

MENDELL ENERGY, LLC

Location ADAMS COUNTY, CO Slot Slot #3
Field SPINDLE Well AFTON #12-16H-3
Installation AFTON Wellbore AFTON #12-16H-3 (PWB)

Tie on - 0.00 Inc, 0.00 MD, 0.00 TVD, 0.00 VS

3DS Kick off Point - 0.00 Inc, 800.00 MD, 800.00 TVD, 0.00 VS

End of Build - 6.35 Inc, 1117.52 MD, 1116.87 TVD, -14.00 VS
9 5/8in Surface Casing

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP	800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00
End of Build	1117.52	6.35	212.19	1116.87	-14.88	-9.36	2.00	-14.00
End of Hold	7277.87	6.35	212.19	7239.42	-591.53	-372.34	0.00	-556.80
Target AFTON #12-16H-3	8236.47	90.21	5.12	7868.00	-18.71	-353.07	10.00	12.15
Target OFFSET #1	9134.48	90.21	5.12	7864.74	875.70	-272.90	0.00	896.16
End of Drop/Turn	10134.76	90.07	355.12	7862.30	1874.70	-270.80	1.00	1891.18
Target OFFSET #2	11225.08	90.07	355.12	7860.94	2961.07	-363.55	0.00	2981.49
End of Build/Turn	11850.47	90.16	1.37	7859.69	3585.85	-382.68	1.00	3605.56
T.D. & Target AFTON #12	12466.54	90.16	1.37	7858.00	4201.75	-367.91	0.00	4217.83

Created by admin
Date plotted 3-Dec-2013
Plot reference is AFTON #12-16H-3 (PWB).
Ref wellpath is AFTON #12-16H-3 (PWP#1).
Coordinates are in feet reference Slot #3.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 5153.00 ft.
Plot North is aligned to GRID North.

End of Hold - 6.35 Inc, 7277.87 MD, 7239.42 TVD, -556.80 VS

3DJ Kick off Point - 90.21 Inc, 9134.48 MD, 7864.74 TVD, 896.16 VS

T.D. & End of Hold - 7858.00 TVD, 4201.75 N 367.91 W

3DJ Kick off Point - 90.07 Inc, 11225.08 MD, 7860.94 TVD, 2981.49 VS

7.0in Intermediate Casing

OFFSET #2

4 1/2in Production Liner

AFTON #12-16H-3 - T1

OFFSET #1

AFTON #12-16H-3 - T2

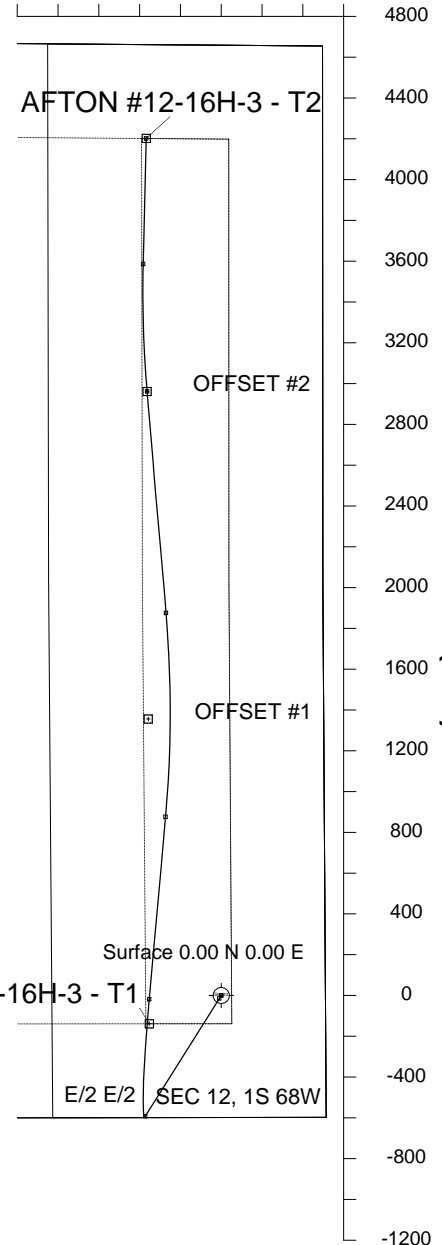
End of Drop/Turn - 90.07 Inc, 10134.76 MD, 7862.30 TVD, 1891.18 VS

