C		Max ROP 68.85 m/hr		Avg PmpPres 2200.00 psi		Total DH Shocks (k) 10.50 k													
End Mud Wt		9.09 lb/gal		Avg Surf RPM 128.00		PmpPres On Bot 2500.00 psi		CHECK SHOT													
End Funnel Vis		54.00 CPS		Min RPM 87.00		PmpPres Off Bot 2500.00 psi		Type													
End Plastic Vis		14.00 CPS		Max RPM 136.00		Avg Surf WOB 12.71 klbs		Depth m													
End Yield Point		24.00 CPS		Avg FlowRate 700.00 gpm		Avg Surf Torq 9.48 ft-lbs		Inclination deg													
End Mud Resist		0.12		Max Actl FlowRt 800.00 gpm		Max Shock Lev 3.00		Azimuth deg													
Company		MI Fluids		PH 9.00		Percent Sand 0.20 %		Additives Barite													
Brand		KCI/PHPA/Glyco		Chlorides 45000.00		Percent Solids 7.00 %		Clean <input checked="" type="checkbox"/>													
Type		Fresh Water		Other		Percent Oil 0.00 %															
LCM Type				LCM Size		LCM Concentration															
BHA Type		Packed Hole		Tur Rotor Prt #		Turbine Config 400-800gpm		Surface Screen <input type="checkbox"/>													
Int TF Offset		0.00		Stator Prt #		Pulser Config		DFS Used <input type="checkbox"/>													
Low Oil Flag <input type="checkbox"/>				Hrs @ Low Oil hrs.		Stab Spacing		Formation Sandstone													
DD Objectives Achieved <input type="checkbox"/>				If not, why?																	
Bit Type		PDC		Other																	
Manufacturer		Model		IADC Code		No. of Jets		Size of Jets		Bit TFA		Total Revs		Stick/Slip							
Reed-Hycalog		RSX272				5,2		14,10		0.91		39896.00		YES							
Inner Row		Outer Row		Dull Char		Location		Brng/Seals		Gauge (1/16")		Other Char		Reason Pulled							
3		1		BU		A		X		In		WT		PR							
Trans Fail <input type="checkbox"/>				Jamming <input type="checkbox"/>		Client Inconv. <input type="checkbox"/>		Surface Noise <input type="checkbox"/>													
Pres Incr @ Fail <input type="checkbox"/>				Jamming Time 0.00 hrs.		Lost Time 0.00 hrs.		Down Hole Noise <input type="checkbox"/>													
D&M Trip <input type="checkbox"/>				Sync Hours 12.21 hrs.		Surface Vib <input type="checkbox"/>		Surface Sys Failure <input type="checkbox"/>													
SUMMARY												Good Run. POOH to investigate BHA due to low ROP while drilling.									

DRILLING & MEASUREMENTS - BHA DATA

Job Number AWA-04-07
 Run Number 3
 BHA Number 5

Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS								
					OD	Length				Size	Type	Size	Type			1	2	3	4	5				
UNITS																Date/Time	30-Oct-04							
1	PDC Bit	Reed-Hycalog	Steel	109886				8.50				4.50	Reg P	0.25	0.25	Field Engineer	AMCastro							
2	N.B Roller Reamer	Gearhart	Steel	XM 094	6.50	0.66	8.50				4.50	Reg B	4.00	IF B	1.83	2.08	Depth	2596.38						
3	CDR6	Schlumberger	Monel	606	6.81	4.00		6.75	5.13	4.00	IF P	5.50	FH B	6.99	9.07	Average ROP	18.58							
4	PowerPulse6 cw ILS6	Schlumberger	Monel	V880	7.00	0.47	8.38	6.75	4.13	5.50	FH P	4.00	IF B	9.11	18.18	Avg. Std. Pres.	2800.79							
5	Roller Reamer	Gearhart	Steel	XM 088	6.50	0.65	8.50	6.50	2.25	4.00	IF P	4.00	IF B	1.94	20.12	Desurger 1	800.00							
6	14 x 8" HWDC	TSF	Steel		6.50	1.08		6.50	2.88	4.00	IF P	4.00	IF B	127.17	147.29	Desurger 2	800.00							
7	8" Jar		Steel	DAH 03584	6.44	0.54		8.00	2.69	4.00	IF P	4.00	IF B	9.37	156.66	Tur. RPM @ FR	3554.70							
8	3 x 8" HWDC	TSF	Steel		6.50	1.08		6.50	2.88	4.00	IF P	4.00	IF B	27.23	183.89	FR @ Tur. RPM	770.00							
9	Crossover	TSF	Steel	X/O 12	8.00	0.81		8.00	2.88	4.00	IF P	4.00	IF B	0.81	184.70	Avg. RPM	100.00							
10	12 x 5" HWDP	TSF	Steel		6.50	0.60		6.50	3.00	4.00	IF P	4.00	IF B	110.77	295.47	Max RPM	123.00							
11																Total Shocks	0.00							
12																Max Shock	0.00							
13																Avg. Surf. WOB	17.50							
14																Max Surf. WOB	22.00							
15																Avg. DH WOB	19.87							
16																Max DH WOB	20.95							
17																Avg. Surf. Torq.	3.00							
18																Max Surf. Torq.	5.00							
19																Avg. DH Torq.	4.68							
20																Max DH Torq.	5.21							
21																Formation Type	Shale							
22																Friction								
23																Drag Up								
24																Drag Down								
PREDICTED BHA TENDENCY	BHA is to drill vertically to well TD.							Hookload	110.00	lbs	Wt. Below Jars	40.00	klbs	Mud Weight	9.10									
							Pickup Wt.			Wt. Above Jars	20.00	klbs	Funnel Vis.	54.00										
							Slack Wt.			Total Air Wt.	80.00	klbs	Plastic Vis.	14.00										
													Circ. Temp	59.00										
													Signal Strength	7.22										
													Bit Deviation	0.98										
													Differential Pres.											
Stabilizer Description		Mid Pt To Bit	BLADE		GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs				
UNITS		m	Type	Length	Width	Length	In	Out	CDR	4.96 m	GR LWLD	7.32 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP			
				in	in	in	in	in	PPL	11.47 m	RES LWLD	3.97 m		21.73		20.59								
										m	APWD LWLD	4.50 m		21.73		20.76								
										m	D&I PPL	13.82 m												
										m		m												
										m		m												
										m		m												

Job Number		Company Rep.		Date In	Date Out	D&M Run Number	Rig Run Number									
AWA-04-07		B.Houston/P. King		31-Oct-04	5-Nov-04	4	6									
Company SANTOS Ltd.			Grid Corr	Brief Run Summary			Bit Run Number	Cell Manager								
Rig Name Jack Bates			-0.29	Good Run			6	Achilles DeCastro								
Well Name Callister-1			Tot Corr	Hole Depth			D&M Crew									
Location OTway Basin			10.56	From 2662 m To 3914 m			Arnis Ahmad									
Mapfile		Mag Dec	PP Slot ID	Inclination (Drift)			Pumping Hours	Below Rotary Tbl Hrs								
BGGM 2004		10.27		From 1.09 deg To 2.7 deg			93.7 hrs.	129.1 hrs.								
BPS	Frequency	Mod Type	Azimuth			Rotary Hours	Rotary Distance									
3	12 Hz	QPSK	From 335.82 deg To 196.27 deg			60.1 hrs.	1252 m									
Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth			Slide Hours	Slide Distance									
Triplex	4.2 gpm	12 in	From 2661.71 m To 3913.7 m			0.0 hrs.	0.0 m									
Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap	Drilling Hours	Drilling Distance									
6.0 in	0.02	0.22	8.5 in	129.42 m	29.0 m	60.1 hrs.	1252 m									
Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.	Mod Gap	Reaming Hours	Reaming Distance									
deg	deg	3358.35 m	29.0 m	-129.42 m	0.105 in	0.0 hrs.	0.0 m									
Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc	T/F Angle	On Bottom Hours	Service									
				0 in	0 deg	60.1 hrs.	APWD & Dir. Surveys									
Conn Phase Ang	Rise Const	Fail Const	H2S In Well	Damp Press	Signal Streng.	Last Casing										
deg			<input type="checkbox"/>	800 psi	2.3	Size 9.625 in	Depth 2538 m									
Directional Driller(s)			Turbine RPM @ Min Flow Rate			Turbine RPM @ Max Flow Rate										
			RPM 3476	FR 700 gpm	RPM 3750	FR 800 gpm										
Run Objective To drill 8.5in section from 2662m to well TD.																
Equipment Code	Pump Hrs Start	Pump Hrs Cum	SW Vers	Tool Size	Equipment Code	Pump Hrs Start	Pump Hrs Cum	SW Vers	Tool Size	Sensors Code	Real Time Hrs	Real Time Fail	Recorded Time Hrs	Recorded Time Fail	Recorded Time Drilled	
CDR6-AA-606	17	111	6.0B08	6.75						CDR6-AA-606	93.7		1252	129.1	1252	
H524743-40042	17	111								MDC-AC-880	60.1		1252	0	0	
H524743-40043	17	111														
MDC-AC-880	17	111	7.0C00	6.75												
Surface Sys Version									IDEAL/SPM	IDEAL/SPM						
									ID9_1C_01	HSPM9_2C_08						
Manufacturer			Stage Length	m	Bit to Bend Dist.		m	Bearing Gap In								
Type			Rubber	RSS Mfr		Bearing Gap Out										
Size			Sleeve Position	RSS Type		Radial Bearing Play										
Serial Number			Sleeve Size	in	RSS Size		Thrust Bearing Play									
Lobe Config.			Motor Fail	<input type="checkbox"/>	RSS SN											
Max Circ Temp	104.00 C	Avg ROP	27.09 m/hr	Min Actl FlowRt	536.00 gpm	Max Shock Dur	36.00 sec.									
Min Circ Temp	63.00 C	Max ROP	66.85 m/hr	Avg PmpPres	3707.00 psi	Total DH Shocks (k)	6.40 k									
End Mud Wt	12.85 lb/gal	Avg Surf RPM	128.00	PmpPres On Bot	4050.00 psi	CHECK SHOT										
End Funnel Vis	55.00 CPS	Min RPM	51.00	PmpPres Off Bot	4050.00 psi	Type										
End Plastic Vis	23.00 CPS	Max RPM	137.00	Avg Surf WOB	14.10 klbs	Depth										
End Yield Point	32.00 CPS	Avg FlowRate	655.00 gpm	Avg Surf Torq	12.50 ft-lbs	Inclination										
End Mud Resist	0.10	Max Actl FlowRt	718.00 gpm	Max Shock Lev	3.00	Azimuth										
Company	MI Fluids	PH	8.90	Percent Sand	0.30 %	Additives	Barite									
Brand	KCI/PHPA/Glyco	Chlorides	51000.00	Percent Solids	20.50 %	Clean	<input checked="" type="checkbox"/>									
Type	Fresh Water	Other		Percent Oil	0.00 %											
LCM Type				LCM Size		LCM Concentration										
BHA Type	Packed Hole	Tur Rotor Prt #		Turbine Config	400-800gpm	Surface Screen	<input type="checkbox"/>									
Int TF Offset	0.00	Stator Prt #		Pulser Config		DFS Used	<input type="checkbox"/>									
Low Oil Flag	<input type="checkbox"/>	Hrs @ Low Oil	0.00 hrs.	Stab Spacing		Formation	Shale									
DD Objectives Achieved			<input checked="" type="checkbox"/>	If not, why?												
Bit Type			PDC	Other												
Manufacturer	Model	IADC Code	No. of Jets	Size of Jets	Bit TFA	Total Revs	Stick/Slip									
Reed-Hycalog	DSX104		5	15	0.86	458237.00	YES									
Inner Row	Outer Row	Dull Char	Location	Brg/Seals	Gauge (1/16")	Other Char	Reason Pulled									
2	2	CT	S	X	IN	NO	TD									
Trans Fail	<input type="checkbox"/>	Jamming	<input type="checkbox"/>	Client Inconv.	<input type="checkbox"/>	Surface Noise	<input type="checkbox"/>									
Pres Incr @ Fail	<input type="checkbox"/>	Jamming Time	0.00 hrs.	Lost Time	0.00 hrs.	Down Hole Noise	<input type="checkbox"/>									
D&M Trip	<input type="checkbox"/>	Sync Hours	65.90 hrs.	Surface Vib	<input type="checkbox"/>	Surface Sys Failure	<input type="checkbox"/>									
SUMMARY									Good run. Callister-1 TD @ 3914m MD.							

