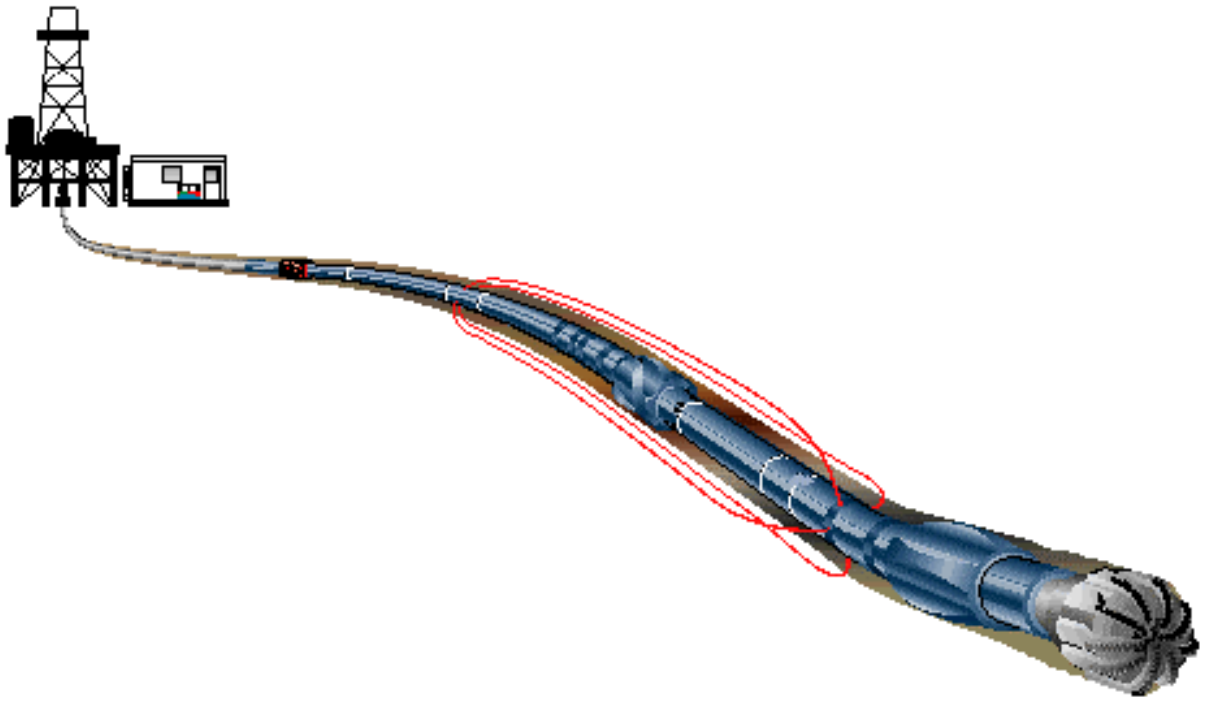
Schlumberger

IDEAL

SANTOS – INPEX - UNOCAL

Amrit-1

MWD – LWD End of Well Report



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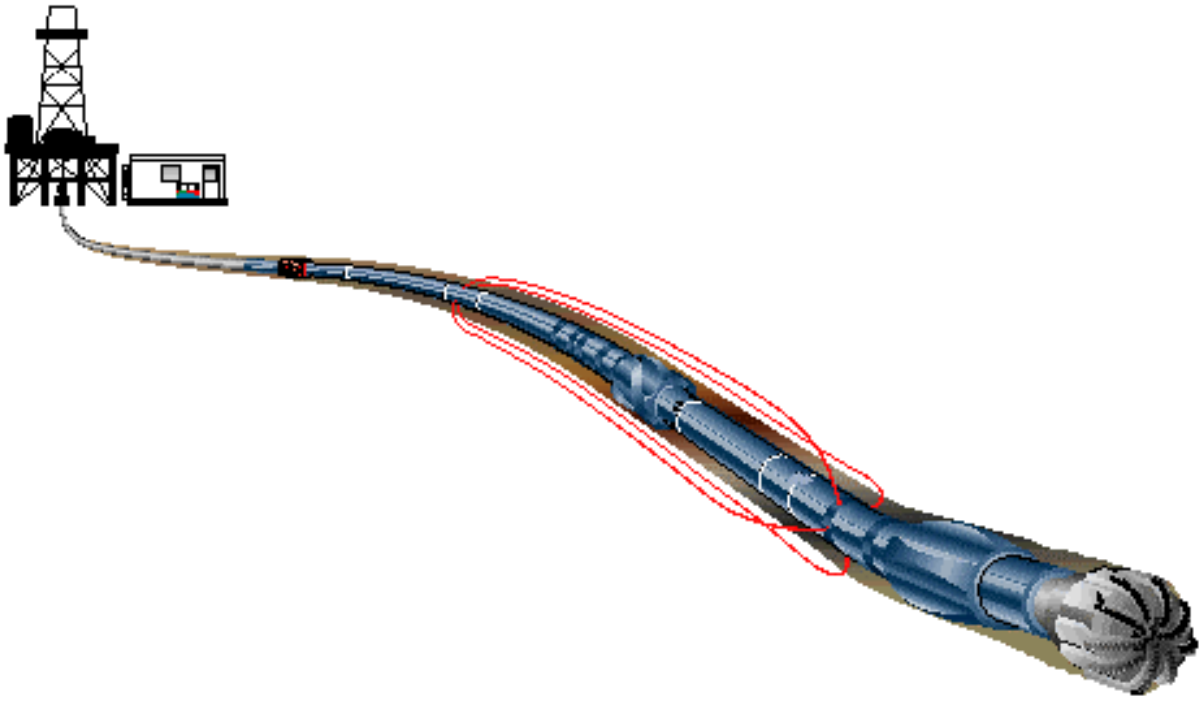
End of Well Report for Amrit-1

Contents



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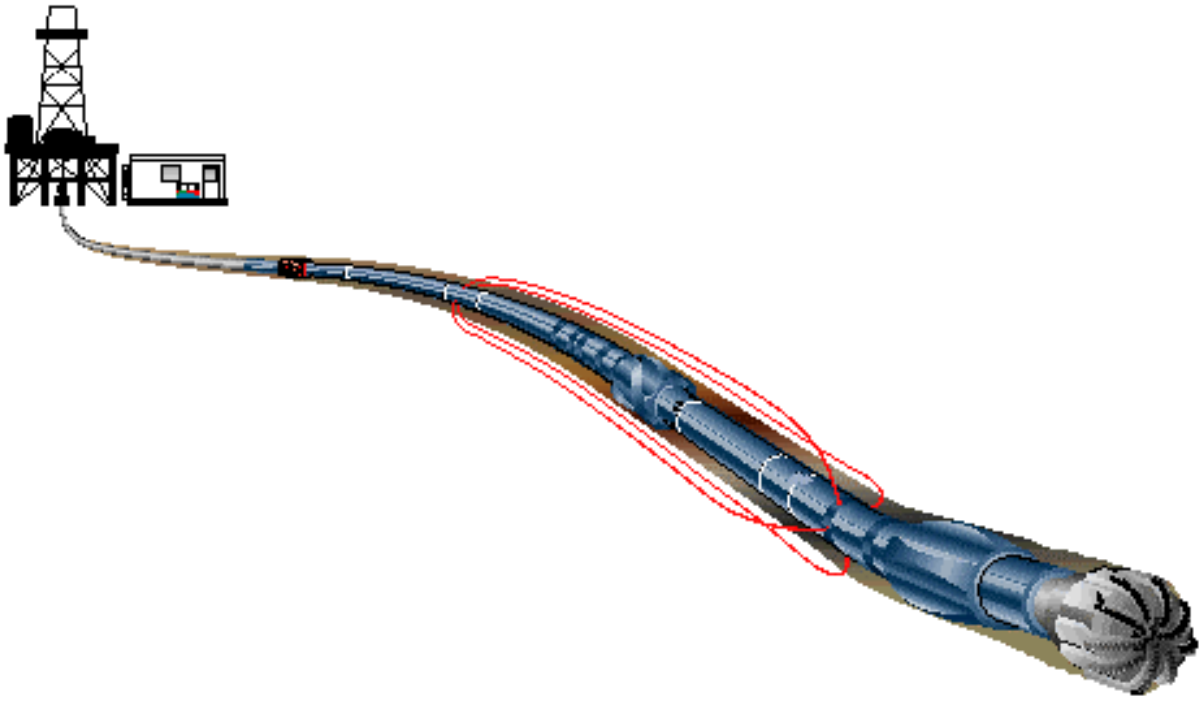
General Information



General Information

Well Name:	Amrit-1	
Rig:	Jack Bates	
Field:	Exploration	
Location:	Otway Basin	
Country:	Australia	
Cell Members:	Danielle Borges	MWD / LWD Engineer
	Ozren Radicevic	MWD / LWD Engineer
	Bob Manjencic	Directional Driller
	Lisa Watson	MWD / LWD Trainee
Town Contacts:	Jim Thompson	Operations Manager
	Hrvoje Spoljaric	Field Services Manager
	Alexander Van Den Tweel	DD Coordinator
Company Representatives:	D. Atkins	Company Man
	J. Young	Company Man
	P. King	Drilling Engineer
	R. Subramanarian	Wellsite Geologist

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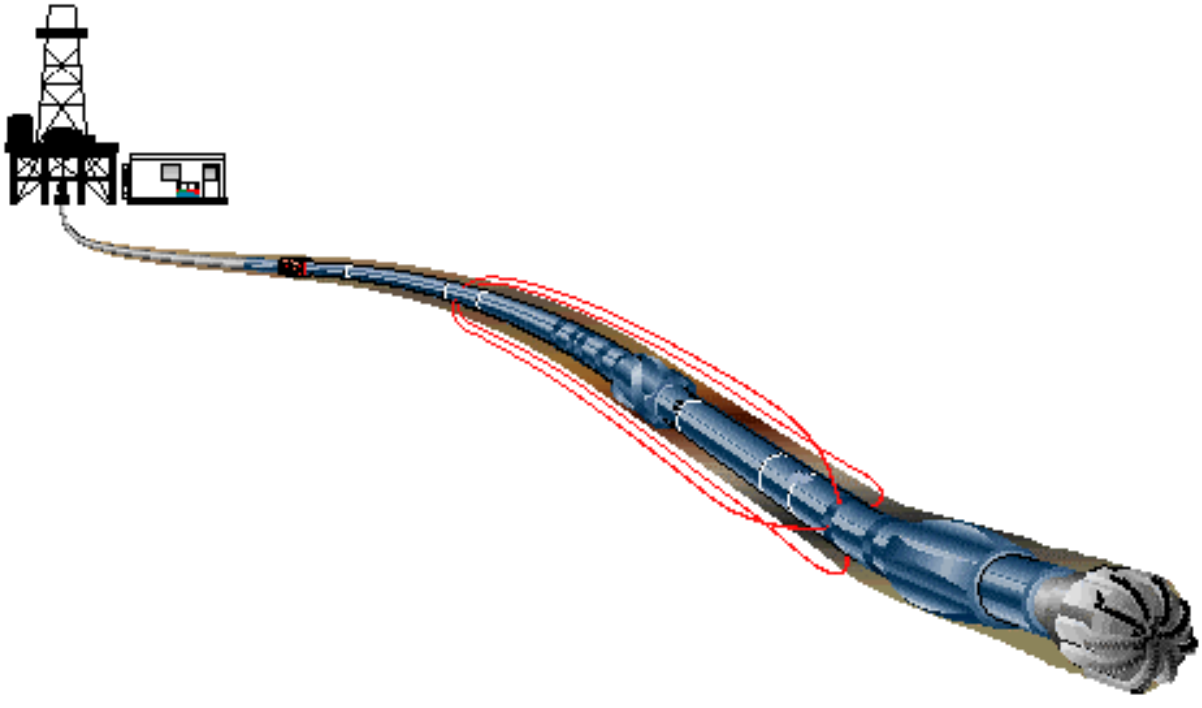
Logging Overview



Logging Overview Amrit-1

Schlumberger Drilling and Measurements provided MWD, LWD and performance drilling services in the 26", 17½" and 12¼" sections of the Amrit-1 well.

26" Section (Run 1425 m to 1835 m MD):

After successful jetting in of 30" casing to 1510mMD from sea floor depth of 1425mMD, drilling continued to a final depth of 1835mMD for the 26" hole section.

In this section, the following formation evaluation measurements were delivered in real-time and recorded modes. The PowerPulse also transmitted real-time direction and inclination measurements.

- Gamma Ray, real-time & recorded
- 2 MHz Phase Shift Resistivity, real-time & recorded
- 2 MHz Attenuation Resistivity, real-time & recorded
- Annular Pressure, real-time & recorded
- Equivalent Circulating Density (ECD), real-time & recorded
- Annular Temperature, real-time & recorded

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
1	26"	PowerPulse / CDR / Performance Drilling	1425.00	1835.00

The PowerPulse and Compensated Dual Resistivity (CDR) tools were utilized for surveying, logging, and monitoring downhole conditions of the 26" hole section on the Amrit-1 well. The PowerPulse was programmed to transmit real-time data at 12Hz/3 bits per second, the CDR was configured with a 6-second record rate. These configurations enabled real-time formation evaluation updates every 24.67 seconds, a recorded data density greater than the Schlumberger standard of two data points per foot.

The CDR tool was installed with Annular Pressure While Drilling (APWD) sensor, which enabled continuous borehole pressure monitoring. This also enabled the monitoring of the Equivalent Circulating Density (ECD) and Equivalent Static Density (ESD) values. Whilst drilling, the ECD was continually monitored and the ESD was recorded at each connection. No unexpected changes in ECD reading were observed, indicating a stable wellbore with good conditions. Drilling conditions during the run were good and no shocks were observed. A wiper trip was performed at the completion of this run.

Upon completion of the 26" section, the tools were downloaded at the rotary table and subsequently racked back in the derrick. The recorded memory data was processed and presented to the client. Additionally, Tech Logs were downloaded and evaluated by engineer's at the well-site, verifying the recorded mode data. When compared with subsequent 17½" run, it was discovered that the Gamma Ray readings were significantly lower. This was attributed to the enlargement of the hole size.

All real-time and recorded mode data were transmitted/delivered to the client's office in town via Internet Web Witness (IWW).

17½" Section (Run 1835.00 m to 2459.00 m MD):

In the 17½" section, the following formation evaluation measurements were delivered in real-time and recorded modes. The PowerPulse transmitted the real-time direction and inclination measurements.

- Gamma Ray, real-time & recorded
- 2 MHz Phase Shift Resistivity, real-time & recorded
- 2 MHz Attenuation Resistivity, real-time & recorded
- Annular Pressure, real-time & recorded
- Equivalent Circulating Density (ECD), real-time & recorded
- Annular Temperature, real-time & recorded

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
2	17½"	PowerPulse / CDR / Performance Drilling	1835.00	2459.00

The same PowerPulse and Compensated Dual Resistivity (CDR) tools were used on the succeeding run for the 17½" section for Amrit-1. The PowerPulse programming configuration was kept at 12Hz/3 bits per second, and the CDR was again configured to a record rate of 6 seconds. APWD (Annular Pressure While Drilling) and Downhole Temperature were utilized to monitor hole condition and downhole parameters.

Drilling conditions were generally good throughout the run. Occasional low level shocks and low to moderate torsional vibrations were observed, with the highest levels whilst drilling cement. ECD was closely monitored with readings ranging from 9.07ppg at the beginning of the run, with mud weight of 8.8ppg, to 9.55ppg at the end of the run, with a mud weight of 9.2ppg. Some higher readings of ECD were observed, indicating the build up of cuttings in the annulus. Hole was wiped and high viscosity pills were pumped, which aided in lowering ECD readings to expected levels. Good communication with the client in these situations optimized the drilling performance in this run. A wiper trip to the 20" casing shoe was done after the bit reached 17½" hole TD.

Upon completion of the 17½" section, the tools were downloaded at the rotary table and subsequently racked back in the derrick. The recorded memory data was processed and presented to the client. Additionally, Tech Logs were downloaded and evaluated by engineers at the well-site, this confirmed the excellent operation of the CDR, verifying the high quality of recorded mode data.

All real-time and recorded mode data were transmitted/delivered to the client office in town via Internet Web Witness (IWW).

Schlumberger real-time leak off test was cancelled for this section. At the client request, recorded mode leak off test data was supplied after the completion of the run. This provided high quality data used for verification of results obtained in real-time leak off test.

12 ¼" Section (Run 2459.00 m to 2929 m MD):

In the 12¼" section, drilled in two bit runs, the following formation evaluation measurements were delivered in real-time and recorded modes. The PowerPulse transmitted the real-time direction and inclination measurements.

- 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	12¼"	PowerPulse / CDR / MVC / Performance Drilling	2459.00	2696.00

The PowerPulse and Compensated Dual Resistivity (CDR) tools were utilized for surveying, logging and monitoring downhole conditions for the 12¼" section for Amrit-1. The PowerPulse was programmed to transmit real-time data at 12hz/3 bits per second and the CDR was again configured with a 6 second record rate. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi Vibrational Chassis) were utilized to monitor downhole conditions and parameters.

At the commencement of the run, while drilling cement, high levels stick and slip (up to 400rpm) was observed. Client was informed and attempts were made to rectify the situation, but high levels or stick and slip, along with torsional vibration, continued until the last stabilizer was out of the shoe. Further into the run, 2550m MD to 2640m MD, shocks were experienced with PowerPulse correlating with the increase of torsional vibration and stick and slip. Attempts were made to remedy the situation, adjusting drilling parameters. From 2640m MD to the end of the run, drilling conditions were generally good with low levels of vibrations and marginal stick and slip. Good communication with Client ensured that drilling performance was optimized.

ECD was again closely monitored, circulating in order to reduce it to lower levels before drilling ahead. Due to low rate of penetration, the decision to change the bit was made at 2696mMD. The hole was circulated clean before POOH commenced.

The CDR was downloaded at the rotary table and reinitialized for the subsequent run with new bit. The recorded mode data was processed and presented to client in a timely manner. Additionally, Tech Logs were downloaded and evaluated, verifying high quality of recorded mode data and confirming excellent operation of CDR for the run. Tech Logs also confirmed that battery life remaining was sufficient for subsequent run.

All real-time and recorded mode data were transmitted/delivered to the client office in town via Internet Web Witness (IWW).

Schlumberger real-time leak off test was cancelled for this section. At the client request, recorded mode leak off test data was supplied after the completion of the run. This provided high quality data used for verification of results obtained in real-time leak off test.

Run	Hole Size (in.)	Service	Start Depth (m)	Stop Depth (m)
4	12¼"	PowerPulse / CDR / MVC / Performance Drilling	2696.00	2929.00

After the change of the bit, the same tools from Run 3 were used to continue drilling to a depth of 2929mMD. APWD (Annular Pressure While Drilling), Downhole Temperature and MVC (Multi Vibrational Chassis) continued to be monitored in this section.

Drilling conditions were good, with minimal shocks and vibrations present while drilling. Some stick and slip was observed, but no adverse effect on the drilling parameters or tools was observed. ECD was again closely monitored. A maximum ECD reading of 11.0ppg was observed at a depth of 2847mMD. The hole was circulated until ECD values dropped to expected value before drilling commenced once more.

