

30-045-32426



Schlumberger

McCulley LS 4S ST1 Final Surveys Report

Report Date: January 17, 2005 Client: BP America Inc. Field: NM, San Juan County (NAD 83 WZ) 2004 Structure / Slot: BP 14E-28N-9W / McCulley LS 4S - API# 30-045-32426 Well: McCulley LS 4S - API# 30-045-32426 Borehole: Sidetrack 1 UWI/API#: Survey Name / Date: McCulley LS 4S ST1 Final Surveys / December 9, 2004 Tort / AHD / DDI / ERD ratio: 57.813" / 1152.80 ft / 4.874 / 0.484 Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet Location Lat/Long: N 36 39 55.000, W 107 45 50.000 Location Grid N/E Y/X: N 2061481.762 RUS, E 2743458.551 RUS Grid Convergence Angle: +0.04146801" Grid Scale Factor: 0.99991714	Survey / DLS Computation Method: Minimum Curvature / Lubinski Vertical Section Azimuth: 54.000° Vertical Section Origin: N 0.000 ft, E 0.000 ft TVD Reference Datum: RKB TVD Reference Elevation: 5909.0 ft relative to MSL Sea Bed / Ground Level Elevation: 5896.000 ft relative to MSL Magnetic Declination: 10.711° Total Field Strength: 51360.208 nT Magnetic Dip: 63.574° Declination Date: December 09, 2004 Magnetic Declination Model: BGGM 2004 North Reference: Grid North Total Corr Mag North -> Grid North: +10.670° Local Coordinates Referenced To: Well Head
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Comments	Measured Depth (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	Vertical Section (ft)	NS (ft)	EW (ft)	DLS (deg/100 ft)	Northing (ftUS)	Easting (ftUS)	Latitude	Longitude
Surface	0.00	0.00	135.82	0.00	0.00	0.00	0.00	0.00	2061481.76	2743458.55	N 36 39 55.000	W 107 45 50.000
Begin SLB MWD Surveys	164.00	0.83	135.82	163.99	0.17	-0.85	0.83	0.51	2061480.91	2743459.38	N 36 39 54.992	W 107 45 49.990
	225.00	1.75	76.49	224.98	1.09	-0.95	2.04	2.47	2061480.81	2743460.59	N 36 39 54.991	W 107 45 49.975
	285.00	7.38	55.90	284.77	5.79	1.43	6.13	9.62	2061483.19	2743464.68	N 36 39 55.014	W 107 45 49.925
	344.00	13.50	47.72	342.77	16.44	8.19	14.37	10.65	2061489.95	2743472.92	N 36 39 55.081	W 107 45 49.824
	403.00	19.19	49.07	399.36	32.96	19.18	26.80	9.66	2061500.94	2743485.35	N 36 39 55.190	W 107 45 49.671
	463.00	24.55	52.33	455.02	55.26	33.27	44.13	9.16	2061515.03	2743502.68	N 36 39 55.329	W 107 45 49.458
	523.00	30.18	57.18	508.29	82.80	49.08	66.69	10.09	2061530.84	2743525.24	N 36 39 55.485	W 107 45 49.181
	581.00	30.57	57.74	558.33	112.08	64.85	91.41	0.83	2061546.61	2743549.96	N 36 39 55.641	W 107 45 48.877
	671.00	30.29	57.39	635.94	157.57	89.30	129.89	0.37	2061571.06	2743588.43	N 36 39 55.882	W 107 45 48.405