DRILLING & MEASUREMENTS - BHA DATA

Job Number AWA-04-07
 Run Number 4
 BHA Number 6

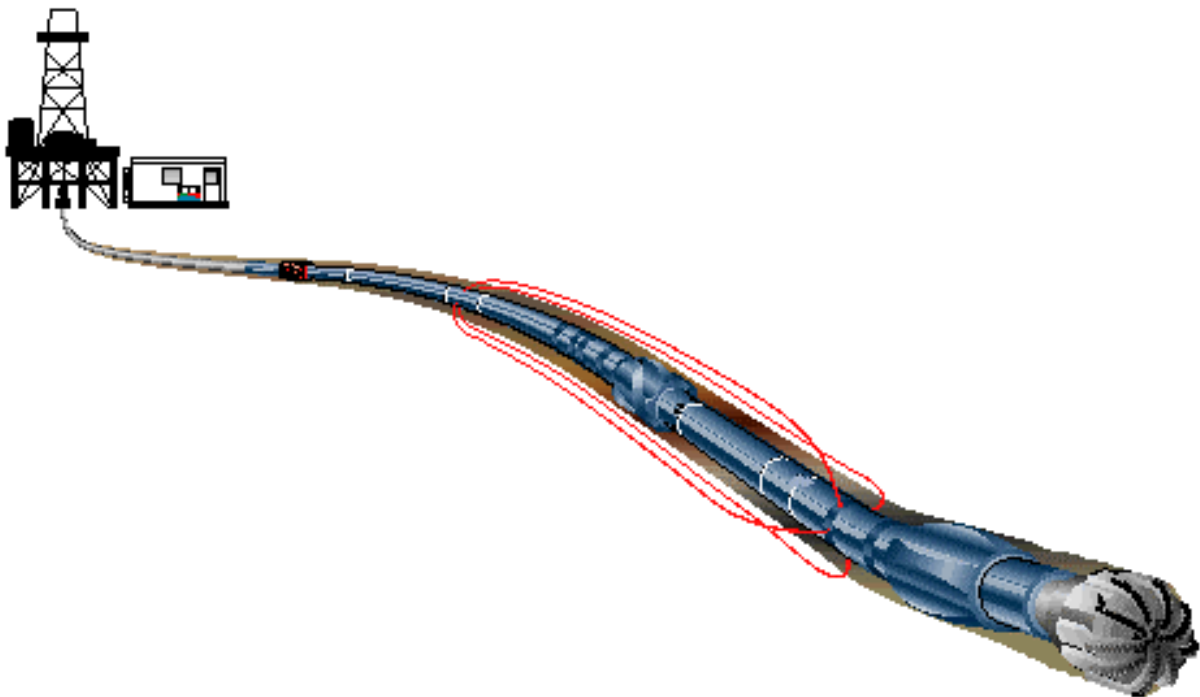
Item	Description	Vendor	Material	Serial Number	Fishing Neck		Stab OD	OD	ID	Bot Connection		Top Connection		Len	Cum Len	TIME/DEPTH DETAILS						
					OD	Length				Size	Type	Size	Type			1	2	3	4	5		
UNITS																Date/Time	30-Oct-04	01-Nov-04	01-Nov-04	02-Nov-04	04-Nov-04	
1	PDC Bit	Reed-Hycalog	Steel	409737				8.50				4.50	Reg P	0.23	0.23	Field Engineer	AMCastro	AAhmad	AMCastro	AMCastro	Aahmad	
2	N.B Roller Reamer	Gearhart	Steel	XM 094	6.50	0.66	8.50				4.50	Reg B	4.00	IF B	1.83	2.06	Depth	2684.87	3002.00	3115.92	3612.19	3832.00
3	CDR6	Schlumberger	Monel	606	6.81	4.00		6.75	5.13	4.00	IF P	5.50	FH B	6.99	9.05	Average ROP	36.85	40.00	29.52	12.95	12.00	
4	PowerPulse6 cw ILS6	Schlumberger	Monel	V880	7.00	0.47	8.38	6.75	4.13	5.50	FH P	4.00	IF B	9.11	18.16	Avg. Std. Pres.	2991.30	3260.00	4005.30	3867.02	4150.00	
5	Roller Reamer	Gearhart	Steel	XM 088	6.50	0.65	8.50	6.50	2.25	4.00	IF P	4.00	IF B	1.94	20.10	Desurger 1	800.00	800.00	800.00	800.00	800.00	
6	14 x 8" HWDC	TSF	Steel		6.50	1.08		6.50	2.88	4.00	IF P	4.00	IF B	127.17	147.27	Desurger 2	800.00	800.00	800.00	800.00	800.00	
7	8" Jar		Steel	DAH 03584	6.44	0.54		8.00	2.69	4.00	IF P	4.00	IF B	9.37	156.64	Tur. RPM @ FR	3750.00	3671.00	3632.70	3281.25	3125.00	
8	3 x 8" HWDC	TSF	Steel		6.50	1.08		6.50	2.88	4.00	IF P	4.00	IF B	27.23	183.87	FR @ Tur. RPM	800.00	750.00	770.00	730.00	620.00	
9	Crossover	TSF	Steel	X/O 12	8.00	0.81		8.00	2.88	4.00	IF P	4.00	IF B	0.81	184.68	Avg. RPM	135.00	136.00	132.00	87.00	135.00	
10	12 x 5" HWDP	TSF	Steel		6.50	0.60		6.50	3.00	4.00	IF P	4.00	IF B	110.77	295.45	Max RPM	140.00	140.00	140.00	125.00	140.00	
11																Total Shocks	0.11	0.11	0.13	0.15	0.16	
12																Max Shock	0.00	0.00	0.00	3.00	3.00	
13																Avg. Surf. WOB	9.50	10.00	18.80	8.67	10.00	
14																Max Surf. WOB	11.00	15.00	21.20	11.20	18.00	
15																Avg. DH WOB	6.75	7.00	15.19			
16																Max DH WOB	8.88	9.00	17.96			
17																Avg. Surf. Torq.	3.00	4.00	4.00	7.00	4.00	
18																Max Surf. Torq.	6.40	6.00	7.00	9.00	6.00	
19																Avg. DH Torq.	5.58	5.00	2.88	3.24	2.00	
20																Max DH Torq.	5.30	6.00	4.20	5.91	6.00	
21																Formation Type	Shale	Shale	Shale	Sandstone	Shale	
22																Friction						
23																Drag Up						
24																Drag Down						
PREDICTED BHA TENDENCY	Drill 8.5in section vertically to TD.							Hookload 110.00		Wt. Below Jars 40.00		Mud Weight		9.43	10.10	10.10	12.00	12.80				
								Pickup Wt.		Wt. Above Jars 20.00		Funnel Vis.		55.00	50.00	50.00	50.00	55.00				
								Slack Wt.		Total Air Wt. 80.00		Plastic Vis.		13.00	17.00	17.00	17.00	23.00				
												Circ. Temp		63.00	74.00	80.00	95.00	102.00				
												Signal Strength		5.25	5.50	5.80	3.03	2.10				
												Bit Deviation		1.09	0.37	0.47	2.18	2.50				
												Differential Pres.		0.00	0.00	0.00	0.00	0.00				
Stabilizer Description	Mid Pt To Bit	BLADE			GAUGE			Bit To Read Out Port		Bit To Measurement Port		BATTERY		Unloaded (V)		Loaded (V)		Run Hrs		Cum Hrs		
		Type	Length	Width	Length	In	Out	CDR	4.94 m	GR LWLD	7.30 m	Tool	Before	After	Before	After	BOT	AMP	BOT	AMP		
UNITS		m	in	in	in	in	in	PPL	11.45 m	RES LWLD	3.95 m	H524743-40042	21.73		20.59		35.40	4.25	51.00	8.56		
									m	APWD LWLD	4.48 m	H524743-40043	21.73		20.59		0.00	0.00	51.00	0.00		
									m	D&I PPL	13.80 m											
									m													
									m													
									m													