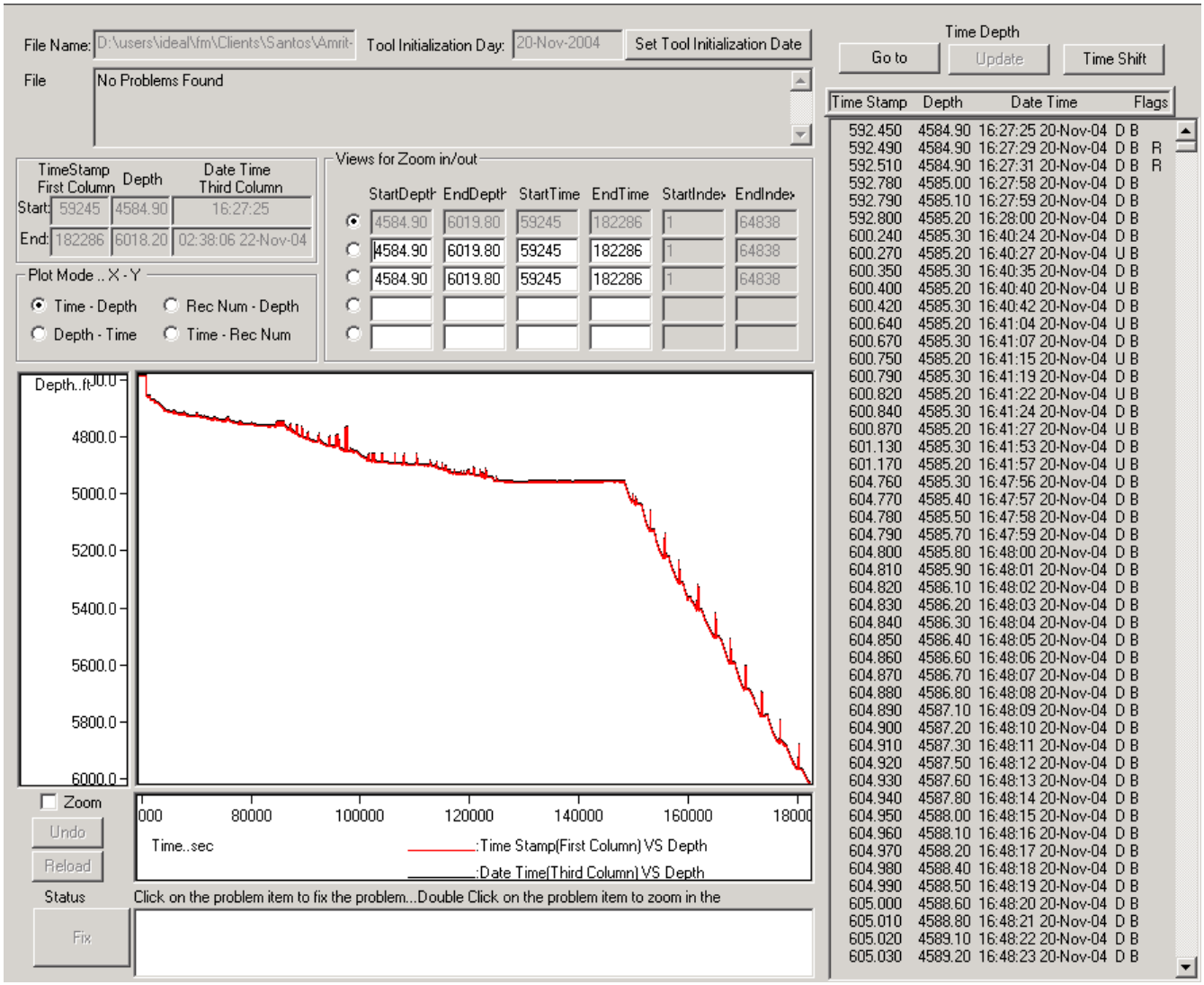
The CDR was downloaded at the rotary table and the tools subsequently racked back in the derrick until final decision was made on further drilling. The recorded mode data was promptly processed and high quality logs were presented to client. Additionally, Tech Logs were downloaded and evaluated by the engineers at well-site, confirming the excellent operation of the CDR and verifying the high quality of recorded mode data. The quality of this data exceeded Schlumberger standards of 2 data points per foot and continued to do so when high rate of penetration was encountered during the run.

All real-time and recorded mode data were transmitted/delivered to the client office in town via Internet Web Witness (IWW).

After the completion of this run, Schlumberger Wireline was run. When the data collected was compared to that of Drilling & Measurements data, the excellent quality of the logs provided was confirmed.

Depth Control Summary

1. Throughout drilling Amrit-1 well, the depth was closely monitored and kept within Schlumberger Drilling & Measurements Standards. This excellent tracking of depth was verified with the close comparison of the logs with the Schlumberger Wireline.
2. Depth control was undertaken with a geolograph depth tracking system. This was calibrated to operate at 100 pulses per foot prior to the job. Additionally, a GTE (Guideline tensiometer) was used to measure the heave of the rig during the drilling operations, and to subsequently correct the depth measurement made by the geolograph.
3. Depth tracking was excellent during the entire well. A table showing the comparisons between the driller's pipe tally and the software acquisition system is available in softcopy if requested. A plot of corrected depth versus time from the acquisition system can be seen in the following pages.
4. No depth anomalies or corrections were applied during any of the runs.
5. No editing of the raw depth/time files was done, all changes would have been undertaken on the edited depth/time files. However, as stated above, no changes were made during the entire drilling operation. Also, no time shifting was performed on the tools dump files.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Go to
Update
Time Shift
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Reload
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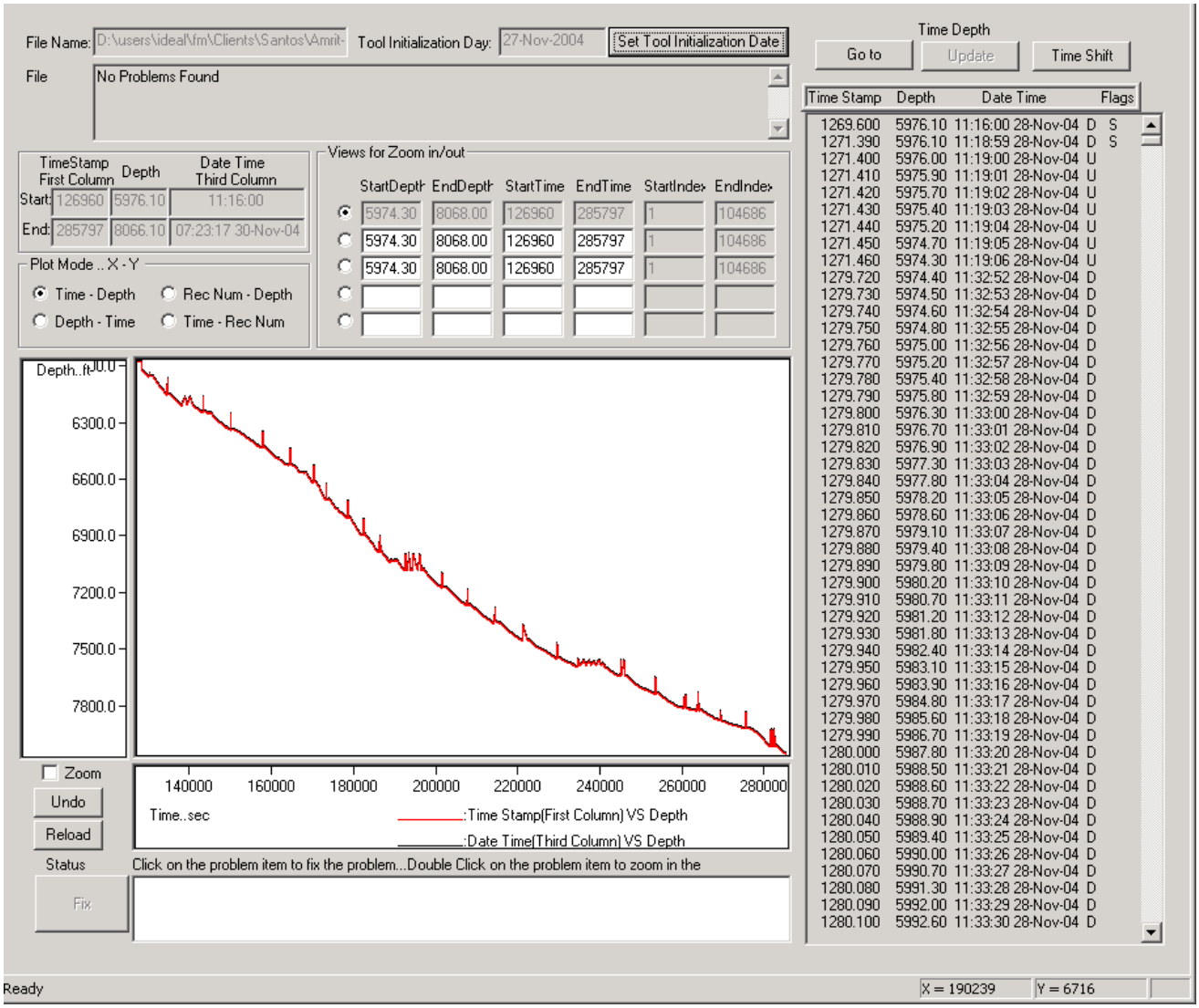
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6900.0
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Zoom
Undo
Reload
Status
Fix
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Go to
Update
Time Shift
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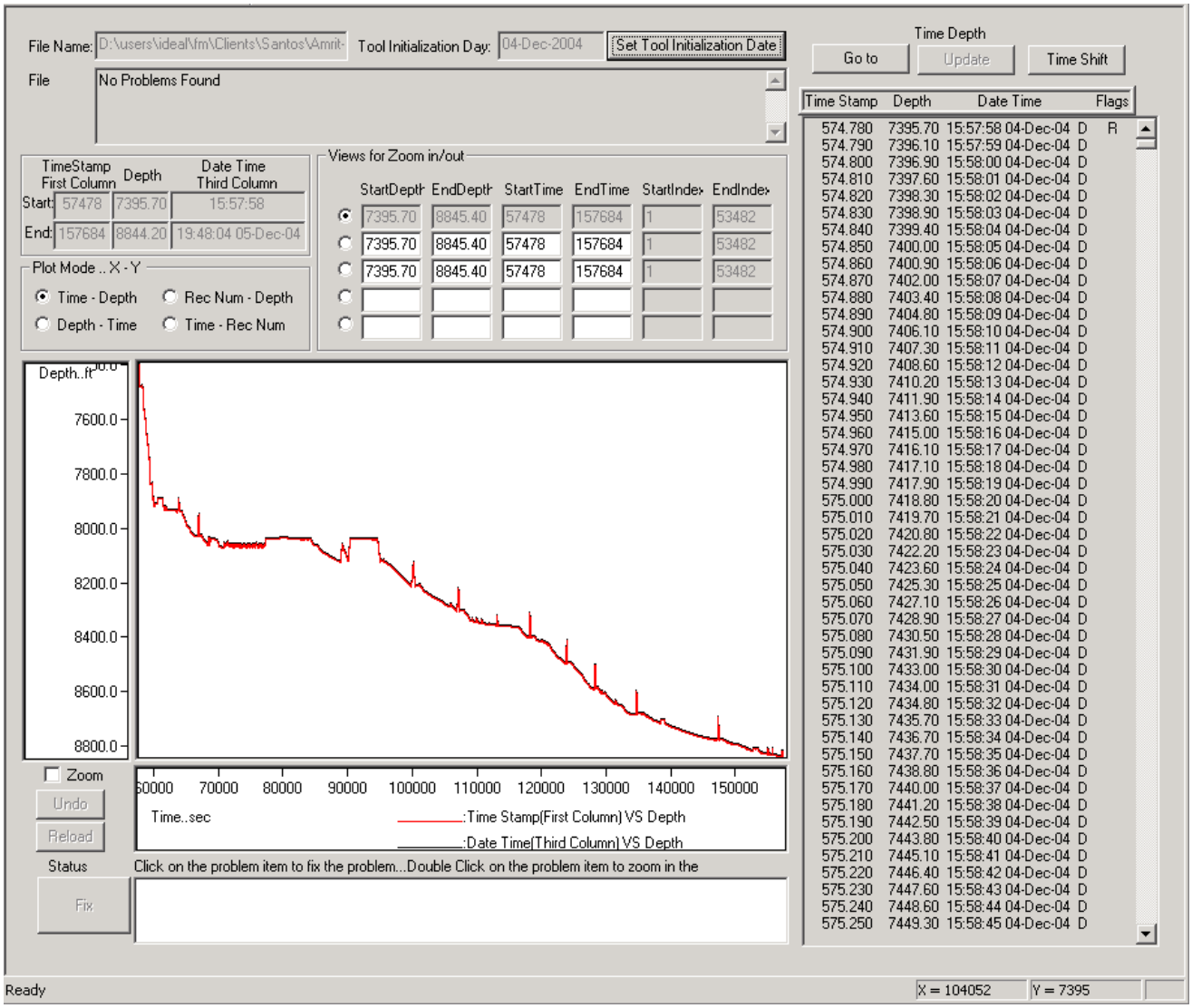
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Time - Rec Num
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Update
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Time Stamp Depth Date Time Flags
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Reload
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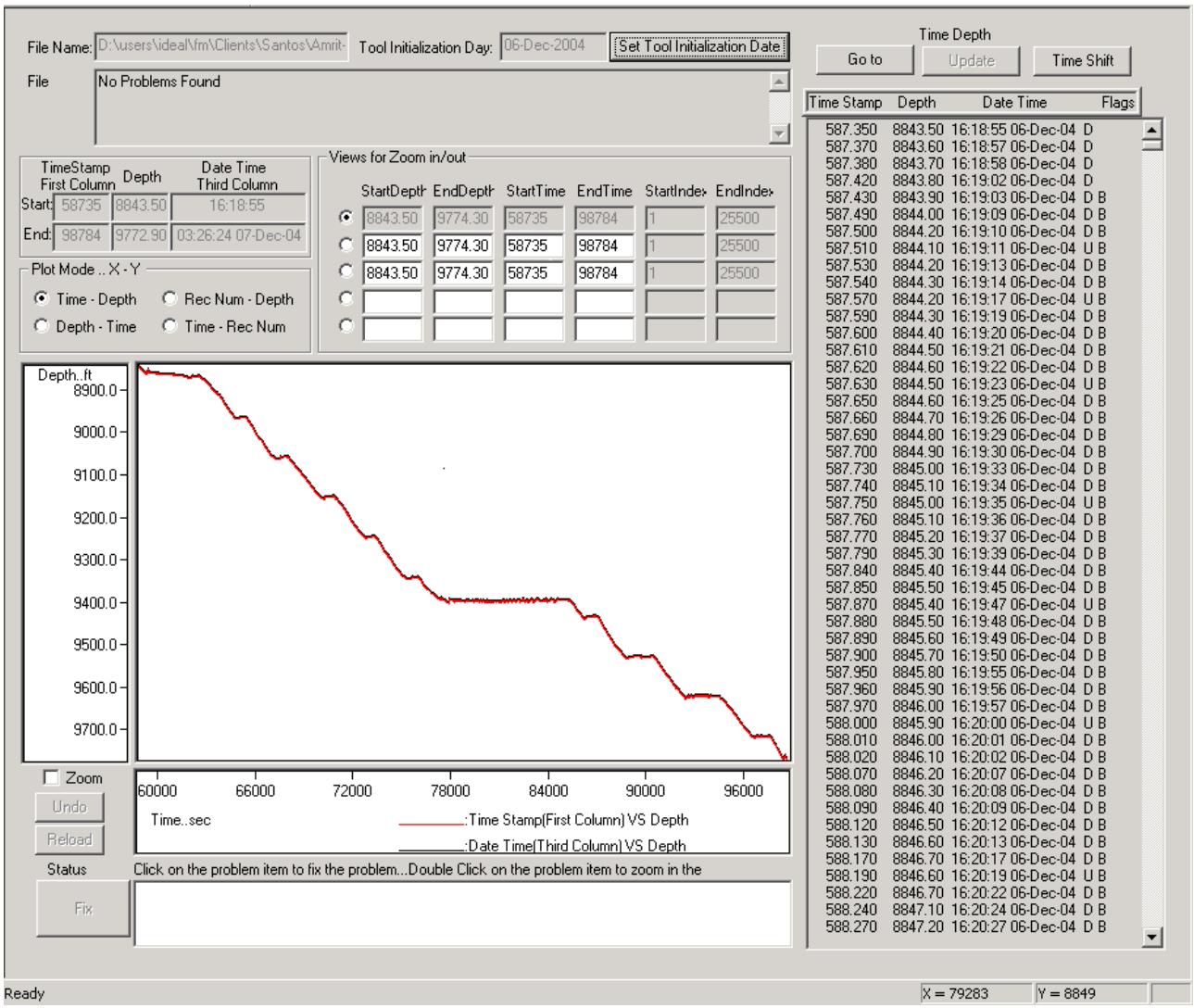
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Undo
Reload
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Time Depth
Go to
Update
Time Shift
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588.080 8846.30 16:20:08 06-Dec-04 D B
588.090 8846.40 16:20:09 06-Dec-04 D B
588.120 8846.50 16:20:12 06-Dec-04 D B
588.130 8846.60 16:20:13 06-Dec-04 D B
588.170 8846.70 16:20:17 06-Dec-04 D B
588.190 8846.60 16:20:19 06-Dec-04 U B
588.220 8846.70 16:20:22 06-Dec-04 D B
588.240 8847.10 16:20:24 06-Dec-04 D B
588.270 8847.20 16:20:27 06-Dec-04 D B
Ready
X = 79283
Y = 8849

RUN 4

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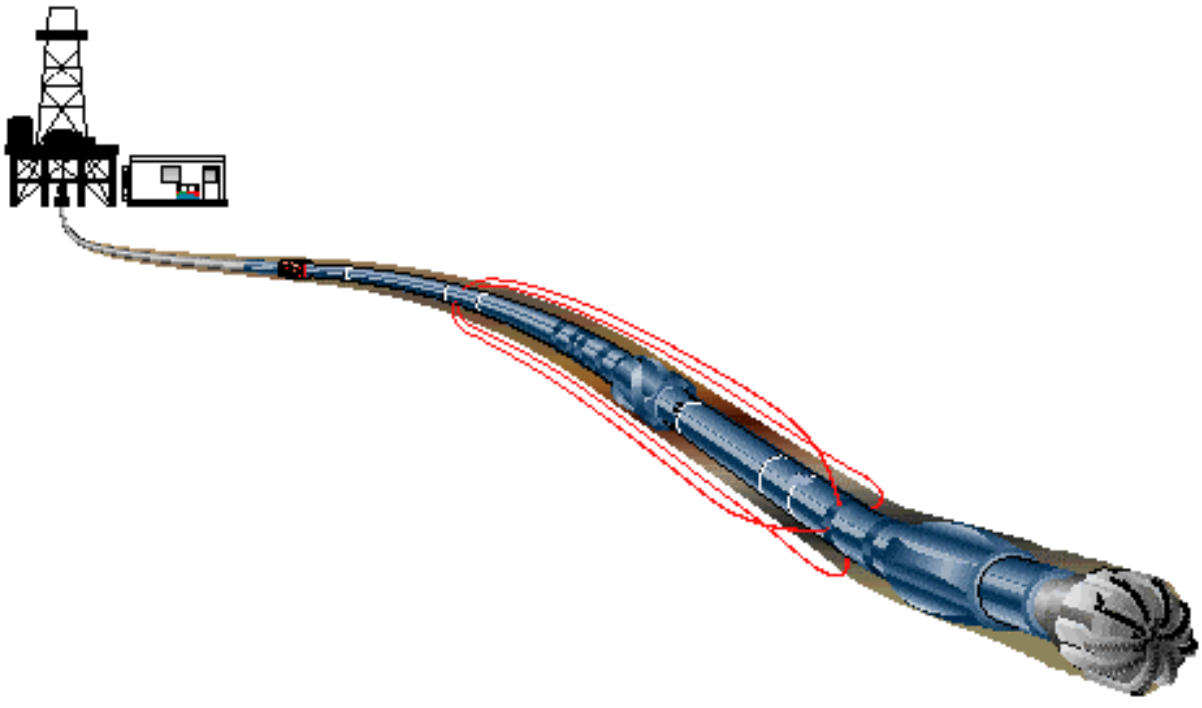
Geomagnetic and Survey Reference Criteria



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IDEAL

Geomagnetic and Survey Reference Criteria

Geomagnetic Data

Magnetic Model:	BGGM version 2004
Magnetic Date:	20 November 2004
Magnetic Field Strength:	1221.99 HCNT
Magnetic Declination:	10.48 degrees
Magnetic Dip:	-70.25 degrees

Survey Reference Criteria

Reference G:	1000.09 mGal
Reference H:	1221.99 HCNT
Reference Dip:	-70.25 degrees
Tolerance of G:	2.50 mGal
Tolerance of H:	6.00 HCNT
Tolerance of Dip:	0.45 degrees

Survey Corrections Applied

Reference North:	Grid North
Magnetic Declination:	10.48 degrees
Grid Convergence:	-0.46 degrees
Total Azimuth Correction:	10.94 degrees
Vertical Section Azimuth:	0.00 degrees

Survey Reference Location

Amrit-1 Final Fix Position

Latitude:	38° 56’ 05.20”	South
Longitude:	141° 44’ 07.08”	East
Easting:	563 729.6	meters
Northing:	5 690 204.1	meters
MGA:	Zone 54	

Note:

Data as per SANTOS “Rig Position Field Report”

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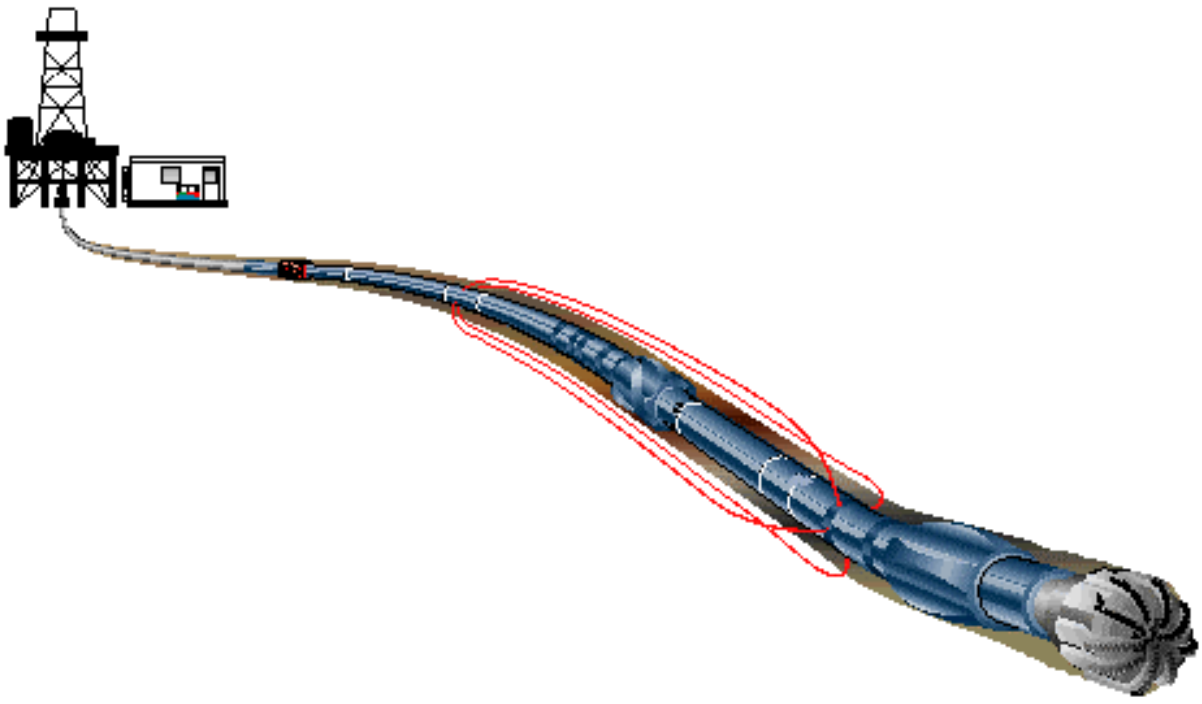
IDEAL

