



**3D Oil**

**Wardie-1**

**End of Well Report**

	Name	Signature	Date
Schlumberger QC	David de Freitas		
Client approval			

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## General Information

<b>Client:</b>	<b>3D Oil</b>	
<b>Well Name:</b>	<b>Wardie-1</b>	
<b>Rig:</b>	<b>West Triton</b>	
<b>Field:</b>	<b>Exploration</b>	
<b>Location:</b>	<b>Bass Strait</b>	
<b>Country:</b>	<b>Australia</b>	
<b>Cell Members:</b>	<b>Patrick Dassens (DD)</b> <b>Punniamoorthy Sellathurai (DD)</b> <b>Anagh Kohli (MWD)</b> <b>San Thida Aung (MWD)</b>	
<b>Town Contacts:</b>	<b>David de Freitas</b> <b>Mee Yean Tan</b>	Directional Drilling Coordinator Field Services Manager
<b>Company Representatives:</b>	<b>S. Corless</b> <b>R. Rossouw</b> <b>S. Ward</b> <b>B. Leask</b>	Company Representative Company Representative Geologist Geologist



## Geomagnetic and Survey Reference Criteria

### Geomagnetic Data

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Magnetic Model:	BGGM version 2007
Magnetic Date:	May 1 <sup>st</sup> 2008
Magnetic Field Strength:	59946.609nT
Magnetic Declination:	12.844°
Magnetic Dip:	-68.778°

### Survey Reference Criteria

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Reference G:	100.02 mG
Reference H:	1198.93 HCNT
Reference Dip:	-68.778°
G value Tolerance:	2.50 mG
H value Tolerance:	6.00 HCNT
Dip Tolerance:	0.45°

### Survey Corrections Applied

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Reference North:	Grid North
Magnetic Declination:	12.844°
Grid Convergence:	-0.38310215°
Total Azimuth Correction:	+13.227°
Vertical Section Azimuth:	241.15°

### Survey Reference Location

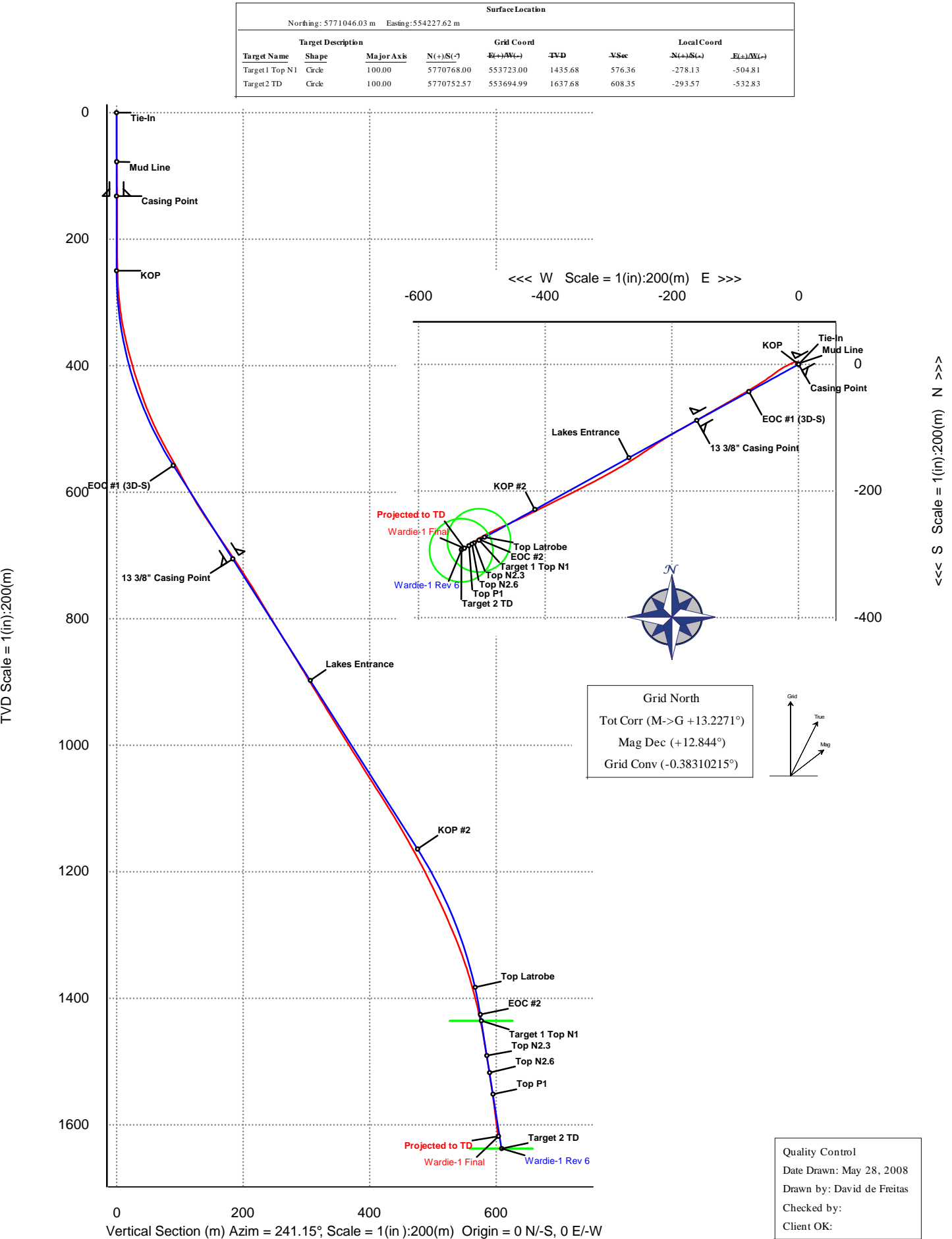
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#### Location Coordinates

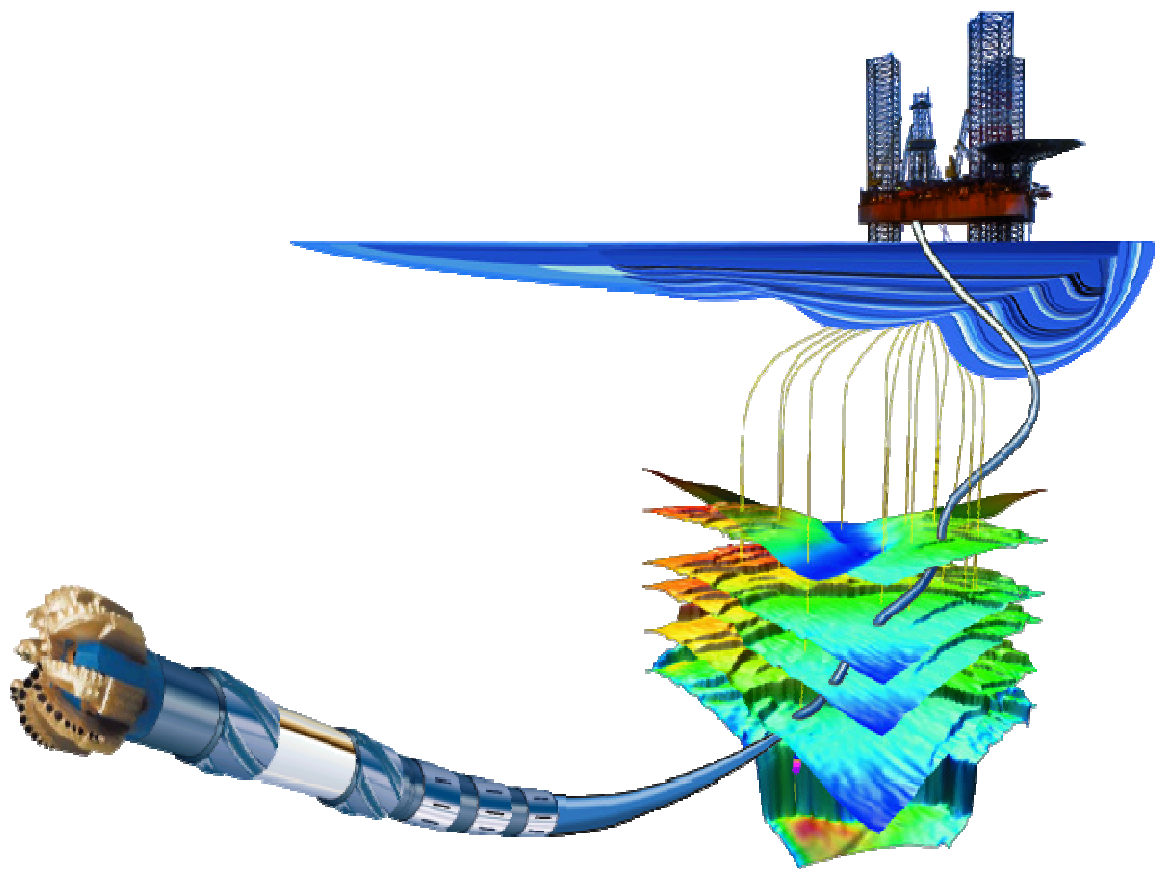
Latitude:	38° 12' 24.881" South
Longitude:	147° 37' 9.793" East
Easting:	554227.625 m
Northing:	5771046.028 m
Reference System:	

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WELL	Wardie-1				FIELD	3D Oil - West Seahorse				STRUCTURE	West Seahorse			
Magnetic Parameters					Surface Location					Miscellaneous				
Model: BGGM 2007					GDA94/MGA94 Zone 55					Slot: 2				
Dip: -68.778°					Lat: S38 12 24.881					TVD Ref: RKB (37.68 m above MSL)				
Mag Dec: +12.844°					Northing: 5771046.03 m					Plan: Wardie-1 Final				
Date: May 01, 2008					Easting: 554227.62 m					Srv Date: May 01, 2008				
FS: 59946.6 nT					Scale Factor: 9996362151									



## Definitive Survey



# Wardie-1 Final Survey Report

Report Date: 19-May-08	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: 3D Oil Ltd	Vertical Section Azimuth: 241.150°
Field: Exploration	Vertical Section Origin: N 0.000 m, E 0.000 m
Structure / Slot: West Seahorse / 2	TVD Reference Datum: RKB
Well: Wardie-1	TVD Reference Elevation: 37.7 m relative to MSL
Borehole: Wardie-1	Sea Bed / Ground Level Elevation: -39.500 m relative to MSL
UWI/API#:	Magnetic Declination: 12.844°
Survey Name / Date: Wardie-1 Final / May 1, 2008	Total Field Strength: 59946.609 nT
Tort / AHD / DDI / ERD ratio: 82.133° / 608.54 m / 5.253 / 0.376	Magnetic Dip: -68.778°
Grid Coordinate System: GDA94/MGA94 Zone 55	Declination Date: May 01, 2008
Location Lat/Long: S 38 12 24.881, E 147 37 9.793	Magnetic Declination Model: BGGM 2007
Location Grid N/E Y/X: N 5771046.028 m, E 554227.625 m	North Reference: Grid North
Grid Convergence Angle: -0.38310215°	Total Corr Mag North -> Grid North: +13.227°
Grid Scale Factor: 0.99963622	Local Coordinates Referenced To: Well Head

Comments	Measured Depth (m)	Inclination (deg)	Azimuth Grid (deg)	Course Length (m)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	Closure (m)	Closure Azimuth (deg)	DLS (deg/30 m)	Mag / Grav Tool Face (deg)
Mud Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	317.71M
	77.50	1.96	317.71	77.50	77.48	0.31	0.98	-0.89	1.33	317.71	0.76	317.51M
	82.50	1.90	317.51	5.00	82.48	0.35	1.10	-1.01	1.49	317.70	0.36	317.30M
	87.50	1.85	317.30	5.00	87.48	0.39	1.23	-1.12	1.66	317.67	0.30	317.07M
	92.50	1.80	317.07	5.00	92.48	0.42	1.34	-1.22	1.82	317.63	0.30	316.83M
	97.50	1.74	316.83	5.00	97.47	0.46	1.45	-1.33	1.97	317.57	0.36	316.58M
	102.50	1.69	316.58	5.00	102.47	0.50	1.56	-1.43	2.12	317.51	0.30	316.30M
	107.50	1.63	316.30	5.00	107.47	0.54	1.67	-1.53	2.27	317.45	0.36	315.91M
	112.50	1.65	315.91	5.00	112.47	0.57	1.77	-1.63	2.41	317.37	0.14	316.62M
	117.50	1.78	316.62	5.00	117.47	0.61	1.88	-1.73	2.56	317.30	0.79	319.95M
	122.50	1.86	319.95	5.00	122.46	0.65	2.00	-1.84	2.72	317.36	0.80	323.69M
	127.50	1.88	323.69	5.00	127.46	0.67	2.13	-1.94	2.88	317.61	0.74	328.33M
	132.50	1.94	328.33	5.00	132.46	0.69	2.26	-2.03	3.04	318.07	0.99	330.59M
	134.60	2.03	330.59	2.10	134.56	0.69	2.33	-2.07	3.12	318.34	1.70	331.19M
	174.15	0.97	331.19	39.55	174.09	0.70	3.23	-2.58	4.13	321.43	0.80	330.50M
	202.30	1.06	330.50	28.15	202.24	0.70	3.67	-2.82	4.63	322.44	0.10	269.17M
	260.44	2.12	269.17	58.14	260.36	1.66	4.12	-4.16	5.85	314.72	0.96	252.00M
	290.09	5.23	252.00	29.65	289.94	3.47	3.69	-5.99	7.04	301.64	3.30	19.24L
	319.76	8.62	244.27	29.67	319.39	7.02	2.31	-9.28	9.57	283.97	3.55	2.34L
	349.23	11.69	243.65	29.47	348.40	12.21	0.03	-13.95	13.95	270.10	3.13	1.31L
	378.56	14.54	243.39	29.33	376.96	18.85	-2.94	-19.91	20.12	261.59	2.92	33.53L
	408.20	16.62	238.69	29.64	405.51	26.81	-6.81	-26.85	27.71	255.76	2.46	39.34L
	437.65	18.41	234.18	29.45	433.60	35.63	-11.72	-34.22	36.18	251.09	2.29	7.31L
	466.98	21.11	233.22	29.33	461.20	45.46	-17.60	-42.21	45.73	247.37	2.78	17.93R
	496.44	24.52	235.86	29.46	488.35	56.81	-24.21	-51.52	56.93	244.83	3.62	18.76R
	525.34	27.44	238.00	28.90	514.33	69.43	-31.10	-62.14	69.49	243.41	3.18	13.17R
	555.68	29.78	239.10	30.34	540.96	83.94	-38.68	-74.53	83.97	242.57	2.37	169.13R
	585.40	28.02	239.82	29.72	566.98	98.30	-45.98	-86.90	98.31	242.12	1.81	4.51R
	614.89	29.13	240.00	29.49	592.88	112.40	-53.05	-99.11	112.41	241.84	1.13	3.82R
	644.23	31.31	240.28	29.34	618.23	127.17	-60.40	-111.91	127.17	241.64	2.23	3.12R
	674.32	33.98	240.54	30.09	643.56	143.40	-68.41	-126.03	143.40	241.50	2.67	16.31L
	703.79	34.90	240.07	29.47	667.87	160.06	-76.67	-140.50	160.06	241.38	0.97	167.85L
	722.54	34.35	239.86	18.75	683.29	170.71	-82.00	-149.73	170.71	241.29	0.90	164.40R
	802.80	32.02	241.09	80.26	750.46	214.63	-103.66	-187.94	214.63	241.12	0.91	144.71L
	831.50	30.76	239.33	28.70	774.96	229.58	-111.08	-200.91	229.58	241.06	1.63	34.35L
	861.51	31.64	238.19	30.01	800.63	245.11	-119.15	-214.20	245.11	240.92	1.06	106.61L