Job Number: AWA-04-07

Run Number: 4

Date	Time	Depth	Operating Details
31-Oct-04	2:45	0.00	Initialised CDR on rotary table with 10sec config. Monitored tool, and all system checks passed.
	4:40	170.00	SHT @ 700gpm, SPT1: 14psi, TRPM: 3476 rpm, SPPA: 1350 psi. Good result.
	4:45	170.00	Finished SHT. Continue RIH.
	10:15	2607.00	Geolograph connected. Set bit depth.
	11:00	2645.00	Start washing down to bottom.
	11:30	2662.00	On bottom, drilling ahead.
	22:50	2974.00	SCR's.
01-Nov-04	0:00	3002.00	Midnight depth. Pumping hrs for the past 24 hrs: 11.9 hrs.
	0:15	3002.00	Circulating to weight up mud to 10.5 ppg.
	0:30	3002.00	Re-calibrate DTORQ & DWOB.
	0:38	3002.00	Finished re-calibrate DTOR & DWOB.
	2:28	3002.00	Mud weight up to 10.5 ppg. Back on-bottom drilling.
	5:57	3052.00	Decrease in Pump Pressure. Picked up off-bottom. Flow check and checking the pumps.
	6:20	3052.00	Pumps online. Still investigating the problem on the pressure loss.
	6:38	3952.00	Back on-bottom drilling.
	7:21	3064.00	Drop in SPPA. Flow check to investigate the problem.
	7:38	3064.00	Back on-bottom drilling.
	8:48	3121.07	Pump #2 went down. Pull up off bottom.
9:00	3121.07	Continue drilling with pump #1.	
11:24	3145.32	Pump #2 went online. Drilling ahead.	
02-Nov-04	0:00	3400.00	Midnight depth. Pumping hrs for the past 24 hrs: 22 hrs.
	2:30	3444.00	Pumps offline. Pulled off-bottom. Flow check
	2:46	3444.00	Pumps back online.
	2:50	3444.00	Back on-bottom drilling.
	3:12	3450.00	Shock lvl 3, informed Comp. Man.
	3:21	3452.72	Problems with the pumps. Pick-up off-bottom to investigate.
	3:29	3452.72	Back on-bottom drilling.
	5:55	3487.28	Flow check.
	7:05	3515.95	Flow check. Trip tank was monitored due to a slight increase in trip volume.
	7:27	3515.95	Finish flow check. Trip volume stabilized.
	9:24	3526.92	Connection gas recorded up to 2750 units. Pick up off bottom to weigh up the mud to 12.0ppg.
	10:15	3526.92	Drilling mud was weigh up to 12.0ppg. Drilling ahead.
	10:40	3544.43	Flow check.
	12:51	3557.15	Connection gas peaked to 560 units. Drilling ahead.
	18:34	3630.03	Circulate bottoms up.
19:40	3630.00	Pulled back 5 stands, and make up 6 stands of drillpipe to drill deeper.	
22:30	3630.00	Gas level up to 1200 units. Continue circulating.	
03-Nov-04	0:00	3630.00	Midnight depth. Pumping hrs for the past 24 hrs: 19.2 hrs.
	2:50	3605.40	Set bit depth with driller. IDEAL time is 1:50am.
	2:57	3630.00	Tagged bottom drilling ahead.
	3:23	3634.00	Increased in gas to 5000 units. Picked off-bottom, circulating. MWD signal was affected.
	3:55	3634.00	Back on bottom drilling.
	9:25	3696.69	Shocks encountered. Intermittent real-time communication experienced between the tools. Picked up off bottom and worked the drillstring.
	11:52	3723.52	Shocks disappeared. Drilling ahead.
	14:58	3744.19	Mud weighed up to 12.6ppg. Circulating bottoms up.
21:25	3802.11	SCR's.	
04-Nov-04	0:00	3833.00	Midnight depth. Pumping hrs for the past 24 hrs: 20.1 hrs.
	0:03	3834.00	High Vib Torq observed. Picked up off-bottom and increased rpm.
	8:36	3914.00	Mud weighed up to 13.2ppg.
	9:00	3914.00	Well TD. Circulate bottoms up.
	20:00	3914.00	Started to POOH.
	20:30	3914.00	Geolograph wire disconnected.
	21:50	3910.00	RIH. Geolograph wire connected.
22:00	3910.00	Set bitdepth to get ECD monitoring. IDEAL time was 21:00.	

Performance Drilling Report



SANTOS Limited**End of Well Summary****Callister-1**

13 October 2004 – 29 October 2004

Overview:

Callister-1 was planned as an Otway Basin vertical wildcat exploration well in the Vic/P51 licence. The Callister Prospect lies within Paaratte Sandstone and Waarre Formation. The well was drilled to intersect two targets. The first, primary target was the Intra-Paaratte Formation K91 Sandstone and the second was gas in the Waarre Formation. Generally Callister-1 is being considered as a gas target but there is a low probability that oil will be encountered in the reservoir as well. The purpose of the well is to establish whether reservoir potential exists within the Waarre Formation at depths below 3200mSS and to confirm the cross-fault seal potential within the Paaratte Formation sandstone intervals. During the drilling of the 17 ½" hole section, the well showed a slight build tendency thus drifting away from the center for 9m.

Note: Schlumberger did not have any involvement with BHA's 1&2.

BHA # 1**36" x 26" Packed Rotary Assembly w/Hole Opener
(129m MD - 192m MD)**

A 26" Mill Tooth Bit in front of 36" Hole Opener was used to drill surface Hole Section to 192m MD, with Anderdrift MWD surveys taken approximately every 30m. The combination of 30" x 20" casing was RIH and the shoe set down at 191.29m MD.

BHA # 2**17 ½" Packed Rotary Assembly
(192m MD – 787.5m MD)**

Drilling then continued ahead, by drilling out cement, casing shoe, and undifferentiated carbonates with seawater, utilising sweeps when needed. Anderdrift surveys were taken every +/-30m MD. At section TD the hole was circulated clean and seawater displaced to prehydrated bentonite mud. The 13 3/8" casing was run to the wellhead with drill pipe, 18 ¾" wellhead was landed in the 30" housing and latching confirmed with 50 kips overfull, and then the casing was cemented.

BHA # 3**12 1/4" Performance Motor Assembly
(787.5m MD – 989m MD)**

12 1/4" PDC Bit- DSX194HG UW, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, 12 1/4" Roller Reamer, CDR9, PowerPulse9, 12 ¼" Roller Reamer, 9 ½" NMDC, X/O, 7 x 8" DC, 8" Jar, 3 x 8" DC, 8" Accelerator, 8" DC, 12 x 5" HWDP, 5" DP to surface.

Tag and drilled out cement and float equipment. Drilled out shoe @ 787m MD and 3m of new formation and performed LOT. Continue to drill ahead with ROP from 30 – 50 m/hr, and

then at 851m first lateral shocks and torsional vibrations were encountered. The shocks measured by CDR were showing level 3 shocks. A variety of different parameters were applied to diminish and eliminate shocks, and finally with WOB 25 klbs, RPM 65 and flow rate of 1030 gpm the shock level was brought to a normal level, but than the ROP started to drop first gradually and later on after only 8 on bottom bit drilling hours the rate of penetration decreased to only 0.5 m/hr. Decision was made to POOH and check the bit condition. At the surface the bit was found severely damaged with all of cutters broken or lost, with serious signs of erosion and with ring out. The bit grading was: 8 8 RO A X 1 ER PR. This well is drifting in the northwest direction with BHA# 3 holding inclination around 1 degree. At the end of the run total vertical displacement was 11.5 m northwest of planned well trajectory.

BHA # 4

12 1/4" Performance Motor Assembly (989m MD – 2550m MD)

12 1/4" PDC Bit- DSX104HGW, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, 12 1/4" Roller Reamer, CDR9, PowerPulse9, 12 1/4" Roller Reamer, 9 1/2" NMDC, X/O, 7 x 8"DC, 8" Jar, 3 x 8" DC, 8" Accelerator, 8" DC, 12 x 5" HWDP, 5" DP to surface.

After changing out the bit to DSX104HGW, this assembly was RIH. Once on bottom the hole was circulated clean and drilling commenced with low weight on bit, high RPM and high flow rate to avoid or push aside possible junk left from the previous bit. After a few meters initially drilled, the weight on bit was gradually increased to 15 klbs, RPM adjusted to 100 and flow rate slightly decreased to 900 gpm. With these parameters drilling was continued, carefully monitoring drilling mechanics and adjusting drilling parameters accordingly. The 9 5/8" casing shoe depth at 2550m MD was reached with no shocks recorded, and with an average rate of penetration of 26 m/h. The well was bottoms up circulated and BHA POOH to conduct wireline logs and run 9 5/8" Casing.

