





Mendell Finisterre II, LLC
SYSDRILL
Well Design Combined Report
Wellbore: AFTON 12-16H-6 (PWB)



Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #6	1233743.6700	3156356.1735	39.97365985	-104.94210304	24.98N	32.02E	-1.00

Declination			
Date	Source	Time	
8-Jul-2013	IGRF Model [1900.0-2015.0]	08:51	

Installation Details				
Name	Northing	Easting	Coord System Name	North Alignment
AFTON	1233718.6871	3156324.1575	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
25.00	0.00	0.000	25.00	0.00N	0.00E		0.00	1233743.67	3156356.17
1600.00	0.00	152.180	1600.00	0.00N	0.00E	==>	0.00	1233743.67	3156356.17
12343.92	90.27	359.820	7737.00	4169.75N	347.32E	==>	4184.19	1237913.28	3156703.48

Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00
25.00	0.00	0.000	25.00	0.00N	0.00E	==>	0.00
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00
1262.00	0.00	0.000	1262.00	0.00N	0.00E	==>	0.00
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00
1600.00	0.00	152.180	1600.00	0.00N	0.00E	==>	0.00
1700.00	2.00	152.180	1699.98	1.54S	0.81E	2.00	-1.47
1800.00	4.00	152.180	1799.84	6.17S	3.26E	2.00	-5.88
1900.00	6.00	152.180	1899.45	13.88S	7.32E	2.00	-13.22
2000.00	7.41	152.180	1998.72	24.53S	12.94E	==>	-23.37
2100.00	7.41	152.180	2097.89	35.93S	18.96E	==>	-34.24
2200.00	7.41	152.180	2197.05	47.34S	24.98E	==>	-45.10
2300.00	7.41	152.180	2296.22	58.75S	31.00E	==>	-55.97
2400.00	7.41	152.180	2395.38	70.16S	37.02E	==>	-66.84
2500.00	7.41	152.180	2494.54	81.56S	43.04E	==>	-77.71
2600.00	7.41	152.180	2593.71	92.97S	49.06E	==>	-88.58
2700.00	7.41	152.180	2692.87	104.38S	55.08E	==>	-99.45
2800.00	7.41	152.180	2792.04	115.79S	61.10E	==>	-110.32
2900.00	7.41	152.180	2891.20	127.20S	67.12E	==>	-121.19
3000.00	7.41	152.180	2990.37	138.60S	73.14E	==>	-132.05
3100.00	7.41	152.180	3089.53	150.01S	79.15E	==>	-142.92
3200.00	7.41	152.180	3188.70	161.42S	85.17E	==>	-153.79
3300.00	7.41	152.180	3287.86	172.83S	91.19E	==>	-164.66
3400.00	7.41	152.180	3387.03	184.23S	97.21E	==>	-175.53
3500.00	7.41	152.180	3486.19	195.64S	103.23E	==>	-186.40
3600.00	7.41	152.180	3585.36	207.05S	109.25E	==>	-197.27

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5177.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 4.760 degrees
Bottom hole distance is 4184.19 Feet on azimuth 4.76 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 15-Apr-2015