Survey Report



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Seq # -	Measured depth (m)	Incl angle (deg)	Azimuth angle (deg)	Course length (m)	TVD depth (m)	Vertical section (m)	Displ +N/S- (m)	Displ +E/W- (m)	Total displ (m)	At Azim (deg)	DLS (deg/ 10m)	Srvy tool type	Tool 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	1425.49	0.59	234.33	1425.49	1425.46	-4.28	-4.28	-5.96	7.34	234.33	0.00	MWD	None
3	1454.01	1.07	295.89	28.52	1453.98	-4.25	-4.25	-6.32	7.62	236.09	0.33	MWD	None
4	1487.29	0.97	129.33	33.28	1487.26	-4.29	-4.29	-6.38	7.69	236.08	0.61	MWD	None
5	1510.95	0.86	56.64	23.66	1510.92	-4.32	-4.32	-6.08	7.46	234.60	0.46	MWD	None
6	1539.34	0.80	303.78	28.39	1539.31	-4.09	-4.09	-6.07	7.32	235.99	0.49	MWD	None
7	1568.02	0.85	315.97	28.68	1567.98	-3.83	-3.83	-6.38	7.44	239.03	0.06	MWD	None
8	1595.59	0.53	308.57	27.57	1595.55	-3.60	-3.60	-6.62	7.54	241.45	0.12	MWD	None
9	1624.12	0.56	304.38	28.53	1624.08	-3.44	-3.44	-6.84	7.66	243.29	0.02	MWD	None
10	1653.18	0.34	298.89	29.06	1653.14	-3.32	-3.32	-7.03	7.78	244.73	0.08	MWD	None
11	1681.34	0.26	305.03	28.16	1681.30	-3.24	-3.24	-7.16	7.86	245.63	0.03	MWD	None
12	1709.52	0.31	319.56	28.18	1709.48	-3.15	-3.15	-7.26	7.91	246.56	0.03	MWD	None
13	1737.89	0.40	311.67	28.37	1737.85	-3.02	-3.02	-7.38	7.98	247.73	0.04	MWD	None
14	1766.33	0.35	299.78	28.44	1766.29	-2.92	-2.92	-7.53	8.08	248.85	0.03	MWD	None
15	1809.32	0.26	261.27	42.99	1809.28	-2.86	-2.86	-7.74	8.26	249.70	0.05	MWD	None
16	1849.73	0.23	231.00	40.41	1849.69	-2.93	-2.93	-7.90	8.42	249.65	0.03	MWD	None
17	1878.02	0.37	193.70	28.29	1877.98	-3.05	-3.05	-7.96	8.53	249.02	0.08	MWD	None
18	1908.10	0.34	223.98	30.08	1908.06	-3.21	-3.21	-8.05	8.67	248.24	0.06	MWD	None
19	1935.76	0.18	265.57	27.66	1935.72	-3.28	-3.28	-8.15	8.78	248.11	0.09	MWD	None
20	1963.97	0.17	252.91	28.21	1963.92	-3.29	-3.29	-8.23	8.87	248.21	0.01	MWD	None
21	1991.95	0.12	204.40	27.98	1991.90	-3.33	-3.33	-8.29	8.93	248.11	0.05	MWD	None
22	2020.87	0.20	231.00	28.92	2020.82	-3.39	-3.39	-8.34	9.00	247.88	0.04	MWD	None
23	2049.42	0.23	223.20	28.55	2049.37	-3.46	-3.46	-8.41	9.10	247.64	0.01	MWD	None
24	2077.78	0.26	214.74	28.36	2077.73	-3.56	-3.56	-8.49	9.21	247.27	0.02	MWD	None
25	2105.32	0.33	183.75	27.54	2105.27	-3.69	-3.69	-8.53	9.29	246.63	0.06	MWD	None
26	2134.71	0.29	176.46	29.39	2134.66	-3.85	-3.85	-8.53	9.36	245.74	0.02	MWD	None
27	2162.92	0.22	203.34	28.21	2162.87	-3.97	-3.97	-8.55	9.42	245.11	0.05	MWD	None
28	2192.60	0.14	180.37	29.68	2192.55	-4.06	-4.06	-8.57	9.48	244.68	0.04	MWD	None
29	2220.68	0.29	203.20	28.08	2220.63	-4.15	-4.15	-8.60	9.55	244.21	0.06	MWD	None
30	2248.46	0.15	220.05	27.78	2248.41	-4.25	-4.25	-8.65	9.64	243.85	0.05	MWD	None
31	2277.42	0.31	183.89	28.96	2277.37	-4.35	-4.35	-8.68	9.71	243.36	0.07	MWD	None
32	2306.21	0.34	216.07	28.79	2306.16	-4.50	-4.50	-8.74	9.83	242.74	0.06	MWD	None
33	2334.13	0.40	185.07	27.92	2334.08	-4.67	-4.67	-8.79	9.95	242.05	0.07	MWD	None
34	2361.66	0.37	221.08	27.53	2361.61	-4.83	-4.83	-8.86	10.09	241.42	0.09	MWD	None
35	2390.55	0.33	232.85	28.89	2390.50	-4.95	-4.95	-8.99	10.26	241.17	0.03	MWD	None
36	2419.57	0.32	200.20	29.02	2419.52	-5.08	-5.08	-9.08	10.40	240.81	0.06	MWD	None
37	2433.15	0.24	208.59	13.58	2433.10	-5.14	-5.14	-9.11	10.46	240.59	0.07	MWD	None
38	2476.28	0.50	232.35	43.13	2476.23	-5.33	-5.33	-9.30	10.72	240.19	0.07	MWD	None
39	2534.29	0.33	216.60	58.01	2534.24	-5.62	-5.62	-9.60	11.13	239.67	0.04	MWD	None
40	2649.13	0.37	195.11	114.84	2649.07	-6.24	-6.24	-9.90	11.70	237.76	0.01	MWD	None
41	2762.85	0.23	199.79	113.72	2762.79	-6.81	-6.81	-10.07	12.16	235.92	0.01	MWD	None
42	2878.16	0.23	190.81	115.31	2878.10	-7.26	-7.26	-10.19	12.51	234.55	0.00	MWD	None
43	2950.00	0.26	140.59	71.84	2949.94	-7.52	-7.52	-10.11	12.61	233.35	0.03	MWD	None
44	2979.00	0.26	140.59	29.00	2978.94	-7.63	-7.63	-10.03	12.60	232.76	0.00	Proj to TD.	

Schlumberger

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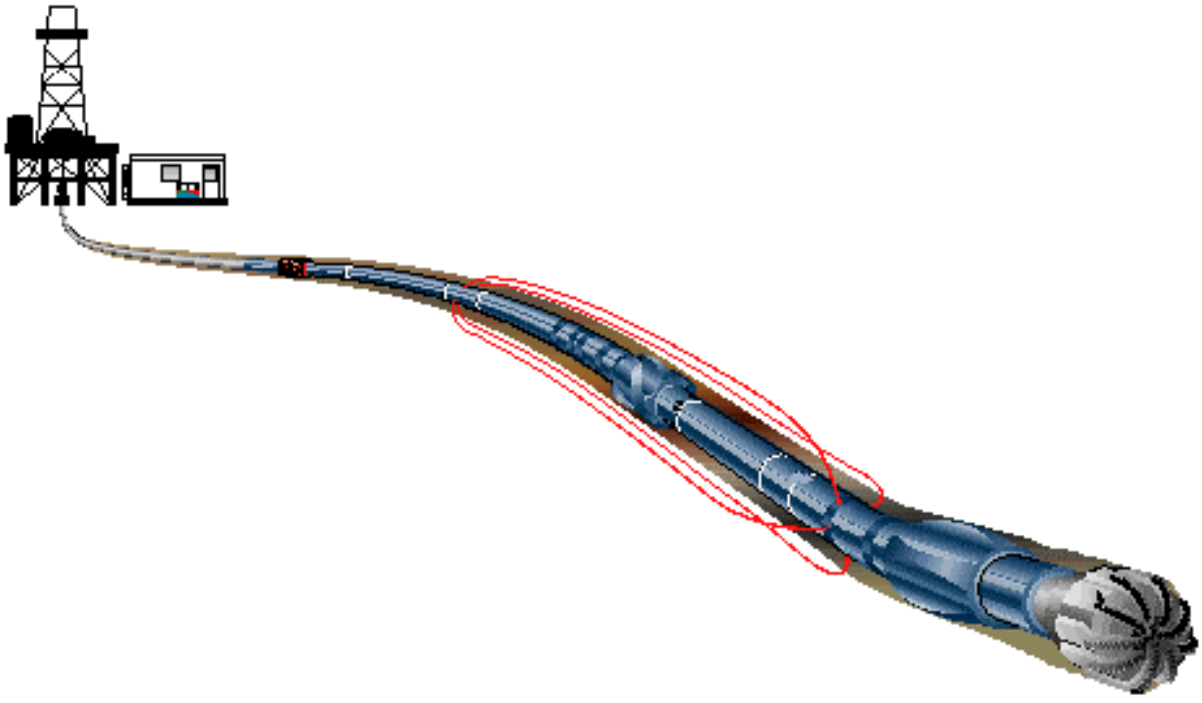
Bit Run Summary



Schlumberger — DRILLING & MEASUREMENTS - RUN SUMMARY

RUN INFORMATION

Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-04-08	D.Atkins & J.Young	20-Nov-04	22-Nov-04	1	1

Company	Santos Ltd.	Grid Corr	Brief Run Summary	Bit Run Number	Cell Manager
Rig Name	Jack Bates	-0.46	Good Run	1	Danielle Borges
Well Name	Amrit-1	Tot Corr	Hole Depth	D&M Crew	
Location	Otway Basin	10.97	From 1425.00 m To 1835 m	Ozren Radicevic & Lisa Watson	

Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours	Below Rotary Tbl Hrs
BGGM 2004	10.51		From 0 deg To 0.26 deg	35.40 hrs.	56.10 hrs.

BPS	Frequency	Mod Type	Azimuth	Rotary Hours	Rotary Distance
3	12 Hz	QPSK	From 0 deg To 261.27 deg	3.70 hrs.	325.00 m

Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth	Slide Hours	Slide Distance
Triplex	4.28 gpm	12 in	From 1424 m To 1834.96 m	15.00 hrs.	85.00 m

Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap	Drilling Hours	Drilling Distance
6.0 in	0.02	0.61	26 in	1396 m	29 m	18.70 hrs.	410.00 m

Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.	Mod Gap	Reaming Hours	Reaming Distance
deg	deg	1487.29 m	m	-1395 m	0.168 in	hrs.	m

Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc	T/F Angle	On Bottom Hours	Service
				in	0.00 deg	18.70 hrs.	Directional Services

Conn Phase Ang	Rise Const	Fall Const	H2S In Well	Damp Press	Signal Streng.	Last Casing		
deg			☐	psi	13.00	Size 30.000 in	Depth	1510 m

Directional Driller(s)	Turbine RPM @ Min Flow Rate			Turbine RPM @ Max Flow Rate			
Bob Manjeric	RPM	2161.00	FR 1069.00 gpm	RPM	3476.56	FR	1162.00 gpm

Run Objective: Jet in 30"casing & continue to drill 26" to 1829m.

EQUIPMENT DATA

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	Real Time Drilled	Recorded Time Hrs	Recorded Time Fail	Recorded Time Drilled
A962M-1069	0	35		9.50						CDR9-AA-9525	35.4		410	56.1		410
CDR9-AA-9525	0	35	6.0 B08	9.50						MDC-HC-484W	35.4		410			
H524743-40042	0	35														
H524743-40336	0	35														
MDC-HC-484W	0	35	70C00	9.50												
NMDC900L-D173	0	35		9.50												

Surface Sys	IDEAL/SPM	IDEAL/SPM
Version	ID9_1C_01	HSPM9_2C_08

DH MOTOR

Manufacturer	Schlumberger	Stage Length	4.80 m	Bit to Bend Dist.	m	Bearing Gap In	
Type	A962GT	Rubber	RM100	RSS Mfr		Bearing Gap Out	
Size	9.62	Sleeve Position		RSS Type		Radial Bearing Play	
Serial Number	1069	Sleeve Size	in	RSS Size		Thrust Bearing Play	
Lobe Config.	7:8	Motor Fail	☐	RSS SN			

OPERATING COND.

Max Circ Temp	17.00 C	Avg ROP	46.90 m/hr	Min Actl FlowRt	0.00 gpm	Max Shock Dur	sec.
Min Circ Temp	12.00 C	Max ROP	119.00 m/hr	Avg PmpPres	3609.00 psi	Total DH Shocks (k)	k
End Mud Wt	8.50 lb/gal	Avg Surf RPM	67.00	PmpPres On Bot	psi	CHECK SHOT	
End Funnel Vis	100.00 CPS	Min RPM	0.00	PmpPres Off Bot	psi	Type	
End Plastic Vis	CPS	Max RPM	90.00	Avg Surf WOB	21.00 klbs	Depth	m
End Yield Point	CPS	Avg FlowRate	1069.00 gpm	Avg Surf Torq	5.85 ft-lbs	Inclination	deg
End Mud Resist	1.00	Max Actl FlowRt	1162.00 gpm	Max Shock Lev	0.00	Azimuth	deg

MUD

Company	MI	PH		Percent Sand	0.00 %	Additives	None
Brand	Stroke spud mud	Chlorides	600.00	Percent Solids	0.00 %	Clean	☐
Type	Salt Water	Other		Percent Oil	0.00 %		
LCM Type				LCM Size		LCM Concentation	

BHA

BHA Type	Motor	Tur Rotor Prt #		Turbine Config		Surface Screen	☐
Int TF Offset	0.00	Stator Prt #		Pulser Config		DFS Used	☐
Low Oil Flag	☐	Hrs @ Low Oil	hrs.	Stab Spacing		Formation	
DD Objectives Achieved	☑	If not, why?					

BIT

Bit Type	Milltooth	Other					
Manufacturer	Model	IADC Code	No. of Jets	Size of Jets	Bit TFA	Total Revs	Stick/Slip
Smith	MSDS	1 5 5	4	2x24, 1x21, 1x20	1.36	149465.00	Yes
Inner Row	Outer Row	Dull Char	Location	Brng/Seals	Gauge (1/16")	Other Char	Reason Pulled
1	1	WT	A	E	in	NO	TD

FAILURE

Trans Fail	☐	Jamming	☐	Client Inconv.	☐	Surface Noise	☐
Pres Incr @ Fail	☐	Jamming Time	hrs.	Lost Time	hrs.	Down Hole Noise	☐
D&M Trip	☐	Sync Hours	hrs.	Surface Vib	☐	Surface Sys Failure	☐

SUMMARY

Good run.

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DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-04-08
Run Number	1
BHA Number	1

Item	Description	Vendor	Material	Serial Number	Fishing Neck OD	Fishing Neck Length	Stab OD	OD	ID	Bot Connection Size	Bot Connection Type	Top Connection Size	Top Connection Type	Len	Cum Len
UNITS					in	m	in	in	in					m	m
1	Milltooth Bit		Steel	MR3808								7.63	Reg P	0.67	0.67
2	A962MGT7848	Schlumberger	Steel	1069						7.63	Reg B	7.63	Reg P	9.68	10.35
3	Float sub		Steel	1087						7.63	Reg B	7.63	Reg P	1.05	11.40
4	26" WB Stabilizer		Steel	53655						7.63	Reg B	7.63	Reg P	1.68	13.08
5	CDR9	Schlumberger	Monel	L9525						7.63	Reg B	7.63	Reg P	7.15	20.23
6	PowerPulse9	Schlumberger	Monel	W484						7.63	Reg B	7.63	H90 P	8.44	28.67
7	26" WB Stabilizer		Steel	53656						7.63	H90 B	7.63	Reg P	1.48	30.15
8	91/2" NM Drill Collar	Schlumberger	Monel	D173						7.63	Reg B	7.63	Reg P	9.20	39.35
9	3 x 91/2" Drill Collar		Steel							7.63	Reg B	7.63	Reg P	26.62	65.97
10	Crossover		Steel							6.63	Reg B	7.63	Reg P	1.32	67.29
11	2 x 8" Drill Collar		Steel							6.63	Reg B	6.63	Reg P	18.51	85.80
12	Drill-Quip CADA Tool		Steel							6.63	Reg B	6.63	Reg P	2.17	87.97
13	Drill-Quip CADA Tool		Steel							6.63	Reg B	6.63	Reg P	0.57	88.54
14	7 x 8" Drill Collar		Steel							6.63	Reg B	6.63	Reg P	64.00	152.54
15	Crossover		Steel							4.50	IF B	6.63	Reg P	1.14	153.68
16	12 x 5" HWDP		Steel							4.50	IF B	4.50	IF P	110.77	264.45
17										4.50	IF B				
18															
19															
20															
21															
22															
23															
24															

PREDICTED BHA TENDENCY

Drill 8.5in section vertically to TD.

Hookload		Wt. Below Jars	
Pickup Wt.		Wt. Above Jars	
Slack Wt.		Total Air Wt.	

TIME/DEPTH DETAILS	1	2	3	4	5
Date/Time	21-Nov-04	22-Nov-04			
Field Engineer	Lisa	Lisa			
Depth	1468.50	1735.59			
Average ROP	5.00	70.00			
Avg. Std. Pres.	3650.00	4000.00			
Desurger 1	800.00	800.00			
Desurger 2	800.00	800.00			
Tur. RPM @ FR	3242.19	3281.25			
FR @ Tur. RPM	1100.00	1134.00			
Avg. RPM	0.00	92.00			
Max RPM	0.00	95.00			
Total Shocks	0.02	0.05			
Max Shock	0.00	0.00			
Avg. Surf. WOB	35.00	15.00			
Max Surf. WOB	40.00	20.00			
Avg. DH WOB	40.00	15.00			
Max DH WOB	40.00	20.00			
Avg. Surf. Torq.	0.00	2.50			
Max Surf. Torq.	0.00	4.00			
Avg. DH Torq.	0.00	4.00			
Max DH Torq.	0.00	4.40			
Formation Type					
Friction					
Drag Up					
Drag Down					
Mud Weight	8.30	8.30			
Funnel Vis.					
Plastic Vis.					
Circ. Temp	17.00	15.70			
Signal Strength	12.00	9.50			
Bit Deviation	0.50	0.31			
Differential Pres.	200.00	200.00			

Stabilizer Description	Mid Pt To Bit	BLADE Type	BLADE Length	BLADE Width	GAUGE Length	GAUGE In	GAUGE Out
UNITS	m		in	in	in	in	in

Bit To Read Out Port		Bit To Measurement Port	
CDR	16.17 m	GR LWD	18.48 m
PPL	21.97 m	RES LWD	15.00 m
	m	APWD LWD	15.72 m
	m	D&I PPL	24.32 m
	m		m
	m		m
	m		m

BATTERY	Unloaded (V) Before	Unloaded (V) After	Loaded (V) Before	Loaded (V) After	Run Hrs BOT	Run Hrs AMP	Cum Hrs BOT	Cum Hrs AMP
Tool								
H524743-40042	21.95		19.70					
H524743-40336	21.74		19.11					

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Job Number:	AWA-04-08
Run Number:	1

Date	Time	Depth	Operating Details
14-Nov-04	10:00	0.00	Start making up BHA
	11:00	0.00	Program CDR-9525 @ 6sec config. & PP-W484
20-Nov-04	6:45	0.00	Connect to CDR-9525 (4 resets)
	7:00	0.00	Initialize CDR w/6sec configuration, Memory time=124.7 hrs
	8:00	0.00	Connect to PP-W484 to test communication between tool as SHT is not required
	8:20	0.00	Tools below rotary table
	16:40	1397.50	Connect Geolograph. Set depth @ tool join
	17:15	1425.00	Tag bottom
	18:48	1440.00	Commence pumping. 170 strokes (730gpm). Tool In sync for few minuts
	18:50	1441.00	Pumping less than minimum flow rate. Tools using battery power_company man informed
	19:16	1441.00	Start pumping 190 strokes (95/95). Tools Out of Sync
	21:00	1447.21	Pumping 165 strokes (84/82). Tool In Sync. SPT1=6.06psi, SPT2=7psi
21-Nov-04	0:00	1455.75	Total pumping Hours=6.6hrs, SPP=3699psi, Pump Stroke=260 (95/95/70)
	1:15	1468.50	Pump 50 barrels, sweep Hi/Low.
			SPT1=10.8psi, SPT2=14.3psi, WOB=40, SPP=3650psi, strokes= 265 (95/95/75)
	3:30	1482.00	Survey taken, incl=1.07deg, Co man informed.
	3:40	1492.00	Working the pipe
	7:10	1498.00	Increase flow to 1200gpm.
	9:17	1504.00	Pump1 down, 200strokes with pumps 2 & 3 on line
	10:40	1510.00	30" casing TD
	10:52	1511.30	Take a survey inside casing for Inclination only (incl=1.11 deg)
	10:56	1511.31	Pumping gel
	11:08	1511.95	Pumps off - waiting on soak 30" conductor and on some mud to be mixed
	17:15	1512.00	Start pumping @ 1200gpm
	17:30	1543.00	Calibrate SWOB=5Klbf
			Drilling ahead @ 275 strokes (90/90/95), rpm=90
			TRPM=3398.4, SPPA=4030, SPT1=10, SPT2=12psi, vib torq=1035G
	18:30	1570.00	ROP exceed 90m/h, Co man informed that Max ROP @ 6sec conf is 90m/h to get 2 data point per foot.
	20:29	1639.23	Pumps off due to problem in the standpipe manifold
	20:30	1639.23	Pumps on, back drilling
	22:45	1681.34	Slight increase of ESD to 1.036. Co man informed - Stand reamed 3 times
22-Nov-04	0:00	1758.00	Total pumping hours =23.2hrs, SPP=4000psi, Pump Stroke = 271
			SPT1=10.6psi, SPT2=14.4psi, WOB=15
	1:20	1796.00	Pumps down - liner came off
	1:23	1796.00	Pumps up and running
	2:30	1835.00	TD 26" hole section
	2:35	1835.00	Pump high/low visc. Total Pump Hours=
	2:53	1835.00	Survey taken and POOH commenced
	6:55	1835.00	Run back to bottom and commence POOH
	16:00	1835.00	Run 1 total pumping hours=35.4, drilling=18.7hrs
	16:30	0.00	Tools above rotary table
			F7 shows we are still in batt.1.
			Batt.1 should be with around 45% left.