BHA # 5

8 1/2" Rotary Packed Assembly (2550m MD – 2662m MD)

8 1/2" PDC Bit- RSX272, 8 1/2" Roller Reamer with float, CDR6, PowerPulse6 with ILS 8 3/8", 8 1/2" Roller Reamer, 14 x 6 1/2"DC, Jar, 3 x 6 1/2" DC, X/O, 12 x 5" HWDP, 5" DP to surface.

This BHA was intended to drill to TD but because of low ROP after 5.3 drilling hours decision was made to POOH end change the bit.

BHA # 6

8 1/2" Rotary Packed Assembly (2262m MD – 3914m MD)

8 1/2" PDC Bit- RSX272, 8 1/2" Roller Reamer with float, CDR6, PowerPulse6 with ILS 8 3/8", 8 1/2" Roller Reamer, 14 x 6 1/2"DC, Jar, 3 x 6 1/2" DC, X/O, 12 x 5" HWDP, 5" DP to surface.

Schlumberger

Santos

After changing out the bit to DSX104HGW, this assembly was RIH and drill to TD. The well was bottoms up circulated and wireline logs conducted.

BHA Data Sheet

Santos - Callister-1

BHA #	12 1/4" BHA#4 Callister-1
Field	Callister
Structure	Callister-1

Date	October 26, 2004
Well	Callister-1
Borehole	Callister-1

Item	Name	Vendor/Model	Serial #	Fish. Neck OD (in)/ Length (m)	OD (in)/ ID (in)	Max OD (in)	Bottom/ Top Connection	Length (m)	Cum. Length (m)	
1	12 1/4" Bit	Hycalog	10893		8.00	12.25		0.32	0.32	
		DSX104HGW			3.25		6.63 Reg Pin			
2	Crossover	Schlumberger	L9000		9.50	9.50	6.63 Reg Box	0.35	0.67	
					3.00		7.63 Reg Pin			
3	A962M7848GT	Schlumberger	2099		9.63	12.25	7.63 Reg Box	9.68	10.35	
		A962M7848GT			7.85		7.63 Reg Box			
4	Float Sub	Schlumberger	3287		9.50	9.50	7.63 Reg Pin	0.90	11.25	
					3.00		7.63 Reg Box			
5	12 1/4" Roller Reamer	Smith International		9.75	9.50	12.25	7.63 Reg Pin	2.52	13.77	
				0.94	3.00		7.63 Reg Box			
6	CDR	Schlumberger	9546		9.50	9.50	7.63 Reg Pin	7.20	20.97	
		CDR			4.85		7.63 H90 Box			
7	PowerPulse NF w/IWOB	Schlumberger			9.50	9.68	7.63 H90 Pin	8.46	29.43	
		PowerPulse NF w/IWOB			5.90		7.63 Reg Box			
8	12 1/4" Roller Reamer	Smith International		9.75	9.50	12.25	7.63 Reg Pin	2.52	31.95	
				0.94	3.00		7.63 Reg Box			
9	9 1/2" Collar	Schlumberger	D173	9.50	9.50	9.50	7.63 Reg Pin	9.20	41.15	
				9.20	3.00		7.63 Reg Box			
10	Crossover		x/o 2		9.50	9.50	7.63 Reg Pin	1.32	42.47	
					3.00		6.63 Reg Box			
11	8x8" Collar (8 joints)				8.00	8.00	6.63 Reg Pin	74.15	116.62	
					3.00		6.63 Reg Box			
12	Hydraulic Jar	Dailey Petroleum S	48907 C		8.00	8.16	6.63 Reg Pin	9.78	126.40	
		HDL-100			3.00		6.63 Reg Box			
13	2x8" Collar (2 joints)				8.00	8.00	6.63 Reg Pin	18.49	144.89	
					3.00		6.63 Reg Box			
14	Accelerator	Dailey Petroleum S			7.75	7.75	6.63 Reg Pin	10.90	155.79	
		HyPulse			3.00		6.63 Reg Box			
15	8" Collar				8.00	8.00	6.63 Reg Pin	9.17	164.96	
					3.00		6.63 Reg Box			
16	Crossover		Dc001		8.00	8.00	6.63 Reg Pin	1.14	166.10	
					3.00		4.50 NC50 (4 1/2)			
17	12x5" HWDP (11 joints)				5.00	6.50	4.50 NC50 (4 1/2)	110.77	276.87	
					3.00		4.50 NC50 (4 1/2)			
18	5" 19.50 DPS, 10% Wear				4.93	6.63	4.50 NC50 (4 1/2)	10.00	286.87	
				5,19.5,10% Wear	4.28		5.00 NC50 (4 1/2)			
							Total Weight (kgf)	46595	Total Len.	286.87
							Below Jar (kgf)	33988.6		

BHA Comments:	

Stabilizer	
Blade Length (m)	Mid-Pt. To Bit (m)
0.60	12.00
0.60	30.18
Bent Housing Angle (deg)	
Bent Housing Angle (deg)	Connection (m)

Sensor	
Type	Distance To Bit (m)

Bit Nozzles	
Count	Size(mm)
5	14.00
TFA (mm2)	484.93
Quality Control	
Created By:	BManjenic
Checked By:	

BHA Data Sheet

Santos - Callister-1

BHA #	8 1/2" BHA#5
Field	Callister
Structure	Callister-1

Date	November 09, 2004
Well	Callister-1
Borehole	Callister-1

Item	Name	Vendor/ Model	Serial #	Fish. Neck OD (in)/ Length (m)	OD (in)/ ID (in)	Max OD (in)	Bottom/ Top Connection	Length (m)	Cum. Length (m)	
1	8 1/2 " Bit	Smith International			6.00 2.25	8.50	4.50 Reg Pin	0.23	0.23	
2	NB Roller Reamer				6.50 2.81	8.50	4.50 Reg Box	1.83	2.06	
3	CDR6	Schlumberger			6.75	6.75	4.00 IF Pin	6.99	9.05	
		CDR			4.87		5.50 FH Box			
4	PowerPulse	Schlumberger			6.75	6.89	5.50 FH Pin	9.11	18.16	
		PowerPulse			5.11		4.00 IF Box			
5	Roller Reamer				6.50 2.81	8.50	4.00 IF Pin	1.94	20.10	
							4.00 IF Box			
6	14 x 6 1/2" Collar (13 joints)				6.50 2.81	6.50	4.00 IF Pin	127.17	147.27	
							4.00 IF Box			
7	Hydro-Mechanical Jar	Griffith			6.50	6.63	4.00 IF Pin	9.37	156.64	
		n/a			2.25		4.00 IF Box			
8	3x 6 1/2" Collar (3 joints)				6.50 2.81	6.50	4.00 IF Pin	27.23	183.87	
							4.00 IF Box			
9	Crossover				6.50 2.81	6.50	4.00 IF Pin	0.81	184.68	
							4.50 IF Box			
10	12 x 5" HWDP (11 joints)				5.00 3.00	6.50	4.50 IF Pin	110.77	295.45	
							4.50 IF Box			
11	5" 19.50 DPS, 10% Wear				4.93	6.63	4.50 IF Pin	10.00	305.45	
					4.28		4.50 IF Box			
							Total Weight (kgf)	33660	Total Len.	305.45
							Below Jar (kgf)	19907.6		

BHA Comments:	

Stabilizer	
Blade Length (m)	Mid-Pt. To Bit (m)
0.60	0.98
0.60	18.91
	Bend To Bottom Connection (m)
Bent Housing Angle (deg)	

Sensor	
Type	Distance To Bit (m)
Resistivity	3.81
Gamma Ray	7.17
D&I	12.66

Bit Nozzles	
Count	Size(mm)
7	11.00
TFA (mm²)	419.12
Quality Control	
Created By:	BManjenic
Checked By:	



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE			DATE
Santos	Callister-1	1	Rotary Assembly			13-Oct-04
Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg	DEPTH IN 129		
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K	DEPTH OUT 192		
PDC Bit Connections	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K		
Tool Jt Conn	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K
Stab Slve Conn	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K
Bent Housing	A475	A675	A800	A962		
Torque Klbs:	10 K	25 K	35 K	60 K		
Motor Sleeves						
Torque Klbs:	4K	10K	23K	37 K		

Description	O D	I D	Element Length	Total Length	Serial N ^o 's	Fish'g Neck	Connections		REMARKS
							Down	Up	
Mill Tooth Bit	26"	-	0.65	0.65	2x22, 1x20			7 5/8 RG-P	
9 1/2" Pony DC	9 7/16"	3"	3.58	4.23	502 A 23	Slick	7 5/8 RG-B	7 5/8 RG-P	
36" Hole Opener	36"	2 7/8"	2.23	6.46	46367, 3x22, 1x20	Slick	7 5/8 RG-B	7 5/8 RG-P	
Float Sub	9 1/2"	3"	1.50	7.96	-	Slick	7 5/8 RG-B	7 5/8 RG-P	
9 1/2" Anderdrift	9 1/2"	3"	2.27	10.23	ADG 993	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	0.55	10.78	ASF 8159	0.73	7 5/8 RG-B	7 5/8 RG-P	w/Totco Ring
17 1/2" String Stabilizer	17 1/2"	3"	2.02	12.80	207 A34	0.73	7 5/8 RG-B	7 5/8 RG-P	
9 1/2" Drill Collar	9 1/2"	3"	9.05	21.85	085 DC 96	0.50	7 5/8 RG-B	7 5/8 RG-P	
17 1/2" String Stabilizer	17 1/2"	3"	2.03	23.88	207 A 97	0.75	7 5/8 RG-B	7 5/8 RG-P	
2 x 9 1/2" Drill Collar	9 1/2"	3"	17.87	41.75	-	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	1.32	43.07	-	Slick	6 5/8 RG-B	7 5/8 RG-P	
5 x 8" DC	8"	2 7/8"	47.02	90.09	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
X/O	8"	3"	1.14	91.23	x/o 9	Slick	4 1/2" IF- B	6 5/8" RG-P	
12 x 5" HWDP	6 5/8"	3"	110.77	202.00	-	Slick	4 1/2" IF- B	4 1/2" IF- P	
5" DP to Surface	8"	3"			-		4 1/2" IF- B	4 1/2" IF- P	