S/C Kick off Point - 90.21 Inc, 8236.47 MD, 7868.00 TVD, 12.15 VS

End of Build/Turn - 90.16 Inc, 11850.47 MD, 7859.69 TVD, 3605.56 VS

Scale 1 cm = 200 ft East (feet) ->

-800 -400 0 400



Scale 1 cm = 200 ft

<- True Vertical Depth (feet)

<- North(feet)

Scale 1 cm = 200 ft

Vertical Section (feet) ->

Azimuth 355.00 with reference 0.00 N, 0.00 E from Slot #3



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: AFTON #12-16H-3 (PWB)

Wellhead Details

Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #3	1233718.6000	3156356.0600	39.97359103	-104.94210400	0.09S	31.90E	-0.00

Declination

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

Site Details

Name	Northing	Easting	Coord System Name	North Alignment
AFTON	1233718.6871	3156324.1590	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
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	1233718.60	3156356.06
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
1117.52	6.35	212.190	1116.87	14.88S	9.36W	2.00	-14.00	1233703.72	3156346.70
7277.87	6.35	212.190	7239.42	591.53S	372.34W	==>	-556.80	1233127.09	3155983.74
8236.47	90.21	5.120	7868.00	18.71S	353.07W	10.00	12.15	1233699.89	3156003.00
9134.48	90.21	5.120	7864.74	875.70N	272.90W	==>	896.16	1234594.27	3156083.17
10134.76	90.07	355.120	7862.30	1874.70N	270.80W	1.00	1891.18	1235593.24	3156085.27
11225.08	90.07	355.120	7860.94	2961.07N	363.55W	==>	2981.49	1236679.57	3155992.52
11850.47	90.16	1.370	7859.69	3585.85N	382.68W	1.00	3605.56	1237304.33	3155973.40
12466.54	90.16	1.370	7858.00	4201.75N	367.91W	==>	4217.83	1237920.21	3155988.16

Interpolated Wellpath

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	1233718.60	3156356.06
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1233718.60	3156356.06
900.00	2.00	212.190	899.98	1.48S	0.93W	2.00	-1.39	1233717.12	3156355.13
1000.00	4.00	212.190	999.84	5.91S	3.72W	2.00	-5.56	1233712.69	3156352.34
1100.00	6.00	212.190	1099.45	13.28S	8.36W	2.00	-12.50	1233705.32	3156347.70
1117.52	6.35	212.190	1116.87	14.88S	9.36W	2.00	-14.00	1233703.72	3156346.70
1200.00	6.35	212.190	1198.84	22.60S	14.22W	==>	-21.27	1233696.00	3156341.84
1300.00	6.35	212.190	1298.23	31.96S	20.12W	==>	-30.08	1233686.64	3156335.94
1400.00	6.35	212.190	1397.62	41.32S	26.01W	==>	-38.89	1233677.28	3156330.05
1500.00	6.35	212.190	1497.00	50.68S	31.90W	==>	-47.70	1233667.92	3156324.16
1600.00	6.35	212.190	1596.39	60.04S	37.79W	==>	-56.51	1233658.56	3156318.27
1700.00	6.35	212.190	1695.78	69.40S	43.68W	==>	-65.33	1233649.20	3156312.38
1800.00	6.35	212.190	1795.16	78.76S	49.58W	==>	-74.14	1233639.84	3156306.49
1900.00	6.35	212.190	1894.55	88.12S	55.47W	==>	-82.95	1233630.48	3156300.59
2000.00	6.35	212.190	1993.94	97.48S	61.36W	==>	-91.76	1233621.12	3156294.70
2100.00	6.35	212.190	2093.32	106.84S	67.25W	==>	-100.57	1233611.76	3156288.81
2200.00	6.35	212.190	2192.71	116.20S	73.14W	==>	-109.38	1233602.40	3156282.92
2300.00	6.35	212.190	2292.09	125.57S	79.04W	==>	-118.19	1233593.04	3156277.03
2400.00	6.35	212.190	2391.48	134.93S	84.93W	==>	-127.00	1233583.68	3156271.13
2500.00	6.35	212.190	2490.87	144.29S	90.82W	==>	-135.81	1233574.32	3156265.24
2600.00	6.35	212.190	2590.25	153.65S	96.71W	==>	-144.63	1233564.96	3156259.35
2700.00	6.35	212.190	2689.64	163.01S	102.60W	==>	-153.44	1233555.60	3156253.46
2800.00	6.35	212.190	2789.03	172.37S	108.50W	==>	-162.25	1233546.24	3156247.57
2900.00	6.35	212.190	2888.41	181.73S	114.39W	==>	-171.06	1233536.88	3156241.67
3000.00	6.35	212.190	2987.80	191.09S	120.28W	==>	-179.87	1233527.52	3156235.78
3100.00	6.35	212.190	3087.19	200.45S	126.17W	==>	-188.68	1233518.16	3156229.89
3200.00	6.35	212.190	3186.57	209.81S	132.07W	==>	-197.49	1233508.80	3156224.00