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Schlumberger — DRILLING & MEASUREMENTS - RUN SUMMARY

RUN INFORMATION

Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-04-08	D.Atkins & J.Young	27-Nov-04	1-Dec-04	2	2

Company	Santos Ltd.	Grid Corr	Brief Run Summary	Bit Run Number	Cell Manager
Rig Name	Jack Bates	-0.46	Good Run	2	Danielle Borges
Well Name	Amrit-1	Tot Corr	Hole Depth	D&M Crew	
Location	Otway Basin	10.94	From 1835 m To 2459 m	Ozren Radicevic & Lisa Watson	

Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours	Below Rotary Tbl Hrs
BGGM 2004	10.48		From 0.26 deg To 0.24 deg	85.8 hrs.	104.83 hrs.

BPS	Frequency	Mod Type	Azimuth	Rotary Hours	Rotary Distance
3	12 Hz	QPSK	From 261.27 deg To 208.59 deg	32.2 hrs.	624 m

Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth	Slide Hours	Slide Distance
Triplex	4.28 gpm	12 in	From 1834.96 m To 2458.95 m	hrs.	m

Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap	Drilling Hours	Drilling Distance
6.0 in	0.01	0.09	17.5 in	1396 m	29 m	32.2 hrs.	624 m

Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.	Mod Gap	Reaming Hours	Reaming Distance
deg	deg	1935.76 m	m	-1396 m	0.168 in	5 hrs.	634 m

Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc	T/F Angle	On Bottom Hours	Service
				in	0 deg	32.2 hrs.	Directional Services

Conn Phase Ang	Rise Const	Fall Const	H2S In Well	Damp Press	Signal Streng.	Last Casing	
deg			☐	800 psi	12	Size 20 in	Depth 1822 m

Directional Driller(s)	Turbine RPM @ Min Flow Rate		Turbine RPM @ Max Flow Rate	
Bob Manjancic	RPM 1406.00	FR 749 gpm	RPM 3476.56	FR 992 gpm

Run Objective: Drill 17.5" section to TD at 2459m.

EQUIPMENT DATA

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	Real Time Drilled	Recorded Time Hrs	Recorded Time Fail	Recorded Time Drilled
A962M-1069	35	121		9.50						CDR9-AA-9525	55.21		624	104.8		624
CDR9-AA-9525	35	121	6.0 B08	9.50						MDC-HC-484W	55.21		624			
H524743-40042	35	121														
H524743-40336	35	121														
MDC-HC-484W	35	121	70C00	9.50												
NMDC900L-D173	35	121		9.50												

Surface Sys	IDEAL/SPM	IDEAL/SPM					IDEAL/SPM
Version	ID9_1C_01	HSPM9_2C_08					

DH MOTOR

Manufacturer	Schlumberger	Stage Length	4.80 m	Bit to Bend Dist.	3.25 m	Bearing Gap In	0.00
Type	A962GT	Rubber	RM100	RSS Mfr		Bearing Gap Out	2.00
Size	9.62	Sleeve Position	0.93	RSS Type		Radial Bearing Play	
Serial Number	1069	Sleeve Size	17.13 in	RSS Size		Thrust Bearing Play	
Lobe Config.	7:8	Motor Fail	☐	RSS SN			

OPERATING COND.

Max Circ Temp	23.00 C	Avg ROP	25.35 m/hr	Min Actl FlowRt	749.00 gpm	Max Shock Dur	468.00 sec.
Min Circ Temp	12.00 C	Max ROP	99.30 m/hr	Avg PmpPres	2506.00 psi	Total DH Shocks (k)	0.11 k
End Mud Wt	9.20 lb/gal	Avg Surf RPM	99.00	PmpPres On Bot	2500.00 psi	CHECK SHOT	
End Funnel Vis	55.00 CPS	Min RPM	60.00	PmpPres Off Bot	2350.00 psi	Type	
End Plastic Vis	20.00 CPS	Max RPM	113.00	Avg Surf WOB	21.50 klbs	Depth	m
End Yield Point	26.00 CPS	Avg FlowRate	903.00 gpm	Avg Surf Torq	7400.00 ft-lbs	Inclination	deg
End Mud Resist	0.12	Max Actl FlowRt	992.00 gpm	Max Shock Lev	0.00	Azimuth	deg

MUD

Company	MI	PH	9.30	Percent Sand	0.25 %	Additives	Barite
Brand	KCl/PHPA/Glyco	Chlorides	38500.00	Percent Solids	4.00 %	Clean	☐
Type	KCL	Other		Percent Oil	%		
LCM Type				LCM Size		LCM Concentation	

BHA

BHA Type	Motor	Tur Rotor Prt #		Turbine Config		Surface Screen	☐
Int TF Offset		Stator Prt #		Pulser Config		DFS Used	☐
Low Oil Flag	☐	Hrs @ Low Oil	hrs.	Stab Spacing		Formation	
DD Objectives Achieved	☑	If not, why?					

BIT

Bit Type	Milltooth	Other					
Manufacturer	Model	IADC Code	No. of Jets	Size of Jets	Bit TFA	Total Revs	Stick/Slip
Reed	T11C	4/24/1900	4	3x22, 1x20	1.42		yes
Inner Row	Outer Row	Dull Char	Location	Brng/Seals	Gauge (1/16")	Other Char	Reason Pulled
2	2	BT	A	E	1	WT	TD

FAILURE

Trans Fail	☐	Jamming	☐	Client Inconv.	☐	Surface Noise	☐
Pres Incr @ Fail	☐	Jamming Time	hrs.	Lost Time	hrs.	Down Hole Noise	☐
D&M Trip	☐	Sync Hours	55.20 hrs.	Surface Vib	☐	Surface Sys Failure	☐

SUMMARY

Good MWD/LWD run. Excellent recorded mode data recovered.

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Schlumberger

DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-04-08
Run Number	2
BHA Number	

Item	Description	Vendor	Material	Serial Number	Fishing Neck OD	Fishing Neck Length	Stab OD	OD	ID	Bot Connection Size	Bot Connection Type	Top Connection Size	Top Connection Type	Len	Cum Len
	UNITS				in	m	in	in	in					m	m
1	Milltooth Bit		Steel	J65053				17.50				7.63	Reg P	0.48	0.48
2	A962MGT7848	Schlumberger	Steel	1069	9.63	0.39		9.63	2.38	7.63	Reg B	7.63	Reg B	9.66	10.14
3	Float sub		Steel	1087	9.50			9.50	2.69	7.63	Reg P	7.63	Reg B	1.04	11.18
4	17-1/2" WB Stabilizer		Steel	207A34	9.50	0.71	17.50	9.50	3.00	7.63	Reg P	7.63	Reg B	2.04	13.22
5	CDR9	Schlumberger	Monel	L9525	9.63			9.50	3.00	7.63	Reg P	7.63	H90 B	7.15	20.37
6	PowerPulse9	Schlumberger	Monel	W484	9.25	0.45		9.50	4.31	7.63	H90 P	7.63	H90 B	8.44	28.81
7	17-1/2" WB Stabilizer		Steel	270A97	9.50	0.75	17.50	9.50	3.00	7.63	Reg P	7.63	Reg B	2.05	30.86
8	91/2" NM Drill Collar	Schlumberger	Monel	D173	9.50			9.50	3.00	7.63	Reg P	7.63	Reg B	9.20	40.06
9	2 x 91/2" Drill Collar		Steel		9.56	0.50		9.50	3.00	7.63	Reg P	6.63	Reg B	17.90	57.96
10	Crossover		Steel		8.06	0.62		9.50	3.00	6.63	Reg P	6.63	Reg B	1.32	59.28
11	8 x 8" Drill Collar		Steel		7.88			8.00	2.88	6.63	Reg P	6.63	Reg B	74.15	133.43
12	8"Jar		Steel	48907C	8.06	0.61		8.06	3.00	6.63	Reg P	6.63	Reg B	9.78	143.21
13	3 x 8"DC		Steel		7.88			8.00	2.88	4.50	IF P	6.63	Reg B	27.66	170.87
14	Crossover		Steel		6.63	0.60		8.00	2.94	4.50	IF P	4.50	IF B	1.14	172.01
15	12 x 5" HWDP		Steel		6.50			6.63	3.00	4.50	IF P	4.50	IF B	110.77	282.78
16															
17															
18															
19															
20															
21															
22															
23															
24															

TIME/DEPTH DETAILS	1	2	3	4	5
Date/Time	28-Nov-04	29-Nov-04	30-Nov-04		
Field Engineer	Danielle	Danielle	Danielle		
Depth	1858.07	2222.72	2045.00		
Average ROP	30.00	21.00	35.00		
Avg. Std. Pres.	1641.50	2925.56	2680.00		
Desurger 1	800.00	800.00	800.00		
Desurger 2	800.00	800.00	800.00		
Tur. RPM @ FR	1718.88	2539.06	2539.06		
FR @ Tur. RPM	850.00	1000.00	1000.00		
Avg. RPM	50.00	90.00	105.00		
Max RPM	64.00	100.00	110.00		
Total Shocks	0.07	0.10	0.11		
Max Shock					
Avg. Surf. WOB	20.00	30.00	25.00		
Max Surf. WOB	30.00	35.00	30.00		
Avg. DH WOB	17.00	15.00	15.00		
Max DH WOB	25.00	20.00	20.00		
Avg. Surf. Torq.	3.00	3.00	8.00		
Max Surf. Torq.	3.50	3.50	9.00		
Avg. DH Torq.	2.97	3.00	7.00		
Max DH Torq.	3.00	3.50	8.00		
Formation Type	Shale	Shale	Shale		
Friction					
Drag Up					
Drag Down					
Mud Weight	8.80	9.20	9.00		
Funnel Vis.					
Plastic Vis.	15.00	15.00	16.00		
Circ. Temp	16.00	18.00	18.00		
Signal Strength	9.00	15.00	13.00		
Bit Deviation	0.26	0.14	0.24		
Differential Pres.					

PREDICTED BHA TENDENCY

Hookload	229.00	Wt. Below Jars	77.20 klbs
Pickup Wt.		Wt. Above Jars	32.80 klbs
Slack Wt.		Total Air Wt.	

Stabilizer Description	Mid Pt To Bit	BLADE Type	BLADE Length	BLADE Width	GAUGE Length	GAUGE In	GAUGE Out
UNITS	m		in	in	in	in	in

Bit To Read Out Port		Bit To Measurement Port	
CDR	16.34 m	GR LWD	18.65 m
PPL	22.14 m	RES LWD	15.17 m
	m	APWD LWD	15.89 m
	m	D&I PPL	24.49 m
	m		m
	m		m
	m		m

BATTERY	Unloaded (V) Before	Unloaded (V) After	Loaded (V) Before	Loaded (V) After	Run Hrs BOT	Run Hrs AMP	Cum Hrs BOT	Cum Hrs AMP
Tool								
H524743-40042								
H524743-40336								

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Job Number:	AWA-04-08
Run Number:	2

Date	Time	Depth	Operating Details
27-Nov-04	0:00	0.00	SLB LOT for 20"section has been cancelled by client.
	12:40	0.00	Initialize CDR-9525 @ 6sec configuration on rig floor - CDR memory=134.9hrs
	13:10	0.00	Tools below rotary table
	13:30	0.00	Start acquisition
	14:00	0.00	SHT@800gpm (191 strokes), TRPM=2226.56, SPT1=18psi, SPT2=17psi, CDRstat=48, MWDstat=0,
			SPPA=1236psi, 98% BC
	22:20	1807.00	Tag cement, rack back one stand
	22:30	1778.00	Slip & cut.
	23:00	1778.00	Pumping 30spm to fill up casing/riser.
	23:03	1778.00	Pumping 197spm (827gpm). No signal - bypassing standpipe
28-Nov-04	1:02	1778.00	Stop pumping
	1:58	1778.00	Pressure test surface equipment.
	2:20	1778.00	Standpipe leaking. Change of standpipes, sensors moved
	3:40	1778.00	Finished Standpipe swap - continued surface pressure test
	4:10	1778.00	Make connection and start pumping. Mud Res 0.096ohm-m@24.2degC
	4:20	1800.00	Losing mud over the shakers
	4:30	1800.00	Continue to drill cement
	6:16	1817.50	Connect Geolograph
	6:20	1817.50	Taken SCRs
	7:15	1821.30	Drill out casing shoe
	8:15	1838.00	Circulate prior to LOT
	10:10	1838.67	Confirm final rig poisition with Company Man
	11:36	1838.67	Finish LOT, start pumping
	14:30	1894.16	Pull off bottom & stop pumping - Mud loss over shakers
	14:57	1894.16	Intermittent network problems during the day
	15:05	1894.16	Back on bottom drilling
	18:50	1948.00	Increase torsional vib to 1855G.
	22:16	2002.30	Drill break. Pick up off bottom and flow check.
	22:30	2002.34	Back on bottom drilling
	22:37	2003.16	Pick up off bottom. Run pumps 1,2&3 @ 1000gpm
	22:44	2003.16	Back on bottom drilling
29-Nov-04	0:00	2045.00	ROP=35m/h, SPT's=12.7 / 8.4psi, TRPM=2539@230strokes, SPPA=2680psi, 96%BC
	4:27	2146.70	Pump hi vis sweep
	4:56	2146.70	Back on bottom drilling
	5:30	2160.00	Circulate hole and condition mud.
	6:30	2160.00	Back on bottom drilling
	8:10	2189.25	Booster pump on
	16:50	2317.16	ECD jumped from 9.57 to 9.66. Pull off bottom, increase rpm & circulate hole cleaning.
	18:18	2317.16	Start pumping sweeps
	19:05	2317.16	Back on bottom drilling - ECD dropped to 9.47
	19:30	2325.00	Calibrate WOB=20Klbf
30-Nov-04	0:00	2382.00	ROP=8.84m/h, SPT's=6.8 / 10.2psi, TRPM=2539@226strokes,SPPA=3046psi, 94%BC
	0:20	2832.00	Lower the WOB to 10-15Klbs
	0:25	2834.00	Ream stand to lower ECD (ECD=9.52ppg)
	0:30	2834.00	Back on bottom drilling
	5:20	2425.00	Increase WOB to 20-30Klbs.
	7:21	2459.00	TD of 17 1/2in section
	7:25	2459.00	Circulate hole.
	7:58	2457.00	Take a survey
	8:02	2455.00	Pump hi vis pill.
	11:30	2459.00	Start to pull back to the shoe.
	14:00	2459.00	Geolograph line broken. Replace with spare line
	17:00	2459.00	Shut down operations due to Safety Investigation. Circulating off bottom while waiting on outcome
01-Dec-04	16:30	2459.00	Back to normal operations - Start to POOH
	21:55	0.00	Tools above rotary table
	22:15	0.00	Download CDR-9525 on rotary and rack tools back until cement job is done.
			Estimeted battery life left is: Batt A: 0%, Batt B: 40%

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Schlumberger — DRILLING & MEASUREMENTS - RUN SUMMARY

RUN INFORMATION

Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-04-08	D.Atkins & J.Young	4-Dec-04	6-Dec-04	3	3

Company	Santos Ltd.	Grid Corr	Brief Run Summary	Bit Run Number	Cell Manager
Rig Name	Jack Bates	-0.46	Good Run	3	Danielle Borges
Well Name	Amrit-1	Tot Corr	Hole Depth	D&M Crew	
Location	Otway Basin	10.94	From 2459 m To 2695.00 m	Ozren Radicevic & Lisa Watson	

Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours	Below Rotary Tbl Hrs
BGGM 2004	10.48		From 0.24 deg To 0.37 deg	29.80 hrs.	51.10 hrs.

BPS	Frequency	Mod Type	Azimuth	Rotary Hours	Rotary Distance
3	12 Hz	QPSK	From 208.59 deg To 195.11 deg	14.40 hrs.	236.00 m

Pump Type	Pump Output	Pump Strk Len.	True Vertical Depth	Slide Hours	Slide Distance
Triplex	4.28 gpm	12 in	From 2458.95 m To 2694.94 m	hrs.	m

Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap	Drilling Hours	Drilling Distance
6.0 in	0.01	0.07	12.25 in	1396 m	29 m	14.40 hrs.	236.00 m

Bent Sub Angle	Bent HSG Ang	Depth Max DLS	RKB Height	Ground Elev.	Mod Gap	Reaming Hours	Reaming Distance
deg	deg	2476.28 m	m	-1396 m	0.148 in	hrs.	m

Pulse Ht Thresh	Min Pulse Wdt	Max Pulse Wdt	Digit Time	T/F Arc	T/F Angle	On Bottom Hours	Service
				in	deg	14.40 hrs.	Directional Services

Conn Phase Ang	Rise Const	Fall Const	H2S In Well	Damp Press	Signal Streng.	Last Casing	
deg			☐	800.00 psi	7.00	Size 13.375 in	Depth 2459 m

Directional Driller(s)	Turbine RPM @ Min Flow Rate			Turbine RPM @ Max Flow Rate			
Bob Manjancic	RPM	1914.00	FR 659.00 gpm	RPM	2968.75	FR	874.00 gpm

Run Objective: Drill 12 1/4" section to TD

EQUIPMENT DATA

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	Real Time Drilled	Recorded Time Hrs	Recorded Time Fail	Recorded Time Drilled
A962M-2099	96	125		9.62						CDDC-BC-8001	21.5		236	51.1		236
CDDC-BC-8001	0	30	6.0B08	8.25						MDC-DE-ED12	21.5		236			
H524743-40338																
H524743-40339																
MDC-DE-ED12	0	30	70C00	8.25												

Surface Sys	IDEAL/SPM	IDEAL/SPM					IDEAL/SPM
Version	ID9_1C_01	hspm9_2c_08					

DH MOTOR

Manufacturer	Schlumberger	Stage Length	4.80 m	Bit to Bend Dist.	3.06 m	Bearing Gap In	1.00
Type	A962M	Rubber	RM100	RSS Mfr		Bearing Gap Out	2.00
Size	9.62	Sleeve Position	0.45	RSS Type		Radial Bearing Play	
Serial Number	2099	Sleeve Size	12.13 in	RSS Size		Thrust Bearing Play	
Lobe Config.	7:8	Motor Fail	☐	RSS SN			

OPERATING COND.