In Air

		BIT		Downhole Motor		Instructions		
		BIT N ^o	Size	Motor Run	N/A	SPM	Flow GPM	Gals/Stroke
Wt Below Jar	47,282							
Wt Above Jar	12,963			Make				
TOTAL BHA Wt	60,245	Size	26" 36"	Size		110	414	3.76
String Wt	37,400	Make		Type		Rev/Gal.	Motor RPM	Pressure @ TD
Blks(T)op Drive	15,000	Type	Hole Opener	Stages		0	0	1250
Total Hk Load	112,645	IADC		R/S Config		Surface RPM	Total RPM	WOB
Date IN	13-Oct-04	S/N	46367	Rotor Jet		120	120	25k
Time IN		Jets	2.22	S/N		26" x 36" Hole Opener assembly		
Date OUT	15-Oct-04	Jets	1.20	Bent Hsg Degs				
Time OUT		Jets	3.22	B/Hsg STAB				
Total Hrs In Hole		TFA		GST Deg Bend	N/A			
On Bottom Bit Hrs.		F'tage	63					



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE			DATE
Santos	Callister-1	2	Rotary Packed Assembly			15-Oct-04
Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	192
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	785
PDC Bit Connections	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K		
Tool Jt Conn	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K
Stab Slve Conn	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K
Bent Housing	A475	A675	A800	A962		
Torque Klbs:	10 K	25 K	35 K	60 K		
Motor Sleeves						
Torque Klbs:	4K	10K	23K	37 K		

Description	O D	I D	Element Length	Total Length	Serial N°s	Fish'g Neck	Connections		REMARKS
							Down	Up	
Mill Tooth Bit	17 1/2"	-	0.48	0.48	A 98111			7 5/8 RG-P	
Bit Sub	9 1/2"	3"	1.50	1.98	BS-1	Slick	7 5/8 RG-B	7 5/8 RG-P	w/Float
Anderdrift	9 1/2"	3"	2.25	4.23	ADG 993	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	0.56	4.79	ASF 8194	Slick	7 5/8 RG-B	7 5/8 RG-P	w/Totco Ring
9 1/2" Pony DC	9 7/16"	3"	3.58	8.37	502 A 23	Slick	7 5/8 RG-B	7 5/8 RG-P	
17 1/2" String Stabilizer	17 1/2"	3"	2.02	10.39	207 A34	0.73	7 5/8 RG-B	7 5/8 RG-P	
9 1/2" Drill Collar	9 1/2"	3"	9.05	19.44	085 DC 96	0.50	7 5/8 RG-B	7 5/8 RG-P	
17 1/2" String Stabilizer	17 1/2"	3"	2.03	21.47	207 A 97	0.75	7 5/8 RG-B	7 5/8 RG-P	
2 x 9 1/2" Drill Collar	9 1/2"	3"	17.87	39.34	-	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	1.32	40.66	-	Slick	6 5/8 RG-B	7 5/8 RG-P	
12 x 8" DC	8"	2 7/8"	74.15	114.81	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Jar	8 1/16"	3"	9.78	124.59	48907-C	0.61	6 5/8" RG-B	6 5/8" RG-P	
2 x 8" Drill Collar	8"	2 7/8"	18.49	143.08	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Accelerator	8"	3"	10.90	153.98	DAH 01586	0.61	6 5/8" RG-B	6 5/8" RG-P	
8" Drill Collar	8"	2 7/8"	9.17	163.15	DC 001	Slick	6 5/8" RG-B	6 5/8" RG-P	
X/O	8"	3"	1.14	164.29	x/o 9	Slick	4 1/2" IF- B	6 5/8" RG-P	
12 x 5" HWDP	6 5/8"	3"	110.77	275.06	-	-	4 1/2" IF- B	4 1/2" IF- P	
5" DP to Surface	5"	3"					4 1/2" IF- B	4 1/2" IF- P	

In Air

Wt Below Jar	40,287	BIT		Downhole Motor		Instructions		
		BIT N°	Size	Motor Run	N/A	SPM	Flow GPM	Gals/Stroke
Wt Above Jar	14,955	2	17 1/2"	Make		110	414	3.76
TOTAL BHA Wt	55,242	Reed		Size		Rev/Gal.	Motor RPM	Pressure @ TD
String Wt	73,156	T111		Type		0	0	1350
Blks(T)op Drive	15,000	IADC	115	Stages		Surface RPM	Total RPM	WOB
Total Hk Load	143,398	S/N	A 98111	R/S Config		140	140	5-10Klbs
Date IN	15-Oct-04	Jets	3.22	Rotor Jet		Packed rotary assembly		
Time IN	10:00	Jets	1.20	S/N				
Date OUT	17-Oct-04	Jets		Bent Hsg Degs				
Time OUT		TFA	1.420	B/Hsg STAB				
Total Hrs In Hole		F'tage	593	GST Deg Bend	N/A			
On Bottom Bit Hrs.								



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE			DATE
Santos	Callister-1	3	Performance Drilling Assembly			20-Oct-04
Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	787
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	989
PDC Bit Connections	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K		
Tool Jt Conn	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K
Stab Slve Conn	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K
Bent Housing	A475	A675	A800	A962		
Torque Klbs:	10 K	25 K	35 K	60 K		
Motor Sleeves						
Torque Klbs:	4K	10K	23K	37 K		

Description	O D	I D	Element Length	Total Length	Serial N ^o 's	Fish'g Neck	Connections		REMARKS
							Down	Up	
PDC Bit	12 1/4"	-	0.29	0.29	207742			6 5/8 RG-P	6Blades,16mmCut.
X/O	9 5/8"	3"	0.35	0.64	L9000	Slick	6 5/8 RG-B	7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.68	10.32	2099	Slick	7 5/8 RG-B	7 5/8 RG-P	
Float Sub	9 1/2"	3"	0.90	11.22	3287	Slick	7 5/8 RG-B	7 5/8 RG-P	
12 1/4" Roller Reamer	9 1/2"	3"	2.52	13.74	XM066	0.94	7 5/8 RG-B	7 5/8 RG-P	
CDR9	9 1/2"	5 7/8"	7.20	20.94	9546	0.73	7 5/8 RG-B	7 5/8 H90-P	
PowerPulse	9 1/2"	4 1/4"	8.46	29.40	W693	0.50	7 5/8 H90-B	7 5/8 RG-P	w/totco
12 1/4" Roller Reamer	17 1/2"	3"	2.52	31.92	XM065	0.94	7 5/8 RG-B	7 5/8 RG-P	
9 1/2" NM Drill Collar	9 1/2"	3"	9.20	41.12	D173	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	1.32	42.44	rig	Slick	6 5/8 RG-B	7 5/8 RG-P	
8 x 8" DC	8"	2 7/8"	74.15	116.59	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Jar	8 1/16"	3"	9.78	126.37	48907-C	0.61	6 5/8" RG-B	6 5/8" RG-P	
2 x 8" Drill Collar	8"	2 7/8"	18.49	144.86	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Accelerator	8"	3"	10.90	155.76	DAH 01586	0.61	6 5/8" RG-B	6 5/8" RG-P	
8" Drill Collar	8"	2 7/8"	9.17	164.93	DC 001	Slick	6 5/8" RG-B	6 5/8" RG-P	
X/O	8"	3"	1.14	166.07	x/o 9	Slick	4 1/2" IF- B	6 5/8" RG-P	
12 x 5" HWDP	6 5/8"	3"	110.77	276.84	-	-	4 1/2" IF- B	4 1/2" IF- P	
5" DP to Surface	5"	3"					4 1/2" IF- B	4 1/2" IF- P	



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE				DATE		
Santos	Callister-1	4	Performance Drilling Assembly				21-Oct-04		
Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	989			
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	2550			
PDC Bit Connections	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg					
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K					
Tool Jt Conn	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg			
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K			
Stab Slve Conn	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47			
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K			
Bent Housing	A475	A675	A800	A962					
Torque Klbs:	10 K	25 K	35 K	60 K					
Motor Sleeves									
Torque Klbs:	4K	10K	23K	37 K					
Description	O D	I D	Element Length	Total Length	Serial N ^o 's	Fish'g Neck	Connections		REMARKS
							Down	Up	
PDC Bit	12 1/4"	-	0.32	0.32	108903			6 5/8 RG-P	5Blades,19mmCut.
X/O	9 5/8"	3"	0.35	0.67	L9000	Slick	6 5/8 RG-B	7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.68	10.35	2099	Slick	7 5/8 RG-B	7 5/8 RG-P	
Float Sub	9 1/2"	3"	0.90	11.25	3287	Slick	7 5/8 RG-B	7 5/8 RG-P	
12 1/4" Roller Reamer	9 1/2"	3"	2.52	13.77		0.94	7 5/8 RG-B	7 5/8 RG-P	
CDR9	9 1/2"	5 7/8"	7.20	20.97	9546	0.73	7 5/8 RG-B	7 5/8 H90-P	
PowerPulse	9 1/2"	4 1/4"	8.46	29.43	W693	0.50	7 5/8 H90-B	7 5/8 RG-P	w/totco
12 1/4" Roller Reamer	17 1/2"	3"	2.52	31.95		0.94	7 5/8 RG-B	7 5/8 RG-P	
9 1/2" NM Drill Collar	9 1/2"	3"	9.20	41.15	D173	Slick	7 5/8 RG-B	7 5/8 RG-P	
X/O	9 1/2"	3"	1.32	42.47	rig	Slick	6 5/8 RG-B	7 5/8 RG-P	
8 x 8" DC	8"	2 7/8"	74.15	116.62	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Jar	8 1/16"	3"	9.78	126.40	48907-C	0.61	6 5/8" RG-B	6 5/8" RG-P	
2 x 8" Drill Collar	8"	2 7/8"	18.49	144.89	-	Slick	6 5/8" RG-B	6 5/8" RG-P	
8" Accelerator	8"	3"	10.90	155.79	DAH 01586	0.61	6 5/8" RG-B	6 5/8" RG-P	
8" Drill Collar	8"	2 7/8"	9.17	164.96	DC 001	Slick	6 5/8" RG-B	6 5/8" RG-P	
X/O	8"	3"	1.14	166.10	x/o 9	Slick	4 1/2" IF- B	6 5/8" RG-P	
12 x 5" HWDP	6 5/8"	3"	110.77	276.87	-	-	4 1/2" IF- B	4 1/2" IF- P	
5" DP to Surface	5"	3"					4 1/2" IF- B	4 1/2" IF- P	



