



**End of Well Report
for
Santos SBU**

Rig: Ocean Epoch
Well: Casino-3
Field: Casino
Country: Australia
Job No: AU-FE-0002648816
Date: 14-Oct-03
API No:

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General Information

Company: Santos SBU
Rig: Ocean Epoch
Well: Casino-3
Field: Casino
Country: Australia
API Number:
Sperry-Sun Job Number: AU-FE-0002648816
Job start date: 14-Oct-03
Job end date: 30-Oct-03
North reference: Grid
Declination: 10.894 deg
Dip angle: -69.964 deg
Total magnetic field: 60966.461 nT
Date of magnetic data: 16-Oct-03
Wellhead coordinates N: 38 deg. 46 min 34.560 sec South
Wellhead coordinates E: 142 deg. 44 min 5.440 sec East
Vertical section direction: 0.000 deg
MWD Engineers: F. Besanger A. Wilson

Company Representatives: G. Howard

Company Geologist: M. Giuliano
Lease Name: VIC-P-44
Unit Number: LT 1087
State: Victoria
County:

Operational Overview

Sperry-Sun Drilling Services was contracted by Santos SBU to supply Logging While Drilling (LWD) services on the appraisal well Casino-3 under permit VIC-P-44 on the Casino gasfield. The well was drilled on the MODU Ocean Epoch.

LWD services consisted of 8" Dual Gamma Ray (DGR), Electromagnetic Wave Resistivity (EWR-P4) and Directional Module (DM) for deviation control. LWD services were supplied from 1220 mMDRT to TD of 2135 mMDRT in two runs. The first run was drilled to coring point of 2004 mMDRT. After coring, the reservoir section was wiped and drilled to final depth at 2135mMDRT.

Bitrun Summary

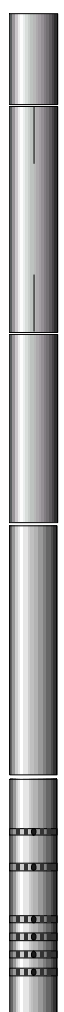
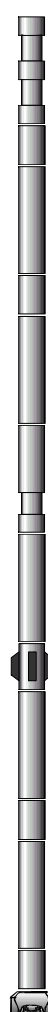
Run Time Data		Drilling Data		Mud Data			
MWD Run :	0100	Start Depth :	1220.00 m	Mud Type :	Aqua-Drill		
Rig Bit No:	4	End Depth :	2004.00 m	Weight / Visc :	1.06	sg /	69.0 spl
Hole Size :	311.00 mm	Footage :	784.00 m	Chlorides :	34700	ppm	
Run Start :	24-Oct-03 20:02	Avg. Flow Rate :	880.00 gpm	PV / YP :	19	cp /	28 lhf2
Run End :	26-Oct-03 20:26	Avg. RPM :	100.00 rpm	Solids/Sand :	3	% /	1 %
BRT Hrs :	48.41	Avg. WOB :	12.00 klb	%Oil / O:W:	N/A	% /	N/A
Circ. Hrs :	33.80	Avg. ROP :	25.00 m/hr	pH/Fluid Loss:	9.5	pH /	7.0 cptm
Oper. Hrs :	67.87	Avg. SPP :	3200.00 psig	Max. Temp. :	69	degC	

MWD Schematics		BHA Schematics			
		Component	Length (m)	O.D. (mm)	I.D. (mm)
(5)		(13)			
(4)		(12)			
(3)		(11)			
(2)		(10)			
(1)		(9)			
	5. Hang-off Sub SN :	(8)	13. HWDP	113.41	114.000 76.000
	4. DM SN : 85267 8.44 m From Bit	(7)	12. Cross Over Sub	0.81	214.000 49.000
	3. HCIM SN : 011258	(6)	11. Drill Collar	9.25	209.550 71.438
	2. DGR SN : 151078 5.09 m From Bit	(5)	10. Cross Over Sub	8.28	214.000 76.000
	1. EWR-P4 SN : 167205 2.04 m From Bit	(4)	09. Drill Collar	27.72	209.550 71.438
		(3)	08. Drilling Jars	9.63	214.000 49.000
		(2)	07. Drill Collar	56.26	209.550 71.438
		(1)	06. 3-Point String Reamer	2.33	214.000 76.000
			05. Drill Collar	9.07	209.550 71.438
			04. Float Sub	0.77	214.000 49.000
			03. MWD	12.40	214.000 54.400
			02. Bit Sub	0.24	214.000 76.000
			01. PDC	0.32	311.000 0.000