Max Circ Temp	24.00 C	Avg ROP	16.39 m/hr	Min Actl FlowRt	659.00 gpm	Max Shock Dur	sec.
Min Circ Temp	21.00 C	Max ROP	120.11 m/hr	Avg PmpPres	3065.00 psi	Total DH Shocks (k)	0.63 k
End Mud Wt	9.50 lb/gal	Avg Surf RPM	91.00	PmpPres On Bot	psi	CHECK SHOT	
End Funnel Vis	64.00 CPS	Min RPM	68.00	PmpPres Off Bot	psi	Type	
End Plastic Vis	21.00 CPS	Max RPM	115.00	Avg Surf WOB	20.76 klbs	Depth	m
End Yield Point	25.00 CPS	Avg FlowRate	821.00 gpm	Avg Surf Torq	8160.00 ft-lbs	Inclination	deg
End Mud Resist	0.08	Max Actl FlowRt	874.00 gpm	Max Shock Lev		Azimuth	deg

MUD

Company	MI	PH	8.50	Percent Sand	0.30 %	Additives	Barite
Brand	KCl/PHPA/Glyco	Chlorides	52500.00	Percent Solids	8.80 %	Clean	☐
Type	KCL	Other		Percent Oil	3.50 %		
LCM Type				LCM Size		LCM Concentation	

BHA

BHA Type	Motor	Tur Rotor Prt #		Turbine Config		Surface Screen	☐
Int TF Offset		Stator Prt #		Pulser Config		DFS Used	☐
Low Oil Flag	☐	Hrs @ Low Oil	hrs.	Stab Spacing		Formation	
DD Objectives Achieved	☑	If not, why?					

BIT

Bit Type	PDC	Other					
Manufacturer	Model	IADC Code	No. of Jets	Size of Jets	Bit TFA	Total Revs	Stick/Slip
Hughes	HCH606		6	14	0.90	156712.00	yes
Inner Row	Outer Row	Dull Char	Location	Brng/Seals	Gauge (1/16")	Other Char	Reason Pulled
1	1	ER	Nose	X	In	None	PR

FAILURE

Trans Fail	☐	Jamming	☐	Client Inconv.	☐	Surface Noise	☐
Pres Incr @ Fail	☐	Jamming Time	hrs.	Lost Time	hrs.	Down Hole Noise	☐
D&M Trip	☐	Sync Hours	21.50 hrs.	Surface Vib	☐	Surface Sys Failure	☐

SUMMARY

Good MWD/LWD run.

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DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-04-08
Run Number	3
BHA Number	

Item	Description	Vendor	Material	Serial Number	Fishing Neck OD	Fishing Neck Length	Stab OD	OD	ID	Bot Connection Size	Bot Connection Type	Top Connection Size	Top Connection Type	Len	Cum Len
	UNITS				in	m	in	in	in					m	m
1	PDC Bit	Hughes		7003752	8.00	0.14		12.25				6.63	Reg P	0.34	0.34
2	Crossover			L900	9.50			9.63	3.06	6.63	Reg B	7.63	Reg P	0.35	0.69
3	Motor	Schlumberger	Monel	1060	9.63	0.47		9.63	3.06	7.63	Reg B	7.63	Reg B	9.68	10.37
4	Float sub	Schlumberger	Monel	3728	9.50			9.50	2.25	7.63	Reg P	7.63	Reg B	0.90	11.27
5	Crossover				8.06	0.62		9.00	3.00	7.63	Reg P	6.63	Reg B	1.32	12.59
6	Stabilizer			AIB 1123	7.94	0.67	12.50	8.00	2.88	6.63	Reg P	6.63	Reg B	1.65	14.24
7	CDR	Schlumberger	Monel	8001	8.38	4.00		8.25	2.88	6.63	Reg P	6.63	FH B	6.98	21.22
8	ILS	Schlumberger	Monel	213272-2	8.38	0.50	12.13	8.25		6.63	FH P	6.63	FH B	1.38	22.60
9	PowerPulse	Schlumberger	Monel	ED 12	8.25	0.34		8.25		6.63	FH P	6.63	Reg B	8.38	30.98
10	Stabilizer			AIB 1120	7.88	0.56	12.50	8.00	3.00	6.63	Reg P	6.63	Reg B	1.45	32.43
11	8 x DC				8.25			8.00	2.88	6.63	Reg P	6.63	Reg B	74.15	106.58
12	Jar			48907 C	8.06	0.61		8.06	3.00	6.63	Reg P	6.63	Reg B	9.78	116.36
13	3 x DC				7.88			8.00	2.88	6.63	Reg P	6.63	Reg B	27.66	144.02
14	Crossover				6.63	0.60		8.00	2.94	6.63	IF P	4.50	IF B	1.14	145.16
15	12 x HWDP				6.50			6.63	3.00	4.50	IF P	4.50	IF B	110.77	255.93
16															
17															
18															
19															
20															
21															
22															
23															
24															

TIME/DEPTH DETAILS	1	2	3	4	5
Date/Time	05-Dec-04				
Field Engineer	OR				
Depth	2504.00				
Average ROP	21.00				
Avg. Std. Pres.	2900.00				
Desurger 1	800.00				
Desurger 2	800.00				
Tur. RPM @ FR	2695.00				
FR @ Tur. RPM	840.00				
Avg. RPM	100.00				
Max RPM	100.00				
Total Shocks	0.00				
Max Shock	2.00				
Avg. Surf. WOB	20.00				
Max Surf. WOB	20.00				
Avg. DH WOB	20.00				
Max DH WOB	20.00				
Avg. Surf. Torq.	2.00				
Max Surf. Torq.	5.00				
Avg. DH Torq.	1.70				
Max DH Torq.	4.00				
Formation Type	Claystone				
Friction					
Drag Up					
Drag Down					
Mud Weight	9.30				
Funnel Vis.	60.00				
Plastic Vis.	21.00				
Circ. Temp	20.00				
Signal Strength	7.40				
Bit Deviation	0.24				
Differential Pres.	200.00				

PREDICTED BHA TENDENCY

Hookload		Wt. Below Jars	56.00 klbs
Pickup Wt.		Wt. Above Jars	36.50 klbs
Slack Wt.		Total Air Wt.	

Stabilizer Description	Mid Pt To Bit	BLADE Type	BLADE Length	BLADE Width	GAUGE Length	GAUGE In	GAUGE Out
UNITS	m		in	in	in	in	in

Bit To Read Out Port		Bit To Measurement Port	
CDR	17.09 m	GR LWD	19.45 m
PPL	24.38 m	RES LWD	16.10 m
	m	APWD LWD	16.63 m
	m	D&I PPL	26.73 m
	m		m
	m		m
	m		m

BATTERY	Unloaded (V) Before	Unloaded (V) After	Loaded (V) Before	Loaded (V) After	Run Hrs BOT	Run Hrs AMP	Cum Hrs BOT	Cum Hrs AMP
Tool								
H524743-40338	21.73		19.59					
H524743-40339	21.79		20.10					

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Job Number:	AWA-04-08
Run Number:	3

Date	Time	Depth	Operating Details
04-Dec-04	2:00	0.00	Initialize CDR8-8001 @ 6sec configuration
	3:50	0.00	Tools below rotary table
	5:38	0.00	Good SHT@705gpm
	5:40	0.00	Problems with rig pumps (pump 1)
	6:00	0.00	Continue to RIH
	11:44	0.00	Start pumping, testing tools, SPT1=9psi, SPT2=7psi,MWDstat=4, CDRstat=0, TRPM=1718, SPPA=980psi,
			PRSA=1091psi, Dnl TEMP=13C
	16:40	2417.00	Tag cement
	19:25	2459.00	On bottom drilling @ 600gpm(140 strokes)
	19:47	2461.80	Off bottom. Losing mud over shakers
	21:45	2451.34	Start LOT.
	22:39	2461.80	Drilling ahead
	23:48	2470.00	Lost communication with Real time for 1 frame
05-Dec-04	0:00	2471.11	SPP=2404psi, Pump Stroke=176 (88/88), Flow=740gpm
	0:12	2472.00	Lost communication with Real Time for 1 frame
	1:11	2476.00	Pull of bottom in preparation for repeat LOT
	1:23	2451.00	Repeat LOT
	2:15	2451.00	Finish second LOT
	2:33	2476.00	Drilling ahead
	3:02	2486.95	Incerase flow to 840gpm and RPM to 100rpm
	5:26	2527.00	Incerase flow to 870gpm.
	6:29	2544.88	Increase of flow to 890gpm
	6:30	2542.00	ROP dropped to 2-4m/hr
	7:43	2549.00	Decrease of flow to 690gpm and increase RPM to 115rpm
	9:25	2566.00	CDR shock level 3 for 1 frame
	9:58	2583.00	Intermitent Lost RT communication & CDR shock level 3 every now and again
	12:16	2629.94	High sticknslip(>200), DD change parameters to reduce
	12:47	2639.93	Sticknslip still high, pull off bottom, increase rpm & decrease WOB
	12:51	2642.52	Change WOB to 20Klbf & rpm to 105, sticknslip dropped to 36rpm
	14:35	2659.00	Pump 2 down, Pump 1 & 3 on line
	18:27	2689.30	Stop pumps to pump 80 barreles fo sea water
	19:47	2695.00	Decision made to POOH to change bit due to very low ROP
	21:35	2544.00	Swabing the hole. Pick a stand and run it in. Pump out of the hole
	22:50	2454.00	At the shoe
	22:53	2542.00	Disconnect geolograph line.
	23:04	2542.00	Flow check
	23:06	2542.00	Circulate bottoms up
06-Dec-04	1:24	2542.00	Finish circulating bottoms up
	1:27	2542.00	Pump the slug.
	1:36	2542.00	Spot the slug and start to pull out of hole.
	7:00	0.00	Tools above rotary
	7:11	0.00	Bit broken
	7:26	0.00	Connect to CDR & download data
			Check batteries and batt.A in use (20% left-batt.A)

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Schlumberger — DRILLING & MEASUREMENTS - RUN SUMMARY

RUN INFORMATION

Job Number	Company Rep.	Date In	Date Out	D&M Run Number	Rig Run Number
AWA-04-08	D.Atkins & P.King	6-Dec-04	7-Dec-04	4	4

Company	Santos Ltd.	Grid Corr	Brief Run Summary	Bit Run Number	Cell Manager
Rig Name	Jack Bates	-0.46	Good Run	4	Danielle Borges
Well Name	Amrit-1	Tot Corr	Hole Depth	D&M Crew	
Location	Otway Basin	10.94	From 2695 m To 2979.00 m	Ozren Radicevic & Lisa Watson	
Mapfile	Mag Dec	PP Slot ID	Inclination (Drift)	Pumping Hours	Below Rotary Tbl Hrs
BGGM 2004	10.48		From 0.37 deg To 0.26 deg	16.80 hrs.	31.50 hrs.

BPS	Frequency	Mod Type	Azimuth	Rotary Hours	Rotary Distance
3	12 Hz	QPSK	From 195.11 deg To 140.59 deg	6.10 hrs.	284.00 m
Pump Type	**Pump Output**	**Pump Strk Len.**	**True Vertical Depth**	**Slide Hours**	**Slide Distance**
Triplex	4.28 gpm	12 in	From 2694.94 m To 2978.94 m	hrs.	m

Pump Liner ID	Min DLS	Max DLS	Hole Size	Water Depth	Air Gap	Drilling Hours	Drilling Distance
6.0 in	0.01	0.03	12.25 in	1396 m	29 m	6.10 hrs.	284.00 m
Bent Sub Angle	**Bent HSG Ang**	**Depth Max DLS**	**RKB Height**	**Ground Elev.**	**Mod Gap**	**Reaming Hours**	**Reaming Distance**
deg	deg	2950.00 m	m	-1396 m	0.148 in	hrs.	m
Pulse Ht Thresh	**Min Pulse Wdt**	**Max Pulse Wdt**	**Digit Time**	**T/F Arc**	**T/F Angle**	**On Bottom Hours**	**Service**
				in	deg	6.10 hrs.	Directional Services
Conn Phase Ang	**Rise Const**	**Fall Const**	**H2S In Well**	**Damp Press**	**Signal Streng.**	**Last Casing**	
deg			☐	psi	8.00	Size 13.375 in	Depth 2459 m

Directional Driller(s)	Turbine RPM @ Min Flow Rate		Turbine RPM @ Max Flow Rate	
Bob Manjancic	RPM 16.00	FR 61.00 gpm	RPM 97.00	FR 847.00 gpm

Run Objective: Drill 12.25"section to TD.

EQUIPMENT DATA

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	Real Time Drilled	Recorded Time Hrs	Recorded Time Fail	Recorded Time Drilled
A962M-2099	125	142		9.62						CDDC-BC-8001	16.8		284	31.5		284
CDDC-BC-8001	30	47	6.0B08	8.25						MDC-DE-ED12	16.8		284			284
H524743-40338																
H524743-40339																
MDC-DE-ED12	30	47	70C00	8.25												

Surface Sys	IDEAL/SPM	IDEAL/SPM
Version	ID9_1C_01	hspm9_2c_08

DH MOTOR

Manufacturer	Schlumberger	Stage Length	4.80 m	Bit to Bend Dist.	3.06 m	Bearing Gap In	1.00
Type	A962M	Rubber	RM100	RSS Mfr		Bearing Gap Out	2.00
Size	9.62	Sleeve Position	0.45	RSS Type		Radial Bearing Play	
Serial Number	2099	Sleeve Size	12.13 in	RSS Size		Thrust Bearing Play	
Lobe Config.	7:8	Motor Fail	☐	RSS SN			

OPERATING COND.

Max Circ Temp	26.00 C	Avg ROP	46.56 m/hr	Min Actl FlowRt	61.00 gpm	Max Shock Dur	0.18 sec.
Min Circ Temp	21.00 C	Max ROP	152.36 m/hr	Avg PmpPres	3516.00 psi	Total DH Shocks (k)	3.53 k
End Mud Wt	9.60 lb/gal	Avg Surf RPM	92.00	PmpPres On Bot	psi	CHECK SHOT	
End Funnel Vis	65.00 CPS	Min RPM	16.00	PmpPres Off Bot	psi	Type	
End Plastic Vis	25.00 CPS	Max RPM	97.00	Avg Surf WOB	15.11 klbs	Depth	m
End Yield Point	32.00 CPS	Avg FlowRate	826.00 gpm	Avg Surf Torq	10670.00 ft-lbs	Inclination	deg
End Mud Resist	0.10	Max Actl FlowRt	847.00 gpm	Max Shock Lev		Azimuth	deg

MUD

Company	MI	PH	8.90	Percent Sand	0.25 %	Additives	Barite
Brand	KCl/PHPA/Glyco	Chlorides	48000.00	Percent Solids	9.40 %	Clean	☐
Type	KCL	Other		Percent Oil	%		
LCM Type				LCM Size		LCM Concentation	

BHA

BHA Type		Tur Rotor Prt #		Turbine Config		Surface Screen	☐
Int TF Offset		Stator Prt #		Pulser Config		DFS Used	☐
Low Oil Flag	☐	Hrs @ Low Oil	hrs.	Stab Spacing		Formation	
DD Objectives Achieved	☑	If not, why?					

BIT

Bit Type	PDC	Other					
Manufacturer	**Model**	**IADC Code**	**No. of Jets**	**Size of Jets**	**Bit TFA**	**Total Revs**	**Stick/Slip**
Hycalog	DSX104		5	15	0.86	66842.00	yes
Inner Row	**Outer Row**	**Dull Char**	**Location**	**Brng/Seals**	**Gauge (1/16")**	**Other Char**	**Reason Pulled**
1	1	WT	A	X	in	NO	TD

FAILURE

Trans Fail	☐	Jamming	☐	Client Inconv.	☐	Surface Noise	☐
Pres Incr @ Fail	☐	Jamming Time	hrs.	Lost Time	hrs.	Down Hole Noise	☐
D&M Trip	☐	Sync Hours	hrs.	Surface Vib	☐	Surface Sys Failure	☐

SUMMARY

Good MWD/LWD run.

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DRILLING & MEASUREMENTS - BHA DATA

Job Number	AWA-04-08
Run Number	4
BHA Number	

Item	Description	Vendor	Material	Serial Number	Fishing Neck OD	Fishing Neck Length	Stab OD	OD	ID	Bot Connection Size	Bot Connection Type	Top Connection Size	Top Connection Type	Len	Cum Len
	UNITS				in	m	in	in	in					m	m
1	PDC Bit	Hycalog		108439	8.00	0.14		12.25				6.63	Reg P	0.32	0.32
2	Crossover			L900	9.50			9.63	3.06	6.63	Reg B	7.63	Reg P	0.35	0.67
3	Motor	Schlumberger	Monel	1060	9.63	0.47		9.63	3.06	7.63	Reg B	7.63	Reg B	9.68	10.35
4	Float sub	Schlumberger	Monel	3728	9.50			9.50	2.25	7.63	Reg P	7.63	Reg B	0.90	11.25
5	Crossover				8.06	0.62		9.00	3.00	7.63	Reg P	6.63	Reg B	1.32	12.57
6	Stabilizer			AIB 1123	7.94	0.67	12.50	8.00	2.88	6.63	Reg P	6.63	Reg B	1.65	14.22
7	CDR	Schlumberger	Monel	8001	8.38	4.00		8.25	2.88	6.63	Reg P	6.63	FH B	6.98	21.20
8	ILS	Schlumberger	Monel	213272-2	8.38	0.50	12.13	8.25		6.63	FH P	6.63	FH B	1.38	22.58
9	PowerPulse	Schlumberger	Monel	ED 12	8.25	0.34		8.25		6.63	FH P	6.63	Reg B	8.38	30.96
10	Stabilizer			AIB 1120	7.88	0.56	12.50	8.00	3.00	6.63	Reg P	6.63	Reg B	1.45	32.41
11	8 x DC				8.25			8.00	2.88	6.63	Reg P	6.63	Reg B	74.15	106.56
12	Jar			48907 C	8.06	0.61		8.06	3.00	6.63	Reg P	6.63	Reg B	9.78	116.34
13	3 x DC				7.88			8.00	2.88	6.63	Reg P	6.63	Reg B	27.66	144.00
14	Crossover				6.63	0.60		8.00	2.94	6.63	IF P	4.50	IF B	1.14	145.14
15	12 x HWDP				6.50			6.63	3.00	4.50	IF P	4.50	IF B	110.77	255.91
16															
17															
18															
19															
20															
21															
22															
23															
24															

TIME/DEPTH DETAILS	1	2	3	4	5
Date/Time	06-Dec-04				
Field Engineer	Danielle				
Depth	2776.43				
Average ROP	49.00				
Avg. Std. Pres.	3570.00				
Desurger 1	800.00				
Desurger 2	800.00				
Tur. RPM @ FR	2695.00				
FR @ Tur. RPM	700.00				
Avg. RPM	25.00				
Max RPM	100.00				
Total Shocks	0.29				
Max Shock					
Avg. Surf. WOB	15.00				
Max Surf. WOB	30.00				
Avg. DH WOB	10.00				
Max DH WOB					
Avg. Surf. Torq.	1.89				
Max Surf. Torq.	3.00				
Avg. DH Torq.	1.00				
Max DH Torq.	1.30				
Formation Type	Claystone				
Friction					
Drag Up					
Drag Down					
Mud Weight	9.80				
Funnel Vis.	67.00				
Plastic Vis.	23.00				
Circ. Temp	23.00				
Signal Strength	8.00				
Bit Deviation	0.37				
Differential Pres.					

PREDICTED BHA TENDENCY

Hookload		Wt. Below Jars	56.00 klbs
Pickup Wt.		Wt. Above Jars	36.80 klbs
Slack Wt.		Total Air Wt.	