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE				DATE
Santos	Callister-1	5	Rotary Packed Assembly				29-Oct-04
<u>Rock Bit Connections</u>	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg			DEPTH IN	2550
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K			DEPTH OUT	2662
<u>PDC Bit Connections</u>	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg			
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K			
<u>Tool Jt Conn</u>	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg	
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K	
<u>Stab Slve Conn</u>	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47	
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K	
<u>Bent Housing</u>	A475	A675	A800	A962			
Torque Klbs:	10 K	25 K	35 K	60 K			
<u>Motor Sleeves</u>							
Torque Klbs:	4K	10K	23K	37 K			

Description	O D	I D	Element Length	Total Length	Serial N°s	Fish'g Neck	Connections		REMARKS
							Down	Up	
PDC Bit	8 1/2"	-	0.23	0.23				4 1/2 RG-P	
8 1/2" NB Roller Reamer	8 1/2"	2 13/16"	1.83	2.06	Santos		4 1/2 RG-B	4" IF - B	w/float
CDR6	6 3/4"	5 1/8"	6.99	9.05	606	Slick	4" IF - P	5 1/2" FH - B	
PowerPulse6 w ILS 8 3/8"	8 3/8"	4 1/8"	9.11	18.16	V880	Slick	5 1/2"FH - P	4" IF - B	w/totco ring
8 1/2" Roller Reamer	8 1/2"	2 13/16"	1.94	20.10	Santos		4" IF - P	4" IF - B	
14 x 6 1/2" Drill Collar	6 1/2"	2 13/16"	127.17	147.27	Rig		4" IF - P	4" IF - B	
Jar	6 1/2"	2 7/8"	9.37	156.64			4" IF - P	4" IF - B	
3 x 6 1/2" Drill Collar	6 1/2"	2 13/16"	27.23	183.87			4" IF - P	4" IF - B	
X/O	6 1/2"	2 13/16"	0.81	184.68	Rig		4" IF - P	4 1/2" IF - B	
12 x 5" HWDP	6 5/8"	3"	110.77	295.45			4 1/2" IF - P	4 1/2" IF - B	
5" DP to Surface	5"	3"					4 1/2" IF - P	4 1/2" IF - B	

In Air

		BIT		Downhole Motor		Instructions		
		BIT N°	Size	Motor Run	N/A	SPM	Flow GPM	Gals/Stroke
Wt Below Jar	40,287			Make		150	642	4.28
Wt Above Jar	14,955		5	Size		Rev/Gal.	Motor RPM	Pressure @ TD
TOTAL BHA Wt	55,242		8 1/2"	Type		0	0	4000
String Wt	73,156		Hycalog	Stages		Surface RPM	Total RPM	WOB
Blks(T)op Drive	15,000		RSX272	R/S Config		100	100	5-15Klbs
Total Hk Load	143,398		IADC	Rotor Jet		Rotary Packed Assembly		
Date IN	29-Oct-04		S/N	Bent Hsg Degs				
Time IN	11:30		Jets	B/Hsg STAB				
Date OUT	31-Oct-04		Jets	GST Deg Bend	N/A			
Time OUT	1:45		Jets					
Total Hrs In Hole	43.00		TFA					
On Bottom Bit Hrs.	5.30		F'tage					



BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE				DATE
Santos	Callister-1	6	Rotary Packed Assembly				31-Oct-04
Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg			DEPTH IN	2662
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K			DEPTH OUT	3500
PDC Bit Connections	3 1/2 Reg	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg			
Torque Klbs:	7K	12K-17.7K	37 K-38.5 K	48.3 K-60.9 K			
Tool Jt Conn	3 1/2" IF	4 1/2 Reg	4 IF	4 1/2 IF	6 5/8 Reg	7 5/8 Reg	
Torque Klbs:	9.9K	18K-23K	22 K-28 K	30 K-35 K	47K-53K	70K	
Stab Slve Conn	Series 62	Series 65	Series 77	Series 85	Series 96	Series 47	
Torque Klbs:	4.5K-5.5K	3.5K-4.5K	7K-8K	9K-10K	10K-12K	4K	
Bent Housing	A475	A675	A800	A962			
Torque Klbs:	10 K	25 K	35 K	60 K			
Motor Sleeves							
Torque Klbs:	4K	10K	23K	37 K			

Description	O D	I D	Element Length	Total Length	Serial N°s	Fish'g Neck	Connections		REMARKS
							Down	Up	
PDC Bit	8 1/2"	-	0.23	0.23				4 1/2 RG-P	
8 1/2" NB Roller Reamer	8 1/2"	2 13/16"	1.83	2.06	Santos		4 1/2 RG-B	4" IF - B	w/float
CDR6	6 3/4"	5 1/8"	6.99	9.05	606	Slick	4" IF - P	5 1/2" FH - B	
PowerPulse6 w ILS 8 3/8"	8 3/8"	4 1/8"	9.11	18.16	V880	Slick	5 1/2"FH - P	4" IF - B	w/totco ring
8 1/2" Roller Reamer	8 1/2"	2 13/16"	1.94	20.10	Santos		4" IF - P	4" IF - B	
14 x 6 1/2" Drill Collar	6 1/2"	2 13/16"	127.17	147.27	Rig		4" IF - P	4" IF - B	
Jar	6 1/2"	2 7/8"	9.37	156.64			4" IF - P	4" IF - B	
3 x 6 1/2" Drill Collar	6 1/2"	2 13/16"	27.23	183.87			4" IF - P	4" IF - B	
X/O	6 1/2"	2 13/16"	0.81	184.68	Rig		4" IF - P	4 1/2" IF - B	
12 x 5" HWDP	6 5/8"	3"	110.77	295.45			4 1/2" IF - P	4 1/2" IF - B	
5" DP to Surface	5"	3"					4 1/2" IF - P	4 1/2" IF - B	

In Air

		BIT		Downhole Motor		Instructions		
Wt Below Jar	40,287							
Wt Above Jar	14,955	BIT N°	6	Motor Run	N/A	SPM	Flow GPM	Gals/Stroke
TOTAL BHA Wt	55,242	Size	8 1/2"	Make		150	642	4.28
String Wt	73,156	Make	Hycalog	Size		Rev/Gal.	Motor RPM	Pressure @ TD
Blks(T)op Drive	15,000	Type	DSX104	Type		0	0	4000
Total Hk Load	143,398	IADC		Stages		Surface RPM	Total RPM	WOB
Date IN	31-Oct-04	S/N		R/S Config		130	130	5-15Klbs
Time IN		Jets	5.14	Rotor Jet				
Date OUT		Jets	2.10	S/N		Rotary Packed Assembly		
Time OUT		Jets		Bent Hsg Degs				
Total Hrs In Hole		TFA	0.910	B/Hsg STAB				
On Bottom Bit Hrs.		F'tage	838	GST Deg Bend	N/A			

WELL# Callister-1 DATE: 21-Oct-04 Depth In : 787 MD Pump Output 4.28 Gal / stk Planned Angle : Page 3 of 3