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 5153.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 355.000 degrees
Bottom hole distance is 4217.83 Feet on azimuth 355.00 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 3-Dec-2013



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: AFTON #12-16H-3 (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
3300.00	6.35	212.190	3285.96	219.17S	137.96W	==>	-206.30	1233499.43	3156218.11
3400.00	6.35	212.190	3385.35	228.53S	143.85W	==>	-215.11	1233490.07	3156212.22
3500.00	6.35	212.190	3484.73	237.89S	149.74W	==>	-223.93	1233480.71	3156206.32
3600.00	6.35	212.190	3584.12	247.25S	155.63W	==>	-232.74	1233471.35	3156200.43
3700.00	6.35	212.190	3683.50	256.62S	161.53W	==>	-241.55	1233461.99	3156194.54
3800.00	6.35	212.190	3782.89	265.98S	167.42W	==>	-250.36	1233452.63	3156188.65
3900.00	6.35	212.190	3882.28	275.34S	173.31W	==>	-259.17	1233443.27	3156182.76
4000.00	6.35	212.190	3981.66	284.70S	179.20W	==>	-267.98	1233433.91	3156176.86
4100.00	6.35	212.190	4081.05	294.06S	185.09W	==>	-276.79	1233424.55	3156170.97
4200.00	6.35	212.190	4180.44	303.42S	190.99W	==>	-285.60	1233415.19	3156165.08
4300.00	6.35	212.190	4279.82	312.78S	196.88W	==>	-294.41	1233405.83	3156159.19
4400.00	6.35	212.190	4379.21	322.14S	202.77W	==>	-303.23	1233396.47	3156153.30
4500.00	6.35	212.190	4478.60	331.50S	208.66W	==>	-312.04	1233387.11	3156147.40
4600.00	6.35	212.190	4577.98	340.86S	214.55W	==>	-320.85	1233377.75	3156141.51
4700.00	6.35	212.190	4677.37	350.22S	220.45W	==>	-329.66	1233368.39	3156135.62
4800.00	6.35	212.190	4776.76	359.58S	226.34W	==>	-338.47	1233359.03	3156129.73
4900.00	6.35	212.190	4876.14	368.94S	232.23W	==>	-347.28	1233349.67	3156123.84
5000.00	6.35	212.190	4975.53	378.31S	238.12W	==>	-356.09	1233340.31	3156117.95
5100.00	6.35	212.190	5074.91	387.67S	244.01W	==>	-364.90	1233330.95	3156112.05
5200.00	6.35	212.190	5174.30	397.03S	249.91W	==>	-373.71	1233321.59	3156106.16
5300.00	6.35	212.190	5273.69	406.39S	255.80W	==>	-382.53	1233312.23	3156100.27
5400.00	6.35	212.190	5373.07	415.75S	261.69W	==>	-391.34	1233302.87	3156094.38
5500.00	6.35	212.190	5472.46	425.11S	267.58W	==>	-400.15	1233293.51	3156088.49
5600.00	6.35	212.190	5571.85	434.47S	273.48W	==>	-408.96	1233284.14	3156082.59
5700.00	6.35	212.190	5671.23	443.83S	279.37W	==>	-417.77	1233274.78	3156076.70
5800.00	6.35	212.190	5770.62	453.19S	285.26W	==>	-426.58	1233265.42	3156070.81
5900.00	6.35	212.190	5870.01	462.55S	291.15W	==>	-435.39	1233256.06	3156064.92
6000.00	6.35	212.190	5969.39	471.91S	297.04W	==>	-444.20	1233246.70	3156059.03
