

30-045-32426



McCulley LS 4S ST1 Final Surveys Report

Schlumberger

Report Date: January 17, 2005 Client: BP America Inc. Field: NM, San Juan County (NAD 83 WZ) 2004 Structure / Block: 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 / DOI / ERD ratio: 57.813" / 1152.80 R / 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 NE 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 R, E 0.000 h TVD Reference Datum: RKB TVD Reference Elevation: 5909.0 ft relative to MSL Sea Bed / Ground Level Elevation: 5896.00 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 (ft)	Easting (ft)	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	18.19	49.07	399.36	32.06	18.18	26.80	9.66	2061500.94	2743485.35	N 36 39 55.190	W 107 45 49.871
	483.00	24.55	52.33	455.02	55.26	33.27	44.13	9.16	2061515.03	2743502.88	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
	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
Tie-Into Original Hole	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
Begin SLB ST MWD Surveys	1970.00	31.08	52.07	1747.41	828.88	487.28	670.53	0.69	2061968.00	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 ISOWSA version 21 *** 3-D 95.00% Confidence 2.7955 sigma

Surveying Program:

MD From (ft):

0.00

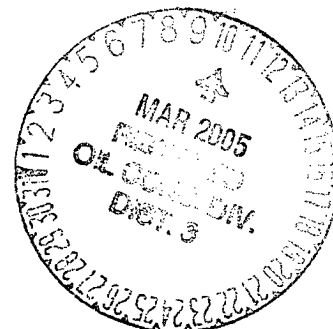
2289.00

MD To (ft): EQU Freq Survey Tool Type

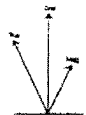
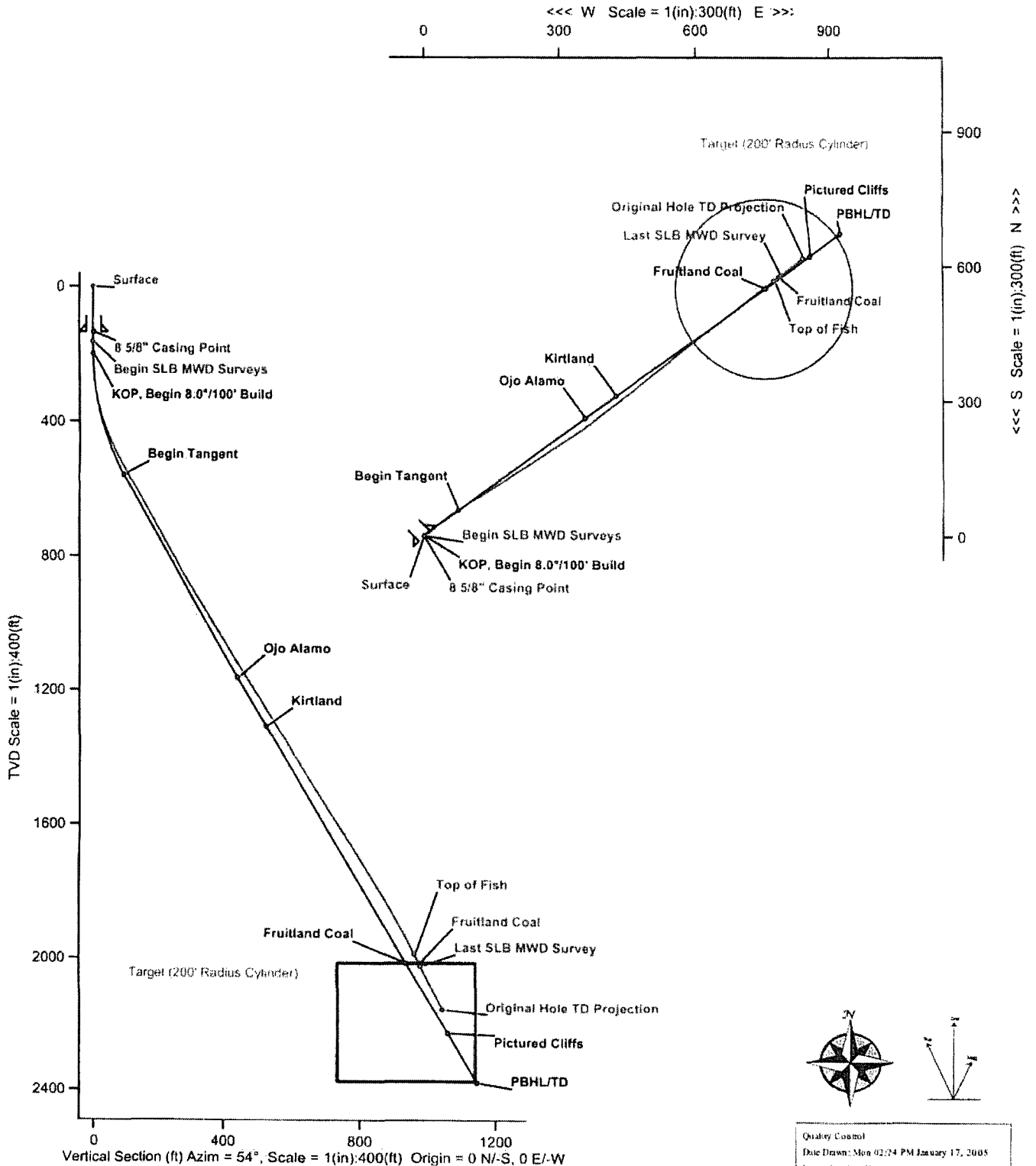
2289.00 Act-Sins SLB_MWD-STD

2680.00 Act-Sins SLB_BLIND-TREND

Surface 14901N 9101W
BNC 789 1N 1841W



Well: McCulley LS 4S - API# 30-045-32426				Field: San Juan County, New Mexico				Hgs: Aztec 507			
MWD Parameters Date: 02/04/2004 Log: 83.5741 Date: December 9, 2004 Log: -10.7111 Log: 51360.2 mT				Surface Location: NAD83 New Mexico State Plane, Western Zone, U.S. Feet Latitude: N 36 59 58.000 Longitude: W 107 45 50.000 Northing: 2051441.78 FUS Easting: 2743456.53 FUS Grid Contour Interval: 40 DAT458011 Scale Factor: 0.9999175000				Miscellaneous Drawn by: Original Hole Date: 04/05/04 T/O: 04/05/04 Survey Date: 04/05/04 PHS (5000.00 ft above MSL): January 17, 2005			



Quality Control
 Date Drawn: Mon 02/24 PM January 17, 2005
 Drawn by: Jim Weinberg
 Checked by: Frank Brumbyak
 Client OK