Stabilizer Description	Mid Pt To Bit	BLADE Type	BLADE Length	BLADE Width	GAUGE Length	GAUGE In	GAUGE Out
UNITS	m		in	in	in	in	in

Bit To Read Out Port		Bit To Measurement Port	
CDR	17.07 m	GR LWD	19.43 m
PPL	24.36 m	RES LWD	16.08 m
	m	APWD LWD	16.61 m
	m	D&I PPL	26.71 m
	m		m
	m		m
	m		m

BATTERY	Unloaded (V) Before	Unloaded (V) After	Loaded (V) Before	Loaded (V) After	Run Hrs BOT	Run Hrs AMP	Cum Hrs BOT	Cum Hrs AMP
Tool								
H524743-40338								
H524743-40339								

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Job Number:	AWA-04-08
Run Number:	4

Date	Time	Depth	Operating Details
06-Dec-04	7:50	0.00	Itiltialize CDR on rotary @ 6 sec configuration
	8:30	0.00	Tools BRT
	9:30	0.00	Good SHT @ 600gpm, SPT1=22psi, TRPM=1914, SPPA=821.1psi
	14:15	2395.35	Connect geolograph & set depth
	15:00	2396.00	A piece of the silps dropped in the hole, decision to POOH & fish
	15:05	2396.00	Disconnect geolograph
	15:40	2396.00	Decision made to drill ahead
	15:58	2538.21	Connect geolograph & set depth again
	16:14	2392.83	Start pumping
	16:20	2495.00	On bottom drilling
	16:30	2497.00	High sticknslip (>150rpm), co man informed.
			Better after pull off bottom
	17:51	2723.70	Drilling ahead @ 50m/h, 700gpm, TRPM=2695, SPPA=3497, PRSA=4586, Atemp=24C, SWOB=25Klbf,
			SPT's=11 / 8 psi
			High sticknslip (>150rpm), reduce WOB and better
	18:09	2762.00	Intermitent RT communication every now and again, GR=255, AT & PS=1023
	19:58	2795.73	ROP excceded 90m/h, geologist informed and reduced it
	21:17	2857.20	Increase strokes on booster pump
	21:26	2862.00	Losses over the shakers
	21:30	2864.00	Off bottom in attempt to cure losses
	23:40	2866.00	Back on bottom drilling
07-Dec-04	0:00	2878.21	SPP=3612psi, Flow=835gpm (101/98strokes), SPT's=6.68 / 10.1psi
	0:45	2906.56	Take SCR's
	0:55	2906.56	Finish SCR's, make connection and continue to drill ahead
	1:41	2934.12	ECD increased to 10.14ppg. Pick off bottom and circulate
	1:50	2933.20	Flow check - OK
	2:04	2935.00	Make connection and drill ahead
	3:24	2979.00	TD. Pick up off bottom and circulate
	3:46	2976.65	Take a survey
	3:50	2976.65	Flow check
	4:32	2976.00	Circulate bottoms up
	6:10	2976.00	Pulling out of hole
	7:10	2911.00	Disconnect geolograph line
	16:00	0.00	Tools above rotary table
	16:20	0.00	Connect to CDR on rotary table & download data

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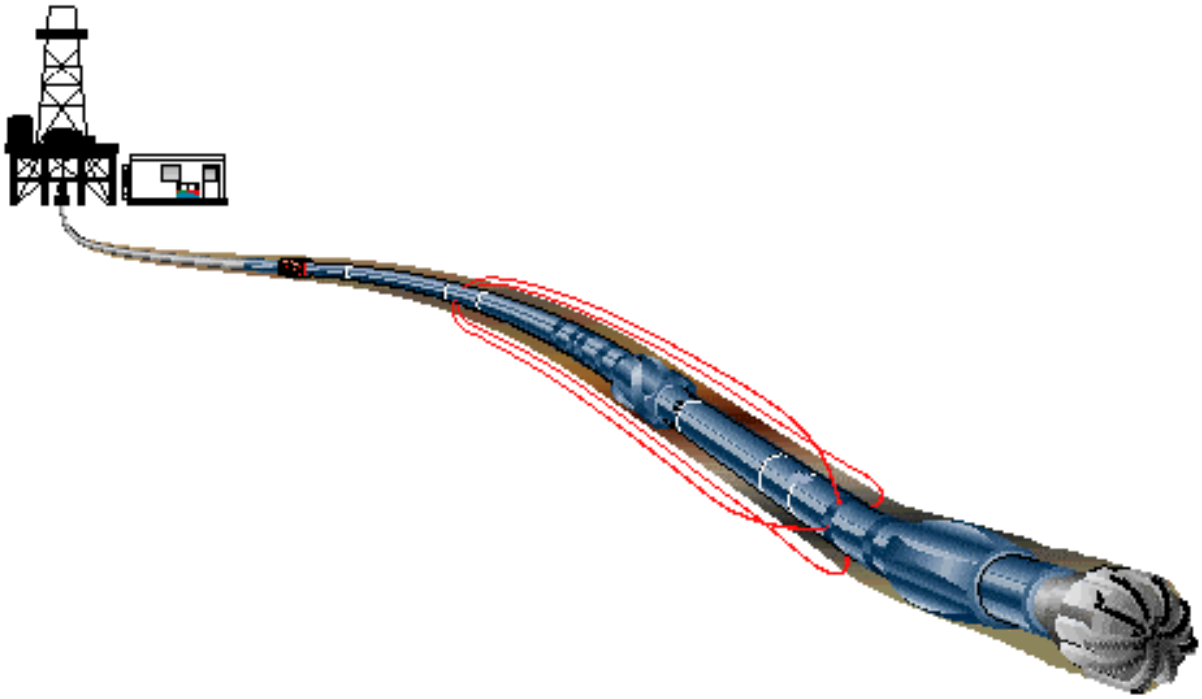
IDEAL

Performance Drilling Report



Schlumberger Santos

SANTOS Limited

End of Well Summary
Amrit-1
20 November 2004 – 4 December 2004

Overview:

Amrit #1 is proposed as an Otway Basin Deepwater Wildcat Exploration Well. The Amrit feature is covered by the 3D Seismic Survey, and lies within the Paaratte Sandstone Play Fairway. The proposed well location is 68 km south of Portland, Victoria, and 48 km southeast of the Callister #1 location. The estimated water depth at the proposed Amrit #1 location is ±1,395m MD
Amrit #1 is being drilled as a vertical well to a minimum TD of -2,950m MD or alternatively, deeper to TD of -3,150m MD in the case of encouraging shows.

The Amrit well is located on a tilted fault-block to test structural potential of the Paaratte Formation Primary Target (K-94 / K-93) at a depth of -2,545m. The Main Objective is the K-94 / K-93 Top Paaratte Deltaic Section with the Secondary Target being the K-91 Intra-Paaratte Nullawarre Amplitude Anomaly.
Amrit #1 is an oil-prospect, but there is a possibility that gas will be encountered in the reservoir.

BHA # 1
26"Performance Rotary Assembly w/CADa Tool
(1424m MD - 1835m MD)

26" Mill Tooth Bit- MDSD, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, 26" WBS Stabilizer, CDR9, PowerPulse9, 26" WBS Stabilizer, 9 ½" NMDC, 3 x 9 ½" DC, X/O, 2 x 8" DC, CADA Tool, 6 x 8"DC, 12 x 5" HWDP, 5" DP to surface.

A 26" Mill Tooth Bit with 9 5/8 GT Motor and CADA Tool was used to jet-in 30" Casing from the actual seabed depth of 1425m MD to 1510m MD. MWD surveys were taken approximately every 30m and MWD surveys and GRA Bullseye confirmed casing verticality. After achieving Jet-In depth 8 hours was allowed for 30" conductor to "Soak", thus ensuring firm release of CADA Tool. Riserless drilling was then continued with same bottom hole assembly utilizing seawater and pumping gel sweeps to improve hole cleaning. The 20" casing shoe depth at 1835m MD was reached with an average rate of penetration of 41.7 m/h. The well was bottoms up circulated, a wiper trip performed to 30" Casing shoe and BHA was POOH to run 20" Casing.

BHA # 2
17 ½" Packed Rotary Assembly
(1835m MD – 2459m MD)

17 1/2" Mill Tooth Bit- T11C, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, 17 1/2" IBS Stabilizer, CDR9, PowerPulse9, 17 1/2" IBS Stabilizer, 9 ½" NMDC, 2 x 9 ½" DC, X/O, 8 x 8" DC, 8" Jar x 3 x 8"DC, 12 x 5" HWDP, 5" DP to surface.

After drilling out the casing float collar, shoe track and 3m of new formation the well was displaced to mud and a LOT was conducted at 1838m MD. Leak-off tested to 9.6ppg EMW.

Drilling then continued ahead, with KCL/PHPA Glycol mud. As drilling advanced it became apparent that under given condition (bottom hole temperature 15^{o}C, surface mud temperature at the flow line 12^{o}C, long riser section, flow rate) mud properties would not be able to provide effective hole cleaning. At depth of 2317m cuttings build up was seen, with an ECD of 9.65. This is despite the fact that high viscous sweeps were pumped regularly. The decision was made to stop drilling and circulate hole for two hours and utilise high and low viscous sweeps again. The hole conditions were improved and drilling was continued to the section TD. At the section TD the hole was circulated bottoms up, a wiper trip performed to 20" Casing shoe and BHA was POOH to run 13 3/8" Casing.

BHA # 3
12 1/4" Performance Motor Assembly
(2459m MD – 2695m MD)

12 1/4" PDC Bit- HCM606, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, X/O, 12 ¼" IB Stabilizer, CDR8 w/ 12 1/8" ILS, PowerPulse8, 12 ¼" IB Stabilizer, 8 x 8"DC, 8" Jar, 3 x 8" DC, X/O, 12 x 5" HWDP, 5" DP to surface.

Tagged and drilled out cement and float equipment. Drilled out shoe and 3m of new formation and performed LOT, but could not get leak off pressure, drilled three meters more and tried again ended up doing FIT with 11ppg EMW. Continue to drill ahead with ROP from 10 – 25 m/hr. ROP dropped to 3 m/h at 2695 m MD and a variety of different drilling parameters were applied to increase ROP. Finally a decision was made to POOH and check the bit. At surface the bit was found in good condition and decrease in the ROP was considered to be formation related. The average rate of penetration for the run#3 was 16.4 m/h

BHA # 4
12 1/4" Performance Motor Assembly
(2695m MD – 3179m MD)

12 1/4" PDC Bit- DSX104HGW, A962M 7:8 GT PowerPak w/0° ABH, Float Sub, X/O, 12 ¼" IB Stabilizer, CDR8 w/ 12 1/8" ILS, PowerPulse8, 12 ¼" IB Stabilizer, 8 x 8"DC, 8" Jar, 3 x 8" DC, X/O, 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 and drilling commenced with low weight on bit, high RPM and high flow rate to push aside possible junk left from the sleeps. After a few meters, the weight on bit was gradually increased to 25 klbs. RPM adjusted to 100 and flow rate slightly decreased to 850 gpm. With these parameters drilling continued. Monitoring of drilling mechanics and adjusting drilling parameters accordingly. The total depth of 2979m MD was reached with average rate of penetration of 46.6 m/h. The well was bottoms up circulated and BHA POOH to conduct wireline logs.

BHA Data Sheet

Santos-Unocal-Inpex - Amrit-1

BHA #	26" BHA#1	**Date**	December 07, 2004
Field	AMRIT	**Well**	Amrit-1
Structure	Amrit	**Borehole**	Amrit-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	26" Bit	Smith International	MR3808		15.60	26.00		0.67	0.67
		MSDS			3.75		7.63 Reg Pin		
2	A962M7848GT	Schlumberger	1069		9.63	9.63	7.63 Reg Box	9.68	10.35
		A962M7848GT			7.85		7.63 Reg Box		
3	Float Sub	Schlumberger	1087		9.50	9.50	7.63 Reg Pin	1.05	11.40
					3.00		7.63 Reg Box		
4	26" WBS.Stabilizer	Smith International	53655		9.50	26.00	7.63 Reg Pin	1.68	13.08
					3.00		7.63 Reg Box		
5	CDR	Schlumberger	L9525		9.50	9.50	7.63 Reg Pin	7.15	20.23
		CDR			4.85		7.63 H90 Box		
6	PowerPulse HF	Schlumberger	W484		9.50	9.68	7.63 H90 Pin	8.44	28.67
		PowerPulse HF			6.25		7.63 Reg Box		
7	26" WBS.Stabilizer	Smith International	53656		9.50	26.00	7.63 Reg Pin	1.48	30.15
					3.00		7.63 Reg Box		
8	9 1/2" NMDC	Schlumberger	D173		9.50	9.50	7.63 Reg Pin	9.20	39.35
					3.00		7.63 Reg Box		
9	3 x 9 1/2" Drill nCollar (3 joints)				9.50	9.50	7.63 Reg Pin	26.62	65.97
					3.00		7.63 Reg Box		
10	Crossover				9.50	9.50	7.63 Reg Pin	1.32	67.29
					3.00		6.63 Reg Box		
11	Crossover				9.50	9.50	7.63 Reg Pin	1.32	68.61
					3.00		6.63 Reg Box		
12	2 x 8 1/4" Drill Collar (2 joints)				8.25	8.25	6.63 Reg Pin	18.51	87.12
					3.00		6.63 Reg Box		
13	CADA Tool	Dril-Quip			7.75	7.75	6.63 Reg Pin	2.74	89.86
					3.25		6.63 Reg Box		
14	7 x 8 1/4" Drill Collar (7 joints)				8.25	8.25	6.63 Reg Pin	64.00	153.86
					3.00		6.63 Reg Box		
15	Crossover				9.50	9.50	6.63 Reg Pin	1.14	155.00
					3.00		4.50 NC50 (4 1/2		
16	12 x 5" HWDP (11 joints)				5.00	6.50	4.50 NC50 (4 1/2	110.77	265.77
					3.00		4.50 NC50 (4 1/2		
17	5" 19.50 DPS, Prem.				4.86	6.63	4.50 NC50 (4 1/2	10.00	275.77
	5,19.5,Premium				4.28		5.00 NC50 (4 1/2		
					Total Weight (kgf)		41835	**Total Len.**	275.77
					Below Jar (lbf)		N.A.		

BHA Comments:	

Stabilizer	
Blade Length (m)	**Mid-Pt. To Bit (m)**
0.46	1.39
0.60	12.15
0.60	29.42
	Bend To Bottom
Bent Housing Angle (deg)	**Connection (m)**

Sensor	
Type	**Distance To Bit (m)**
Resistivity	14.66
Gamma Ray	18.13
D&I	23.84

Bit Nozzles	
Count	**Size(mm)**
1	20.00
1	21.00
2	22.00
TFA (mm2)	895.15

Quality Control	
Created By:	BManjenic
Checked By:	

Schlumberger

BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE	DATE
Santos	Amrit-1	1	et-In Performance Drilling Assembl	20-Nov-04

Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg			DEPTH IN	1425
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K			DEPTH OUT	1835
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 Down	Connections Up	REMARKS
Mill Tooth Bit	26"	-	0.67	0.67	MR3808			7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.66	10.33	1069		7 5/8 RG-B	7 5/8 RG-B	
Float Sub	9 1/2"	3"	1.04	11.37	1087		7 5/8 RG-P	7 5/8 RG-B	w/Float
26" WB Stabilizer	9 1/2"	3"	1.68	13.05	53655		7 5/8 RG-P	7 5/8 RG-B	
CDR9	9 1/2"	5 7/8"	7.15	20.20	L9525		7 5/8 RG-P	7 5/8 H90-B	
PowerPulse HF	9 1/2"	4 1/4"	8.44	28.64	W484		7 5/8 H90-P	7 5/8 RG-B	
26" WB Stabilizer	9 1/2"	3"	1.48	30.12	53656		7 5/8 RG-P	7 5/8 RG-B	
9 1/2" NM Drill Collar	9 1/2"	3"	9.20	39.32	D173		7 5/8 RG-P	7 5/8 RG-B	
3 x 9 1/2" Drill Collar	9 1/2"	3"	26.92	66.24	rig		7 5/8 RG-P	7 5/8 RG-B	
X/O	9 1/2"	3"	1.32	67.56	rig		7 5/8 RG-P	6 5/8 RG-B	
2 x 8" Drill Collar	8"	2 7/8"	18.52	86.08	rig		6 5/8" RG-P	6 5/8" RG-B	
Drill-Quip CADA Tool	34.86"	3 1/16"	2.09	88.17	-		6 5/8" RG-P	6 5/8" RG-B	
Drill-Quip CADA Tool	20 1/8"	3 1/16"	0.69	88.86			6 5/8" RG-P	6 5/8" RG-B	
6 x 8" Drill Collar	8"	2 7/8"	55.88	144.74			6 5/8" RG-P	6 5/8" RG-B	
X/O	8"	3"	1.14	145.88	x/o 9		4 1/2" IF- P	6 5/8" RG-B	
12 x 5" HWDP	6 5/8"	3"	110.77	256.65			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	35								
Wt Above Jar	16	**BIT N°**	1		**Motor Run**	1	**SPM**	**Flow GPM**	**Gals/Stroke**
TOTAL BHA Wt	51	**Size**	26"		**Make**	Anadrill	275	1177	4.28
String Wt	74,200	**Make**	Smith		**Size**	9 5/8"	**Rev/Gal.**	**Motor RPM**	**Pressure @ TD**
Blks(T)op Drive	45,000	**Type**	MSDS		**Type**	A962M	0.11	129	4000
Total Hk Load	119,251	**IADC**	115		**Stages**	4.8	**Surface RPM**	**Total RPM**	**WOB**
Date IN	20-Nov-04	**S/N**	MR3808		**R/S Config**	7:8	100	229	5-40
Time IN	7:00	**Jets**	2.22		**Rotor Jet**	20/32"			
Date OUT	22-Nov-04	**Jets**	2.20		**S/N**	1069	Performance Packed Assembly with CADA Tool		
Time OUT	16:30	**Jets**			**Bent Hsg Degs**	0°	to jet-in 30" casing, and cont. 26" drilling		
Total Hrs In Hole	57.50	**TFA**	1.356		**B/Hsg STAB**	25 3/8"	Rotor jetted with 20/32" nozzle		
On Bottom Bit Hrs.	18.70	**F'tage**	410		**GST Deg Bend**	N/A			

BHA Data Sheet

Santos-Unocal-Inpex - Amrit-1

BHA #	17 1/2"BHA#2	**Date**	December 07, 2004
Field	AMRIT	**Well**	Amrit-1
Structure	Amrit	**Borehole**	Amrit-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	17 1/2 " Bit	Hycalog			9.50	17.50		0.48	0.48
		T11C			3.75		7.63 Reg Pin		
2	A962M7848GT	Schlumberger			9.63	17.13	7.63 Reg Box	9.66	10.14
		A962M7848GT			7.85		7.63 Reg Box		
3	Float Sub	Schlumberger	1087		9.50	9.50	7.63 Reg Pin	1.05	11.19
					3.00		7.63 Reg Box		
4	17 1/2" IB Stabilizer	Smith International	207A34		9.50	17.50	7.63 Reg Pin	2.04	13.23
		IB			3.50		7.63 Reg Box		
5	CDR9 w/APWD	Schlumberger	L9525		9.50	9.50	7.63 Reg Pin	7.15	20.38
		CDR			4.85		7.63 H90 Box		
6	PowerPulse HF	Schlumberger	W484		9.50	9.68	7.63 H90 Pin	8.44	28.82
		PowerPulse HF			6.25		7.63 Reg Box		
7	17 1/2" IB Stabilizer	Smith International	270A97		9.50	17.50	7.63 Reg Pin	2.05	30.87
		IB			3.50		7.63 Reg Box		
8	9 1/2" NMDC	Schlumberger	D173		9.50	9.50	7.63 Reg Pin	9.20	40.07
					3.00		7.63 Reg Box		
9	2 x 9 1/2" Drill Collar (2 joints)				9.50	9.50	7.63 Reg Pin	17.90	57.97
					3.00		7.63 Reg Box		
10	Crossover				9.50	9.50	7.63 Reg Pin	1.32	59.29
					3.00		6.63 Reg Box		
11	8 x 8 1/4" Drill Collar (8 joints)				8.25	8.25	6.63 Reg Pin	74.15	133.44
					3.00		6.63 Reg Box		
12	Jar	HE			8.00	8.16	6.63 Reg Pin	9.78	143.22
		Hydra-Jar			3.00		6.63 Reg Box		
13	3 x 8 1/4" Drill Collar (3 joints)				8.25	8.25	6.63 Reg Pin	27.66	170.88
					3.00		6.63 Reg Box		
14	Crossover				9.50	9.50	6.63 Reg Pin	1.14	172.02
					3.00		4.50 NC50 (4 1/2		
15	12 x 5" HWDP (11 joints)				5.00	6.50	4.50 NC50 (4 1/2	110.77	282.79
					3.00		4.50 NC50 (4 1/2		
16	5" 19.50 DPS, Prem.				4.86	6.63	4.50 NC50 (4 1/2	10.00	292.79
	5,19.5,Premium				4.28		5.00 NC50 (4 1/2		
					Total Weight (kgf)		44437	**Total Len.**	292.79
					Below Jar (kgf)		34902.9		

BHA Comments:	

Stabilizer	
Blade Length (m)	**Mid-Pt. To Bit (m)**
0.46	1.20
0.60	11.94
0.60	29.57
	Bend To Bottom
Bent Housing Angle (deg)	**Connection (m)**

Sensor	
Type	**Distance To Bit (m)**

Bit Nozzles	
Count	**Size(mm)**
1	20.00
3	22.00
TFA (mm2)	916.43

Quality Control	
Created By:	BManjenic
Checked By:	

Schlumberger

BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE	DATE
Santos	Amrit-1	2	Performance Drilling Assembly	27-Nov-04

Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	1835
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	2459
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 Down	Connections Up	REMARKS
Mill Tooth Bit	17 1/2"	-	0.48	0.48	J65053			7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.66	10.14	1069		7 5/8 RG-B	7 5/8 RG-B	
Float Sub	9 1/2"	3"	1.04	11.18	1087		7 5/8 RG-P	7 5/8 RG-B	w/Float
17 1/2" IB Stabilizer	9 1/2"	3"	2.04	13.22	207A34		7 5/8 RG-P	7 5/8 RG-B	
CDR9 w/ APWD	9 1/2"	5 7/8"	7.15	20.37	L9525		7 5/8 RG-P	7 5/8 H90-B	
PowerPulse HF	9 1/2"	4 1/4"	8.44	28.81	W484		7 5/8 H90-P	7 5/8 RG-B	
17 1/2" IB Stabilizer	9 1/2"	3"	2.05	30.86	207A97		7 5/8 RG-P	7 5/8 RG-B	
9 1/2" NM Drill Collar	9 1/2"	3"	9.20	40.06	D173		7 5/8 RG-P	7 5/8 RG-B	
2 x 9 1/2" Drill Collar	9 1/2"	3"	17.90	57.96	rig		7 5/8 RG-P	7 5/8 RG-B	
X/O	9 1/2"	3"	1.32	59.28	rig		7 5/8 RG-P	6 5/8 RG-B	
8 x 8" Drill Collar	8"	2 7/8"	74.15	133.43	rig		6 5/8" RG-P	6 5/8" RG-B	
8" Jar	8 1/16"	3"	9.78	143.21	480907C		6 5/8" RG-P	6 5/8" RG-B	
3 x 8" Drill Collar	8"	2 7/8"	27.66	170.87			6 5/8" RG-P	6 5/8" RG-B	
X/O	8"	3"	1.14	172.01	x/o 9		4 1/2" IF- P	6 5/8" RG-B	
12 x 5" HWDP	6 5/8"	3"	110.77	282.78			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