891.22	31.39	236.51	29.71	825.96	260.60	-127.53	-227.28	260.61	240.70	0.92	54.17L
920.19	31.58	236.01	28.97	850.66	275.68	-135.93	-239.86	275.70	240.46	0.33	72.68R
949.76	31.70	236.73	29.57	875.84	291.14	-144.52	-252.78	291.17	240.24	0.40	126.32R
979.78	31.37	237.60	30.02	901.42	306.80	-153.03	-265.97	306.85	240.08	0.56	84.00R
1009.21	31.56	240.47	29.43	926.53	322.15	-160.93	-279.14	322.21	240.03	1.54	77.64L
1039.05	31.64	239.79	29.84	951.94	337.78	-168.72	-292.70	337.84	240.04	0.37	90.00R
1066.59	31.64	241.83	27.54	975.39	352.22	-175.77	-305.31	352.29	240.07	1.17	21.87R
1096.55	32.01	242.11	29.96	1000.85	368.02	-183.19	-319.25	368.08	240.15	0.40	46.19R
1125.94	32.34	242.75	29.39	1025.72	383.67	-190.43	-333.13	383.72	240.25	0.48	145.46L
1155.71	32.17	242.53	29.77	1050.90	399.55	-197.74	-347.24	399.59	240.34	0.21	77.52R
1184.60	32.35	243.98	28.89	1075.33	414.96	-204.67	-361.01	414.99	240.45	0.83	165.93R
1214.81	32.18	244.06	30.21	1100.88	431.07	-211.74	-375.50	431.09	240.58	0.17	160.81L
1244.86	30.73	243.07	30.05	1126.51	446.73	-218.72	-389.55	446.75	240.69	1.54	165.00R
1274.25	29.50	243.74	29.39	1151.93	461.47	-225.32	-402.73	461.48	240.77	1.30	172.90L
1303.82	28.32	243.43	29.57	1177.82	475.75	-231.68	-415.53	475.75	240.86	1.21	172.16R
1333.24	26.97	243.84	29.42	1203.88	489.39	-237.74	-427.76	489.39	240.94	1.39	166.48R
1363.33	25.76	244.51	30.09	1230.84	502.73	-243.56	-439.79	502.73	241.02	1.24	167.62R
1392.32	24.64	245.10	28.99	1257.07	515.05	-248.82	-450.96	515.05	241.11	1.19	164.84R
1421.66	23.41	245.94	29.34	1283.87	526.96	-253.77	-461.83	526.96	241.21	1.31	171.40L
1451.54	21.93	245.34	29.88	1311.44	538.44	-258.52	-472.32	538.44	241.31	1.50	178.00L
1481.24	19.28	245.06	29.70	1339.23	548.86	-262.90	-481.81	548.87	241.38	2.68	168.93L
1511.19	16.74	243.33	29.95	1367.71	558.11	-266.92	-490.15	558.11	241.43	2.60	163.05L
1540.85	14.49	240.57	29.66	1396.28	566.09	-270.66	-497.20	566.09	241.44	2.40	159.97L
1570.22	12.40	236.98	29.37	1424.84	572.91	-274.19	-503.04	572.91	241.41	2.30	176.39L
1599.76	10.35	236.26	29.54	1453.80	578.72	-277.39	-507.91	578.72	241.36	2.09	175.04R
1630.16	9.46	236.73	30.40	1483.75	583.93	-280.28	-512.27	583.93	241.32	0.88	168.56L
1659.89	8.81	235.87	29.73	1513.10	588.63	-282.90	-516.20	588.63	241.28	0.67	174.49L
1689.37	8.19	235.45	29.48	1542.26	592.97	-285.35	-519.79	592.97	241.23	0.63	177.36L
1718.81	7.67	235.27	29.44	1571.41	597.01	-287.66	-523.14	597.01	241.19	0.53	155.84L
1745.67	7.36	234.18	26.86	1598.04	600.50	-289.69	-526.00	600.50	241.16	0.38	---
1766.00	7.36	234.18	20.33	1618.21	603.08	-291.21	-528.12	603.08	241.13	0.00	---

Projected to TD

**Survey Type:** Definitive Survey

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

<u>MD From ( m )</u>	<u>MD To ( m )</u>	<u>EOU Freq</u>	<u>Survey Tool Type</u>	<u>Borehole -&gt; Survey</u>
0.00	77.18	Act-Stns	SLB_CNSG+DPIPE-Depth Only	Wardie-1 -> Wardie-1 Final
77.18	134.60	Act-Stns	SLB_CNSG+DPIPE	Wardie-1 -> Wardie-1 Final
134.60	1745.67	Act-Stns	SLB_MWD-STD	Wardie-1 -> Wardie-1 Final
1745.67	1766.00	Act-Stns	SLB_BLIND+TREND	Wardie-1 -> Wardie-1 Final



## Wardie-1 Final Geodetic Survey

<b>Report Date:</b> May 19, 2008 <b>Client:</b> 3D Oil Ltd <b>Field:</b> Exploration <b>Structure / Slot:</b> West Seahorse / 2 <b>Well:</b> Wardie-1 <b>Borehole:</b> Wardie-1 <b>UWI/API#:</b> <b>Survey Name / Date:</b> Wardie-1 Final / May 1, 2008 <b>Tort / AHD / DDI / ERD ratio:</b> 82.133° / 608.54 m / 5.253 / 0.376 <b>Grid Coordinate System:</b> GDA94/MGA94 Zone 55 <b>Location Lat/Long:</b> S 38 12 24.881, E 147 37 9.793 <b>Location Grid N/E Y/X:</b> N 5771046.028 m, E 554227.625 m <b>Grid Convergence Angle:</b> -0.38310215° <b>Grid Scale Factor:</b> 0.99963622	<b>Survey / DLS Computation Method:</b> Minimum Curvature / Lubinski <b>Vertical Section Azimuth:</b> 241.150° <b>Vertical Section Origin:</b> N 0.000 m, E 0.000 m <b>TVD Reference Datum:</b> RKB <b>TVD Reference Elevation:</b> 37.7 m relative to MSL <b>Sea Bed / Ground Level Elevation:</b> -39.500 m relative to MSL <b>Magnetic Declination:</b> 12.844° <b>Total Field Strength:</b> 59946.609 nT <b>Magnetic Dip:</b> -68.778° <b>Declination Date:</b> May 01, 2008 <b>Magnetic Declination Model:</b> BGGM 2007 <b>North Reference:</b> Grid North <b>Total Corr Mag North -&gt; Grid North:</b> +13.227° <b>Local Coordinates Referenced To:</b> Well Head
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Comments	Measured Depth (m)	Inclination (deg)	Azimuth Grid (deg)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Mud Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5771046.03	554227.62	S 38 12 24.881	E 147 37 9.793
	77.50	1.96	317.71	77.48	0.31	0.98	-0.89	0.76	5771047.01	554226.73	S 38 12 24.850	E 147 37 9.756
	82.50	1.90	317.51	82.48	0.35	1.10	-1.01	0.36	5771047.13	554226.62	S 38 12 24.846	E 147 37 9.751
	87.50	1.85	317.30	87.48	0.39	1.23	-1.12	0.30	5771047.25	554226.51	S 38 12 24.842	E 147 37 9.747
	92.50	1.80	317.07	92.48	0.42	1.34	-1.22	0.30	5771047.37	554226.40	S 38 12 24.838	E 147 37 9.742
	97.50	1.74	316.83	97.47	0.46	1.45	-1.33	0.36	5771047.48	554226.30	S 38 12 24.834	E 147 37 9.738
	102.50	1.69	316.58	102.47	0.50	1.56	-1.43	0.30	5771047.59	554226.19	S 38 12 24.831	E 147 37 9.734
	107.50	1.63	316.30	107.47	0.54	1.67	-1.53	0.36	5771047.70	554226.09	S 38 12 24.827	E 147 37 9.730
	112.50	1.65	315.91	112.47	0.57	1.77	-1.63	0.14	5771047.80	554225.99	S 38 12 24.824	E 147 37 9.726
	117.50	1.78	316.62	117.47	0.61	1.88	-1.73	0.79	5771047.91	554225.89	S 38 12 24.821	E 147 37 9.721
	122.50	1.86	319.95	122.46	0.65	2.00	-1.84	0.80	5771048.03	554225.78	S 38 12 24.817	E 147 37 9.717
	127.50	1.88	323.69	127.46	0.67	2.13	-1.94	0.74	5771048.15	554225.68	S 38 12 24.813	E 147 37 9.713
	132.50	1.94	328.33	132.46	0.69	2.26	-2.03	0.99	5771048.29	554225.59	S 38 12 24.808	E 147 37 9.709
	134.60	2.03	330.59	134.56	0.69	2.33	-2.07	1.70	5771048.36	554225.55	S 38 12 24.806	E 147 37 9.707
	174.15	0.97	331.19	174.09	0.70	3.23	-2.58	0.80	5771049.26	554225.05	S 38 12 24.777	E 147 37 9.686
	202.30	1.06	330.50	202.24	0.70	3.67	-2.82	0.10	5771049.69	554224.81	S 38 12 24.763	E 147 37 9.676
	260.44	2.12	269.17	260.36	1.66	4.12	-4.16	0.96	5771050.15	554223.47	S 38 12 24.748	E 147 37 9.621
	290.09	5.23	252.00	289.94	3.47	3.69	-5.99	3.30	5771049.72	554221.63	S 38 12 24.763	E 147 37 9.546
	319.76	8.62	244.27	319.39	7.02	2.31	-9.28	3.55	5771048.34	554218.34	S 38 12 24.808	E 147 37 9.411
	349.23	11.69	243.65	348.40	12.21	0.03	-13.95	3.13	5771046.05	554213.68	S 38 12 24.883	E 147 37 9.220
	378.56	14.54	243.39	376.96	18.86	-2.94	-19.91	2.92	5771043.09	554207.73	S 38 12 24.981	E 147 37 8.976
	408.20	16.62	238.69	405.51	26.81	-6.81	-26.85	2.46	5771039.22	554200.78	S 38 12 25.108	E 147 37 8.691
	437.65	18.41	234.18	433.60	35.63	-11.72	-34.22	2.29	5771034.31	554193.41	S 38 12 25.269	E 147 37 8.390
	466.98	21.11	233.22	461.20	45.46	-17.60	-42.21	2.78	5771028.44	554185.43	S 38 12 25.461	E 147 37 8.063
	496.44	24.52	235.86	488.35	56.81	-24.21	-51.52	3.62	5771021.83	554176.12	S 38 12 25.677	E 147 37 7.682
	525.34	27.44	238.00	514.33	69.43	-31.10	-62.14	3.18	5771014.94	554165.51	S 38 12 25.903	E 147 37 7.248
	555.68	29.78	239.10	540.96	83.94	-38.68	-74.53	2.37	5771007.36	554153.12	S 38 12 26.152	E 147 37 6.740
	585.40	28.02	239.82	566.98	98.30	-45.98	-86.90	1.81	5771000.07	554140.76	S 38 12 26.391	E 147 37 6.234
	614.89	29.13	240.00	592.88	112.40	-53.05	-99.11	1.13	5770993.00	554128.56	S 38 12 26.623	E 147 37 5.734
	644.23	31.31	240.28	618.23	127.17	-60.40	-111.91	2.23	5770985.65	554115.75	S 38 12 26.864	E 147 37 5.210
	674.32	33.98	240.54	643.56	143.40	-68.41	-126.03	2.67	5770977.64	554101.64	S 38 12 27.127	E 147 37 4.632
	703.79	34.90	240.07	667.87	160.06	-76.67	-140.50	0.97	5770969.39	554087.17	S 38 12 27.398	E 147 37 4.039
	722.54	34.35	239.86	683.29	170.71	-82.00	-149.73	0.90	5770964.06	554077.95	S 38 12 27.573	E 147 37 3.662
	802.80	32.02	241.09	750.46	214.63	-103.66	-187.94	0.91	5770942.40	554039.75	S 38 12 28.284	E 147 37 2.097
	831.50	30.76	239.33	774.96	229.58	-111.08	-200.91	1.63	5770934.98	554026.78	S 38 12 28.527	E 147 37 1.566
	861.51	31.64	238.19	800.63	245.11	-119.15	-214.20	1.06	5770926.92	554013.50	S 38 12 28.792	E 147 37 1.022
	891.22	31.39	236.51	825.96	260.60	-127.53	-227.28	0.92	5770918.55	554000.43	S 38 12 29.066	E 147 37 0.486
	920.19	31.58	236.01	850.66	275.68	-135.93	-239.86	0.33	5770910.15	553987.85	S 38 12 29.341	E 147 36 59.972
	949.76	31.70	236.73	875.84	291.14	-144.52	-252.78	0.40	5770901.56	553974.94	S 38 12 29.623	E 147 36 59.443
	979.78	31.37	237.60	901.42	306.80	-153.03	-265.97	0.56	5770893.05	553961.75	S 38 12 29.902	E 147 36 58.903
	1009.21	31.56	240.47	926.53	322.15	-160.93	-279.14	1.54	5770885.15	553948.59	S 38 12 30.161	E 147 36 58.364

1039.05	31.64	239.79	951.94	337.78	-168.72	-292.70	0.37	5770877.37	553935.03	S 38 12 30.416	E 147 36 57.809
1066.59	31.64	241.83	975.39	352.22	-175.77	-305.31	1.17	5770870.33	553922.43	S 38 12 30.648	E 147 36 57.292
1096.55	32.01	242.11	1000.85	368.02	-183.19	-319.25	0.40	5770862.90	553908.49	S 38 12 30.891	E 147 36 56.721
1125.94	32.34	242.75	1025.72	383.67	-190.43	-333.13	0.48	5770855.66	553894.62	S 38 12 31.129	E 147 36 56.153
1155.71	32.17	242.53	1050.90	399.55	-197.74	-347.24	0.21	5770848.36	553880.51	S 38 12 31.369	E 147 36 55.575
1184.60	32.35	243.98	1075.33	414.96	-204.67	-361.01	0.83	5770841.43	553866.75	S 38 12 31.597	E 147 36 55.011
1214.81	32.18	244.06	1100.88	431.07	-211.74	-375.50	0.17	5770834.37	553852.26	S 38 12 31.829	E 147 36 54.417
1244.86	30.73	243.07	1126.51	446.73	-218.72	-389.55	1.54	5770827.39	553838.22	S 38 12 32.059	E 147 36 53.842
1274.25	29.50	243.74	1151.93	461.47	-225.32	-402.73	1.30	5770820.79	553825.04	S 38 12 32.276	E 147 36 53.302
1303.82	28.32	243.43	1177.82	475.75	-231.68	-415.53	1.21	5770814.43	553812.24	S 38 12 32.485	E 147 36 52.777
1333.24	26.97	243.84	1203.88	489.39	-237.74	-427.76	1.39	5770808.37	553800.02	S 38 12 32.684	E 147 36 52.276
1363.33	25.76	244.51	1230.84	502.73	-243.56	-439.79	1.24	5770802.55	553787.99	S 38 12 32.875	E 147 36 51.783
1392.32	24.64	245.10	1257.07	515.05	-248.82	-450.96	1.19	5770797.30	553776.83	S 38 12 33.048	E 147 36 51.326
1421.66	23.41	245.94	1283.87	526.96	-253.77	-461.83	1.31	5770792.35	553765.96	S 38 12 33.211	E 147 36 50.880
1451.54	21.93	245.34	1311.44	538.44	-258.52	-472.32	1.50	5770787.60	553755.48	S 38 12 33.367	E 147 36 50.450
1481.24	19.28	245.06	1339.23	548.86	-262.90	-481.81	2.68	5770783.22	553745.99	S 38 12 33.511	E 147 36 50.061
1511.19	16.74	243.33	1367.71	558.11	-266.92	-490.15	2.60	5770779.20	553737.66	S 38 12 33.644	E 147 36 49.720
1540.85	14.49	240.57	1396.28	566.09	-270.66	-497.20	2.40	5770775.46	553730.61	S 38 12 33.767	E 147 36 49.431
1570.22	12.40	236.98	1424.84	572.91	-274.19	-503.04	2.30	5770771.94	553724.77	S 38 12 33.882	E 147 36 49.192
1599.76	10.35	236.26	1453.80	578.72	-277.39	-507.91	2.09	5770768.74	553719.90	S 38 12 33.987	E 147 36 48.993
1630.16	9.46	236.73	1483.75	583.93	-280.28	-512.27	0.88	5770765.85	553715.54	S 38 12 34.082	E 147 36 48.814
1659.89	8.81	235.87	1513.10	588.63	-282.90	-516.20	0.67	5770763.24	553711.62	S 38 12 34.167	E 147 36 48.653
1689.37	8.19	235.45	1542.26	592.97	-285.35	-519.79	0.63	5770760.78	553708.02	S 38 12 34.248	E 147 36 48.506
1718.81	7.67	235.27	1571.41	597.01	-287.66	-523.14	0.53	5770758.47	553704.68	S 38 12 34.323	E 147 36 48.370
1745.67	7.36	234.18	1598.04	600.50	-289.69	-526.00	0.38	5770756.44	553701.81	S 38 12 34.390	E 147 36 48.252
Projected to TD	1766.00	7.36	1618.21	603.08	-291.21	-528.12	0.00	5770754.92	553699.70	S 38 12 34.440	E 147 36 48.166

**Survey Type:** Definitive Survey

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

**MD From ( m )**

0.00  
77.18  
134.60  
1745.67

**MD To ( m )**

77.18  
134.60  
1745.67  
1766.00

**EQU Freq**

Act-Stns  
Act-Stns  
Act-Stns  
Act-Stns

**Survey Tool Type**

SLB\_CNSG+DPIPE-Depth Only  
SLB\_CNSG+DPIPE  
SLB\_MWD-STD  
SLB\_BLIND+TREND

**Borehole -> Survey**

Wardie-1 -> Wardie-1 Final  
Wardie-1 -> Wardie-1 Final  
Wardie-1 -> Wardie-1 Final  
Wardie-1 -> Wardie-1 Final

# Wardie-1 Final EOU Report

<b>Report Date:</b> May 19, 2008	<b>Survey / DLS Computation Method:</b> Minimum Curvature / Lubinski
<b>Client:</b> 3D Oil Ltd	<b>Vertical Section Azimuth:</b> 241.150°
<b>Field:</b> Exploration	<b>Vertical Section Origin:</b> N 0.000 m, E 0.000 m
<b>Structure / Slot:</b> West Seahorse / 2	<b>TVD Reference Datum:</b> RKB
<b>Well:</b> Wardie-1	<b>TVD Reference Elevation:</b> 37.7 m relative to MSL
<b>Borehole:</b> Wardie-1	<b>Sea Bed / Ground Level Elevation:</b> -39.500 m relative to MSL
<b>UWI/API#:</b>	<b>Magnetic Declination:</b> 12.844°
<b>Survey Name / Date:</b> Wardie-1 Final / May 1, 2008	<b>Total Field Strength:</b> 59946.609 nT
<b>Tort / AHD / DDI / ERD ratio:</b> 82.133° / 608.54 m / 5.253 / 0.376	<b>Magnetic Dip:</b> -68.778°
<b>Grid Coordinate System:</b> GDA94/MGA94 Zone 55	<b>Declination Date:</b> May 01, 2008
<b>Location Lat/Long:</b> S 38 12 24.881, E 147 37 9.793	<b>Magnetic Declination Model:</b> BGGM 2007
<b>Location Grid N/E Y/X:</b> N 5771046.028 m, E 554227.625 m	<b>North Reference:</b> Grid North
<b>Grid Convergence Angle:</b> -0.38310215°	<b>Total Corr Mag North -&gt; Grid North:</b> +13.227°
<b>Grid Scale Factor:</b> 0.99963622	<b>Local Coordinates Referenced To:</b> Well Head

Comments	Measured Depth (m)	Inclination (deg)	Azimuth Grid (deg)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	DLS (deg/30 m)	Semi-Axis Major NEV (m)	Semi-Axis Minor NEV (m)	EOU Unc Vertical (m)	Major Axis Azimuth NEV (deg)	Survey Tool Model
Mud Line	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.16	0.00	90.00	SLB_CNSG+DPIPE-Depth Only
	77.50	1.96	317.71	77.48	0.31	0.98	-0.89	0.76	0.17	0.16	0.61	137.65	SLB_CNSG+DPIPE
	82.50	1.90	317.51	82.48	0.35	1.10	-1.01	0.36	0.17	0.17	0.61	137.42	SLB_CNSG+DPIPE
	87.50	1.85	317.30	87.48	0.39	1.23	-1.12	0.30	0.19	0.19	0.62	137.21	SLB_CNSG+DPIPE
	92.50	1.80	317.07	92.48	0.42	1.34	-1.22	0.30	0.21	0.21	0.63	137.03	SLB_CNSG+DPIPE
	97.50	1.74	316.83	97.47	0.46	1.45	-1.33	0.36	0.23	0.23	0.63	136.87	SLB_CNSG+DPIPE
	102.50	1.69	316.58	102.47	0.50	1.56	-1.43	0.30	0.25	0.25	0.64	136.72	SLB_CNSG+DPIPE
	107.50	1.63	316.30	107.47	0.54	1.67	-1.53	0.36	0.27	0.27	0.65	136.57	SLB_CNSG+DPIPE
	112.50	1.65	315.91	112.47	0.57	1.77	-1.63	0.14	0.28	0.28	0.66	136.37	SLB_CNSG+DPIPE
	117.50	1.78	316.62	117.47	0.61	1.88	-1.73	0.79	0.29	0.28	0.67	136.54	SLB_CNSG+DPIPE
	122.50	1.86	319.95	122.46	0.65	2.00	-1.84	0.80	0.29	0.29	0.67	137.94	SLB_CNSG+DPIPE
	127.50	1.88	323.69	127.46	0.67	2.13	-1.94	0.74	0.30	0.30	0.68	140.03	SLB_CNSG+DPIPE
	132.50	1.94	328.33	132.46	0.69	2.26	-2.03	0.99	0.32	0.32	0.69	142.37	SLB_CNSG+DPIPE
	134.60	2.03	330.59	134.56	0.69	2.33	-2.07	1.70	0.32	0.32	0.70	144.37	SLB_CNSG+DPIPE
	174.15	0.97	331.19	174.09	0.70	3.23	-2.58	0.80	0.39	0.39	0.99	146.82	SLB_MWD-STD
	202.30	1.06	330.50	202.24	0.70	3.67	-2.82	0.10	0.39	0.39	0.99	98.40	SLB_MWD-STD
	260.44	2.12	269.17	260.36	1.66	4.12	-4.16	0.96	0.41	0.41	0.99	35.23	SLB_MWD-STD
	290.09	5.23	252.00	289.94	3.47	3.69	-5.99	3.30	0.47	0.47	1.00	31.23	SLB_MWD-STD
	319.76	8.62	244.27	319.39	7.02	2.31	-9.28	3.55	0.57	0.55	1.00	7.35	SLB_MWD-STD
	349.23	11.69	243.65	348.40	12.21	0.03	-13.95	3.13	0.70	0.64	1.00	170.06	SLB_MWD-STD
	378.56	14.54	243.39	376.96	18.86	-2.94	-19.91	2.92	0.86	0.74	0.99	163.04	SLB_MWD-STD
	408.20	16.62	238.69	405.51	26.81	-6.81	-26.85	2.46	1.06	0.85	1.00	158.62	SLB_MWD-STD
	437.65	18.41	234.18	433.60	35.63	-11.72	-34.22	2.29	1.28	0.95	1.00	155.19	SLB_MWD-STD
	466.98	21.11	233.22	461.20	45.46	-17.60	-42.21	2.78	1.54	1.06	1.01	152.65	SLB_MWD-STD
	496.44	24.52	235.86	488.35	56.81	-24.21	-51.52	3.62	1.84	1.18	1.02	151.24	SLB_MWD-STD
	525.34	27.44	238.00	514.33	69.43	-31.10	-62.14	3.18	2.18	1.31	1.03	150.55	SLB_MWD-STD
	555.68	29.78	239.10	540.96	83.94	-38.68	-74.53	2.37	2.57	1.45	1.06	150.22	SLB_MWD-STD
	585.40	28.02	239.82	566.98	98.30	-45.98	-86.90	1.81	2.91	1.53	1.08	150.05	SLB_MWD-STD
	614.89	29.13	240.00	592.88	112.40	-53.05	-99.11	1.13	3.24	1.61	1.12	149.98	SLB_MWD-STD
	644.23	31.31	240.28	618.23	127.17	-60.40	-111.91	2.23	3.66	1.75	1.17	150.03	SLB_MWD-STD
	674.32	33.98	240.54	643.56	143.40	-68.41	-126.03	2.67	4.12	1.90	1.23	150.10	SLB_MWD-STD
	703.79	34.90	240.07	667.87	160.06	-76.67	-140.50	0.97	4.59	2.05	1.29	150.10	SLB_MWD-STD
	722.54	34.35	239.86	683.29	170.71	-82.00	-149.73	0.90	4.86	2.12	1.33	150.07	SLB_MWD-STD
	802.80	32.02	241.09	750.46	214.63	-103.66	-187.94	0.91	5.88	2.32	1.47	150.06	SLB_MWD-STD
	831.50	30.76	239.33	774.96	229.58	-111.08	-200.91	1.63	6.24	2.40	1.53	149.98	SLB_MWD-STD
	861.51	31.64	238.19	800.63	245.11	-119.15	-214.20	1.06	6.65	2.52	1.60	149.86	SLB_MWD-STD
	891.22	31.39	236.51	825.96	260.60	-127.53	-227.28	0.92	7.06	2.65	1.67	149.65	SLB_MWD-STD
	920.19	31.58	236.01	850.66	275.68	-135.93	-239.86	0.33	7.47	2.77	1.74	149.44	SLB_MWD-STD
	949.76	31.70	236.73	875.84	291.14	-144.52	-252.78	0.40	7.88	2.90	1.81	149.29	SLB_MWD-STD
	979.78	31.37	237.60	901.42	306.80	-153.03	-265.97	0.56	8.28	3.02	1.88	149.19	SLB_MWD-STD
	1009.21	31.56	240.47	926.53	322.15	-160.93	-279.14	1.54	8.68	3.13	1.95	149.25	SLB_MWD-STD
	1039.05	31.64	239.79	951.94	337.78	-168.72	-292.70	0.37	9.10	3.26	2.02	149.26	SLB_MWD-STD
	1066.59	31.64	241.83	975.39	352.22	-175.77	-305.31	1.17	9.48	3.38	2.09	149.37	SLB_MWD-STD
	1096.55	32.01	242.11	1000.85	368.02	-183.19	-319.25	0.40	9.91	3.51	2.17	149.48	SLB_MWD-STD
	1125.94	32.34	242.75	1025.72	383.67	-190.43	-333.13	0.48	10.34	3.65	2.25	149.62	SLB_MWD-STD
	1155.71	32.17	242.53	1050.90	399.55	-197.74	-347.24	0.21	10.77	3.78	2.33	149.72	SLB_MWD-STD
	1184.60	32.35	243.98	1075.33	414.96	-204.67	-361.01	0.83	11.17	3.90	2.40	149.88	SLB_MWD-STD

1214.81	32.18	244.06	1100.88	431.07	-211.74	-375.50	0.17	11.60	4.02	2.48	150.03	SLB_MWD-STD
1244.86	30.73	243.07	1126.51	446.73	-218.72	-389.55	1.54	12.01	4.13	2.55	150.12	SLB_MWD-STD
1274.25	29.50	243.74	1151.93	461.47	-225.32	-402.73	1.30	12.39	4.24	2.61	150.23	SLB_MWD-STD
1303.82	28.32	243.43	1177.82	475.75	-231.68	-415.53	1.21	12.75	4.34	2.67	150.32	SLB_MWD-STD
1333.24	26.97	243.84	1203.88	489.39	-237.74	-427.76	1.39	13.10	4.45	2.73	150.41	SLB_MWD-STD
1363.33	25.76	244.51	1230.84	502.73	-243.56	-439.79	1.24	13.45	4.56	2.79	150.52	SLB_MWD-STD
1392.32	24.64	245.10	1257.07	515.05	-248.82	-450.96	1.19	13.77	4.66	2.84	150.62	SLB_MWD-STD
1421.66	23.41	245.94	1283.87	526.96	-253.77	-461.83	1.31	14.07	4.76	2.89	150.74	SLB_MWD-STD
1451.54	21.93	245.34	1311.44	538.44	-258.52	-472.32	1.50	14.37	4.86	2.93	150.83	SLB_MWD-STD
1481.24	19.28	245.06	1339.23	548.86	-262.90	-481.81	2.68	14.63	4.95	2.96	150.91	SLB_MWD-STD
1511.19	16.74	243.33	1367.71	558.11	-266.92	-490.15	2.60	14.86	5.03	2.99	150.93	SLB_MWD-STD
1540.85	14.49	240.57	1396.28	566.09	-270.66	-497.20	2.40	15.06	5.10	3.02	150.91	SLB_MWD-STD
1570.22	12.40	236.98	1424.84	572.91	-274.19	-503.04	2.30	15.22	5.17	3.03	150.83	SLB_MWD-STD
1599.76	10.35	236.26	1453.80	578.72	-277.39	-507.91	2.09	15.36	5.23	3.05	150.79	SLB_MWD-STD
1630.16	9.46	236.73	1483.75	583.93	-280.28	-512.27	0.88	15.49	5.28	3.07	150.76	SLB_MWD-STD
1659.89	8.81	235.87	1513.10	588.63	-282.90	-516.20	0.67	15.60	5.33	3.08	150.72	SLB_MWD-STD
1689.37	8.19	235.45	1542.26	592.97	-285.35	-519.79	0.63	15.71	5.38	3.09	150.68	SLB_MWD-STD
1718.81	7.67	235.27	1571.41	597.01	-287.66	-523.14	0.53	15.80	5.43	3.10	150.65	SLB_MWD-STD
1745.67	7.36	234.18	1598.04	600.50	-289.69	-526.00	0.38	15.89	5.47	3.11	150.61	SLB_MWD-STD
1766.00	7.36	234.18	1618.21	603.08	-291.21	-528.12	0.00	16.25	5.70	3.16	150.35	SLB_BLIND+TREND