BHA # 4 BIT# 4 BHA : PDC Bit

SURVEY SPACING = 25.07
 GAMMA SPACING = 19.16

DLS & Depths are, 1=°/100Ft, 2=°/30Mts, 3=°/10Mts: 1

30"x 20" Casing Shoe Set @ 192m MD

R / S	DRILLING TIME			Motor Work Sheet				AVG TF	SURVEY			STK/ MIN	FLOW RATE	RPM	WOB	TORQ kft-lbs	PRESSURE		REMARKS
	START	STOP	SUM	FROM	TO	Feet Rotated	Feet Slide		DEPTH	INCL	AZM						On Bottom	Off Bottom	
R	16:54	18:01	1:07	1764	1791	27		1759.79	0.77	300.09	210	899	100	5	5-8	2,650	2,450		
R	18:17	19:19	1:02	1791	1820	29					210	899	100	5	5-8	2,650	2,450		
R	19:32	20:56	1:24	1820	1848	28		1847.14	0.95	294.58	210	899	100	5	5-8	2,650	2,450		
R	21:12	22:20	1:08	1848	1876	28					210	899	100	5	5-8	2,400	2,300		
R	22:38	0:10	1:32	1876	1905	29					210	899	100	10	5-8	2,300	2,200	Top Drive's lub pump failure	
R	14:55	15:45	0:50	1905	1933	28		1930.43	0.89	302.24	210	899	100	10	5-8	2,700	2,500		
R	15:55	17:10	1:15	1933	1962	29					210	899	100	10	5-8	2,700	2,500		
R	17:32	18:58	1:26	1962	1991	29					210	899	100	15	5-8	2,700	2,500		
R	19:02	20:30	1:28	1991	2019	28		2017.36	0.91	307.00	210	899	100	15	5-8	2,700	2,500		
R	20:38	22:24	1:46	2019	2047	28					210	899	100	15	5-8	2,700	2,500		
R	22:42	0:22	1:40	2047	2076	29					210	899	100	15	5-8	2,700	2,500		
R	0:32	1:49	1:17	2076	2104	28		2103.93	0.96	309.22	210	899	100	15	5-8	2,700	2,500		
R	2:01	3:07	1:06	2104	2133	29					210	899	100	15	5-8	2,700	2,500		
R	3:19	4:50	1:31	2133	2161	28					210	899	100	15	5-8	2,700	2,500		
R	5:00	6:07	1:07	2161	2190	29		2187.51	0.94	306.90	210	899	100	15	5-8	2,700	2,500		
R	6:17	7:38	1:21	2190	2219	29					210	899	100	15	5-8	2,700	2,500		
R	7:55	9:02	1:07	2219	2247	28					210	899	100	15	5-8	2,800	2,600		
R	9:15	10:16	1:01	2247	2275	28		2273.18	1.01	323.23	210	899	100	15	9	2,800	2,600		
R	10:34	11:57	1:23	2275	2304	29					210	899	100	15	9	2,800	2,600		
R	12:21	13:37	1:16	2304	2332	28					210	899	100	15	9	2,800	2,600		
R	13:48	15:09	1:21	2332	2361	29		2358.91	0.97	322.75	210	899	100	15	9	2,900	2,700		
R	15:22	16:55	1:33	2361	2390	29					210	899	100	15	9	2,900	2,700		
R	17:12	18:12	1:00	2390	2417	27					210	899	100	15	9	3,000	2,800		
R	18:33	19:55	1:22	2417	2446	29		2445.35	0.96	329.95	210	899	100	15	9	3,000	2,800		
R	20:10	21:14	1:04	2446	2474	28					210	899	100	15	9	3,000	2,800		
R	21:35	23:04	1:29	2474	2503	29					210	899	100	15	9	3,000	2,800		
R	23:19	0:30	1:11	2503	2532	29		2524.68	1.01	330.09	210	899	100	15	9	3,000	2,800		
R	0:30	1:45	1:15	2532	2550	18					210	899	100	15	9	3,000	2,800		

TIME BREAKDOWN:

Rotated Time : 12:02 Hrs/Mins Feet Rotated: 786.0
 Slide Time : Hrs/Mins Feet Slid:
 Total Time : 12:02 Hrs/ Mins Feet Drilled : 786.0



DOWN-HOLE MOTOR RUN REPORT

Motor Size : **Serial No :** **Run No :** **BHA No:** Ft, Mt

Company	<input type="text" value="Santos"/> <input type="text" value="South Australia"/>	Well	<input type="text" value="Callister-1"/>	Slot	<input type="text" value="1"/>	Field	<input type="text" value="Callister"/>
Operator	<input type="text" value="Transocean"/>	Location	<input type="text" value="Otway Basin"/>	Country	<input type="text" value="Australia"/>		
Rig	<input type="text" value="Jack Bates"/>	Engineer	<input type="text" value="B Manjenic"/>		Date	<input type="text" value="21-Oct-04"/>	

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
<input type="text" value="12 1/4"/>	<input type="text" value="Reed"/>	<input type="text" value="DSX194"/>	<input type="text" value="0"/>	<input type="text" value="9.11"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.835"/>

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brq/Seals	Gauge	Others	Reason for Trip
<input type="text" value="8"/>	<input type="text" value="8"/>	<input type="text" value="RO"/>	<input type="text" value="A"/>	<input type="text" value="X"/>	<input type="text" value="1"/>	<input type="text" value="ER"/>	<input type="text" value="PR"/>

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="A962M"/>	<input type="text" value="7:8"/>	<input type="text" value="2099"/>	<input type="text" value="12 1/8"/>	<input type="text" value="0°"/>	<input type="text" value="n/a"/>

Type 1 = Straight; 2 = Steerable; 3 = Double Bend

Stator Ser N°	<input type="text" value="272936-18551"/>	Rotor Ser N°	<input type="text" value="272937-13672"/>	Drig Cmt, Wash/Ream	<input type="text" value="6.7"/>
Drig Hrs	<input type="text" value="8.60"/>	Circ Hrs	<input type="text" value="4.10"/>	Total Motor Circ Hrs	<input type="text" value="19.40"/>

Purpose of Run

BHA PDC Bit X/O A962MGT7848 Float Sub 12 1/4" Roller Reamer CDR9 PowerPulse 12 1/4" Roller Reamer 9 1/2" NM Drill Collar X/O 8 x 8" DC 8" Jar 2 x 8" Drill Collar 8" Accelerator 8" Drill Collar 12 x 5" HWDP 3 Dr. to Surface	Surveys	MD IN	<input type="text" value="787.00"/>	Inclin	<input type="text" value="0.45"/>	Azim	<input type="text" value="331.69"/>	
		MD OUT	<input type="text" value="989.00"/>	Inclin	<input type="text" value="0.22"/>	Azim	<input type="text" value="170.41"/>	
	Flow Rate	Off Bttm PSI	On Bttm PSI	RPM	WOB			
	GPM				Klbs			
	<input type="text" value="1070"/>	<input type="text" value="2,700"/>	<input type="text" value="2,450"/>	<input type="text" value="100"/>	<input type="text" value="25-45"/>			
	Mud Type	<input type="text" value="KCL/PHPA"/>	Mud Wt	<input type="text" value="8.85"/>	Mud Grad'	<input type="text" value="0.459"/>	Vis	<input type="text" value="46"/>
	PV	<input type="text" value="9"/>	Filtrate	<input type="text" value="9.40"/>	% Solids	<input type="text" value="3.80"/>	Aniline Pt	<input type="text" value="n/a"/>
	YP	<input type="text" value="7"/>	% Oil	<input type="text" value="96.2"/>	% Sand	<input type="text" value="0.30"/>	Circ Temp	<input type="text" value="76"/>
	Depth In	<input type="text" value="787"/>	Depth Out	<input type="text" value="989"/>	Inter'l Drld	<input type="text" value="202"/>		
	Date In	<input type="text" value="20-Oct-04"/>	Date Out	<input type="text" value="21-Oct-04"/>	ROP	<input type="text" value="23.49"/>		
Time In	<input type="text" value="0:00"/>	Time Out	<input type="text" value="16:00"/>	Time BRT	<input type="text" value="40.00"/> Hrs			

FAILURE? <input type="text" value="No"/>	Slide Mts <input type="text" value=""/>	Previous Hrs <input type="text" value="0.00"/>	Cumulative Hrs <input type="text" value="19.40"/>
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Remarks / Failure Report.	Did Motor Stall	Bearing Play
1) Motor was checked prior to RIH. 2) Motor will be used for the next run in the BHA#4, bearing play out 0.0mm	<input type="text" value="No"/>	In <input type="text" value="0.0 mm"/>
	<input type="text" value="No"/>	Out <input type="text" value="0.0 mm"/>
	Slide Rty	Condition
	<input type="text" value="No"/>	<input type="text" value="Good"/>



DOWN-HOLE MOTOR RUN REPORT

Motor Size : Serial No : Run No : BHA No:

Company	<input type="text" value="Santos South Australia"/>	Well	<input type="text" value="Callister-1"/>	Slot	<input type="text" value="1"/>	Field	<input type="text" value="Callister"/>
Operator	<input type="text" value="Transocean"/>	Rig	<input type="text" value="Jack Bates"/>	Engineer	<input type="text" value="B Manjenic"/>	Date	<input type="text" value="26-Oct-04"/>
		Location	<input type="text" value="Otway Basin"/>	Country	<input type="text" value="Australia"/>		

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
<input type="text" value="12 1/4"/>	<input type="text" value="Reed"/>	<input type="text" value="DSX104"/>	<input type="text" value="0"/>	<input type="text" value="5.14"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.752"/>

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brq/Seals	Gauge	Others	Reason for Trip
<input type="text" value="6"/>	<input type="text" value="5"/>	<input type="text" value="WT"/>	<input type="text" value="A"/>	<input type="text" value="X"/>	<input type="text" value="I"/>	<input type="text" value="SS"/>	<input type="text" value="TC"/>

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="A962M"/>	<input type="text" value="7:8"/>	<input type="text" value="2099"/>	<input type="text" value="12 1/8"/>	<input type="text" value="0°"/>	<input type="text" value="n/a"/>	
Type	1 = Straight; 2 = Steerable; 3 = Double Bend		Stator Ser N°	<input type="text" value="272936-18551"/>	Rotor Ser N°	<input type="text" value="272937-13672"/>	Drig Cmt, Wash/Ream	<input type="text" value="3.0"/>
<input type="text" value="2"/>		Drig Hrs	<input type="text" value="57.60"/>	Circ Hrs	<input type="text" value="15.50"/>	Total Motor Circ Hrs	<input type="text" value="76.10"/>	