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Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
3700.00	7.41	152.180	3684.52	218.46S	115.27E	==>	-208.14
3800.00	7.41	152.180	3783.69	229.87S	121.29E	==>	-219.00
3900.00	7.41	152.180	3882.85	241.27S	127.31E	==>	-229.87
4000.00	7.41	152.180	3982.01	252.68S	133.33E	==>	-240.74
4100.00	7.41	152.180	4081.18	264.09S	139.35E	==>	-251.61
4200.00	7.41	152.180	4180.34	275.50S	145.37E	==>	-262.48
4300.00	7.41	152.180	4279.51	286.91S	151.39E	==>	-273.35
4400.00	7.41	152.180	4378.67	298.31S	157.41E	==>	-284.22
4500.00	7.41	152.180	4477.84	309.72S	163.43E	==>	-295.09
4600.00	7.41	152.180	4577.00	321.13S	169.45E	==>	-305.95
4700.00	7.41	152.180	4676.17	332.54S	175.47E	==>	-316.82
4800.00	7.41	152.180	4775.33	343.94S	181.49E	==>	-327.69
4900.00	7.41	152.180	4874.50	355.35S	187.50E	==>	-338.56
5000.00	7.41	152.180	4973.66	366.76S	193.52E	==>	-349.43
5100.00	7.41	152.180	5072.83	378.17S	199.54E	==>	-360.30
5200.00	7.41	152.180	5171.99	389.58S	205.56E	==>	-371.17
5300.00	7.41	152.180	5271.16	400.98S	211.58E	==>	-382.04
5400.00	7.41	152.180	5370.32	412.39S	217.60E	==>	-392.91
5500.00	7.41	152.180	5469.48	423.80S	223.62E	==>	-403.77
5600.00	7.41	152.180	5568.65	435.21S	229.64E	==>	-414.64
5700.00	7.41	152.180	5667.81	446.61S	235.66E	==>	-425.51
5800.00	7.41	152.180	5766.98	458.02S	241.68E	==>	-436.38
5900.00	7.41	152.180	5866.14	469.43S	247.70E	==>	-447.25
6000.00	7.41	152.180	5965.31	480.84S	253.72E	==>	-458.12
6100.00	7.41	152.180	6064.47	492.25S	259.74E	==>	-468.99
6200.00	7.41	152.180	6163.64	503.65S	265.76E	==>	-479.86
6300.00	7.41	152.180	6262.80	515.06S	271.78E	==>	-490.72
6400.00	7.41	152.180	6361.97	526.47S	277.80E	==>	-501.59
6500.00	7.41	152.180	6461.13	537.88S	283.82E	==>	-512.46
6600.00	7.41	152.180	6560.30	549.29S	289.84E	==>	-523.33
6700.00	7.41	152.180	6659.46	560.69S	295.86E	==>	-534.20
6800.00	7.41	152.180	6758.62	572.10S	301.87E	==>	-545.07
6900.00	7.41	152.180	6857.79	583.51S	307.89E	==>	-555.94
7000.00	7.41	152.180	6956.95	594.92S	313.91E	==>	-566.81
7100.00	7.41	152.180	7056.12	606.32S	319.93E	==>	-577.67
7200.00	4.56	130.630	7155.39	616.62S	325.96E	10.00	-587.43
7300.00	7.82	25.900	7255.02	613.07S	331.96E	10.00	-583.40
7400.00	17.36	10.970	7352.52	592.25S	337.79E	10.00	-562.17
7500.00	27.23	6.570	7444.94	554.79S	343.26E	10.00	-524.38
7600.00	37.16	4.400	7529.46	501.81S	348.21E	10.00	-471.18
7700.00	47.12	3.050	7603.52	434.94S	352.49E	10.00	-404.18
7800.00	57.09	2.070	7664.86	356.21S	355.97E	10.00	-325.43
7900.00	67.07	1.300	7711.63	268.00S	358.54E	10.00	-237.31
8000.00	77.05	0.630	7742.40	172.99S	360.12E	10.00	-142.50
8011.00	78.14	0.560	7744.76	162.25S	360.23E	10.00	-131.79
8100.00	87.03	0.020	7756.23	74.09S	360.67E	10.00	-43.89
8200.00	90.27	359.820	7756.68	25.90N	360.41E	==>	55.73
8300.00	90.27	359.820	7756.20	125.90N	360.10E	==>	155.35
8400.00	90.27	359.820	7755.73	225.90N	359.78E	==>	254.98
8500.00	90.27	359.820	7755.25	325.89N	359.46E	==>	354.61
8600.00	90.27	359.820	7754.78	425.89N	359.15E	==>	454.24
8700.00	90.27	359.820	7754.30	525.89N	358.83E	==>	553.86
8800.00	90.27	359.820	7753.83	625.89N	358.52E	==>	653.49
8900.00	90.27	359.820	7753.36	725.89N	358.20E	==>	753.12
9000.00	90.27	359.820	7752.88	825.89N	357.88E	==>	852.74
9100.00	90.27	359.820	7752.41	925.88N	357.57E	==>	952.37
9200.00	90.27	359.820	7751.93	1025.88N	357.25E	==>	1052.00
9300.00	90.27	359.820	7751.46	1125.88N	356.94E	==>	1151.62
9400.00	90.27	359.820	7750.98	1225.88N	356.62E	==>	1251.25
9500.00	90.27	359.820	7750.51	1325.88N	356.30E	==>	1350.88