	760.00	29.46	57.06	713.11	201.83	113.30	167.16	0.95	2061595.05	2743625.70	N 36 39 56.119	W 107 45 47.947
	854.00	29.07	57.34	795.11	247.71	138.19	205.79	0.44	2061619.94	2743664.32	N 36 39 56.365	W 107 45 47.473
	949.00	32.43	56.51	876.74	296.21	164.71	246.47	3.56	2061646.46	2743705.00	N 36 39 56.627	W 107 45 46.973
	1044.00	31.69	56.73	957.25	346.59	192.45	288.58	0.79	2061674.20	2743747.11	N 36 39 56.901	W 107 45 46.456
	1139.00	31.63	57.15	1038.12	396.39	219.66	330.37	0.24	2061701.40	2743788.89	N 36 39 57.170	W 107 45 45.943
	1235.00	31.56	52.14	1119.90	446.64	248.73	371.36	2.73	2061730.47	2743829.88	N 36 39 57.457	W 107 45 45.440
	1330.00	31.42	51.87	1200.91	496.23	279.28	410.47	0.21	2061761.02	2743868.98	N 36 39 57.759	W 107 45 44.959
	1426.00	31.29	51.27	1282.89	546.14	310.33	449.60	0.35	2061792.06	2743908.11	N 36 39 58.065	W 107 45 44.479
	1521.00	30.15	51.22	1364.56	594.61	340.71	487.44	1.20	2061822.44	2743945.95	N 36 39 58.365	W 107 45 44.014
	1617.00	31.52	50.67	1446.99	643.75	371.71	525.65	1.46	2061853.44	2743984.16	N 36 39 58.672	W 107 45 43.545
	1713.00	31.57	49.88	1528.80	693.86	403.81	564.28	0.43	2061885.54	2744022.78	N 36 39 58.989	W 107 45 43.071
	1806.00	32.09	52.44	1607.82	742.84	434.56	602.48	1.56	2061916.28	2744060.98	N 36 39 59.293	W 107 45 42.601
Tie-Into Original Hole	1902.00	31.68	52.20	1689.33	793.53	465.55	642.61	0.45	2061947.28	2744101.11	N 36 39 59.599	W 107 45 42.108
Begin SLB ST MWD Surveys	1938.00	31.30	52.07	1720.03	812.32	477.10	657.46	1.07	2061958.82	2744115.95	N 36 39 59.713	W 107 45 41.926
	1970.00	31.08	52.07	1747.41	828.89	487.28	670.53	0.69	2061969.00	2744129.02	N 36 39 59.813	W 107 45 41.766
	2002.00	30.70	52.28	1774.87	845.31	497.36	683.50	1.23	2061979.08	2744142.00	N 36 39 59.913	W 107 45 41.606
	2034.00	30.33	52.45	1802.43	861.55	507.28	696.37	1.19	2061989.00	2744154.86	N 36 40 0.011	W 107 45 41.448
	2066.00	30.02	52.45	1830.10	877.63	517.08	709.12	0.97	2061998.80	2744167.61	N 36 40 0.108	W 107 45 41.292
	2098.00	28.58	52.05	1858.00	893.28	526.67	721.51	4.54	2062008.39	2744180.00	N 36 40 0.202	W 107 45 41.140
	2162.00	25.00	51.35	1915.12	922.10	544.54	744.15	5.62	2062026.25	2744202.63	N 36 40 0.379	W 107 45 40.862
	2226.00	25.88	43.79	1972.93	949.36	563.07	764.38	5.25	2062044.78	2744222.87	N 36 40 0.562	W 107 45 40.613
Last SLB ST MWD Survey	2289.00	26.27	46.95	2029.52	976.73	582.51	784.08	2.29	2062064.23	2744242.57	N 36 40 0.754	W 107 45 40.371
Projection to TD	2680.00	26.27	46.95	2380.14	1148.48	700.65	910.55	0.00	2062182.35	2744369.02	N 36 40 1.921	W 107 45 38.818