Purpose of Run

BHA PDC Bit X/O A962MGT7848 Float Sub 12 1/4" Roller Reamer CDR9 PowerPulse 12 1/4" Roller Reamer 9 1/2" NM Drill Collar X/O 8 x 8" DC 8" Jar 2 x 8" Drill Collar 8" Accelerator 8" Drill Collar 12 x 5" HWDP 3 Drift Sensors	Surveys	MD IN	<input type="text" value="989.00"/>	Inclin	<input type="text" value="0.22"/>	Azim	<input type="text" value="170.41"/>	
		MD OUT	<input type="text" value="2550.00"/>	Inclin	<input type="text" value="1.01"/>	Azim	<input type="text" value="330.09"/>	
	Flow Rate	Off Bttm PSI	On Bttm PSI	RPM	WOB			
	<input type="text" value="1070"/>	<input type="text" value="2,800"/>	<input type="text" value="3,000"/>	<input type="text" value="100"/>	<input type="text" value="25-45"/>			
	Mud Type	<input type="text" value="KCL/PHPA"/>	Mud Wt	<input type="text" value="9.18"/>	Mud Grad'	<input type="text" value="0.476"/>	Vis	<input type="text" value="59"/>
	PV	<input type="text" value="15"/>	Filtrate	<input type="text" value="5.80"/>	% Solids	<input type="text" value="8.00"/>	Aniline Pt	<input type="text" value="n/a"/>
	YP	<input type="text" value="15"/>	% Oil	<input type="text" value="92"/>	% Sand	<input type="text" value="0.75"/>	Circ Temp	<input type="text" value="110"/>
	Depth In	<input type="text" value="989"/>	Depth Out	<input type="text" value="2550"/>	Inter'l Drld	<input type="text" value="1561"/>		
	Date In	<input type="text" value="21-Oct-04"/>	Date Out	<input type="text" value="26-Oct-04"/>	ROP	<input type="text" value="27.10"/>		
	Time In	<input type="text" value="18:00"/>	Time Out	<input type="text" value="15:30"/>	Time BRT	<input type="text" value="111.50"/>	Hrs	

FAILURE?	<input type="text" value="No"/>	Slide Mts	<input type="text"/>	Previous Hrs	<input type="text" value="19.40"/>	Cumulative Hrs	<input type="text" value="95.50"/>
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Remarks / Failure Report. 1) Motor was checked prior to RIH. 2) Motor was flushed with water and laid out for back up on next well,	Did Motor Stall	<input type="text" value="No"/>	<input type="text" value="No"/>
	Slide Rty	<input type="text" value="No"/>	<input type="text" value="No"/>
	Bearing Play	In	<input type="text" value="0.0 mm"/>
	Out	<input type="text" value="1.0 mm"/>	
	Condition	<input type="text" value="Good"/>	

BIT GRADING CHART

BIT RUN DATA # 3

Bit Size:	12 1/4"
Manufacturer:	Reed
Bit Type:	DSX194
Serial Number:	207742
New Bit:	Yes
IADC Code:	0
Number of Nozzles:	9
Size of Nozzles:	11/32"
Number of Blades:	6
Number of Cutters:	n/a
Size of Cutters:	n/a
T.F.A. (sq ins):	0.8353
W.O.B. :	5-40 klbs
Depth Out:	989 m
Depth In:	787 m
Feet Drilled:	202 m
Rotating Hours:	8.60 hrs
Steering Hours:	0.00 hr
Feet Rotary:	202 m
Feet Steered:	0 m
Total Hours:	8.60 hrs
Average R.O.P.:	23.49 m / hr
Circulation Rate:	1070 gpm
R.P.M. at Bit:	218
K.Revs:	
Motor Used:	Yes
Motor Size:	9 5/8"
Bit Good for Rerun:	No

WELL DATA

Date:	21-Oct-04
Drilling Supervisor:	Brian Huston
Rig:	Jack Bates
Well Number:	Callister-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	20-Oct-04
Date Out:	21-Oct-04
BHA #:	3

MUD AND LITHOLOGY DATA

Majority Formation:	Sandstone
Other Formation:	Siltstone
% Formation:	100%
Mud Type:	KCL/PHPA
Mud Weight:	8.85 ppg
PV:	9
YP:	7
% Solids:	3.80
PH:	11

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
8	8	RO	A	X	1	ER	PR

BIT GRADING CHART AS PER IADC NOMENCLATURE

CUTTING STRUCTURE				B	G	REMARKS	
INNER ROWS	OUTER ROWS	DULL CHAR.	LOC ATION.	BRING SEALS	GAUGE 1/16"	OTHER CHAR.	REASON PULLED
(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)

(A)	0	No Wear
	8	No Cutting structure

(B)	*BC	Broken Cone
	BF	Bond Failure
	BT	Broken Teeth/Cutters
	BU	Balled Up
	*CC	Cracked Cone
	*CD	Cone Dragged
	CI	Cone Interference
	CR	Cored
	CT	Chipped Cutter
	ER	Erosion
	FC	Flat Crested Wear
	HC	Heat Checking
	JD	Junk Damage
	*LC	Lost Cone
	LN	Lost Nozzle
	LT	Lost Teeth/Cutter
	OC	Off-Centre Wear
	PB	Pinched Bit
	PN	Plugged Nozzle/ Flow Passage
	RG	Rounded Gauge
	RO	Ring Out
	SD	Shirrtail Damage
	SS	Self Sharpening Wear
	TR	Tracking
	WO	Washed Out-Bit
	WT	Worn Teeth / Cutters
	NO	No Dull Characteristics

(C)	N	Nose Row	Cone#	1
	M	Middle Row		2
	G	Gauge Row		3
	A	All Rows		

(D)	NON-SEALED BEARINGS:	
	0	No life used
	8	All life used
	SEALED BEARINGS:	
	E	Effective
	F	Failed

(E)	1	In Gauge
	1/16	1/16" Undergauge
	2/16	1/8" Undergauge etc.

(F)	BHA	Change BHA
	DMF	Downhole Motor Fail
	DSF	Drill String Fail
	DST	Drill Stem Test
	DTF	Downhole Tool Fail
	LOG	Run Logs
	RIG	Rig Repair
	CM	Condition mud
	CP	Core Point
	DP	Drill Plug
	FM	Formation Change
	HP	Hole Problems
	HR	Hours
	PP	Pump Pressure
	PR	Penetration Rate
	TD	Total Depth
	TC	Casing Depth
	TQ	Torque
	TW	Twist-Off
	WC	Weather Conditions
	WO	Washout/Drill String

BIT GRADING CHART

BIT RUN DATA # 4

Bit Size:	12 1/4"
Manufacturer:	Reed
Bit Type:	DSX104
Serial Number:	10893
New Bit:	Yes
IADC Code:	0
Number of Nozzles:	5
Size of Nozzles:	14/32"
Number of Blades:	5
Number of Cutters:	n/a
Size of Cutters:	n/a
T.F.A. (sq ins):	0.7517
W.O.B. :	5-40 klbs
Depth Out:	2550 m
Depth In:	989 m
Feet Drilled:	1561 m
Rotating Hours:	57.60 hrs
Steering Hours:	0.00 hr
Feet Rotary:	1561 m
Feet Steered:	0 m
Total Hours:	57.60 hrs
Average R.O.P.:	27.10 m / hr
Circulation Rate:	1070 gpm
R.P.M. at Bit:	218
K.Revs:	648710
Motor Used:	Yes
Motor Size:	9 5/8"
Bit Good for Rerun:	No

WELL DATA

Date:	26-Oct-04
Drilling Supervisor:	Brian Huston
Rig:	Jack Bates
Well Number:	Callister-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	21-Oct-04
Date Out:	26-Oct-04
BHA #:	4

MUD AND LITHOLOGY DATA

Majority Formation:	Siltstone
Other Formation:	Sandstone
% Formation:	100%
Mud Type:	KCL/PHPA
Mud Weight:	9.18 ppg
PV:	15
YP:	15
% Solids:	8.00
PH:	11

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
6	5	WT	A	X	I	SS	TC

BIT GRADING CHART AS PER IADC NOMENCLATURE

CUTTING STRUCTURE				B	G	REMARKS	
INNER ROWS	OUTER ROWS	DULL CHAR.	LOC ATION.	BRING SEALS	GAUGE 1/16"	OTHER CHAR.	REASON PULLED
(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)

(A)	0	No Wear
	8	No Cutting structure

(B)	*BC	Broken Cone
	BF	Bond Failure
	BT	Broken Teeth/Cutters
	BU	Balled Up
	*CC	Cracked Cone
	*CD	Cone Dragged
	CI	Cone Interference
	CR	Cored
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	ER	Erosion
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	HC	Heat Checking
	JD	Junk Damage
	*LC	Lost Cone
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	OC	Off-Centre Wear
	PB	Pinched Bit
	PN	Plugged Nozzle/ Flow Passage
	RG	Rounded Gauge
	RO	Ring Out
	SD	Shirrtail Damage
	SS	Self Sharpening Wear
	TR	Tracking
	WO	Washed Out-Bit
	WT	Worn Teeth / Cutters
	NO	No Dull Characteristics

(C)	N	Nose Row	Cone#	1
	M	Middle Row		2
	G	Gauge Row		3
	A	All Rows		

(D)	NON-SEALED BEARINGS:	
	0	No life used
	8	All life used
	SEALED BEARINGS:	
	E	Effective
	F	Failed

(E)	1	In Gauge
	1/16	1/16" Undergauge
	2/16	1/8" Undergauge etc.

(F)	BHA	Change BHA
	DMF	Downhole Motor Fail
	DSF	Drill String Fail
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	LOG	Run Logs
	RIG	Rig Repair
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	CP	Core Point
	DP	Drill Plug
	FM	Formation Change
	HP	Hole Problems
	HR	Hours
	PP	Pump Pressure
	PR	Penetration Rate
	TD	Total Depth
	TC	Casing Depth
	TQ	Torque
	TW	Twist-Off
	WC	Weather Conditions
	WO	Washout/Drill String