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Interpolated Wellpath							
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
9600.00	90.27	359.820	7750.03	1425.88N	355.99E	==>	1450.51
9700.00	90.27	359.820	7749.56	1525.88N	355.67E	==>	1550.13
9800.00	90.27	359.820	7749.08	1625.87N	355.36E	==>	1649.76
9900.00	90.27	359.820	7748.61	1725.87N	355.04E	==>	1749.39
10000.00	90.27	359.820	7748.13	1825.87N	354.73E	==>	1849.01
10100.00	90.27	359.820	7747.66	1925.87N	354.41E	==>	1948.64
10200.00	90.27	359.820	7747.18	2025.87N	354.09E	==>	2048.27
10300.00	90.27	359.820	7746.71	2125.87N	353.78E	==>	2147.90
10400.00	90.27	359.820	7746.23	2225.86N	353.46E	==>	2247.52
10500.00	90.27	359.820	7745.76	2325.86N	353.15E	==>	2347.15
10600.00	90.27	359.820	7745.28	2425.86N	352.83E	==>	2446.78
10700.00	90.27	359.820	7744.81	2525.86N	352.51E	==>	2546.40
10800.00	90.27	359.820	7744.33	2625.86N	352.20E	==>	2646.03
10900.00	90.27	359.820	7743.86	2725.86N	351.88E	==>	2745.66
11000.00	90.27	359.820	7743.38	2825.85N	351.57E	==>	2845.28
11100.00	90.27	359.820	7742.91	2925.85N	351.25E	==>	2944.91
11200.00	90.27	359.820	7742.43	3025.85N	350.94E	==>	3044.54
11300.00	90.27	359.820	7741.96	3125.85N	350.62E	==>	3144.17
11400.00	90.27	359.820	7741.48	3225.85N	350.30E	==>	3243.79
11500.00	90.27	359.820	7741.01	3325.85N	349.99E	==>	3343.42
11600.00	90.27	359.820	7740.53	3425.84N	349.67E	==>	3443.05
11700.00	90.27	359.820	7740.06	3525.84N	349.36E	==>	3542.67
11800.00	90.27	359.820	7739.58	3625.84N	349.04E	==>	3642.30
11900.00	90.27	359.820	7739.11	3725.84N	348.72E	==>	3741.93
12000.00	90.27	359.820	7738.63	3825.84N	348.41E	==>	3841.55
12100.00	90.27	359.820	7738.16	3925.84N	348.09E	==>	3941.18
12200.00	90.27	359.820	7737.68	4025.83N	347.78E	==>	4040.81
12300.00	90.27	359.820	7737.21	4125.83N	347.46E	==>	4140.44
12343.92	90.27	359.820	7737.00	4169.75N	347.32E	==>	4184.19

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Hole Sections								
Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
13 1/2	25.00	25.00	0.00N	0.00E	1262.00	1262.00	0.00N	0.00E
8 3/4	1262.00	1262.00	0.00N	0.00E	8011.00	7744.76	162.25S	360.23E
6 1/8	8011.00	7744.76	162.25S	360.23E	12343.92	7737.00	4169.75N	347.32E

Casings								
Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Surface Casing	25.00	25.00	0.00N	0.00E	1262.00	1262.00	0.00N	0.00E
7.0in Intermediate Casing	25.00	25.00	0.00N	0.00E	8011.00	7744.76	162.25S	360.23E
4 1/2in Production Liner	7230.00	7185.32	617.38S	327.76E	12343.92	7737.00	4169.75N	347.32E

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
AFTON 12-16H-6 BH	4169.75N	347.32E	7737.00	39.98510000	-104.94077000	1237913.28	3156703.48	3-Mar-2014
AFTON 12-16H-6 T1	161.60S	360.62E	7737.00	39.97321000	-104.94082000	1233582.07	3156716.79	3-Mar-2014

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
172448	Planned	12343.92	7737.00	WdW Rate Gyro	Standard	

Notes

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: AFTON 12-16H-6 (PWB)



Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Proximities beyond 2500.00ft with expansion rate of 0.00ft/1000ft are not reported
Scan limit is calculated on CENTRE to CENTRE distance

Summary data uses Closest Approach clearance calculation for all minima
Hole size/Casings ARE included
Hole size/Casings are NOT subtracted from Centre-Centre distance
Confidence limit of 95.00% / 2.80 SD.