Survey Type: Definitive Survey

Survey Error Model: SLB ISCWSA version 21 *** 3-D 95.00% Confidence 2.7955 sigma

Surveying Prog:

MD From (ft)

0.00

2289.00

MD To (ft)

2289.00

2680.00

EQU Freq

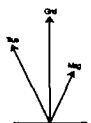
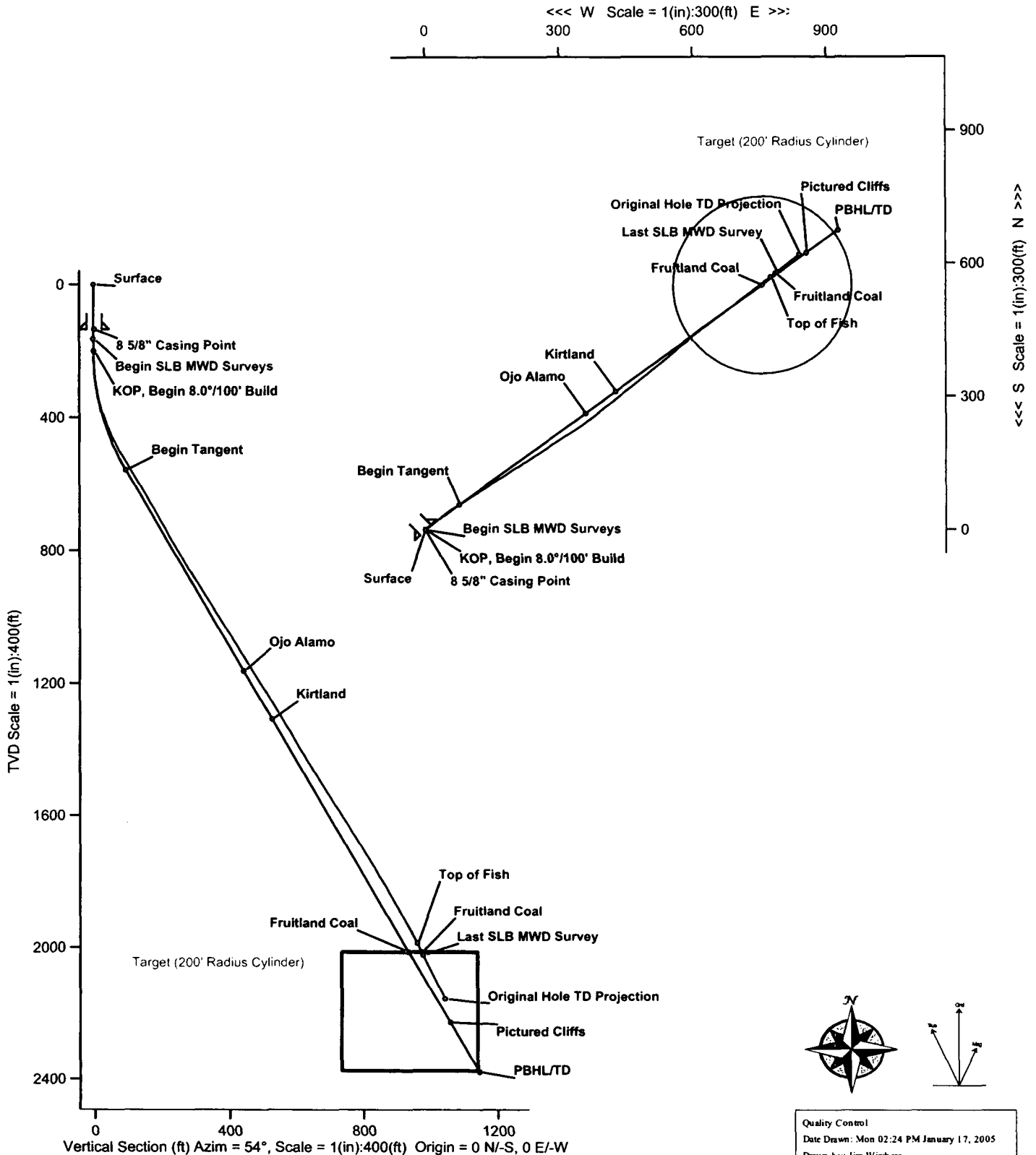
Act-Stns SLB_MWD-STD

Act-Stns SLB_BLIND+TREND

Surf: 1490/N 910/W
 B HL: 990/N 1821/W



Well McCulley LS 4S - API# 30-045-32426				Field San Juan County, New Mexico				Log Aztec 507			
Magnetic Parameters Model BGM 2004 Dip 63.574° Date December 9, 2004 Mag Dec: +10.711° Field Strength 51360.2 nT				Surface Location NAD83 New Mexico State Planes, Western Zone, US Feet Latitude N36 39 55.000 Northing 2061481.76 ftUS Longitude W107 45 50.000 Easting 2743458.55 ftUS Grid Convergence +0.04146801° Scale Factor 0.9999170000				Miscellaneous Borehole Original Hole TVD Reference RKB (5909.00 ft above MSL) Plan Rev'd jk 05-Oct-04 Survey Date January 17, 2005			



Quality Control
Date Drawn: Mon 02:24 PM January 17, 2005
Drawn by: Jim Winberg
Checked by: Frank Brzysnyak
Client OK: