

Florance 117S Final Surveys Report

Report Date: January 12, 2005 Client: BP America Inc. Field: NM, San Juan County (NAD 83 WZ) 2004 Structure / Slot: BP 35P-29N-9W Florance 117S - API# 30-045-32363 Well: -Florance-117S-API# 30-045-32363 Borehole: Original Hole UWI/API#: Survey Name / Date: Florance 117S Final Surveys / December 3, 2004 Tort / AHD / DDI / ERD ratio: 60.992" / 1028.91 ft / 4.842 / 0.438 Grid Coordinate System: NAD83 New Mexico State Planes, Western Zone, US Feet Location Lat/Long: N 36 40 36.000, W 107 44 48.000 Location Grid N/E Y/X: N 2065631.981 ftUS, E 2748505.794 ftUS Grid Convergence Angle: +0.05176590" Grid Scale Factor: 0.99991741	Survey / DLS Computation Method: Minimum Curvature / Lubinski Vertical Section Azimuth: 308.000" Vertical Section Origin: N 0.000 ft, E 0.000 ft TVD Reference Datum: RKB TVD Reference Elevation: 5758.5 ft relative to MSL Sea Bed / Ground Level Elevation: 5748.000 ft relative to MSL Magnetic Declination: 10.708" Total Field Strength: 51372.105 nT Magnetic Dip: 63.588" Declination Date: December 03, 2004 Magnetic Declination Model: BGGM 2004 North Reference: Grid North Total Corr Mag North -> Grid North: +10.656" 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	61.44	0.00	0.00	0.00	0.00	0.00	2065631.98	2748505.79	N 36 40 36.000	W 107 44 48.000
Begin SLB MWD Surveys	163.00	0.80	61.44	162.99	-0.45	0.54	1.00	0.49	2065632.52	2748506.79	N 36 40 36.005	W 107 44 47.988
	225.00	1.86	350.92	224.98	0.11	1.74	1.22	2.84	2065633.73	2748507.01	N 36 40 36.017	W 107 44 47.985
	285.00	6.23	323.44	284.82	3.97	5.32	-0.87	7.77	2065637.30	2748504.92	N 36 40 36.053	W 107 44 48.011
	344.00	10.77	317.64	343.16	12.49	11.97	-6.50	7.82	2065643.95	2748499.30	N 36 40 36.118	W 107 44 48.080
	403.00	15.00	306.32	400.67	25.57	20.57	-16.37	8.32	2065652.55	2748489.43	N 36 40 36.204	W 107 44 48.201
	463.00	19.78	304.67	457.91	43.47	30.95	-30.98	8.01	2065662.93	2748474.81	N 36 40 36.306	W 107 44 48.380
	523.00	24.62	308.51	513.45	66.12	44.52	-49.12	8.42	2065676.50	2748456.67	N 36 40 36.441	W 107 44 48.603
	581.00	29.84	309.78	565.00	92.64	61.29	-69.68	9.06	2065693.26	2748436.12	N 36 40 36.607	W 107 44 48.855
	641.00	31.04	310.55	616.73	123.02	80.89	-92.91	2.10	2065712.87	2748412.89	N 36 40 36.801	W 107 44 49.140
	700.00	30.29	310.47	667.48	153.08	100.44	-115.79	1.27	2065732.41	2748390.02	N 36 40 36.994	W 107 44 49.420