**Survey Type:** Definitive Survey

**NOTES:** Only depth error sources are used from surface to mud-line.

**Structure Uncertainty:** 0.00 m Included

**Slot Uncertainty:** 0.00 m Included

**Hole Diameter:** 12.25 in Included

**Global Error Sources Used:** YES

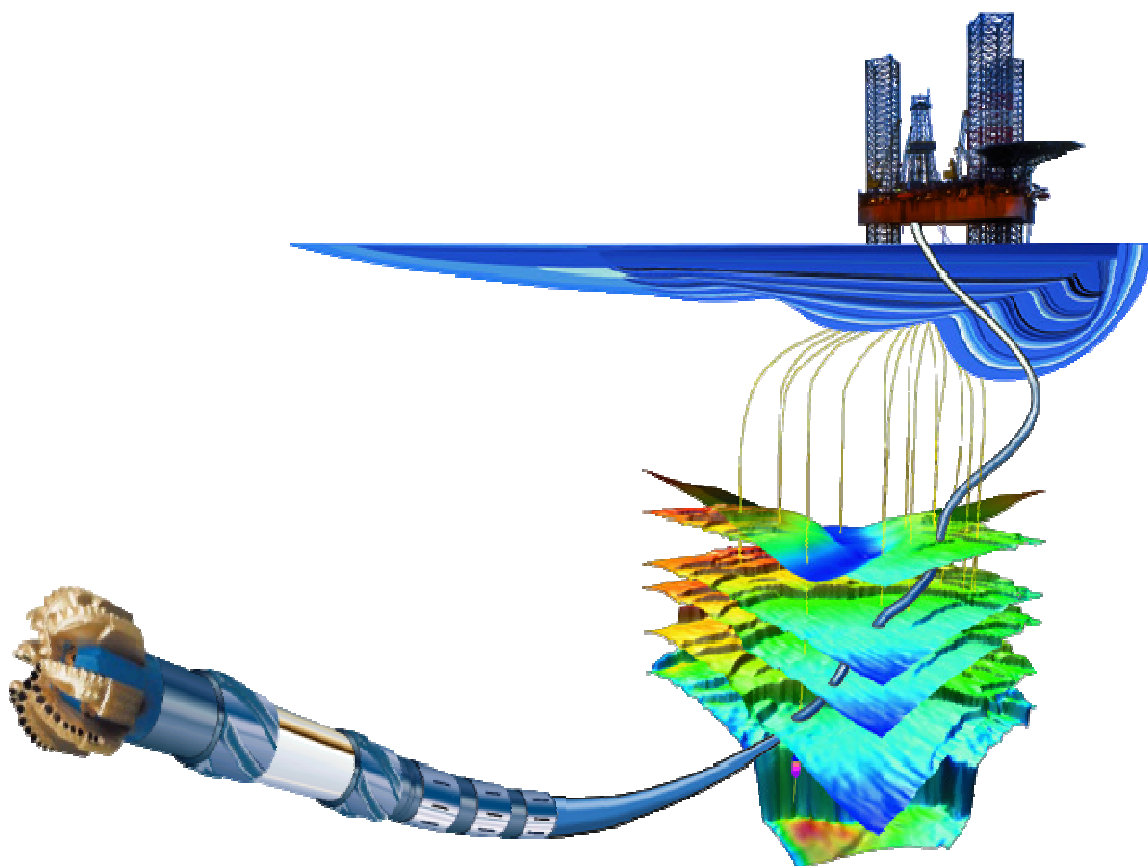
**Along-Hole Depth Uncertainty:** At survey stations

**Survey Error Model:** SLB ISCWSA version 24 \*\*\* 3-D 95.00% Confidence 2.7955 sigma

**Surveying Prog:**

MD From ( m )	MD To ( m )	EOU Freq	Survey Tool Type	Borehole -> Survey
0.00	77.18	Act-Stns	SLB_CNSG+DPIPE-Depth Only	Wardie-1 -> Wardie-1 Final
77.18	134.60	Act-Stns	SLB_CNSG+DPIPE	Wardie-1 -> Wardie-1 Final
134.60	1745.67	Act-Stns	SLB_MWD-STD	Wardie-1 -> Wardie-1 Final
1745.67	1766.00	Act-Stns	SLB_BLIND+TREND	Wardie-1 -> Wardie-1 Final

## Performance Drilling Report



**BHA 3 / Bit 2**

17 ½" (445 mm) Steerable Motor Assembly  
136m – 751m MD

**BHA**

17 ½" Hughes MXL-T1V Tooth Bit (3 x 20 jets)  
9 5/8 PowerPak Motor (5:6 lobe, 4.0 stage, 17 ¼ sleeve and 1.5° bend)  
17" String Stab  
Crossover Sub  
Float Sub  
3 x 8" Pony NMDC  
Crossover Sub  
PowerPulse MWD (800-1200 gpm)  
UBHO  
2 x 8" NMDC  
8 ¼" Spiral Drill Collars (4 joints)  
Hydraulic Jar  
8 ¼" Spiral Drill Collar (2 joints)  
Crossover Sub  
5 ½" HW Drill Pipe (12 joints)  
5 ½" Drill Pipe to Surface

**Drilling Summary**

Drilled cement and float equipment, cleaned out rat hole. This well was approximately 2.5 m from West Seahorse-3 so magnetic interference was encountered in the MWD surveys once drilling commenced. At 172m with inclination only surveys there was a high risk of collision with West Seahorse-3 so Gyro surveys were taken to confirm the actual azimuth. The Gyro surveys indicated that the well was diverging from West Seahorse-3 so the drilling commenced. At 200m no magnetic interference was encountered from the MWD surveys so these were used from this point onwards.

Rotary drilling continued to kick off point at 250m. Kick off building at 3°/30m to 32.48°m along the azimuth of 241.15° azimuth. Continue drilling tangent section to casing point @ 751m MDRT. This assembly is capable of building up to 4.8°/30m. Reactive torque was about 45° with 25 klbs WOB

No hole problems were encountered and all directional requirements were met. While tripping out of the hole the BHA got stuck at the shoe. The most likely cause was the 17" stabilizer getting stuck at the shoe. The BHA was rotated out with no resistance encountered.

**BHA 3 / Bit 2**

17 ½" (445 mm) Steerable Motor Assembly  
136m – 751m MD

**BHA**

17 ½" Hughes MXL-T1V Tooth Bit (3 x 20 jets)  
9 5/8 PowerPak Motor (5:6 lobe, 4.0 stage, 17 ¼ sleeve and 1.5° bend)  
17" String Stab  
Crossover Sub  
Float Sub  
3 x 8" Pony NMDC  
Crossover Sub  
PowerPulse MWD (800-1200 gpm)  
UBHO  
2 x 8" NMDC  
8 ¼" Spiral Drill Collars (4 joints)  
Hydraulic Jar  
8 ¼" Spiral Drill Collar (2 joints)  
Crossover Sub  
5 ½" HW Drill Pipe (12 joints)  
5 ½" Drill Pipe to Surface

**Drilling Summary**

Drilled cement and float equipment, cleaned out rat hole. This well was approximately 2.5 m from West Seahorse-3 so magnetic interference was encountered in the MWD surveys once drilling commenced. At 172m with inclination only surveys there was a high risk of collision with West Seahorse-3 so Gyro surveys were taken to confirm the actual well azimuth. The Gyro surveys indicated that the well was diverging from West Seahorse-3 so drilling resumed. At 200m no further magnetic interference was encountered in the MWD surveys so these were used from this point onwards.

Rotary drilling continued to kick off point at 250m. Kicked off building at 3°/30m to 32.48°m along an azimuth of 241.15°. Continue drilling tangent section to casing point at 751m MDRT. This assembly is capable of building inclination up to 4.8°/30m. Reactive torque was about 45° with 25 klbs WOB

No hole problems were encountered and all directional requirements were met. While tripping out of the hole the BHA got stuck at the shoe. The most likely cause was the 17" stabilizer getting hung up at the shoe. The BHA was pumped and rotated past the shoe with no further resistance encountered once inside the casing and the BHA was pulled to surface.



### Drilling Performance

Interval	Distance (m)	Time (hrs)	ROP (m/hr)
Total Drilled	615	6.7	91.79
Total Drilled in rotary	353	3.76	93.88
Total Drilled in slide mode	262	2.94	89.12
Bit Graded	1-1-NO-A-E-I-NO-TD (61 krevs)		

### Section Breakdown

Section	Rotary m (%)	Slide m (%)
Start of run to KOP (136-250m)	125 (100%)	-
KOP to EOC (250-574m)	105 (32%)	219 (68%)
EOC to section TD (574-751m)	134 (76%)	43 (24%)



**BHA 4 / Bit 3**

12 ¼" (311 mm) Rotary Steerable Assembly  
751m – 1766 m MD (1015m)

**BHA**

12 ¼" Reed Hycalog RSX616 MA 16 PDC Bit (3 x 15 & 3 x 16 jets)  
PowerDrive 900 X5 (without flow restrictor)  
PowerDrive 900 Receiver (with ported float) and Flex Collar  
8 ¼" GVR  
PowerPulse MWD (600-1200 gpm)  
1 x 8" NMDC  
8 ¼" Spiral Drill Collars  
Hydraulic Jar  
8 ¼" Spiral Drill Collar  
Crossover Sub  
5 ½" HW Drill Pipe (12 joints)  
5 ½" Drill Pipe to Surface

**Drilling Summary**

After drilling out cement and float equipment, three meters of new formation was drilled and a formation integrity test was performed.

Once out of the shoe the PowerDrive assembly had a dropping tendency in neutral steering mode of around 0.8°/30m. The tangent section of the well profile was drilled in inclination hold mode and increasing the right azimuth steering percentage accordingly to follow the planned well trajectory. The drilling parameters were adjusted to maintain a rate of penetration of around 115 m/hr.

In the previous well (West Seahorse-3) it was initially difficult to achieve the required drop rate so the drop section in this well was started deliberately at 1208m, 90m ahead of plan to allow for a lower drop rate than the plan. Drop rates of 1.16°/30m to 1.45°/30 m for the first 243m were achieved when the tool was set at 25% steering ratio and 180° tool face. It was later altered accordingly to increase the drop and turn rates. The rate of penetration was held back to 30 m/hr from 1522m onwards for logging purposes.

Once the drop was achieved the PowerDrive was placed in Inclination Hold mode for the remainder of the tangent section to TD at 1766m MDRT. Both geological targets were successfully penetrated within the allowable tolerances.

Moderate stick-slip was observed for most of the run but it did not affect the steering ability. A few hard drilling intervals were encountered and higher stick slip and torque variance was experienced. While tripping out sticky hole sections were encountered all the way up to the 13 3/8" shoe. The BHA was washed and back reamed through these sections and a subsequent wiper trip to TD point was performed.

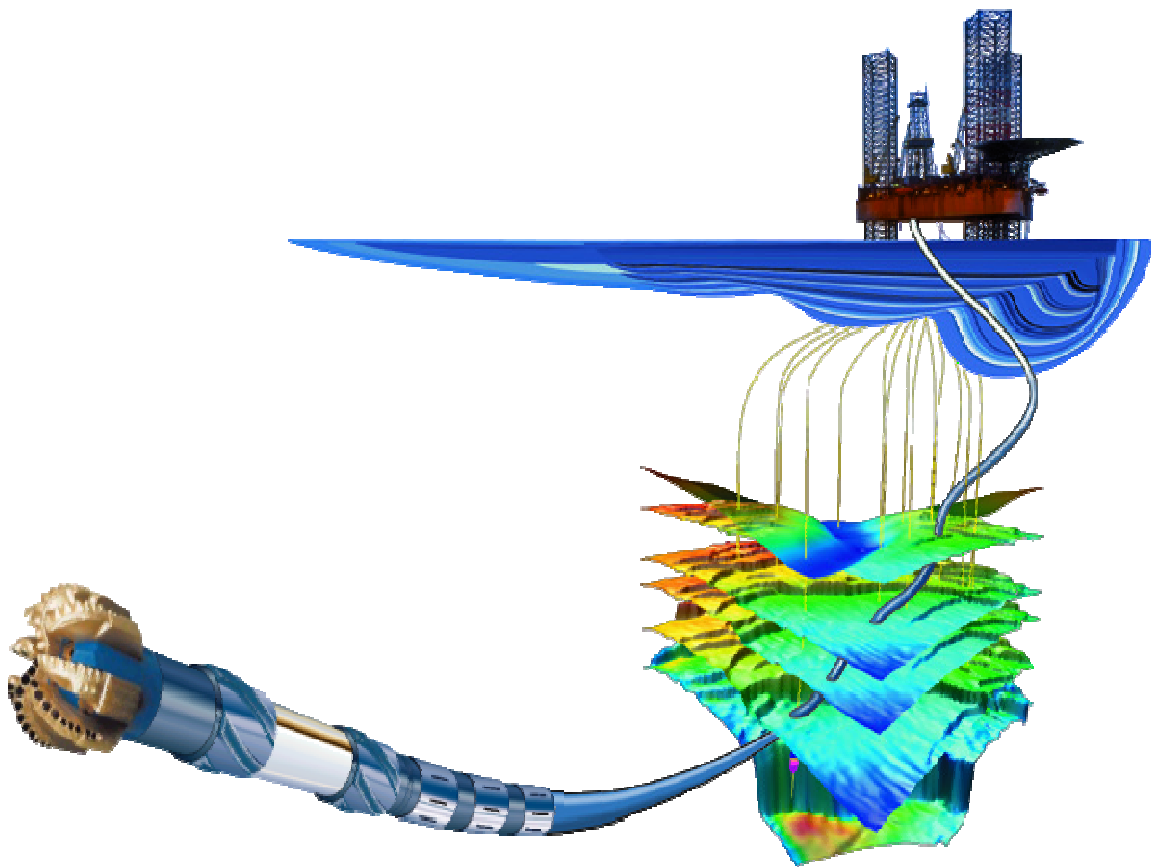
The bit was graded as 3-3-WT-A-X-I-CT-TD.



**Drilling Performance;**

Interval	Distance (m)	Time (hrs)	ROP (m/hr)
Rotary mode	1015	19.40	52.32

## BHA Reports



## BHA Data Sheet

## 3D Oil Ltd - Wardie-1

<b>BHA #</b>	17 1/2" Motor BHA
<b>Field</b>	3D Oil - West Seahorse
<b>Structure</b>	West Seahorse

<b>Date</b>	May 13, 2008
<b>Well</b>	Wardie-1
<b>Borehole</b>	Wardie-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	Hughes Christense	6065891		8.75	17.50		0.41	0.41
		MXL T1V			3.75		7.63 Reg Pin		
2	PowerPak Motor (1.5 deg)	Schlumberger	5659		9.63	17.25	7.63 Reg Box	10.10	10.51
		A962M5640XP			7.88		7.63 Reg Box		
3	17" String Stab	Schlumberger	OSS061172A		9.50	17.00	7.63 Reg Pin	2.42	12.93
					3.00		7.63 Reg Box		
4	Crossover	Seadrill	SSD7124	8.00	9.50	9.50	7.63 Reg Pin	1.23	14.16
				0.62	3.00		6.63 Reg Box		
5	Float Sub	Schlumberger	ASQ 8037		8.00	8.00	6.63 Reg Pin	0.80	14.96
					2.88		6.63 Reg Box		
6	8" Pony NMDC	Schlumberger	7505		7.94	7.94	6.63 Reg Pin	2.45	17.41
					2.88		6.63 Reg Box		
7	8" Pony NMDC	Schlumberger	ASQ 8020		8.00	8.00	6.63 Reg Pin	3.00	20.41
					2.88		6.63 Reg Box		
8	8" Pony NMDC	Schlumberger	9504216		7.88	7.88	6.63 Reg Pin	1.55	21.96
					2.81		6.63 Reg Box		
9	Cross over sub	Schlumberger	42755		8.50	8.50	6.63 Reg Pin	0.47	22.43
					2.88		6.63 FH Box		
10	PowerPulse HF MWD	Schlumberger	VA77		8.25	8.25	6.63 FH Pin	8.49	30.92
		PowerPulse HF			5.90		6.63 Reg Box		
11	UBHO Sub	Schlumberger	S50991-3		8.00	8.00	6.63 Reg Pin	0.86	31.78
					2.25		6.63 Reg Box		
12	8" NMDC	Schlumberger	N688		8.00	8.00	6.63 Reg Pin	8.65	40.43
					2.81		6.63 Reg Box		
13	8" NMDC	Schlumberger	SBD 5555		8.25	8.25	6.63 Reg Pin	9.45	49.88
					3.25		6.63 Reg Box		
14	8" Collar (4 joints)	Seadrill			8.00	8.00	6.63 Reg Pin	37.63	87.51
					2.81		6.63 Reg Box		
15	Hydraulic Jar	Dailey Petroleum S	1762-1339		8.00	8.00	6.63 Reg Pin	9.68	97.19
		HDL-100			3.00		6.63 Reg Box		
16	8" Collar (2 joints)	Seadrill			8.00	8.00	6.63 Reg Pin	18.89	116.08
					2.81		6.63 Reg Box		
17	Crossover	Seadrill	SSD 7131		8.25	8.25	6.63 Reg Pin	1.22	117.30
					2.81		5.50 XT57 Box		
18	5 1/2" HWDP (12 joints)	Seadrill			5.50	7.00	5.50 XT57 Pin	112.71	230.01
					3.25		5.50 XT57 Box		
19	5-1/2 " 24.70 DPS, 10% Wear				5.42	7.00	5.50 XT57 Pin	to surface	
					4.67		5.50 XT57 Box		
						<b>Total Weight (lbf)</b>	79895	<b>Total Len.</b>	230.01
						<b>Below Jar (lbf)</b>	44528.9		