Comments	MWD Performance
Drilled to coring point at 2004 mMDRT.	Tool OD / Type : 203.00 mm / P4M
	MWD Real-time%: 100.00 % / 0.00 %
	MWD Recorded%: 99.00 % / 100.00 %
	Min. Inc. : 0.39 deg / 1684.80 m
	Max. Inc. : 1.18 deg / 1977.50 m
	Final Az. : 208.33 deg
	Max Op. Press. : 5000 psig

Bitrun Summary

Run Time Data		Drilling Data		Mud Data			
MWD Run :	0200	Start Depth :	2004.00 m	Mud Type :	Aqua-Drill		
Rig Bit No:	6	End Depth :	2135.00 m	Weight / Visc :	1.15	sg /	68.0 spl
Hole Size :	311.00 mm	Footage :	131.00 m	Chlorides :	35000	ppm	
Run Start :	29-Oct-03 03:00	Avg. Flow Rate :	850.00 gpm	PV / YP :	24	cp /	35 lhf2
Run End :	30-Oct-03 17:12	Avg. RPM :	180.00 rpm	Solids/Sand :	7	% /	0.7 %
BRT Hrs :	38.20	Avg. WOB :	30.00 klb	%Oil / O:W :	0	% /	0/90:10
Circ. Hrs :	20.80	Avg. ROP :	5.00 m/hr	pH/Fluid Loss:	9.0	pH /	4.0 cptm
Oper. Hrs :	37.65	Avg. SPP :	3300.00 psig	Max. Temp. :	70	degC	

MWD Schematics		BHA Schematics					
		Component	Length (m)	O.D. (mm)	I.D. (mm)		
(5)	 <p>5. Hang-off Sub SN :</p> <p>4. DM SN : 85267 8.44 m From Bit</p> <p>3. HCIM SN : 011258</p> <p>2. DGR SN : 151078 5.09 m From Bit</p> <p>1. EWR-P4 SN : 167205 2.04 m From Bit</p>	(13)					
(4)		(12)					
(3)		(11)		13. HWDP	113.41	114.000	76.000
(2)		(10)		12. Cross Over Sub	0.81	214.000	49.000
(1)		(9)		11. Drill Collar	9.25	209.550	71.438
	(8)	10. Cross Over Sub		8.28	214.000	76.000	
	(7)	09. Drill Collar		27.72	209.550	71.438	
	(6)	08. Drilling Jars		9.63	214.000	49.000	
	(5)	07. Drill Collar		56.26	209.550	71.438	
	(4)	06. 3-Point String Reamer		2.33	214.000	76.000	
	(3)	05. Drill Collar		9.07	209.550	71.438	
	(2)	04. Float Sub		0.77	214.000	49.000	
	(1)	03. MWD		12.40	214.000	54.400	
		02. Bit Sub	0.24	214.000	76.000		
		01. PDC	0.32	311.000	0.000		

Comments	MWD Performance			
Wiped cored section from 2004 to 2031 mMDRT. Drilled to TD at 2135 mMDRT.	Tool OD / Type :	203.00	mm /	P4M
	MWD Real-time%:	100.00	% /	0.00 %
	MWD Recorded%:	99.00	% /	100.00 %
	Min. Inc. :	0.83	deg /	2005.90 m
	Max. Inc. :	2.92	deg /	2125.00 m
	Final Az. :	220.32	deg	
	Max Op. Press. :	5500	psig	