	790.00	31.11	309.29	744.87	199.00	129.90	-151.05	1.13	2065761.87	2748354.76	N 36 40 37.286	W 107 44 49.853
	885.00	30.23	309.37	826.58	247.45	160.61	-188.53	0.93	2065792.58	2748317.28	N 36 40 37.590	W 107 44 50.313
	978.00	30.30	309.03	906.90	294.31	190.23	-224.86	0.20	2065822.20	2748280.96	N 36 40 37.883	W 107 44 50.758
	1073.00	30.46	308.35	988.86	342.35	220.26	-262.36	0.40	2065852.23	2748243.46	N 36 40 38.180	W 107 44 51.218
	1168.00	30.97	307.82	1070.53	390.87	250.19	-300.55	0.61	2065882.15	2748205.27	N 36 40 38.477	W 107 44 51.687
	1263.00	32.02	307.35	1151.54	440.50	280.46	-339.88	1.14	2065912.42	2748165.94	N 36 40 38.776	W 107 44 52.169
	1358.00	32.57	306.73	1231.84	491.25	311.03	-380.39	0.68	2065942.99	2748125.43	N 36 40 39.079	W 107 44 52.666
	1451.00	30.55	305.76	1311.08	539.90	339.82	-419.64	2.24	2065971.77	2748086.19	N 36 40 39.364	W 107 44 53.148
	1546.00	30.32	304.47	1392.99	587.96	367.50	-459.00	0.73	2065999.45	2748046.83	N 36 40 39.638	W 107 44 53.631
	1641.00	30.35	302.92	1474.99	635.80	394.12	-498.92	0.82	2066026.06	2748006.92	N 36 40 39.901	W 107 44 54.120
	1736.00	29.91	301.10	1557.15	683.22	419.40	-539.35	1.07	2066051.34	2747966.49	N 36 40 40.152	W 107 44 54.616
	1830.00	28.70	303.92	1639.13	729.00	444.10	-578.15	1.95	2066076.04	2747927.69	N 36 40 40.396	W 107 44 55.092
	1925.00	27.27	303.70	1723.01	773.46	468.90	-615.19	1.51	2066100.85	2747890.66	N 36 40 40.642	W 107 44 55.547
	2020.00	27.02	308.56	1807.56	816.75	494.43	-650.17	2.35	2066126.37	2747855.68	N 36 40 40.895	W 107 44 55.976
	2112.00	25.03	308.71	1890.23	857.11	519.63	-681.70	2.16	2066151.57	2747824.15	N 36 40 41.144	W 107 44 56.363
Fruitland Coal	2169.04	24.62	309.11	1942.00	881.05	534.68	-700.34	0.78	2066166.61	2747805.52	N 36 40 41.293	W 107 44 56.591
	2207.00	24.35	309.38	1976.54	896.78	544.63	-712.52	0.77	2066176.56	2747793.33	N 36 40 41.392	W 107 44 56.741
	2303.00	21.30	308.04	2065.02	934.01	567.93	-741.56	3.22	2066199.87	2747764.30	N 36 40 41.622	W 107 44 57.097
	2396.00	17.66	304.33	2152.68	964.99	586.31	-766.52	4.13	2066218.24	2747739.34	N 36 40 41.804	W 107 44 57.403
	2492.00	17.52	301.48	2244.19	993.88	602.06	-790.87	0.91	2066233.99	2747714.99	N 36 40 41.960	W 107 44 57.702
Begin SLB MWD Surveys	2549.00	16.38	302.00	2298.72	1010.40	610.80	-805.00	2.02	2066242.73	2747700.86	N 36 40 42.047	W 107 44 57.875
Projection to Bit	2601.00	15.78	302.39	2348.68	1024.73	618.48	-817.19	1.17	2066250.41	2747688.67	N 36 40 42.123	W 107 44 58.025