<b>BHA Comments:</b>	

Stabilizer	
Blade Length (m)	Mid-Pt. To Bit (m)
0.46	1.13
0.60	11.54
Bent Housing Angle (deg)	Bend To Bottom Connection (m)
1.50	2.78

Sensor	
Type	Distance To Bit (m)
D&I	26.56

Bit Nozzles	
Count	Size(1/32 in)
3	20.00
<b>TFA (in2)</b>	0.92
Quality Control	
Created By:	PSellathurai
Checked By:	

**3D Oil Ltd  
Wardie-1  
West Seahorse  
3D Oil - West Seahorse  
Wardie-1  
17 1/2" Motor BHA**

**BHA DESCRIPTION**

ELEMENT	LENGTH (m)	OD (in)	ID (in)	MAX OD (in)
17 1/2 " Bit	0.41	17.50	3.75	17.50
PowerPak Motor (1.5 deg)	10.10	9.63	7.88	17.25
17" String Stab	2.42	9.50	3.00	17.00
Crossover	1.23	9.50	3.00	9.50
Float Sub	0.80	8.00	2.88	8.00
8" Pony NMDC	2.45	7.94	2.88	7.94
8" Pony NMDC	3.00	8.00	2.88	8.00
8" Pony NMDC	1.55	7.88	2.81	7.88
Cross over sub	0.47	8.50	2.88	8.50
PowerPulse HF MWD	8.49	8.25	5.90	8.25
UBHO Sub	0.86	8.00	2.25	8.00
8" NMDC	8.65	8.00	2.81	8.00
8" NMDC	9.45	8.25	3.25	8.25
8" Collar (4 joints)	37.63	8.00	2.81	8.00
Hydraulic Jar	9.68	8.00	3.00	8.00
8" Collar (2 joints)	18.89	8.00	2.81	8.00
Crossover	1.22	8.25	2.81	8.25
5 1/2" HWDP (12 joints)	112.71	5.50	3.25	7.00
5-1/2 " 24.70 DPS, 10% We to surface	5.42	4.67		7.00

**DRILLING OVERVIEW**

Drilled cement and float equipment, cleaned out rat hole. Rotary drilled to kick off point at 250m. Kick off building at 3°/30m to 32.48°m along the azimuth of 241.15° azimuth. Continue drilling tangent section to casing point @ 751m MDDF. This assembly is capable of building up to 4.8°/30m.

Depth in:	136.00 m	Depth out:	751.00 m
Inclination in:	0.97°	To:	34.35°
Direction in:	331.19°	To:	239.86°
Total Drilled	615.00 m	Dogleg:	3.0

**Schlumberger**

Quality Control

Created by: PSellathurai Date:

14/05/2008

Checked by: Date:

## 3D Oil Ltd - Wardie-1

<b>BHA #</b>	12 1/4" RSS/LWD BHA
<b>Field</b>	3D Oil - West Seahorse
<b>Structure</b>	West Seahorse

<b>Date</b>	May 16, 2008
<b>Well</b>	Wardie-1
<b>Borehole</b>	Wardie-1

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BHA Comments:	

<b>Stabilizer</b>	
<b>Blade Length (m)</b>	<b>Mid-Pt. To Bit (m)</b>
0.20	5.27
	<b>Bend To Bottom</b>
<b>Bent Housing Angle (deg)</b>	<b>Connection (m)</b>



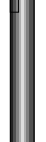
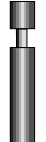
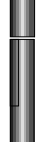
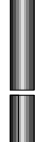
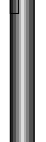



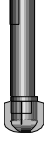


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Bit Nozzles	
Count	Size(1/32 in)
3	15.00
3	16.00
TFA (in2)	1.11

Quality Control	
Created By:	PSellathurai
Checked By:	

**3D Oil Ltd  
Wardie-1  
West Seahorse  
3D Oil - West Seahorse  
Wardie-1  
12 1/4" RSS/LWD BHA**

	Cum. Len. (m)
 5-1/2 " 24.70 DPS, 10% Wear	173.33
 5 1/2" HWDP (12 joints)	173.33
 Crossover	60.49
 1x 8" Collar	59.27
 Hydraulic Jar	49.83
 1 x 8" Collar	40.15
 8" NMDC	30.70
 PowerPulse HF	22.05
 GVR-8	13.56
 PD900 Flex Collar	9.34
 PD900 Receiver w/float	6.39
 PD 900 AA 12 1/4"	4.52
 12 1/4 " PDC Bit	0.30

#### BHA DESCRIPTION

ELEMENT	LENGTH (m)	OD (in)	ID (in)	MAX OD (in)
12 1/4 " PDC Bit	0.30	12.25	3.25	12.25
PD 900 AA 12 1/4"	4.22	9.25	3.00	11.80
PD900 Receiver w/float	1.87	9.50	6.00	9.50
PD900 Flex Collar	2.95	8.25	5.00	8.25
GVR-8	4.22	8.25	3.90	12.13
PowerPulse HF	8.49	8.25	5.90	8.49
8" NMDC	8.65	8.00	2.81	8.00
1 x 8" Collar	9.45	8.00	2.81	8.00
Hydraulic Jar	9.68	8.00	3.00	8.00
1x 8" Collar	9.44	8.00	2.81	8.00
Crossover	1.22	8.00	2.81	8.00
5 1/2" HWDP (12 joints)	112.84	5.50	3.25	7.00
5-1/2 " 24.70 DPS, 10% We to surface	5.42	4.67	7.00	

Bit to RAB Gamma Ray Sensor = 10.51 m  
 Bit to RAB Resistivity Sensor = 11.15 m  
 Bit to Direction & Inclination Sensor = 2.67 m

#### DRILLING OVERVIEW

This assembly had a dropping tendency in neutral steering mode of around 0.8°/30m. Drop rates of 1.16°/30m to 1.45°/30 m for the first 243m were achieved when the tool was set at 180°/25% setting, and around 2.7°/30m with 162°L/75% setting.

Depth in:	751.00 m	Depth out:	1766.00 m
Inclination in:	32.02°	To:	7.36°
Direction in:	241.09°	To:	234.18°
Total Drilled	1015.00 m	Dogleg:	0.2 to 2.7

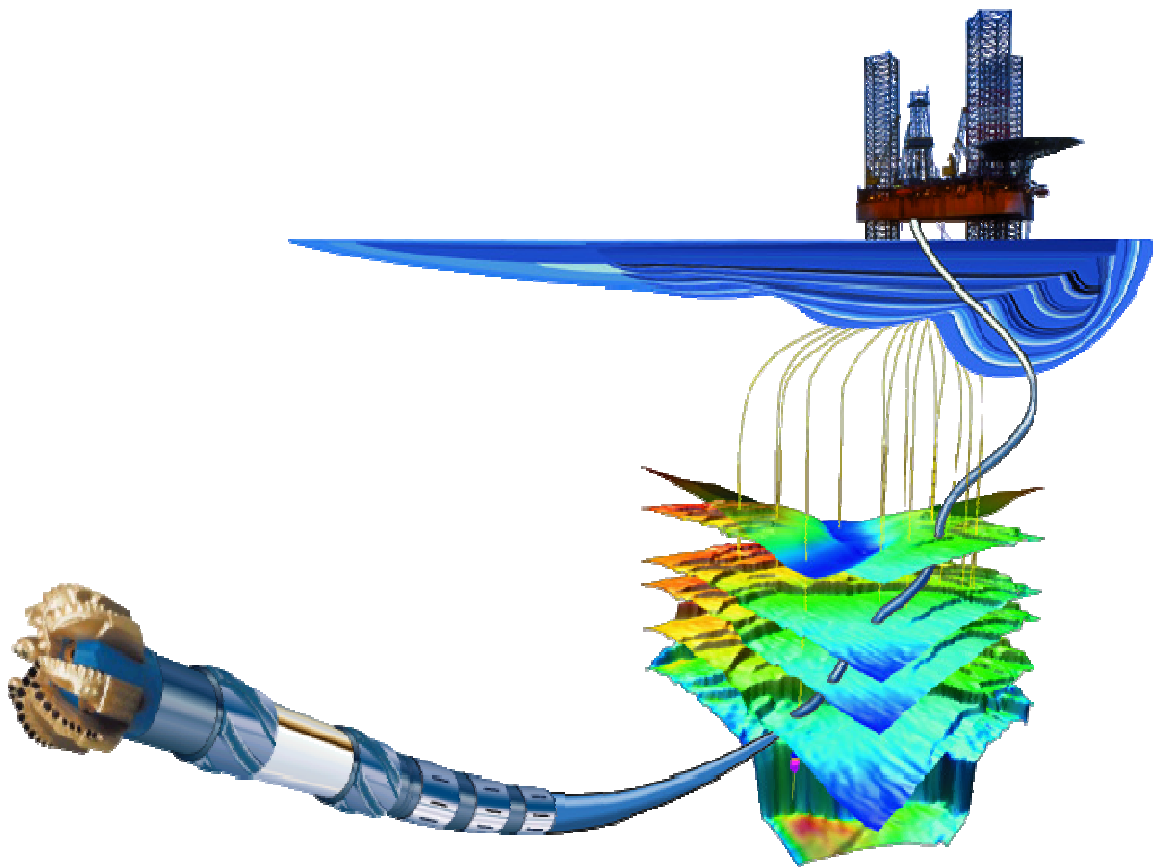
**Schlumberger**

Quality Control

Created by: PSellathurai Date: 17/05/2008

Checked by: Date:

## Drilling Parameter Sheets





WELL#	Wardie-1	DATE:	12-May-08	Depth In :	136.0 m MD	Pump Output: 5.850 Gal / stk	Planned Angle : 32.5°	Page 1 of 2
BHA #	2	BIT#	2	BHA : 17 1/2" Bit, PowerPak Motor (1.5 deg), 17" String Stab, XO, Float Sub, 3x8" Pony NMDC, XO, PowerPulse, UBHO, 2x8" NMDC, 4x8" DC's, Hydraulic Jar, 2x8" DC, XO, 12x5 1/2" HWDP, DP to surface				
SURVEY SPACING = 25.56 m MD				Last Casing : 20" @132.8mRT		DLS 1=°/100Ft, 2=°/30Mts, 3=°/10Mts: 2		

R / S	DRILLING TIME			Motor Work Sheet				Tool Face	SURVEY	INCL	AZM	TENDENCY °/30mts			STK /	FLOW	Surf	Motor	WOB	TORQ	ROP (m/hr)	PRESSURE		REMARKS
	START	STOP	SUM	FROM	TO	Meters Rotated	Meters Slide		DEPTH			B / D	TR	Dogleg	MIN	RATE	RPM	RPM				Off Bottom	On Bottom	
R	22:40	23:00	0:20	132	133	1			115.00	1.69	-				103	603	30	66	2-6	2-3	3	625	650	Tag cement at 131.8m
R	23:00	23:04	0:04	133	144	11			142.70	1.03	-				103	603	60	66	0-2	2-3	165	625	650	
R	23:33	23:38	0:05	144	155	11									103	603	60	66	1-3	1-3	132	625	650	
R	23:38	0:02	0:24	155	172	17									160	936	63	103	0-2	2-3	43	1,475	1,500	Mid night depth
R	2:24	2:54	0:30	172	201	29			174.15	0.97	331.19	-0.80	0.46	0.80	154	901	60	99	1-3	2-3	58	1,400	1,525	Took Gyro survey to confirm azimuth
R	3:04	3:26	0:22	201	230	29			202.30	1.06	330.50	0.10	-0.74	0.10	154	901	60	99	1-10	1-3	79	1,425	1,450	125 klbs rot. Wt.
R	3:38	3:53	0:15	230	250	20									154	901	60	99	6-7	1-3	80	1,450	1,475	
S	3:56	4:04	0:08	250	259		9	220M							154	901	-	99	3-4	-	68	1,450	1,500	PUwt 123, SOwt 122
S	4:15	4:30	0:15	259	284		25	240M	260.44	2.12	269.17	0.55	-31.65	0.96	154	901	-	99	3-6	-	100	1,425	1,500	
R	4:30	4:34	0:04	284	288	4									154	901	45	99	9	1-3	60	1,425	1,475	PUwt 126, SOwt 125
S	4:54	5:08	0:14	288	313		25	230M	290.09	5.23	252.00	3.15	-17.37	3.30	154	901	-	99	6-8	-	107	1,450	1,500	PUwt 131, SOwt 126
R	5:08	5:11	0:03	313	318	5									154	901	45	99	6-8	1-3	100	1,450	1,500	
S	5:23	5:34	0:11	318	338		20	10L	319.76	8.62	244.27	3.43	-7.82	3.55	188	1100	-	121	6-11	-	109	2,125	2,200	
R	5:34	5:42	0:08	338	347	9									188	1100	45	121	8-11	1-2	68	2,150	2,250	PUwt 134, SOwt 127, Rot wt 130
S	5:55	6:00	0:05	347	365		18	10R	349.23	11.69	243.65	3.13	-0.63	3.13	188	1100		121	12-15		216	2,150	2,300	
R	6:00	6:07	0:07	365	377	12									188	1100	45	121	20	1-3	103	2,150	2,300	PUwt 138, SOwt 132, Rot wt 131
S	6:20	6:25	0:05	377	391		14	30L	378.56	14.54	243.39	2.92	-0.27	2.92	188	1100		121	18-20		168	2,150	2,350	
R	6:25	6:35	0:10	391	406	15									188	1100	45	121	18-20	1-3	90	2,150	2,350	PUwt 137, SOwt 128, Rot wt 131
S	6:50	6:55	0:05	406	420		14	55L	408.20	16.62	238.69	2.11	-4.76	2.46	188	1100		121	18-20		168	2,150	2,350	
R	6:55	7:05	0:10	420	436	16									188	1100	45	121	20	1-3	96	2,150	2,350	
S	7:15	7:25	0:10	436	452		16	30L	437.65	18.41	234.18	1.82	-4.59	2.29	188	1100		121	18		96	2,150	2,350	
R	7:25	7:35	0:10	452	465	13									188	1100	45	121	20	1-3	78	2,200	2,350	PUwt 142, SOwt 130, Rot wt 135
S	7:45	8:00	0:15	465	485		20	HS	466.98	21.11	233.22	2.76	-0.98	2.78	188	1100		121	23		80	2,200	2,375	
R	8:00	8:10	0:10	485	494	9									188	1100	45	121	23	1-5	54	2,200	2,375	PUwt 145, SOwt 131, Rot wt 137
S	8:20	8:32	0:12	494	514		20	10R	496.44	24.52	235.86	3.47	2.69	3.62	188	1100		121	20		100	2,200	2,375	
R	8:32	8:37	0:05	514	524	10									188	1100	45	121	20	1-5	120	2,200	2,375	PUwt 146, SOwt 130, Rot wt 137
S	8:45	9:00	0:15	524	542		18	10R	525.34	27.44	238.00	3.03	2.22	3.18	188	1100		121	18		72	2,200	2,375	
R	9:00	9:05	0:05	542	554	12									188	1100	45	121	20	1-5	144	2,275	2,375	PUwt 148, SOwt 130, Rot wt 138

TIME BREAKDOWN: (for new formation only)										
Rotated Time :		<u>2.87</u>	Meters Rotated :		<u>223</u>	Rotating ROP:		77.8	m/hr	
Slide Time :		<u>1.92</u>	Meters Slide :		<u>199</u>	Sliding ROP:		103.8	m/hr	
Total Time :		4.78	Meters Drilled :		422	Average ROP:		88.2	m/hr	

WELL#	Wardie-1	DATE:	13-May-08	Depth In :	136.0 m MD	Pump Output:	5.850 Gal / stk	Planned Angle :	32.5°	Page 2 of 2
BHA #	2	BIT#	2	BHA :	17 1/2" Bit, PowerPak Motor (1.5 deg), 17" String Stab, XO, Float Sub, 3x8" Pony NMDC, XO, PowerPulse, UBHO, 2x8" NMDC, 4x8" DC's, Hydraulic Jar, 2x8" DC, XO, 12x5 1/2" HWDP, DP to surface	Motor Speed:	0.11 Rev / Gal	Planned Direction :	241.2°	
SURVEY SPACING =		25.56	m MD	Last Casing : 20" @132.8mRT		DLS 1=°/100Ft, 2=°/30Mts, 3=°/10Mts:		2		

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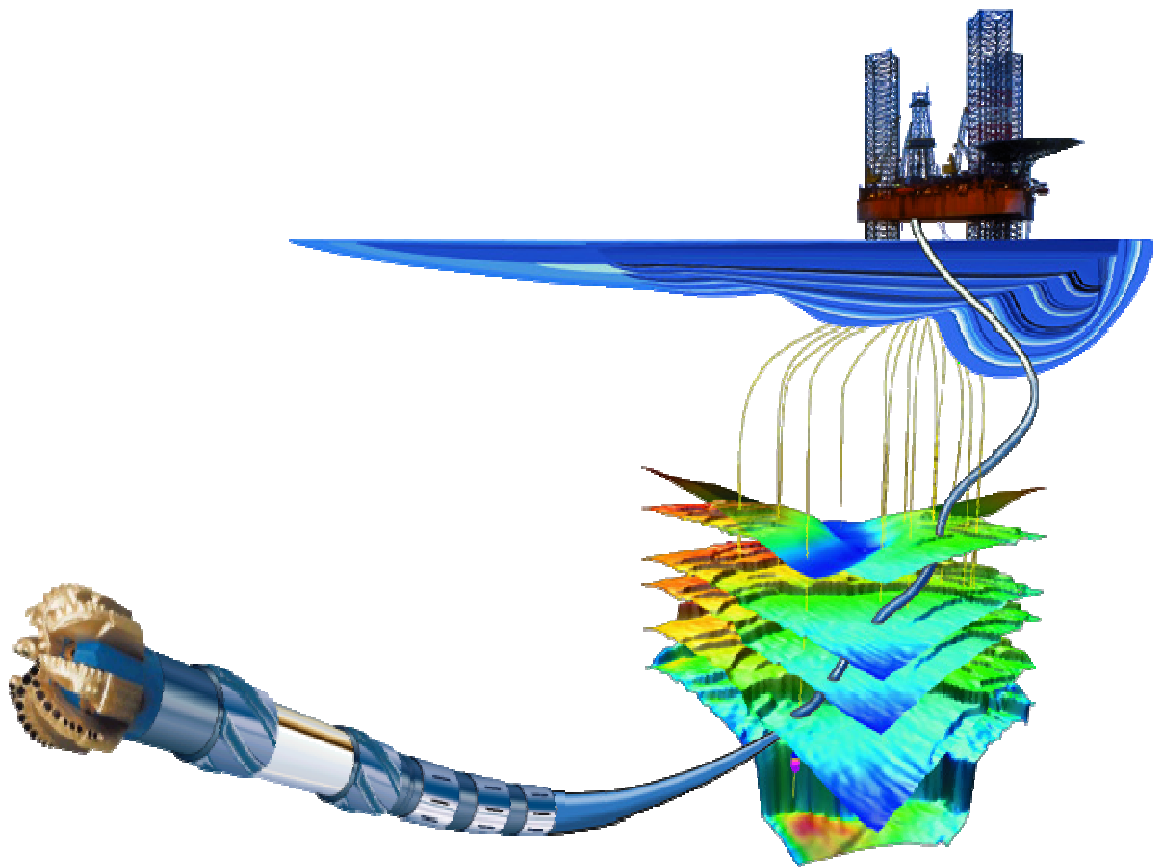
TIME BREAKDOWN: (for new formation only)		
Rotated Time : <u>1.80</u>	Meters Rotated : <u>134</u>	Rotating ROP: 74.4 m/hr
Slide Time : <u>1.02</u>	Meters Slide : <u>63</u>	Sliding ROP: 62.0 m/hr
Total Time : 2.82	Meters Drilled : 197	Average ROP: 69.9 m/hr

WELL#	Wardie-1	DATE:	16-May-08	Depth In :	751.0 m MD	Pump Output:	5.850 Gal / stk	Planned Angle :	32.5°	Page 1 of 3															
BHA #	4	BIT # 3	12.25	BHA : 12 1/4" PDC Bit, PD 900, Receiver, 6 5/8" In Line Flex, XO, GVR8, PowerPulse MWD, 8 1/4" NMDC, 8" Collar, Hydraulic Jar, 8" collar, 12 x 5 1/2" HWDP, DP to surface							Planned Direction :		241.2°												
WD SURVEY SPACING =			17.68 m	Last Casing : 13 3/8" @ 747 m			DLS 1=°/100Ft, 2=°/30Mts, 3=°/10Mts:			2															
PD SURVEY SPACING =			2.67 m																						
	DRILLING TIME			RSS Work Sheet			Des	Steer	SURVEY			TENDENCY °/30mts			STK /	FLOW	Surf					ROP	PRESSURE		REMARKS
R / S	START	STOP	SUM	FROM	TO	Dist	T/F	%	DEPTH	INCL	AZM	B / D	TR	Dogleg	MIN	RATE	RPM		WOB	TORQ	(m/hr)	Off Bottom	On Bottom		
R	18:45				719		0	0							174	1018	0		0			1,450			
R	19:13	19:18	0:05	719	733	14									174	1018	80		3		168	1,450	1,450	SOwt 119, PUwt 148, wash down and tag cement at 719m	
R	21:30	22:30	1:00	733	734	1									173	1012	90		5-10	1-3	1	1,425	1,425	Float at 732.5m	
R	22:30	1:22	2:52	734	747	13									156	913	60-80		15-25	1-6	5	1,325	1,325	Spinning on plug, start to vary drilling parameters	
R	1:22	1:25	0:03	747	751	4									156	913	80		0	1-6	80	1,100	1,100	Shoe at 747m, start displace mud at 744m	
R	1:40	1:48	0:08	751	754	3									172	1006	80		5	1-6	23	1,225	1,225	Clean out rat hole (17th May)	
R	4:03	4:19	0:16	754	762	8									172	1006	80		10	1-9	30	1,300	1,300	Drill out 3m new formation for FIT	
R	4:36	5:12	0:36	762	792	30									180	1053	100		10	1-9	50	1,425	1,425	P/U 143; S/O 116; ROT 133	
R	5:28	5:57	0:29	792	821	29			802.80	32.02	241.09	-0.87	0.46	0.91	180	1053	150		10	6-11	60	1,450	1,450	P/U 150; S/O 118; ROT 131	
R	6:15	6:31	0:16	821	836	15			831.50	30.76	239.33	-1.32	-1.84	1.63	180	1053	150		7-10	6-11	56	1,475	1,475	D/L to GTF mode. P/U 154; S/O 120; ROT 131	
R	6:31	6:40	0:09	836	841	5	0	IH							180	1053	150		7-10	6-11	33	1,475	1,475	D/L to Inc. Hold	
R	6:40	6:50	0:10	841	849	8									180	1053	150		7-10	6-11	48	1,475	1,475	Inc. Hold	
R	7:10	7:25	0:15	849	867	18			861.51	31.64	238.19	0.88	-1.14	1.06	180	1053	150		7-10	6-11	72	1,500	1,500	D/L to Nudge 0.5 deg in inc	
R	7:25	7:35	0:10	867	879	12									180	1053	150		18	6-11	72	1,500	1,500		
R	7:47	8:13	0:26	879	909	30			891.22	31.39	236.51	-0.25	-1.70	0.92	180	1053	150		20	10-16	69	1,500	1,500	P/U 161; S/O 122; ROT 136	
R	8:29	8:49	0:20	909	920	11	50R	IH							180	1053	150		20	10-16	33	1,500	1,500	Stick slip with 25k . Reduce Wt to 20	
R	8:49	9:09	0:20	920	937	17			920.19	31.58	236.01	0.20	-0.52	0.33	180	1053	160		20-25	10-16	51	1,500	1,500	P/U 164; S/O 124; ROT 140	
R	9:24	9:41	0:17	937	967	30			949.76	31.70	236.73	0.12	0.73	0.40	180	1053	160		20-25	10-16	106	1,500	1,500	P/U 170; S/O 124; ROT 140	
R	9:59	10:22	0:23	967	997	30			979.78	31.37	237.60	-0.33	0.87	0.56	180	1053	160		20-25	10-16	78	1,500	1,500	P/U 170; S/O 124; ROT 140	
R	10:45	10:57	0:12	997	1009	12									180	1053	170		20-25	10-16	60	1,500	1,500	D/L to Nudge 0.5 deg in inc	
R	10:57	11:09	0:12	1009	1027	18			1009.21	31.56	240.47	0.19	2.93	1.54	180	1053	170		20-25	10-16	90	1,600	1,600	Nudge 0.5 deg in Inc	
R	11:23	11:36	0:13	1027	1057	30			1039.05	31.64	239.79	0.08	-0.68	0.37	180	1053	170		20-25	10-16	138	1,600	1,600	B/R 6 m b4 CONN.. Check P/U. P/U 181, S/O 127;ROT 143	
R	11:57	12:18	0:21	1057	1086	29			1066.59	31.64	241.83		2.22	1.17	180	1053	170		20-25	10-16	83	1,600	1,600	SCR P/U 181, S/O 128;ROT 148	
R	13:07	13:25	0:18	1086	1115	29			1096.55	32.01	242.11	0.37	0.28	0.40	180	1053	170		20-25	10-16	97	1,600	1,600	P/U 184, S/O 128;ROT 152	
R	13:52	14:05	0:13	1115	1125	10									180	1053	170		20-25	10-16	46	1,650	1,650		
R	14:05	14:22	0:17	1125	1144	19	25R	IH	1125.94	32.34	242.75	0.34	0.65	0.48	180	1053	170		20-25	10-16	67	1,650	1,650		
R	14:40	15:03	0:23	1144	1173	29			1155.71	32.17	242.53	-0.17	-0.22	0.21	180	1053	170		20-25	10-16	76	1,650	1,650	P/U 187, S/O 127;ROT 152	
R	15:20	15:35	0:15	1173	1203	30			1184.60	32.35	243.98	0.19	1.51	0.83	180	1053	170		20-25	10-16	120	1,650	1,650		
TIME BREAKDOWN: (for new formation only)																									
Rotated Time : 6.65 Meters Rotated : 452 Rotating ROP: 68.0 m/hr																									
Total Time : 6.65 Meters Drilled : 452 Average ROP: 68.0 m/hr																									



[illegible]

## Drilling Tool Run Reports



Job Number: 08ASQ0006  
Company Rep: Shaughan Corless  
Run Number: 1  
Company: 3D OIL  
Location: MEA-APG-ASQ

Rig Name: West Triton  
Well Name: Wardie-1

Run Information

Date In		Date Out		Drilling Distance:	615.00 m	Drilling Hours:	7.60 hrs
12-May-2008	7:30PM	13-May-2008	10:30PM	Rotary Drilling Distance:	353.00 m	Rotary Drilling Hrs:	3.76 hrs
Depth (MD):	133.0 m	to	751.0 m	Sliding Distance:	262.00 m	Sliding Hours:	2.94 hrs
Depth (TVD):	133.0 m	to	706.8 m	Reaming Distance:	0.00 m	Reaming Hours:	0.00 hrs
Inclination:	0.00 deg	to	34.35 deg			Hrs Below Rotary:	27.00 hrs
Azimuth:	0.00 deg	to	239.86 deg			Total Pumping Hrs:	11.90 hrs
Hole Size:	17.50 in					Min DLS:	0.10 deg/30 m
Last Casing Size:	20.000 in			North Ref Used:	Grid North	Max DLS:	3.68 deg/30 m
Last Casing Depth:	132.8 m	(MD)		Magnetic Dec:	12.844 deg	Max DLS Depth:	496.4 m
Tool Face Arc:	40.0 cm			Grid Correction:	-0.383 deg	Surface Screen:	No
Total Face Angle:	213.33 deg			Total Correction:	13.227 deg	DFS Used:	No
				Est. Mag. Int:	0.63 deg	Inline Filter:	No

Rig Information

Rig Type:	Jack Up	Pump Type:	Triplex
Water Depth:	39.50 m	Pulse Damp Press:	800 psi
Air Gap:	15.10 m	Number of Pumps:	3
RKB Height:	38.00 m	Pump Line ID:	6.50 in
Ground Elevation:	-39.50 m	Pump Output:	5.85 galUS/stroke
		Pump Stroke Len:	14.00 in

Run Objective

Drill the well directionally and get the right build rate.