Wellbore		
Name	Created	Last Revised
AFTON 12-16H-6 (PWB)	28-Feb-2014	23-Feb-2015

Well		
Name	Government ID	Last Revised
AFTON 12-16H-6		28-Feb-2014

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #6	1233743.6700	3156356.1735	39.97365985	-104.94210304	24.98N	32.02E

Installation				
Name	Easting	Northing	Coord System Name	North Alignment
AFTON	3156324.1575	1233718.6871	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Field				
Name	Easting	Northing	Coord System Name	North Alignment
SPINDLE	3156324.1590	1233718.6871	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
AFTON 12-16H-5	15.32	1757.66	12343.92	11.83	1791.05	4.32	1862.27
AFTON 12-16H-7	16.04	1501.38	12343.92	12.97	1550.59	2.69	12343.92
AFTON #12-16H-3	25.07	1411.00	12343.92	22.13	1255.31	8.51	1255.31
AFTON #12-16H-4	29.60	25.00	8638.64	26.33	2239.57	3.88	2288.78
AFTON #12-16H-4	29.60	25.00	11559.37	26.33	2239.57	3.88	2288.78
AFTON 12-16H-2	29.77	1311.00	12343.92	26.83	1255.31	10.10	1255.31
AFTON 12-16H-8	32.03	1437.00	12343.92	29.08	1255.31	8.19	12343.92
AFTON 12-16H-1	40.61	1261.00	8063.06	37.66	1261.00	13.74	1261.00
PULIS #12-8	105.93	1600.00	1600.00	101.71	1616.21	24.19	1796.65
DARLOW UNIT #12-16B	240.20	1600.00	8219.36	226.60	1625.00	16.82	1911.48
ELMS #2	638.15	11114.24	11114.24	584.60	11114.24	11.91	11130.64
BARKER #12-9	762.62	9506.98	9506.98	741.54	9506.98	35.89	9588.65
SAUVAGE #11-7	861.28	12033.35	12033.35	799.92	12049.28	13.91	12131.30
BROKEN BOW II #7-1	1069.14	5278.41	5278.41	1058.48	5278.41	99.69	5372.77
N COLORADO 41-13 #7	1092.68	7210.04	7210.04	1059.11	7210.04	32.49	7259.25
W MORRISON #16-1	1188.69	12343.92	12343.92	1138.00	12343.92	23.45	12343.92
WIERNAN #7-3	1227.28	8609.82	8609.82	1212.26	8620.80	71.16	9194.95
MALLO #1	1324.33	1600.00	1600.00	1320.11	1616.21	159.89	5323.56
ALICIA 12-15H-3N	1344.16	1927.89	7899.02	1314.78	12343.92	18.20	12343.92
ALICIA 12-15H-4C	1361.38	1665.42	8112.27	1358.03	1747.44	19.51	12343.92



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: AFTON 12-16H-6 (PWB)



Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
Ruby #1	1364.07	1600.00	8167.42	1359.15	1616.21	119.97	8981.69
Ruby #2	1364.25	32.00	9541.47	1363.17	74.21	33.10	9851.12
ALICIA 12-15H-2N	1375.59	1600.00	1600.00	1372.39	1616.21	22.47	12343.92
ALICIA 12-15H-1N	1389.68	1517.78	1517.78	1383.42	1534.19	16.23	12343.92
ALICIA 12-15H-1N	1389.68	1566.99	1566.99	1386.55	1566.99	31.04	12343.92
ALICIA 12-15H-1N	1389.68	1566.99	1566.99	1386.55	1566.99	30.84	12343.92
ALICIA 12-15H-6C	1403.88	1514.00	1514.00	1400.83	1525.00	33.33	12343.92
ALICIA 12-15H-5N	1418.11	1414.00	1414.00	1415.17	1255.31	26.75	12343.92
DARLOW #12-2	1418.28	1600.00	1600.00	1407.47	1616.21	87.99	5175.92
TUDEX REINHOLT #NC4	1790.67	11901.64	11901.64	1749.51	11918.04	42.46	12196.92
BELLINGER #12-7	1913.16	1600.00	1600.00	1908.92	1600.00	253.55	5356.36
W MORRISON #15-1	2295.57	12343.92	12343.92	2237.10	12343.92	39.26	12343.92
MORRISON #9-1	2371.59	12343.92	12343.92	2331.68	12343.92	59.42	12343.92
W MORRISON #9-1	2371.59	12343.92	12343.92	2331.73	12343.92	59.49	12343.92
TUDEX BRINK #S-2	2385.30	205.45	205.45	2383.22	1156.89	503.13	2600.46