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

2549.00

MD To (ft)

2549.00

2601.00

EQU Freq

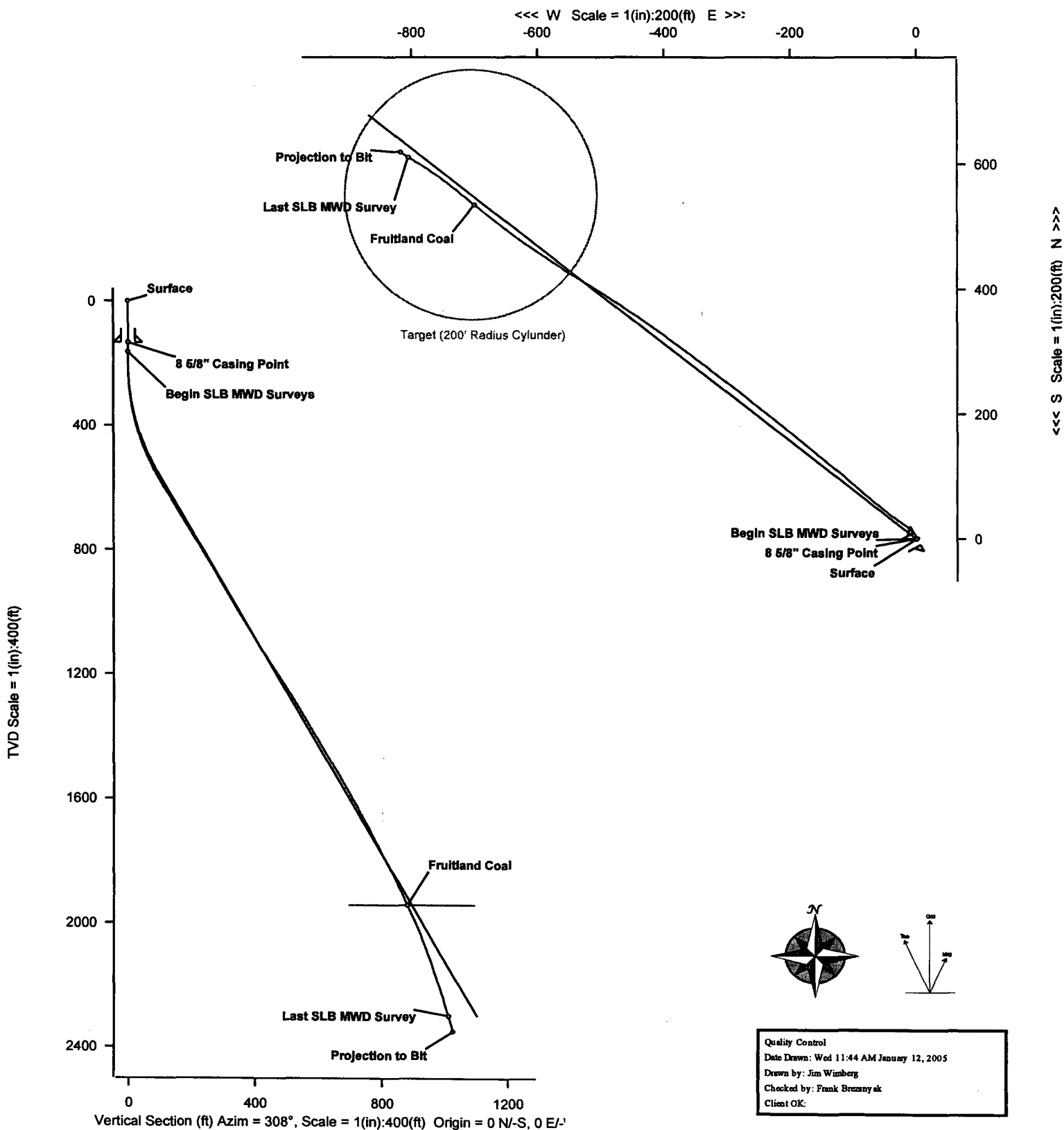
Act-Stns SLB_MWD-STD

Act-Stns SLB_BLIND+TREND

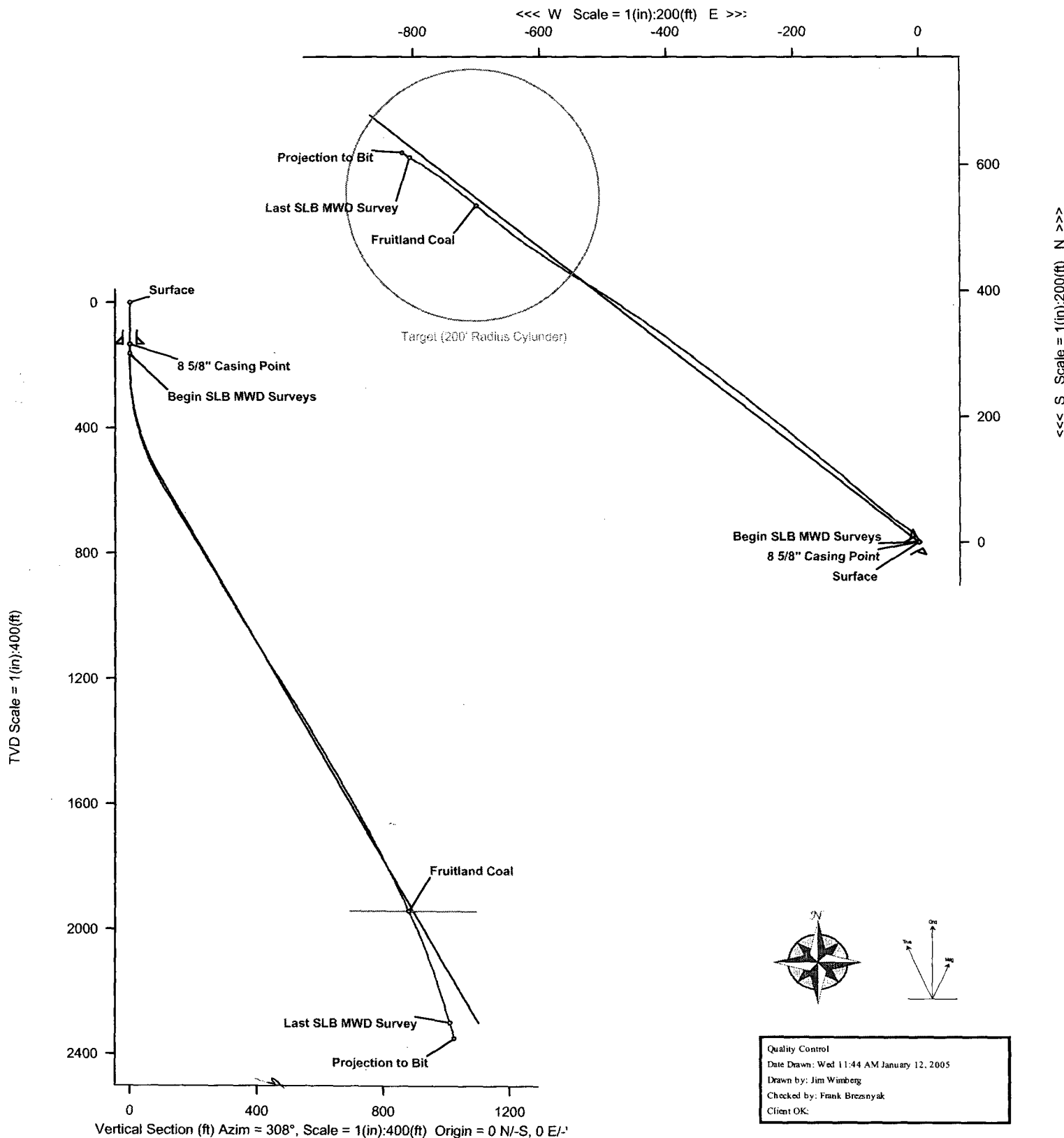
Survey Tool Type

Surface: 660/S 960/E
BHL 1278/S 1768/E

Well Florance 117S - API# 30-045-32363				Field San Juan County, New Mexico				Rig Aztec 507			
Magnetic Parameters Model BOGM 2004 Dip 63.585° Date January 12, 2005 Mag Dec +10.885° Field Strength 51361.5 nT				Surface Location NAD83 New Mexico State Plane, Western Zone, US Feet Latitude N36 40 36.000 Northing 2065631.86 RUS Longitude W107 44 48.000 Easting 2748505.79 RUS Grid Convergence +0.05178590° Scale Factor 0.9998170000				Miscellaneous Borehole Original Hole TVD Reference RKB (5758.50 ft above MSL) Plan EDWICH Survey Date January 12, 2005			