D&M Crew List:

Cell Manager: Anagh Kohli  
Crew: San thida Aung, MWD  
Patrick Dassens, DD  
Anagh Kohli, Cell Manager  
Punniamoorthy Sellathurai, DD

DH Motor Information

Manufacturer:	D&M	Bit to Bend Dist:	m
Motor Type:	PowerPak	Bearing Play In:	0.11 in
Motor Size:		Bearing Play Out:	in
Serial No.:	5659	Bent Sub Angle:	deg
Lobe Config:	5:6	Bent HSG Angle:	1.5003 deg
Stage Length:	m		
Rubber:			
Sleeve Position:			
Sleeve Size:	17.25 in		
Bearing Type:	Mud Lubricated		

RSS Information

RSS Manufacturer:	
RSS Type:	
RSS SN:	
RSS Size:	
Pulse Ht Threshold:	
Min Pulse Width:	
Max Pulse Width:	
Conn Phase Angle:	deg
Rise Time Const:	
Fall Time Const:	
Digit Time:	

MWD Configuration

Mod Type:	QPSK	Int Tool Face Offset:	deg	Bit Rate:	6 bps	Slimpulse Pulser Config:	
Mod Gap:	0.12500 in	Turbine Config:	600-1200 galUS/min	Frequency:	12 Hz	Pred Sig Strength @ TD:	psi
SPT Type:	HA						

Drilling Parameters

**Job Number:** 08ASQ0006

**Company:** 3D OIL

**Rig Name:** West Triton

**Company Rep:** Shaughan Corless

**Location:** MEA-APG-ASQ

**Well Name:** Wardie-1

**Run Number:** 1

	<b>Min</b>	<b>Max</b>	<b>Avg</b>
BH Temperature:	19.60 degC	23.00 degC	21.20 degC
Surface RPM:	0.00 rpm	59.00 rpm	34.67 rpm
ROP:	18.88 m/hr	104.00 m/hr	80.92 m/hr
Surface Torque:	1.00 kft.lbf	1.00 kft.lbf	1.00 kft.lbf
Flow Rate:	894.00 galUS/min	1,128.00 galUS/min	1,040.67 galUS/min
WOB Sliding:	25.00 klbm	25.00 klbm	25.00 klbm

Total DH Shocks (k):	0 k
Max Shock Level:	0
Max Shock Duration:	0 sec
Checkshot Type:	
Checkshot Depth:	m
Checkshot Incl:	deg
Checkshot Azim:	deg

Average Pump Pressure: 1506psi

H2S In Well: No

Turbine RPM @ Min Flow Rate: 3,085 rpm

Min Flow Rate: 894.00galUS/min

SPP Off Bottom: 1,573.00 psi

Turbine RPM @ Max Flow Rate: 3,984 rpm

Max Flow Rate: 1,128.00galUS/min

SPP On Bottom: 1,592.00 psi

### Mud Information

Mud Type:	Water Base	Mud Clean:	Yes	pH:	9.50
Mud Company:	Baroid Fluid Services	LCM Type:		Chlorides:	ppm
Mud Brand:	Sea water with PHG sweeps	LCM Size:		Sand Content:	%
Funnel Viscosity:	100.00 s/qt	LCM Concentration:	lbs/bbl	Solids:	2.80 %
Plastic Viscosity:	24.00 cp	Weighting Material:	Bentonite	Percent Oil:	%
Yield Point:	103.00 lbm/100ft2	Mud Weight:	8.84 lbm/galUS		
Mud Resistivity:	ohm-m				

### IADC Bit Grading

Manufacturer: Hughes Christensen

Total Revs: 61,000.00

IADC Code: 115

Model: MXL T1V

Stick/Slip: 0

Jets ( / 32 in): 3X20

Type: Milltooth

Reason Pulled: Total Depth/Casing Depth

Bit TFA: 0.92 in2

Inner Row	Outer Row	Dull Char	Location	Bearings/Seals	Gauge	Other Chars
1.00	1.00	NO	A	E	I	NO

### End of Run - Summary

Sync Hours:	8.26 hrs	Downhole Noise:	No	Run Failed:	No
Jamming:	No 0.00 hrs	Surface System Failure:	No	D&M Trip:	No
Surface Vibration:	No	Surface Noise:	No	Low Oil Flag:	No 0.00 hrs
Trans Fail:	No	H2S in Well:	No	Filter Screen/Plug Shear:	No

**Client Inconvenience:** No Lost Time: hrs

Reason for POOH: Total Depth/Casing Depth

**D&M Run Obj Met? [DD and MWD/LWD]:** No

### Brief Run Summary:

**If not, why?:**

Run started with hookload problems. After adjusting the slips threshold and recalibrating the hookload things worked fine. Surveys were taken every stand. Just after coming out from casing we encountered magnetic interference and gyro surveys were run. Signal was good throughout the run and well was satisfactorily drilled to sectional TD. Minimal stick and slip was encountered with no major shocks.



Job Number:

08ASQ0006

Company Rep:

Shaughan Corless

Run Number:

1

Company:

3D OIL

Location:

MEA-APG-ASQ

Rig Name:

West Triton

Well Name:

Wardie-1

Equipment on the Run

Equipment	Pump Hours		Software Version	Tool Size
	Start	Cumulative		
A962M-5659	36.90 hrs	48.80 hrs		9.63 in
FS800-ASQ8037	36.90 hrs	48.80 hrs		8.00 in
MDC-DE-VA77	78.38 hrs	90.28 hrs		8.25 in
MSSB-JB-42755	36.90 hrs	48.80 hrs		8.50 in
NMDC800L-N688	36.90 hrs	48.80 hrs		8.00 in
NMDC800S-7505	36.90 hrs	48.80 hrs		8.00 in
NMDC800S-9504216	36.90 hrs	48.80 hrs		8.00 in
NMDC800S-ASQ8020	36.90 hrs	48.80 hrs		8.00 in
NMDC825L-SBD5555	36.90 hrs	48.80 hrs		8.00 in
SZSS-IBSP-17A-OSS 061172A	36.90 hrs	48.80 hrs		9.50 in

Services on the Run

Equipment	Service	Tool Name	Real Time			Recorded Mode			CAF
			Hours	Failed	Depth	Hours	Failed	Depth	
MWD	Shock and Vibration	TeleScope	11.90 hrs		615.0 m	27.00 hrs		615.0 m	
MWD	Cont D&I	TeleScope	11.90 hrs		615.0 m	hrs			
MWD	D&I	TeleScope	11.90 hrs		615.0 m	27.00 hrs		615.0 m	
MOTORS	PowerPak	PowerPak	11.90 hrs		615.0 m	hrs			



**Job Number:** 08ASQ0006

**Company Rep:** Shaughan Corless

**Run Number:** 1

**Company:** 3D OIL

**Location:** MEA-APG-ASQ

**BHA Type:** Steerable Motor

**Rig Name:** West Triton

**Well Name:** Wardie-1

Item	Description	Vendor	Tool Name	Serial Number	Length	OD	ID	Fishing Neck		Stab	Bottom Connection		Top Connection		Cumul Len
								OD	Len, m	OD	Size	Type	Size	Type	
1	BIT	Hughes Christensen	Milltooth	606589	0.41 m	17.50	3.75						7 5/8"	REG PIN	0.41 m
2	MOTORS	D&M	PowerPak	5659	10.10 m	9.63	7.88				7 5/8"	REG BOX	7 5/8"	REG BOX	10.51 m
3	STABILIZER	D&M		OSS 061172A	2.42 m	9.50	3.00				6 5/8"	REG PIN	6 5/8"	REG BOX	12.93 m
4	MONEL	D&M		7505	7.94 m	8.00					6 5/8"	REG PIN	6 5/8"	REG BOX	20.87 m
5	MONEL	D&M		ASQ8020	3.00 m	8.00	2.88				6 5/8"	REG PIN	6 5/8"	REG BOX	23.87 m
6	MONEL	D&M		9504216	1.55 m	8.00	2.81				6 5/8"	REG PIN	6 5/8"	FH BOX	25.42 m
7	CROSSOVER	D&M		42755	0.47 m	8.50	2.88				6 5/8"	FH PIN	6 5/8"	REG BOX	25.89 m
8	MWD	D&M	TeleScope	VA77	8.49 m	8.25	5.90				6 5/8"	FH PIN	6 5/8"	REG BOX	34.38 m
9	SUB	D&M		S50991-3	0.86 m	8.00	2.25				6 5/8"	REG PIN	6 5/8"	REG BOX	35.24 m
10	MONEL	D&M		N688	8.65 m	8.00	2.81				6 5/8"	REG PIN	6 5/8"	REG BOX	43.89 m
11	MONEL	D&M		SBD5555	9.45 m	8.00	3.25				6 5/8"	REG PIN	6 5/8"	REG BOX	53.34 m

Predicted BHA Tendency:

Hookload Out:

Pickup Out:

Slack Weight:

65,000

Wt Below Jars:

Wt Above Jars:

Total Air Wt:

49,110

Stab Description	Mid Pt to Bit	Blade			Gauge			Bit to Read Out Port			Bit to Measurement Port		
		Type	Len	Width	Len	In	Out						
								MWD-TeleScope	24.20	m	TeleScope-D&I	26.56	m
								MOTORS-PowerPak					

**Job Number:** 08ASQ0006  
**Company Rep:** Shaughan Corless  
**Run Number:** 1

**Company:** 3D OIL  
**Location:** MEA-APG-ASQ

**Rig Name:** West Triton  
**Well Name:** Wardie-1

Date/Time	Depth		Description
12-May-2008 12:13AM	170.0	m	prepare to run Gyro because the new well is very close to with the previous one
12-May-2008 10:01PM	0.0	m	Picking up BHA @ 5pm
12-May-2008 11:00PM	133.0	m	Start drilling with bad signal , low flow rate
12-May-2008 11:59PM	145.7	m	Drilling with pump 1 -57 spm and pump2 -46 spm with good signal, manual input @76 mMD ( mud line)
13-May-2008 2:39AM	179.0	m	Drilling ahead, after running the Gyro, the difference between the azimuth of Gyro and D&I is 6 Deg
13-May-2008 3:14AM	213.0	m	Drilling ahead with good signal
13-May-2008 4:03AM	258.0	m	Sliding @ 3:53am, total flow rate 894,
13-May-2008 4:28AM			
13-May-2008 7:38AM	465.0	m	Sliding first 10-15m of each stand.
13-May-2008 9:28AM	573.0	m	Drill Ahead with corrective slides
13-May-2008 9:49AM	583.0	m	Circualting for hole cleaning
13-May-2008 10:18AM	605.0	m	End of corrective slides, rotating full stands now, BHA has a dropping tendency, will slide on the next stand.
13-May-2008 11:43AM	671.0	m	Drilling ahead with corrective slides. ROp ~ 100m/hr, WOB 15-25, 1100 gpm
13-May-2008 2:12PM	751.0	m	TD called
13-May-2008 3:12PM	749.0	m	Circulating at the bottom



Drilling Parameters Report

14-May-2008

10:03:43AM

Job Number:

08ASQ0006

Company Rep:

Shaughan Corless

Run Number:

1

Company:

3D OIL

Location:

MEA-APG-ASQ

Rig Name:

West Triton

Well Name:

Wardie-1

	13-May-2008 12:03 PM	13-May-2008 7:27 AM	13-May-2008 2:55 AM
Field Engineer	Anagh Kohli	Anagh Kohli	San thida Aung
Depth	676.00 m	452.00 m	214.00 m
Avg ROP	26.22 m/hr	26.22 m/hr	26.22 m/hr
On Bottom ROP	83.69 m/hr	83.69 m/hr	83.69 m/hr
Flow Rate	1,128.00 galUS/min	1,100.00 galUS/min	894.00 galUS/min
Turbine RPM	3,984 rpm	3,828 rpm	3,085 rpm
Surface RPM		45 rpm	59 rpm
WOB Rotating		15.00 klbm	
WOB Sliding	25.00 klbm		
DH WOB			
Surface Torque		1.00 kft.lbf	
DH Torque			
Hookload	142 klbm	131 klbm	
PickUp Weight		139.00 klbm	
Slack Weight		135.00 klbm	
Friction			
SPP On Bottom	2,550.00 psi	2,350.00 psi	1,592.00 psi
SPP Off Bottom	2,400.00 psi	2,200.00 psi	1,573.00 psi
Diff Pressure	150 psi	150 psi	19 psi
BH Temperature	23.00 degC	21.00 degC	19.60 degC
Total Shocks (k)			
Max Shock Level			
Max Shock Duration			
Torsional Vib			
Lateral Vib	1	1	
Axial Vib			
CRPM		45 rpm	45 rpm
Stick/Slip		23	
Formation	Limestone	Limestone	Limestone
Signal Strength	12.30 psi	11.00 psi	29.00 psi
Percent Signal Conf	79 %	84 %	84 %

**Job Number:** 08ASQ0006  
**Company Rep:** Shaughan Corless  
**Run No:** 1

**Company:** 3D OIL  
**Location:** MEA-APG-ASQ

**Rig Name:** West Triton  
**Well Name:** Wardie-1

			Depth in m		IADC Activity	Description
From	To	Elapsed	From	To		
<b><u>12-May-2008</u></b>						
00:00	02:00	2.00	0.0	0.0	Run casing / cement	Level up CTU and install ico conductor Clamp
02:00	05:00	3.00	0.0	0.0	Run casing / cement	rig down 30" handline equipment, dress 30"conductor
05:00	12:30	7.50	0.0	0.0	PU / LD BHA / Tripping	RIH on cementing stiner, washdown last 10m
12:30	16:30	4.00	0.0	0.0	Run casing / cement	Level up ctu and install icon conductor clamp
16:30	22:30	6.00	0.0	0.0	PU / LD BHA / Tripping	service top drive and clear rig floor, pick up 17.5" BHA. Bit below the rotary table @ 19:30
22:30	23:59	1.48	133.0	161.0	Drilling	Drill 17.5" hole from 132.87m to 161 m,
<b><u>13-May-2008</u></b>						
00:00	02:30	2.50	161.0	161.0	Survey	Running Gyro surveys
02:30	03:00	0.50	161.0	213.0	Drilling	Drill Ahead
03:00	07:00	4.00	213.0	450.0	Drilling	Drilling Ahead with corrective slides
07:00	08:30	1.50	450.0	500.0	Drilling	Drill Ahead with corrective slides
08:30	09:40	1.17	500.0	584.0	Drilling	Drilling Ahead with corrective slides
09:40	10:00	0.33	584.0	584.0	Circulate / Condition mud	Circulate hole clean
10:00	10:30	0.50	584.0	613.0	Drilling	End of corrective slides
10:30	12:00	1.50	613.0	678.0	Drilling	Drill Ahead with corrective slides
12:00	14:00	2.00	678.0	751.0	Drilling	Drill to TD
14:00	15:30	1.50	751.0	751.0	Circulate / Condition mud	Circulate at bottom
15:30	23:30	8.00	751.0	751.0	Reaming / Hole opener / Unc	Pooh from 751m to 117m , and @ 18:30 Rack back drill pipe and break BHA

DOWN-HOLE MOTOR RUN REPORT

RUN N° 1 Motor Size 9 5/8" Serial No 5659 Measurements are in m

Company 3D Oil Ltd. Well Wardie-1 Slot n/a Field Wildcat / exploration  
Location Bass Strait, Gippsland Basin Country Australia  
Operator Australian Drilling Associates Rig Seadrill - West Triton Engineer Moorthy/Patrick Date 13-May-08

Bit Size 17 1/2 Make Hughes Christensen Type MXL T4V IADC 1-1-5 Jets 3 x 20 TFA 0.910  
IADC CUTTING STRUCTURE  
Inner Row 1 Outer Row 1 Bull Char' NO Location A Brg/Seals E Gauge 1 Others NO Reason for Trip TD

Motor Made By Schlumberger Size 9 5/8" Model / Type A962M5640XP Rot/Stat, Stages 5/6 4.0 Serial No 5659 Hsg Stab OD 17 1/4" °Bent Hsg 1.5 °Bent Sub nil  
Type 1 = Straight; 2 = Steerable; 3 = Double Bend 2 Rotor S/N° 5224 Stator S/N° 6230  
Drig Cmt, W/Ream 0.50 Drig Hrs 6.70 Circ Hrs 4.70 Total Motor Circ Hrs 11.90

Purpose of Run Drilled cement and float equipment, cleaned out rat hole. Rotary drilled to kick off point at 250m. Kick off building at 3°/30m to 32.48°m along the azimuth of 241.15° azimuth. Continue drilling tangent section to casing point @ 750m MDDF.

- BHA#  
17 1/2" Bit  
PowerPak Motor (1.5 deg)  
17" String Stab  
Crossover  
Float Sub  
3x8" Pony NMDC  
Cross over sub  
PowerPulse HF MWD  
UBHO  
2x8" NMDC  
8" Collar (4 joints)  
Hydraulic Jar  
8" Collar (2 joints)  
Crossover  
5 1/2" HWD (12 joints)  
5-1/2" DP

Depth In 136.00 Depth Out 751.00 Inter'l Drld 615.00  
Date In 12-May-08 Date Out 13-May-08 Inter'l ROP 91.79  
Time In 19:30 Time Out 23:30 Time BRT 28.00 hrs

Surveys MD IN 174.15 Incln 0.97 Azim 331.19  
MD OUT 722.54 Incln 34.35 Azim 239.86

Flow Rate Off Bttm Press On Bttm Press RPM WOB  
GPM PSI PSI Surface KLbs  
1150 2400 2575 45-100 1-25

Mud Type Seawater - Bentonite Mud Wt Mud Grad' n/a Vis  
PV Filtrate n/a % Solids pH  
YP % Oil/Water n/a % Sand Circ Temp 23 deg C

FAILURE? No Slide (m) 262 Previous Hrs 36.9 Cumulative Hrs 48.80

Remarks / Failure Report.  
Reason for POOH : TD hole section Failure : Category = -  
Did Motor Stall? No No Slide Rty 0 0  
Bearing Play In 3.0 mm Out 5.0 mm Condition

Rev 3: Please do not make any changes to this form !!!

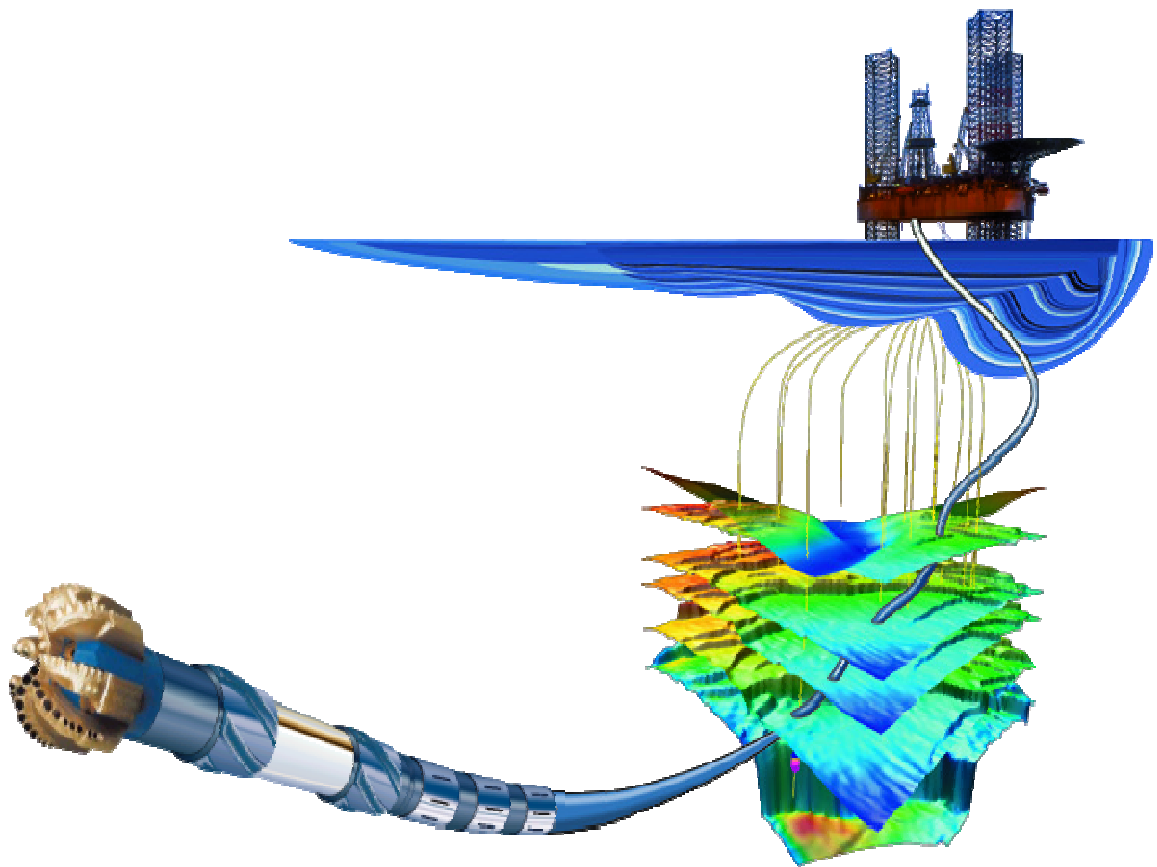
JOB NUMBER <b>08ASQ00x</b>	COMPANY REP. <b>Shaughan Corless</b>	DATE IN <b>16-May-08</b>	DATE OUT <b>19-May-08</b>	PowerDrive Run # <b>1</b>	MWD Run # <b>2</b>	Rig Bit Run # <b>4</b>	PD Engineer <b>Moorthy / Pat</b>
CLIENT <b>3D Oil Ltd</b>		Hole Depth - FROM <b>751.0 m MD</b>		TO <b>1766.0 m MD</b>		Flex/ILF SN (ft/m) <b>51767</b>	Xtra Receiver # <b>49245</b>
RIG NAME <b>Seadrill - West Triton</b>		Inclination - FROM <b>32.02 deg</b>		TO <b>7.36 deg</b>		Control Collar # <b>50245</b>	Ext Sub # <b>51368</b>
WELL NAME <b>Wardie-1</b>		Azimuth - FROM <b>241.09 deg</b>		TO <b>234.18 deg</b>		Bit Mfg <b>Reed</b>	Bit Type <b>RSX616-A16</b>
LOCATION <b>Bass Strait</b>		Hole Size <b>12 1/4"</b>		Bit to D&I <b>17.68 m</b>	Bit to PD D&I <b>2.67 m</b>	Dull Grade - IADC Cutting Structure <b>3-3-WT-A-X-I-CT-TD</b>	
Map file name <b>n/a (fast downlink)</b>	Mag Dec / Grid Cor / Total Corr. <b>+ 12.844 - 0.383 13.227</b>	Connector Phase Angle <b>120</b>		Downlink response ? <b>Good</b>		On Bottom Hours <b>19.40</b>	Last Casing size/wt / depth <b>13 3/8' 747 m</b>
Bit to Bottom of BU Pad <b>0.60 m</b>	Bit to Midpoint of Stab <b>3.67 m</b>	Flex Lgth <b>2.95 m</b>	WOB MIN / MAX <b>3 25</b>	Ave. RPM <b>150</b>	Ave. WOB <b>12</b>	Off Bottom Circulating Hours <b>25.50</b>	ft / M Drilled this run <b>1015.0</b>
PD MIN/MAX	Initial / Final Battery Voltage <b>3.8</b>	RPM MIN / MAX <b>100 170</b>	MWD Min/Max Flow Rating <b>600 1200</b>	Below Rotary Table Hours <b>82.50</b>		PD ft/M Drilled (Operating) <b>1015.0</b>	
Pulse Width MIN/MAX <b>n/a</b>	Pulse height thre <b>n/a</b>	Digit Time <b>18 sec</b>	Actual Flow MIN / MAX <b>900 1075</b>	Pump Output / Type <b>5.85 Triplex</b>	PowerDrive Operating Hours <b>44.90</b>	On Btm ROP <b>52.3</b>	Ave ROP <b>52.3</b>
Tool Response			Stab gauge before/after run <b>12 1/8" 12 1/8"</b>		Run Objective Maintain tangent of 32.5 degrees then drop to 9 degrees		
SOFTWARE VERSION							
TSIM <b>AC</b>	Comms mod <b>CMF523H15</b>	Sensor mod <b>SMV507RN</b>	MWD <b>9.2C02</b>	IDEAL <b>13_0c_08</b>	Reason for POOH <b>TD well</b>		

Bit Hydraulics Calculations				PowerDrive Serial No.		PUMP HOURS		Motor Run Information	
Enter data in blue areas				PART	PFX	SN	START	CUM	Motor type
Pump Flow <b>1075</b>	Bit Nozzle Size and TFA			Control Unit	CU	303	0.00	44.90	N/A
Mud Weight <b>9.3</b>	Nozzle	/ 32	TFA	Control Collar	CC	50245	0.00	44.90	N/A
Bit Diameter <b>12.25</b>	1	15	0.173	Ext Sub	ES	51368	0.00	44.90	N/A
Bit Flow <b>1058</b>	2	15	0.173	Bias Unit	BU	51550	0.00	44.90	N/A
Bit Pressure Drop <b>782</b>	3	15	0.173	Flex/ILF	PD9RX-AA	51767	39.20	84.10	N/A
Hydraulic HP <b>483</b>	4	16	0.196	Xtra Receiver		49245	39.20	84.10	N/A
HSI <b>4.1</b>	5	16	0.196	Upper Torquer		49846	39.20	84.10	N/A
Impact Press. <b>1414</b>	6	16	0.196	Lower Torquer		34624	39.20	84.10	N/A
Note: Rock compressive strength should be greater than the Impact Pressure.	7			Comms Module		730	39.20	84.10	N/A
	8								N/A
	9								N/A
	10								N/A
Bit TFA = <b>1.107</b>				Downward Telemetry Calculations					
Flow Restrictor Pressure Drop				Enter data in the blue areas					
Nozzle size (32nd)	TFA	Press. Drop		Digit Time	<b>18</b>		secs		Mud Company
				Falling Time Constant (FTC)	<b>n/a</b>		secs		Mud Type
Total Pressure Drop Below PowerDrive				Rising Time Constant (RTC)	<b>n/a</b>		secs		MW at start of run
<b>782 psi</b>				Driller's Pulse - High / Low	<b>1075 983</b>				MW at end of run
Note: If the box above is red, the total pressure drop below the PowerDrive is not in the optimal range for pad operation. Confirm restrictor and bit nozzle selection is correct such that the total pressure drop below the PowerDrive is between 500 psi an				Driller's Pulse Height	<b>n/a</b>		%		Funnel Viscosity
				Pulse Amplitude	<b>n/a</b>		%		Plastic Viscosity
				Minimum Recoverable Pulse	<b>n/a</b>		%		Yield Point
				Minimum Threshold	<b>n/a</b>		%		Maximum DH Temp. deg C
								Soild %	
								Baroid	
								KCL Polymer	
								8.9 ppg	
								9.3 ppg	
								58 sec	
								13	
								30	
								50°C	
								0.50 %	
								4.60 %	

## Run Summary

This assembly had a dropping tendency in neutral steering mode of around 0.8°/30m. Drop rates of 1.16°/30m to 1.45°/30 m for the first 243m were achieved when the tool was set at 180°/25% setting, and around 2.7°/30m with 162°L/75% setting. Downlinks with a 9% flow reduction were readily accepted. Found fragment (5cm long) of a plastic container cap trapped in the float when tools were above rotary table.

## Drill Bit Gradings





# ROCK BIT GRADING CHART

## BIT RUN DATA # 2

Bit Size:	17 1/2"
Manufacturer:	Hughes Christensen
Bit Type:	MXL-T1V
Serial Number:	6065891
New Bit:	Yes
IADC Code:	1-1-5
Number of Nozzles:	3
Size of Nozzles:	3 x 20
T.F.A. (sq. in.):	0.91
W.O.B. :	1-25
Depth Out:	751m
Depth In:	136m
Meters Drilled:	615m
Drilling Hours:	6.70

## WELL DATA

Date:	13-May-08
Drilling Supervisor:	Shaughan Corless
Platform:	West Triton
Well Number:	Wardie-1
Rig Contractor:	Seadrill
Final Hole Angle:	34.35°
Date in:	12-May-08
Date Out:	13/5/2008
BHA #	2

## MUD AND LITHOLOGY DATA

Majority Formation:	Limestone
Other Formation:	
% Formation:	
Mud Type:	Seawater - Bentonite
Mud Weight:	
PV:	
YP:	
% Solids:	
% Oil / Water:	
Circulating Temperature (deg c):	

COMMENTS:

## IADC ROCK BIT GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
1	1	NO	A	E	I	NO	TD

## GRADING CHART AS PER IADC NOMENCLATURE

CUTTING STRUCTURE				Cone		REMARKS	
INNER ROWS	OUTER ROWS	DULL CHAR.	LOCATION	BEARING / SEALS	GAUGE	OTHER CHAR.	REASON PULLED
(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)

(A) Inner cutting structure = all inner rows. (A) Outer cutting structure = gauge row only.

In columns 1 and 2 (A), a linear scale from 0 to 8 is used to describe the condition of the cutting structure according to the following -

Steel Tooth Bits - A measure of lost tooth height due to abrasion and or damage. 0 = No loss of tooth height, 8 = total loss of tooth height.

Insert Bits - A measure of total cutting structure reduction due to lost, worn and broken inserts. 0 = As new, 8 = all inserts lost, worn and / or broken.

(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 Cutters
ER	Erosion
FC	Flat Crested Wear
HC	Heat Checking
JD	Junk Damage
LC *	Lost Cone
LN	Lost Nozzle
LT	Lost Teeth / Cutters
OC	Off-Center Wear
PB	Pinched Bit
PN	Plugged Nozzle / Flow Passage
RG	Rounded Gauge
RO	Ring Out
SD	Shirrtail Damage
SS	Self-Sharpening Wear
TR	Tracking
WO	Washed Out Bit
WT	Worn Teeth / Cutters
NO	No Dull Characteristics

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

(D)	
NON - SEALED BEARINGS	
A linear scale estimating bearing life.	
0 - No life used,	
8 - No bearing life remaining.	
SEALED BEARINGS	
E - Effective bearings	
F - Failed Bearings	

(E)	
In - In gauge, 1 - 1/16", 2 - 2/16", 3 - 3/16" UG etc	

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

\* Show cone number or numbers under location (C).

## PDC GRADING CHART

### BIT RUN DATA # 4

Bit Size:	311mm (12 1/4")
Manufacturer:	Reed
Bit Model:	RSX616-A16
Serial Number:	218629
New Bit:	Yes
IADC Code:	M422
Number of Nozzles:	6
Size of Nozzles:	3 x 15 3 x 16
Number of Blades:	6
Number of Cutters:	59
Size of Cutters:	16,13
T.F.A. ( sq ins ):	1.110
W.O.B. :	3-25 Klfs
Depth In:	751.0 m
Depth Out:	1766.0 m
Meters Drilled:	1015.0 m
Rotating Hours:	hrs
Metres Rotary:	1015.00 m
On bottom hours:	19.40 hrs
Average R.O.P:	52.32 m/hr
Circulation Rate:	GPM
R.P.M. at Bit:	120-170 rpm
Motor Used:	No
Motor Size:	N/a
Bit Good for Rerun:	NO

### WELL DATA

Date:	19-May-08
Drilling Supervisor:	Shaughan Corless
Rig:	West Triton
Well Number:	Wardie-1
Rig Contractor:	Seadrill
Hole Angle:	33.00°
Date in:	16-May-08
Date Out:	19-May-08
SLB BHA #	2

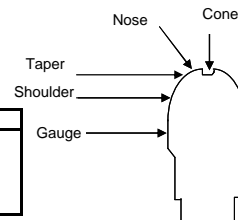
### MUD AND LITHOLOGY DATA

Majority Formation:	Sand stone
Other Formation:	Silt stone
% Formation:	N/A
Mud Type:	KCL Polymer
Mud Weight:	9.32 ppg
PV:	13
YP:	30
Corrected solid:	4.60
% Oil / Water:	N/A
Circulating Temperature:	50°C

COMMENTS:

### PDC GRADING

(A)	(A)	(B)	(C)	(D)	(E)	(B)	(F)
3	3	WT	A	X	I	CT	TD



### PDC 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)	BT	Broken Cutters
	BU	Balled Up
	CR	Cored
	CT	Chipped Cutters
	ER	Erosion
	HC	Heat Checking
	JD	Junk Damage
	LN	Lost Nozzle
	LT	Lost Cutters
	OC	Off-Center Wear
	PN	Plugged Nozzle/ Waterway Passage
	RG	Rounded Gauge
	RO	Ring Out
	WO	Washed Out - Bit
	WT	Worn Cutters
	NO	Bit is Green
	IM	Impact
	DEL	Delamination
	SPL	Spalling
	BF	Bond Failure

(C)	C	Cone
	N	Nose
	T	Taper
	S	Shoulder
	G	Gauge
	A	All Angles

(D)	X	Fixed Cutter Bits
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(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
	TQ	Torque
	TW	Twist-Off
	WC	Weather Conditions
	WO	Washout/Drill String