BHA Data Sheet

Santos-Unocal-Inpex - Amrit-1

BHA #	12 1/4" BHA#3	**Date**	December 07, 2004
Field	AMRIT	**Well**	Amrit-1
Structure	Amrit	**Borehole**	Amrit-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	Hughes Christense	7003752		8.00	12.25		0.45	0.45
		HCM606			3.25		6.63 Reg Pin		
2	Crossover	Schlumberger	L9000		9.50	9.50	6.63 Reg Box	0.35	0.80
					3.00		7.63 Reg Pin		
3	A962M7848GT	Schlumberger	2099		9.63	17.13	7.63 Reg Box	9.68	10.48
		A962M7848GT			7.85		7.63 Reg Box		
4	Float Sub	Schlumberger	3287		9.50	9.50	7.63 Reg Pin	0.90	11.38
					3.00		7.63 Reg Box		
5	Crossover				9.50	9.50	7.63 Reg Pin	1.32	12.70
					3.00		6.63 Reg Box		
6	12 1/4" Stabilizer				8.25	12.25	6.63 Reg Pin	2.00	14.70
					3.00		6.63 Reg Box		
7	CDR w/APWD	Schlumberger	8001		8.25	8.25	6.63 Reg Pin	6.86	21.56
		CDR			5.00		6.63 FH Box		
8	12 1/8" In Line Stabilizer		313272-2		8.25	12.13	6.63 FH Pin	2.00	23.56
					3.00		6.63 FH Box		
9	PowerPulse HF	Schlumberger	ED12		8.25	8.41	6.63 FH Pin	7.50	31.06
		PowerPulse HF			5.90		6.63 Reg Box		
10	12 1/4" Stabilizer				8.25	12.25	6.63 Reg Pin	2.00	33.06
					3.00		6.63 Reg Box		
11	8 x 8 1/4" Drill Collar (8 joints)				8.25	8.25	6.63 Reg Pin	74.15	107.21
					3.00		6.63 Reg Box		
12	Jar	HE	480907C		8.00	8.16	6.63 Reg Pin	9.78	116.99
		Hydra-Jar			3.00		6.63 Reg Box		
13	3 x 8 1/4" Drill Collar (3 joints)				8.25	8.25	6.63 Reg Pin	27.66	144.65
					3.00		6.63 Reg Box		
14	Crossover				8.50	8.50	6.63 Reg Pin	1.14	145.79
					3.00		4.50 NC50 (4 1/2		
15	12 x 5" HWDP (11 joints)				5.00	6.50	4.50 NC50 (4 1/2	110.77	256.56
					3.00		4.50 NC50 (4 1/2		
16	5" 19.50 DPS, Prem.				4.86	6.63	4.50 NC50 (4 1/2	10.00	266.56
	5,19.5,Premium				4.28		4.50 NC50 (4 1/2		
					Total Weight (kgf)		34556	**Total Len.**	266.56
					Below Jar (kgf)		25101.8		

BHA Comments:	

Stabilizer	
Blade Length (m)	**Mid-Pt. To Bit (m)**
0.46	1.52
0.60	13.45
0.60	22.31
0.60	31.81
	Bend To Bottom
Bent Housing Angle (deg)	**Connection (m)**

Sensor	
Type	**Distance To Bit (m)**
Resistivity	16.45
Gamma Ray	19.81
D&I	27.16

Bit Nozzles	
Count	**Size(mm)**
6	14.00
TFA (mm2)	581.92

Quality Control	
Created By:	BManjenic
Checked By:	

Schlumberger

BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE	DATE
Santos	Amrit-1	3	Performance Drilling Assembly	4-Dec-04

Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	2459
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	2695
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 Down	Connections Up	REMARKS
PDC Bit	12 1/4"	-	0.34	0.34	7003752			6 5/8 RG-P	
X/O	9 5/8"	3"	0.35	0.69	L9000	0.35	6 5/8 RG-B	7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.68	10.37	2099	Slick	7 5/8 RG-B	7 5/8 RG-B	w/Float
Float Sub	9 1/2"	3"	0.90	11.27	3287	Slick	7 5/8 RG-P	7 5/8 RG-B	
X/O	9"	3"	1.32	12.59	rig		7 5/8 RG-P	6 5/8 RG-B	
12 1/4" IB Stabilizer	8"	3"	1.65	14.24	AIB 1123		6 5/8 RG-P	6 5/8 RG-B	
CDR8 w/ APWD	8 1/4"	4 1/4"	6.98	21.22	8001		6 5/8 RG-P	6 5/8 FH-B	
12 1/8" ILS	8 1/4"	4 1/4"	1.38	22.60	313272-2		6 5/8 FH-P	6 5/8 FH-B	
PowerPulse	8 1/4"	4 1/4"	8.38	30.98	ED12		6 5/8 FH-P	6 5/8 RG-B	
12 1/4" IB Stabilizer	8"	3"	1.45	32.43	AIB 1120		6 5/8 RG-P	6 5/8 RG-B	
8 x 8" Drill Collar	8"	2 7/8"	74.15	106.58			6 5/8" RG-P	6 5/8" RG-B	
8" Jar	8 1/16"	3"	9.78	116.36	480907C		6 5/8" RG-P	6 5/8" RG-B	
3 x 8" Drill Collar	8"	2 7/8"	27.66	144.02	x/o 9		6 5/8" RG-P	6 5/8" RG-B	
X/O	8"	3"	1.14	145.16	-		6 5/8" RG-P	4 1/2" IF-B	
12 x 5" HWDP	6 5/8"	3"	110.77	255.93			4 1/2" IF- P	4 1/2" IF-B	
5" DP to Surface	5"	3"	2203.00	2458.93			4 1/2" IF- P	4 1/2" IF- B	

In Air

BHA Data Sheet

Santos-Unocal-Inpex - Amrit-1

BHA #	12 1/4" BHA#4	**Date**	December 07, 2004
Field	AMRIT	**Well**	Amrit-1
Structure	Amrit	**Borehole**	Amrit-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	108439		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	17.13	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	Crossover				9.50	9.50	7.63 Reg Pin	1.32	12.57
					3.00		6.63 Reg Box		
6	12 1/4" Stabilizer				8.25	12.25	6.63 Reg Pin	2.00	14.57
					3.00		6.63 Reg Box		
7	CDR w/APWD	Schlumberger	8001		8.25	8.25	6.63 Reg Pin	6.86	21.43
		CDR			5.00		6.63 FH Box		
8	12 1/8" In Line Stabilizer		313272-2		8.25	12.13	6.63 FH Pin	2.00	23.43
					3.00		6.63 FH Box		
9	PowerPulse HF	Schlumberger	ED12		8.25	8.41	6.63 FH Pin	7.50	30.93
		PowerPulse HF			5.90		6.63 Reg Box		
10	12 1/4" Stabilizer				8.25	12.25	6.63 Reg Pin	2.00	32.93
					3.00		6.63 Reg Box		
11	8 x 8 1/4" Drill Collar (8 joints)				8.25	8.25	6.63 Reg Pin	74.15	107.08
					3.00		6.63 Reg Box		
12	Jar	HE	480907C		8.00	8.16	6.63 Reg Pin	9.78	116.86
		Hydra-Jar			3.00		6.63 Reg Box		
13	3 x 8 1/4" Drill Collar (3 joints)				8.25	8.25	6.63 Reg Pin	27.66	144.52
					3.00		6.63 Reg Box		
14	Crossover				8.50	8.50	6.63 Reg Pin	1.14	145.66
					3.00		4.50 NC50 (4 1/2		
15	12 x 5" HWDP (11 joints)				5.00	6.50	4.50 NC50 (4 1/2	110.77	256.43
					3.00		4.50 NC50 (4 1/2		
16	5" 19.50 DPS, Prem.				4.86	6.63	4.50 NC50 (4 1/2	10.00	266.43
	5,19.5,Premium				4.28		4.50 NC50 (4 1/2		
					Total Weight (kgf)		34556	**Total Len.**	266.43
					Below Jar (kgf)		25101.8		

BHA Comments:	

Stabilizer	
Blade Length (m)	**Mid-Pt. To Bit (m)**
0.60	13.32
0.60	22.18
0.60	31.68
	Bend To Bottom
Bent Housing Angle (deg)	**Connection (m)**

Sensor	
Type	**Distance To Bit (m)**

Bit Nozzles	
Count	**Size(mm)**
5	15.00
TFA (mm2)	556.69

Quality Control	
Created By:	BManjenic
Checked By:	

Schlumberger

BOTTOM HOLE ASSEMBLY

COMPANY	WELL No	BHA #	TYPE	DATE
Santos	Amrit-1	4	Performance Drilling Assembly	6-Dec-04

Rock Bit Connections	4 1/2 Reg	6 5/8 Reg	7 5/8 Reg		DEPTH IN	2695
Torque Klbs:	12K-16K	28 K-32 K	34 K-40 K		DEPTH OUT	2979
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 Down	Connections Up	REMARKS
PDC Bit	12 1/4"	-	0.32	0.32	108439			6 5/8 RG-P	
X/O	9 5/8"	3"	0.35	0.67	L9000		6 5/8 RG-B	7 5/8 RG-P	
A962MGT7848	9 5/8"	-	9.68	10.35	2099		7 5/8 RG-B	7 5/8 RG-B	w/Float
Float Sub	9 1/2"	3"	0.90	11.25	3287		7 5/8 RG-P	7 5/8 RG-B	
X/O	9"	3"	1.32	12.57	rig		7 5/8 RG-P	6 5/8 RG-B	
12 1/4" IB Stabilizer	8"	3"	1.65	14.22	AIB 1123		6 5/8 RG-P	6 5/8 RG-B	
CDR8 w/ APWD	8 1/4"	4 1/4"	6.98	21.20	8001		6 5/8 RG-P	6 5/8 FH-B	
12 1/8" ILS	8 1/4"	4 1/4"	1.38	22.58	313272-2		6 5/8 FH-P	6 5/8 FH-B	
PowerPulse	8 1/4"	4 1/4"	8.38	30.96	ED12		6 5/8 FH-P	6 5/8 RG-B	
12 1/4" IB Stabilizer	8"	3"	1.45	32.41	AIB 1120		6 5/8 RG-P	6 5/8 RG-B	
8 x 8" Drill Collar	8"	2 7/8"	74.15	106.56			6 5/8" RG-P	6 5/8" RG-B	
8" Jar	8 1/16"	3"	9.78	116.34	480907C		6 5/8" RG-P	6 5/8" RG-B	
3 x 8" Drill Collar	8"	2 7/8"	27.66	144.00			6 5/8" RG-P	6 5/8" RG-B	
X/O	8"	3"	1.14	145.14	x/o 9		6 5/8" RG-P	4 1/2" IF-B	
12 x 5" HWDP	6 5/8"	3"	110.77	255.91			4 1/2" IF- P	4 1/2" IF-B	
5" DP to Surface	5"	3"	2203.00	2458.91			4 1/2" IF- P	4 1/2" IF- B	

In Air

WELL#	**Amrit-1**	**DATE:**	**20-Nov-04**	**Depth In :**	**1425**	**MD**	**Pump Output**	**4.28**	**Gal / stk**			**Planned Angle :**			**Page 1 of 1**				
												Planned Direction :							
BHA #	1	**BIT#**	1	**BHA :**	Mill Toc	2MGT7	Float Sub	26" WB S	CDR9	PowerPul	**26" WB Stabilizer**								
SURVEY SPACING =		**24.32**																	
GAMMA SPACING =		**19.16**					**DLS & Depths are, 1=°/100Ft, 2=°/30Mts, 3=°/10Mts:**				**2**				**30" Casing Shoe Set @ m MD**				
															13 3/8"	**Casing Shoe Set @ 785m MD**			

	DRILLING TIME			**Motor Work Sheet**				**AVG**	**SURVEY**			**STK /**	**FLOW**			**TORQ**	**PRESSURE**		REMARKS
R / S	**START**	**STOP**	**SUM**	**FROM**	**TO**	**Feet Rotated**	**Feet Slide**	**TF**	**DEPTH**	**INCL**	**AZM**	**MIN**	**RATE**	**RPM**	**WOB**	**kft-lbs**	**On Bottom**	**Off Bottom**	
S	17:15	22:00	4:45	1425	1455		30					190	813	-	5-30	-	2,700	2,700	Jetting-in 30" Csg
S	22:10	3:15	5:05	1455	1479		24					280	1,198	-	40	-	4,000	4,000	Jetting-in 30" Csg
S	3:20	10:05	6:45	1479	1508		29					280	1,198	-	40	-	4,000	4,000	Jetting-in 30" Csg
S	10:25	10:45	0:20	1508	1510		2					280	1,198	-	40	-	4,000	4,000	Jetting-in 30" Csg
R	17:10	17:48	0:38	1510	1537	27						275	1,177	90	5	3	4,100	4,000	Wait to "soak"
R	17:57	18:35	0:38	1537	1565	28						275	1,177	90	5	3	4,100	4,000	
R	18:42	19:12	0:30	1565	1594	29						275	1,177	90	5	3	4,100	4,000	
R	19:25	20:10	0:45	1594	1623	29						275	1,177	90	10	3	4,100	4,000	
R	20:15	21:00	0:45	1623	1651	28						275	1,177	90	10	3	4,100	4,000	
R	21:05	21:50	0:45	1651	1678	27						275	1,177	90	10	3	4,200	4,000	
R	22:00	22:37	0:37	1678	1706	28						275	1,177	90	10	3	4,200	4,000	
R	22:50	23:25	0:35	1706	1735	29						275	1,177	90	10	3	4,200	4,000	
R	23:30	0:10	0:40	1735	1763	28						275	1,177	90	10	3	4,200	4,000	
R	0:20	1:00	0:40	1763	1792	29						275	1,177	90	10	3	4,200	4,000	
R	1:05	2:05	1:00	1792	1820	28						275	1,177	90	10	3	4,200	4,000	
R	2:14	2:40	0:26	1820	1835	15						275	1,177	90	10	3	4,200	4,000	

TIME BREAKDOWN:

Rotated Time : **7:59** **Hrs/Mins** **Feet Rotated:** **325.0**

Slide Time : **16:55** **Hrs/Mins** **Feet Slid:** **85.0**

Total Time : **0:54** **Hrs/ Mins** **Feet Drilled :** **410.0**

WELL#	**Amrit-1**	**DATE:**	**27-Nov-04**	**Depth In :**	**1835**	**MD**	**Pump Output**	**4.28**	**Gal / stk**			**Planned Angle :**			**Page 1 of 1**				
												Planned Direction :							
BHA #	2	**BIT#**	2	**BHA :**	Mill Toot	2MGT	Float Sub	17 1/2" Iw/ APWD PowerPul	**17 1/2" IB Stabilizer**										
SURVEY SPACING =		**24.32**																	
GAMMA SPACING =		**19.16**							**DLS & Depths are, 1=°/100Ft, 2=°/30Mts, 3=°/10Mts:**			**2**			**30"x 20" Casing Shoe Set @ 1510 & 1822m MD**				
															13 3/8" Casing Shoe Set @ 785m MD				

	DRILLING TIME			Motor Work Sheet				AVG	SURVEY			STK /	FLOW			TORQ	PRESSURE		REMARKS
R / S	START	STOP	SUM	FROM	TO	Feet Rotated	Feet Slide	TF	DEPTH	INCL	AZM	MIN	RATE	RPM	WOB	kft-lbs	On Bottom	Off Bottom	
R	9:05	9:17	0:12	1835	1838	3						200	856	60	10	3	1,680	1,590	circulate and LOT
R	11:37	12:05	0:28	1838	1847	9						200	856	60	10	3	1,680	1,590	
R	12:20	13:20	1:00	1847	1876	29			1849.73	0.23	231.00	200	856	100	25	3	1,800	1,600	
R	13:32	15:45	2:13	1876	1905	29			1878.02	0.37	193.70	200	856	100	25	3	1,800	1,600	30' circulate shaker oferfloded
R	15:58	17:37	1:39	1905	1933	28			1908.10	0.34	223.98	200	856	100	25	3	1,800	1,600	
R	17:54	19:51	1:57	1933	1962	29			1935.76	0.18	265.57	200	856	100	25	3	1,800	1,600	
R	19:58	21:41	1:43	1962	1990	28			1963.97	0.17	252.91	235	1,006	100	25	3	2,900	2,700	
R	21:46	23:20	1:34	1990	2019	29			1991.95	0.12	204.40	235	1,006	100	25	3	2,900	2,700	
R	23:24	0:07	0:43	2019	2046	27			2020.87	0.20	231.00	235	1,006	100	25	3	2,900	2,700	
R	0:15	1:35	1:20	2046	2075	29			2049.42	0.23	223.20	235	1,006	100	25	3	2,900	2,700	
R	1:42	2:47	1:05	2075	2104	29			2077.78	0.26	214.74	235	1,006	100	25	3	2,900	2,700	
R	2:59	3:54	0:55	2104	2133	29			2105.32	0.33	183.75	235	1,006	100	25	3	2,900	2,700	
R	3:59	5:54	1:55	2133	2162	29			2134.71	0.29	176.46	235	1,006	100	25	3	2,900	2,700	
R	5:59	8:08	2:09	2162	2191	29			2162.92	0.22	203.34	235	1,006	100	25	3	2,900	2,700	
R	8:13	9:41	1:28	2191	2219	28			2192.60	0.14	180.37	200	856	100	35	4	2,400	2,200	
R	9:51	11:40	1:49	2219	2247	28			2220.68	0.29	203.20	235	1,006	100	35	4	2,900	2,700	
R	11:55	13:28	1:33	2247	2275	28			2248.46	0.15	220.05	235	1,006	100	35	4	2,900	2,700	
R	13:54	15:50	1:56	2275	2303	28			2277.22	0.31	183.89	235	1,006	100	35	4	3,000	2,800	
R	15:58	17:10	1:12	2303	2317	14			2306.21	0.34	216.07	235	1,006	100	35	4	3,100	2,900	
R	17:10	20:20	3:10	2317	2332	15						235	1,006	100	35	4	3,100	2,900	
R	20:25	22:30	2:05	2332	2360	28			2334.13	0.40	185.07	235	1,006	100	35	4	3,200	3,000	
R	22:36	1:25	2:49	2360	2387	27			2361.66	0.37	221.08	235	1,006	100	35	4	3,200	3,000	
R	1:30	4:35	3:05	2387	2416	29			2390.55	0.33	232.85	255	1,091	100	35	4	3,300	3,100	
R	4:40	6:32	1:52	2416	2445	29			2419.57	0.32	200.20	255	1,091	100	35	4	3,300	3,100	
R	6:38	7:28	0:50	2445	2459	14			2433.15	0.24	208.59	255	1,091	100	35	4	3,300	3,100	

TIME BREAKDOWN:

Rotated Time : **16:42** **Hrs/Mins** **Feet Rotated:** **624.0**

Slide Time : **Hrs/Mins** **Feet Slid:**

Total Time : **16:42** **Hrs/ Mins** **Feet Drilled :** **624.0**

WELL# Amrit-1 DATE: 4-Dec-04 Depth In : 2459 MD Pump Output 4.28 Gal / stk Planned Angle : Page 1 of 1

Planned Direction :

BHA # 3 BIT# 3 BHA : PDC Bit X/O A962MGT7 Float Sub X/O 12 1/4" II CDR8 w/ APWD

SURVEY SPACING = 24.32

GAMMA SPACING = 19.16

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

30" Casing Shoe Set @ m MD

13 3/8" Casing Shoe Set @ 785m MD

	DRILLING TIME			Motor Work Sheet				AVG	SURVEY			STK /	FLOW			TORQ	PRESSURE		REMARKS
R / S	START	STOP	SUM	FROM	TO	Feet Rotated	Feet Slide	TF	DEPTH	INCL	AZM	MIN	RATE	RPM	WOB	kft-lbs	On Bottom	Off Bottom	
R	19:25	19:40	0:15	2459	2462	3						160	685	70	20	3	1,460	1,410	
R	23:55	2:11	2:16	2462	2481	19			2476.28	0.50	234.35	196	839	100	25	3	3,150	3,000	
R	2:22	4:03	1:41	2481	2505	24						196	839	100	25	3	3,150	3,000	
R	4:10	5:45	1:35	2505	2534	29			2524.29	0.33	216.60	196	839	100	25	3	3,350	3,150	
R	5:56	8:55	2:59	2534	2563	29						196	839	100	25	3	3,350	3,150	
R	9:00	10:23	1:23	2563	2592	29						196	839	100	25	3	3,350	3,150	
R	10:35	11:39	1:04	2592	2620	28						196	839	100	25	3	3,350	3,150	
R	11:46	13:23	1:37	2620	2649	29						196	839	100	25	3	3,350	3,150	
R	13:37	17:00	3:23	2649	2677	28			2649.13	0.37	195.11	196	839	100	25	3	3,350	3,150	
R	17:08	19:47	2:39	2677	2695	18						196	839	100	25	3	3,500	3,300	
												196	839						