Well Florance 117S - API# 30-045-32363				Field San Juan County, New Mexico				Rig Aztec 507			
Magnetic Parameters Model BGGM 2004 Dip 63.585° Date January 12, 2005 Mag Dec +10.885° Field Strength 51361.5 nT				Surface Location NAD83 New Mexico State Planes, Western Zone, US Feet Latitude N36 40 38.000 Northing 2065631.98 ftUS Grid Convergence +0.05176590" Longitude W107 44 48.000 Easting 2748505.79 ftUS Scale Factor 0.9999170900				Miscellaneous Borehole Original Hole TVD Reference RKB (5758.50 ft above MSL) Plan EQW10H Survey Date January 12, 2005			



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Begin SLB MWD Surveys	163.00	0.80	61.44	162.99	-0.45	0.54	1.00	0.49	2065632.52	2748506.79	N 36 40 36.005	W 107 44 47.988
	225.00	1.86	350.92	224.98	0.11	1.74	1.22	2.84	2065633.73	2748507.01	N 36 40 36.017	W 107 44 47.985
	285.00	6.23	323.44	284.82	3.97	5.32	-0.87	7.77	2065637.30	2748504.92	N 36 40 36.053	W 107 44 48.011
	344.00	10.77	317.64	343.16	12.49	11.97	-6.50	7.82	2065643.95	2748499.30	N 36 40 36.118	W 107 44 48.080
	403.00	15.00	306.32	400.67	25.57	20.57	-16.37	8.32	2065652.55	2748489.43	N 36 40 36.204	W 107 44 48.201
	463.00	19.78	304.67	457.91	43.47	30.95	-30.98	8.01	2065662.93	2748474.81	N 36 40 36.306	W 107 44 48.380
	523.00	24.62	308.51	513.45	66.12	44.52	-49.12	8.42	2065676.50	2748456.67	N 36 40 36.441	W 107 44 48.603
	581.00	29.84	309.78	565.00	92.64	61.29	-69.68	9.06	2065693.26	2748436.12	N 36 40 36.607	W 107 44 48.855
	641.00	31.04	310.55	616.73	123.02	80.89	-92.91	2.10	2065712.87	2748412.89	N 36 40 36.801	W 107 44 49.140
	700.00	30.29	310.47	667.48	153.08	100.44	-115.79	1.27	2065732.41	2748390.02	N 36 40 36.994	W 107 44 49.420
	790.00	31.11	309.29	744.87	199.00	129.90	-151.05	1.13	2065761.87	2748354.76	N 36 40 37.286	W 107 44 49.853
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	978.00	30.30	309.03	906.90	294.31	190.23	-224.86	0.20	2065822.20	2748280.96	N 36 40 37.883	W 107 44 50.758
	1073.00	30.46	308.35	988.86	342.35	220.26	-262.36	0.40	2065852.23	2748243.46	N 36 40 38.180	W 107 44 51.218
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	1358.00	32.57	306.73	1231.84	491.25	311.03	-380.39	0.68	2065942.99	2748125.43	N 36 40 39.079	W 107 44 52.666
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	1830.00	28.70	303.92	1639.13	729.00	444.10	-578.15	1.95	2066076.04	2747927.69	N 36 40 40.396	W 107 44 55.092
	1925.00	27.27	303.70	1723.01	773.46	468.90	-615.19	1.51	2066100.85	2747890.66	N 36 40 40.642	W 107 44 55.547
	2020.00	27.02	308.56	1807.56	816.75	494.43	-650.17	2.35	2066126.37	2747855.68	N 36 40 40.895	W 107 44 55.976
	2112.00	25.03	308.71	1890.23	857.11	519.63	-681.70	2.16	2066151.57	2747824.15	N 36 40 41.144	W 107 44 56.363
	2169.04	24.62	309.11	1942.00	881.05	534.68	-700.34	0.78	2066166.61	2747805.52	N 36 40 41.293	W 107 44 56.591
	2207.00	24.35	309.38	1976.54	896.78	544.63	-712.52	0.77	2066176.56	2747793.33	N 36 40 41.392	W 107 44 56.741
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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

2549.00

MD To (ft)

2549.00

2601.00

EOU Freq

Act-Stns SLB_MWD-STD

Act-Stns SLB_BLIND+TREND