Directional Survey Data

Measured Depth (metres)	Inclination (degrees)	Direction (degrees)	Vertical Depth (metres)	Latitude (metres)	Departure (metres)	Vertical Section (metres)	Dogleg (deg/30m)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN
89.10	0.00	0.00	89.10	0.00 N	0.00 E	0.00	0.00
696.31	0.45	10.09	696.30	2.35 N	0.42 E	2.35	0.02
947.80	0.49	308.35	947.79	3.99 N	0.25 W	3.99	0.06
1218.76	0.44	231.47	1218.74	4.06 N	1.97 W	4.06	0.06
1251.66	0.80	142.87	1251.64	3.80 N	1.93 W	3.80	0.83
1278.90	0.75	149.32	1278.88	3.49 N	1.72 W	3.49	0.11
1311.40	0.64	145.23	1311.37	3.16 N	1.51 W	3.16	0.12
1341.10	0.57	133.81	1341.07	2.93 N	1.31 W	2.93	0.14
1367.40	0.72	129.23	1367.37	2.73 N	1.09 W	2.73	0.19
1394.80	0.83	105.22	1394.77	2.57 N	0.76 W	2.57	0.37
1425.30	0.93	117.62	1425.26	2.40 N	0.33 W	2.40	0.21
1461.00	0.83	126.97	1460.96	2.11 N	0.13 E	2.11	0.15
1485.50	1.05	125.52	1485.46	1.87 N	0.46 E	1.87	0.27
1513.80	0.75	121.22	1513.75	1.62 N	0.83 E	1.62	0.33
1543.40	0.78	125.17	1543.35	1.40 N	1.16 E	1.40	0.06
1601.00	0.60	149.21	1600.95	0.92 N	1.64 E	0.92	0.18
1629.20	0.45	166.96	1629.15	0.68 N	1.74 E	0.68	0.24
1654.20	0.57	146.54	1654.14	0.49 N	1.83 E	0.49	0.26
1684.80	0.39	155.53	1684.74	0.27 N	1.95 E	0.27	0.19
1747.50	0.70	158.31	1747.44	0.29 S	2.18 E	-0.29	0.15
1775.60	0.69	181.94	1775.54	0.62 S	2.24 E	-0.62	0.31
1802.20	0.74	185.60	1802.14	0.95 S	2.22 E	-0.95	0.08
1830.40	0.84	183.00	1830.33	1.34 S	2.19 E	-1.34	0.11
1860.90	0.82	186.01	1860.83	1.78 S	2.16 E	-1.78	0.05
1890.60	0.81	194.41	1890.53	2.20 S	2.08 E	-2.20	0.12
1919.30	0.89	193.99	1919.22	2.61 S	1.98 E	-2.61	0.08
1977.50	1.18	208.33	1977.41	3.57 S	1.58 E	-3.57	0.20
2005.90	0.83	199.77	2005.81	4.02 S	1.38 E	-4.02	0.40
2035.10	1.10	206.07	2035.01	4.48 S	1.18 E	-4.48	0.30
2092.20	1.96	211.00	2092.09	5.81 S	0.44 E	-5.81	0.45
2121.80	2.72	218.57	2121.66	6.79 S	0.26 W	-6.79	0.83
2125.00	2.92	220.32	2124.86	6.91 S	0.36 W	-6.91	2.05
2135.00	3.55	225.79	2134.84	7.32 S	0.75 W	-7.32	2.08

Directional Survey Data

CALCULATION BASED ON Minimum Curvature METHOD

SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT

TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT

VERTICAL SECTION RELATIVE TO WELL HEAD

VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 0.00 DEGREES (GRID)

A TOTAL CORRECTION OF 11.98 DEG FROM MAGNETIC NORTH TO GRID NORTH HAS BEEN APPLIED

HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.

HORIZONTAL DISPLACEMENT(CLOSURE) AT 2135.00 METRES

IS 7.36 METRES ALONG 185.83 DEGREES (GRID)

Final survey projected to TD.

Sperry-Sun, A Halliburton Company