TIME BREAKDOWN:

Rotated Time : 18:52 Hrs/Mins Feet Rotated: 236.0

Slide Time : Hrs/Mins Feet Slid:

Total Time : 18:52 Hrs/ Mins Feet Drilled : 236.0

WELL# Amrit-1 DATE: 6-Dec-04 Depth In : 2695 MD Pump Output 4.28 Gal / stk Planned Angle : Page 1 of 1

Planned Direction :

BHA # 4 BIT# 4 BHA : PDC Bit X/O A962MGT7 Float Sub X/O 12 1/4" II CDR8 w/ APWD

SURVEY SPACING = 24.32

GAMMA SPACING = 19.16

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

30" Casing Shoe Set @ m MD

13 3/8" Casing Shoe Set @ 785m MD

	DRILLING TIME			Motor Work Sheet				AVG	SURVEY			STK /	FLOW			TORQ	PRESSURE		REMARKS
R / S	START	STOP	SUM	FROM	TO	Feet Rotated	Feet Slide	TF	DEPTH	INCL	AZM	MIN	RATE	RPM	WOB	kft-lbs	On Bottom	Off Bottom	
R	16:20	17:15	0:55	2695	2706	11						200	856	100	25	5	3,300	3,100	
R	17:22	18:07	0:45	2706	2735	29						200	856	100	25	5	3,500	3,300	
R	18:12	18:45	0:33	2735	2763	28			2762.85	0.23	199.79	200	856	100	25	5	3,600	3,400	
R	18:54	19:32	0:38	2763	2791	28						200	856	100	25	5	3,600	3,400	
R	19:41	20:15	0:34	2791	2820	29						200	856	100	25	5	3,600	3,400	
R	20:24	21:00	0:36	2820	2849	29						200	856	100	25	5	3,600	3,400	
R	21:08	22:02	0:54	2849	2878	29						200	856	100	25	5	3,600	3,400	
R	22:08	23:05	0:57	2878	2907	29			2878.16	0.23	190.81	200	856	100	25	5	3,600	3,400	mud losses circulate hole
R	1:10	2:00	0:50	2907	2935	28						200	856	100	25	5	3,600	3,400	
R	2:08	2:59	0:51	2935	2963	28			2950.00	0.26	140.59	200	856	100	25	5	3,600	3,400	
R	3:07	3:30	0:23	2963	2979	16			2979.00	0.26	140.59	200	856	100	25	5	3,600	3,400	

TIME BREAKDOWN:

Rotated Time : 7:56 Hrs/Mins Feet Rotated: 284.0

Slide Time : Hrs/Mins Feet Slid:

Total Time : 7:56 Hrs/ Mins Feet Drilled : 284.0

Schlumberger

DOWN-HOLE MOTOR RUN REPORT

Ft, Mt

Motor Size : 9 5/8" **Serial No :** 1069 **Run No :** 1 **BHA No:** 1 Mt

Company	Santos South Australia	**Well**	Amrit-1	**Slot**	1	**Field**	Callister
		Location	Otway Basin	**Country**	Australia		
Operator	Transocean	**Rig**	Jack Bates	**Engineer**	B Manjenic	**Date**	22-Nov-04

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
26"	Smith	MSDS	115	2.22	2.20	0.00	0.00	1.356

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brg/Seals	Gauge	Others	Reason for Trip
1	1	WT	A	E	In	No	TC

Motor Made By	Size	Model / Type	Rotor/Stator	Serial No	Hsg Stab OD	° Bent Hsg	° Bent Sub
Anadrill	9 5/8"	A962M	7:8	1069	25 3/8"	0°	n/a

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

Stator Ser Nº 297296-4280 **Rotor Ser Nº** 300933-1879 **Drlg Cmt, Wash/Ream** 6.2

Drlg Hrs 18.70 **Circ Hrs** 10.50 **Total Motor Circ Hrs** 35.40

Purpose of Run To Jet-In 30"Csg from 1425m to 1510 mMD and continue 26" drilling to 1829m MD

BHA

Mill Tooth Bit A962MGT7848
Float Sub
26" WB Stabilizer
CDR9
PowerPulse HF
26" WB Stabilizer
9 1/2" NM Drill Collar
3 x 9 1/2" Drill Collar
X/O
2 x 8" Drill Collar
Drill-Quip CADA Tool
Drill-Quip CADA Tool
6 x 8" Drill Collar
X/O
5" DP to Surface

Surveys	MD IN	1425.00	Inclin	0.59	Azim	234.33
	MD OUT	1835.00	Inclin	0.22	Azim	170.41

Flow Rate GPM	Off Bttm PSI	On Bttm PSI	RPM	WOB Klbs
1177	2,700	2,450	100	25-45

Mud Type	KCL/PHPA	Mud Wt	8.50	Mud Grad'	0.441	Vis	-
PV	-	Filtrate	-	% Solids	-	Aniline Pt	n/a
YP	-	% Oil	100	% Sand	-	Circ Temp	0

Depth In	1425	Depth Out	1835	Inter'l Drld	410
Date In	20-Nov-04	Date Out	22-Nov-04	ROP	21.93
Time In	7:00	Time Out	16:30	Time BRT	57.50 Hrs

FAILURE? No **Slide Mts** 85 **Previous Hrs** 0.00 **Cumulative Hrs** 35.40

Remarks / Failure Report.

1) Motor was checked prior to RIH.
2) Motor will be used for the next run in BHA#2, bearing play out 0.0mm

Did Motor Stall	
No	No
Slide	Rty
No	No

Bearing Play	
In	0.0 mm
Out	0.0 mm
Condition	
Good	

Schlumberger

DOWN-HOLE MOTOR RUN REPORT

Ft, Mt

Motor Size : 9 5/8" **Serial No :** 1069 **Run No :** 2 **BHA No:** 2 Mt

Company	Santos South Australia	**Well**	Amrit-1	**Slot**	1	**Field**	Callister
		Location	Otway Basin	**Country**	Australia		
Operator	Transocean	**Rig**	Jack Bates	**Engineer**	B Manjenic	**Date**	1-Dec-04

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
17 1/2"	Hycalog	T11C	115	3.22	1.20	0.00	0.00	1.420

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brg/Seals	Gauge	Others	Reason for Trip
2	2	BT	A	E	1	WT	TD

Motor Made By	Size	Model / Type	Rotor/Stator	Serial No	Hsg Stab OD	° Bent Hsg	° Bent Sub
Anadrill	9 5/8"	A962M	7:8	1069	17 1/4"	0°	n/a

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

Stator Ser Nº 297296-4280 **Rotor Ser Nº** 300933-1879 **Drlg Cmt, Wash/Ream** 6.5

Drlg Hrs 32.20 **Circ Hrs** 46.80 **Total Motor Circ Hrs** 85.50

Purpose of Run To tag&drill out cement and float equipment and continue to drill to 13 3/8" Casing shoe depth

BHA

Mill Tooth Bit
A962MGT7848
Float Sub
17 1/2" IB Stabilizer
CDR9 w/ APWD
PowerPulse HF
17 1/2" IB Stabilizer
9 1/2" NM Drill Collar
2 x 9 1/2" Drill Collar
X/O
8 x 8" Drill Collar
8" Jar
3 x 8" Drill Collar
X/O
12 x 5" HWDP

Surveys					
MD IN	1835.00	Inclin	0.26	Azim	261.27
MD OUT	2459.00	Inclin	0.22	Azim	170.41

Flow Rate GPM	Off Bttm PSI	On Bttm PSI	RPM	WOB Klbs
1070	2,700	2,450	100	25-45

Mud Type	KCL/PHPA	**Mud Wt**	8.90	**Mud Grad'**	0.462	**Vis**	96
PV	15	**Filtrate**	6.80	**% Solids**	4.00	**Aniline Pt**	n/a
YP	18	**% Oil**	96	**% Sand**	0.50	**Circ Temp**	54

Depth In	1835	**Depth Out**	2459	**Inter'l Drld**	624
Date In	27-Nov-04	**Date Out**	1-Dec-04	**ROP**	19.38
Time In	13:00	**Time Out**	22:30	**Time BRT**	105.50 Hrs

FAILURE? No **Slide Mts** **Previous Hrs** 34.50 **Cumulative Hrs** 120.00

Remarks / Failure Report.

1) Motor was checked prior to RIH.
2) Motor rotor jetted with nozzle 20/32"

Did Motor Stall	
No	No
Slide	Rty
No	No

Bearing Play
In 0.0 mm
Out 2.0 mm
Condition
Good

Schlumberger

DOWN-HOLE MOTOR RUN REPORT

Ft, Mt

Motor Size : 9 5/8" **Serial No :** 2099 **Run No :** 3 **BHA No:** 3 Mt

Company	Santos South Australia	**Well**	Amrit-1	**Slot**	1	**Field**	Callister
		Location	Otway Basin	**Country**	Australia		
Operator	Transocean	**Rig**	Jack Bates	**Engineer**	B Manjenic	**Date**	6-Dec-04

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
12 1/4"	Hughes	HCM606	0	6.14	0.00	0.00	0.00	0.902

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brg/Seals	Gauge	Others	Reason for Trip
1	1	ER	N	X	I	NO	PR

Motor Made By	Size	Model / Type	Rotor/Stator	Serial No	Hsg Stab OD	° Bent Hsg	° Bent Sub
Anadrill	9 5/8"	A962M	7:8	2099	12 1/8"	0°	n/a

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

Stator Ser Nº 297296-4281 **Rotor Ser Nº** 300933-2107 **Drlg Cmt, Wash/Ream** 4.0

Drlg Hrs 14.40 **Circ Hrs** 11.40 **Total Motor Circ Hrs** 29.80

Purpose of Run To drill 12 1/4" hole to TD

BHA

PDC Bit
X/O
A962MGT7848
Float Sub
X/O
12 1/4" IB Stabilizer
CDR8 w/ APWD
12 1/8" ILS
PowerPulse
12 1/4" IB Stabilizer
8 x 8" Drill Collar
8" Jar
3 x 8" Drill Collar
X/O
12 x 5" HWDP

Surveys

	MD IN	Inclin	Azim
	2459.00	0.24	208.59
MD OUT	2695.00	Inclin 0.22	Azim 170.41

Flow Rate GPM	Off Bttm PSI	On Bttm PSI	RPM	WOB Klbs
856	2,700	2,450	100	25-45

Mud Type	KCL/PHPA	**Mud Wt**	9.50	**Mud Grad'**	0.493	**Vis**	61
PV	21	**Filtrate**	4.40	**% Solids**	8.80	**Aniline Pt**	n/a
YP	25	**% Oil**	87.7	**% Sand**	0.25	**Circ Temp**	60

Depth In	2459	**Depth Out**	2695	**Inter'l Drld**	236
Date In	4-Dec-04	**Date Out**	6-Dec-04	**ROP**	16.39
Time In	2:00	**Time Out**	7:00	**Time BRT**	53.00 Hrs

FAILURE? No **Slide Mts** **Previous Hrs** 95.50 **Cumulative Hrs** 125.30

Remarks / Failure Report.

1) Motor was checked prior to RIH.
2) Motor will be used for the next run in BHA#4, bearing play out 2.0mm

Did Motor Stall	
No	No
Slide	Rty
No	No

Bearing Play	
In	1.0 mm
Out	2.0 mm
Condition	
Good	

Schlumberger

DOWN-HOLE MOTOR RUN REPORT

Ft, Mt

Motor Size : 9 5/8" **Serial No :** 2099 **Run No :** 4 **BHA No:** 4 Mt

Company	Santos South Australia	**Well**	Amrit-1	**Slot**	1	**Field**	Callister
		Location	Otway Basin	**Country**	Australia		
Operator	Transocean	**Rig**	Jack Bates	**Engineer**	B Manjenic	**Date**	7-Dec-04

Bit Size	Make	Type	IADC	Jets	Jets	Jets	Jets	TFA
12 1/4"	Hycalog	DSX104	0	5.15	0.00	0.00	0.00	0.863

IADC CUTTING STRUCTURE

Inner Row	Outer Row	Dull Char'	Location	Brg/Seals	Gauge	Others	Reason for Trip
1	1	WT	A	X	I	NO	TD

Motor Made By	Size	Model / Type	Rotor/Stator	Serial No	Hsg Stab OD	° Bent Hsg	° Bent Sub
Anadrill	9 5/8"	A962M	7:8	2099	12 1/8"	0°	n/a

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

Stator Ser Nº 297296-4281 **Rotor Ser Nº** 300933-2107 **Drlg Cmt, Wash/Ream** 2.0

Drlg Hrs 6.10 **Circ Hrs** 8.70 **Total Motor Circ Hrs** 16.80

Purpose of Run To drill 12 1/4" hole to TD

BHA

PDC Bit
X/O
A962MGT7848
Float Sub
X/O
12 1/4" IB Stabilizer
CDR8 w/ APWD
12 1/8" ILS
PowerPulse
12 1/4" IB Stabilizer
8 x 8" Drill Collar
8" Jar
3 x 8" Drill Collar
X/O
12 x 5" HWDP

Surveys	MD IN	2695.00	Inclin	0.37	Azim	195.11
	MD OUT	2979.00	Inclin	0.22	Azim	170.41

Flow Rate GPM	Off Bttm PSI	On Bttm PSI	RPM	WOB Klbs
856	2,700	2,450	100	25-45

Mud Type	KCL/PHPA	Mud Wt	9.60	Mud Grad'	0.498	Vis	65
PV	25	Filtrate	5.20	% Solids	9.40	Aniline Pt	n/a
YP	32	% Oil	88.4	% Sand	0.24	Circ Temp	58

Depth In	2695	Depth Out	2979	Inter'l Drld	284
Date In	6-Dec-04	Date Out	7-Dec-04	ROP	46.56
Time In	8:00	Time Out	16:00	Time BRT	32.00 Hrs

FAILURE? No

Slide Mts

Previous Hrs 125.50 **Cumulative Hrs** 142.30

Remarks / Failure Report.

1) Motor was checked prior to RIH.
2) Motor will be back loaded

Did Motor Stall	
No	No
Slide	Rty
No	No

Bearing Play	
In	2.0 mm
Out	3.5 mm
Condition	
Good	

Schlumberger

Santos

BIT GRADING CHART

BIT RUN DATA # 1

Bit Size:	26"	
Manufacturer:	Smith	
Bit Type:	MSDS	
Serial Number:	MR3808	
New Bit:	Yes	
IADC Code:	115	
Number of Nozzles:	3	
Size of Nozzles:	24/32"	
Number of Blades:	n/a	
Number of Cutters:	n/a	n/a
Size of Cutters:	n/a	n/a
T.F.A. (sq ins):	1.3560	
W.O.B. :	5-40 klbs	
Depth Out:	1835 m	
Depth In:	1425 m	
Feet Drilled:	410 m	
Rotating Hours:	3.70 hrs	
Steering Hours:	15.00 hr	Jet-in
Feet Rotary:	325 m	
Feet Steered:	85 m	
Total Hours:	18.70 hrs	
Average R.O.P:	21.93 m / hr	
Circulation Rate:	1177 gpm	
R.P.M. at Bit:	229	
K.Revs:		
Motor Used:	Yes	
Motor Size:	9 5/8"	
Bit Good for Rerun:	Yes	

WELL DATA

Date:	22-Nov-04
Drilling Supervisor:	Dave Atkins
Rig:	Jack Bates
Well Number:	Amrit-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	20-Nov-04
Date Out:	22-Nov-04
BHA #	1

MUD AND LITHOLOGY DATA

Majority Formation:	Sandstone
Other Formation:	Siltstone
% Formation:	100%
Mud Type:	Sea water
Mud Weight:	8.50 ppg
PV:	-
YP:	-
% Solids:	-
PH:	9.2

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
1	1	WT	A	E	In	NO	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
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	Shirttail 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

Schlumberger

Santos

BIT GRADING CHART

BIT RUN DATA # 2

Bit Size:	17 1/2"	
Manufacturer:	Hycalog	
Bit Type:	T11C	
Serial Number:	J65053	
New Bit:	Yes	
IADC Code:	115	
Number of Nozzles:	3	
Size of Nozzles:	24/32"	
Number of Blades:	n/a	
Number of Cutters:	n/a	n/a
Size of Cutters:	n/a	n/a
T.F.A. (sq ins):	1.4205	
W.O.B. :	5-40 klbs	
Depth Out:	2459 m	
Depth In:	1835 m	
Feet Drilled:	624 m	
Rotating Hours:	32.20 hrs	
Steering Hours:	0.00 hr	Jet-in
Feet Rotary:	624 m	
Feet Steered:	0 m	
Total Hours:	32.20 hrs	
Average R.O.P:	19.38 m / hr	
Circulation Rate:	1070 gpm	
R.P.M. at Bit:	218	
K.Revs:	384809	
Motor Used:	Yes	
Motor Size:	9 5/8"	
Bit Good for Rerun:	Yes	

WELL DATA

Date:	1-Dec-04
Drilling Supervisor:	Dave Atkins
Rig:	Jack Bates
Well Number:	Amrit-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	27-Nov-04
Date Out:	1-Dec-04
BHA #	2

MUD AND LITHOLOGY DATA

Majority Formation:	Sandstone
Other Formation:	Siltstone
% Formation:	100%
Mud Type:	KCL /PHPA/Glycol
Mud Weight:	8.90 ppg
PV:	15
YP:	18
% Solids:	4.00
PH:	10

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
2	2	BT	A	E	1	WT	TD

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	Shirttail 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

Schlumberger

Santos

BIT GRADING CHART

BIT RUN DATA # 3

Bit Size:	12 1/4"	
Manufacturer:	Hughes	
Bit Type:	HCM606	
Serial Number:	7003752	
New Bit:	Yes	
IADC Code:	0	
Number of Nozzles:	6	
Size of Nozzles:	14/32"	
Number of Blades:	n/a	
Number of Cutters:	n/a	n/a
Size of Cutters:	n/a	n/a
T.F.A. (sq ins):	0.9020	
W.O.B. :	5-40 klbs	
Depth Out:	2695 m	
Depth In:	2459 m	
Feet Drilled:	236 m	
Rotating Hours:	14.40 hrs	
Steering Hours:	0.00 hr	
Feet Rotary:	236 m	
Feet Steered:	0 m	
Total Hours:	14.40 hrs	
Average R.O.P:	16.39 m / hr	
Circulation Rate:	856 gpm	
R.P.M. at Bit:	194	
K.Revs:	156712	
Motor Used:	Yes	
Motor Size:	9 5/8"	
Bit Good for Rerun:	Yes	

WELL DATA

Date:	6-Dec-04
Drilling Supervisor:	Dave Atkins
Rig:	Jack Bates
Well Number:	Amrit-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	4-Dec-04
Date Out:	6-Dec-04
BHA #	3

MUD AND LITHOLOGY DATA

Majority Formation:	Sandstone
Other Formation:	Siltstone
% Formation:	100%
Mud Type:	KCL/PHPA
Mud Weight:	9.50 ppg
PV:	21
YP:	25
% Solids:	8.80
PH:	9.3

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
1	1	ER	N	X	I	NO	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	Shirttail 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

Schlumberger

Santos

BIT GRADING CHART

BIT RUN DATA # 4

Bit Size:	12 1/4"	
Manufacturer:	Hycalog	
Bit Type:	DSX104	
Serial Number:	108439	
New Bit:	Yes	
IADC Code:	0	
Number of Nozzles:	5	
Size of Nozzles:	15/32"	
Number of Blades:	5	
Number of Cutters:	n/a	n/a
Size of Cutters:	19	n/a
T.F.A. (sq ins):	0.8629	
W.O.B. :	5-35 klbs	
Depth Out:	2979 m	
Depth In:	2695 m	
Feet Drilled:	284 m	
Rotating Hours:	6.10 hrs	
Steering Hours:	0.00 hr	Jet-in
Feet Rotary:	284 m	
Feet Steered:	0 m	
Total Hours:	6.10 hrs	
Average R.O.P:	46.56 m / hr	
Circulation Rate:	856 gpm	
R.P.M. at Bit:	194	
K.Revs:		
Motor Used:	Yes	
Motor Size:	9 5/8"	
Bit Good for Rerun:	Yes	

WELL DATA

Date:	7-Dec-04
Drilling Supervisor:	Dave Atkins
Rig:	Jack Bates
Well Number:	Amrit-1
Rig Contractor:	Transocean
Average Hole Angle:	0° - 3°
Date in:	6-Dec-04
Date Out:	7-Dec-04
BHA #	4

MUD AND LITHOLOGY DATA

Majority Formation:	Sandstone
Other Formation:	Siltstone
% Formation:	100%
Mud Type:	KCL/PHPA
Mud Weight:	9.60 ppg
PV:	25
YP:	32
% Solids:	9.40
PH:	8.5

COMMENTS:

BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
1	1	WT	A	X	I	No	TD

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	Shirttail 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