6100.00	6.35	212.190	6068.78	481.27S	302.94W	==>	-453.01	1233237.34	3156053.13
6200.00	6.35	212.190	6168.17	490.63S	308.83W	==>	-461.83	1233227.98	3156047.24
6300.00	6.35	212.190	6267.55	499.99S	314.72W	==>	-470.64	1233218.62	3156041.35
6400.00	6.35	212.190	6366.94	509.36S	320.61W	==>	-479.45	1233209.26	3156035.46
6500.00	6.35	212.190	6466.32	518.72S	326.50W	==>	-488.26	1233199.90	3156029.57
6600.00	6.35	212.190	6565.71	528.08S	332.40W	==>	-497.07	1233190.54	3156023.68
6700.00	6.35	212.190	6665.10	537.44S	338.29W	==>	-505.88	1233181.18	3156017.78
6800.00	6.35	212.190	6764.48	546.80S	344.18W	==>	-514.69	1233171.82	3156011.89
6900.00	6.35	212.190	6863.87	556.16S	350.07W	==>	-523.50	1233162.46	3156006.00
7000.00	6.35	212.190	6963.26	565.52S	355.96W	==>	-532.31	1233153.10	3156000.11
7100.00	6.35	212.190	7062.64	574.88S	361.86W	==>	-541.13	1233143.74	3155994.22
7200.00	6.35	212.190	7162.03	584.24S	367.75W	==>	-549.94	1233134.38	3155988.32
7277.87	6.35	212.190	7239.42	591.53S	372.34W	==>	-556.80	1233127.09	3155983.74
7300.00	4.50	225.200	7261.45	593.18S	373.60W	10.00	-558.33	1233125.44	3155982.47
7400.00	7.17	341.370	7361.16	590.02S	378.39W	10.00	-554.76	1233128.60	3155977.68
7500.00	16.81	355.460	7458.88	569.64S	381.54W	10.00	-534.19	1233148.98	3155974.53
7600.00	26.71	359.330	7551.65	532.67S	382.95W	10.00	-497.23	1233185.95	3155973.12
7700.00	36.66	1.210	7636.64	480.22S	382.58W	10.00	-445.02	1233238.40	3155973.49
7800.00	46.63	2.370	7711.27	413.89S	380.45W	10.00	-379.12	1233304.73	3155975.63
7900.00	56.61	3.200	7773.28	335.69S	376.61W	10.00	-301.56	1233382.92	3155979.47
8000.00	66.59	3.850	7820.79	248.00S	371.18W	10.00	-214.68	1233470.60	3155984.89
8100.00	76.58	4.420	7852.33	153.49S	364.33W	10.00	-121.13	1233565.11	3155991.74
8200.00	86.57	4.940	7866.97	55.03S	356.27W	10.00	-23.74	1233663.57	3155999.81
8236.47	90.21	5.120	7868.00	18.71S	353.07W	10.00	12.15	1233699.89	3156003.00
8300.00	90.21	5.120	7867.77	44.56N	347.40W	==>	74.69	1233763.15	3156008.67
8400.00	90.21	5.120	7867.41	144.16N	338.47W	==>	173.13	1233862.75	3156017.60
8500.00	90.21	5.120	7867.04	243.76N	329.54W	==>	271.57	1233962.35	3156026.53
8600.00	90.21	5.120	7866.68	343.36N	320.62W	==>	370.01	1234061.95	3156035.45
8700.00	90.21	5.120	7866.32	442.96N	311.69W	==>	468.46	1234161.54	3156044.38
8800.00	90.21	5.120	7865.95	542.56N	302.76W	==>	566.90	1234261.14	3156053.31
8900.00	90.21	5.120	7865.59	642.16N	293.84W	==>	665.34	1234360.74	3156062.23
9000.00	90.21	5.120	7865.23	741.76N	284.91W	==>	763.78	1234460.33	3156071.16
9100.00	90.21	5.120	7864.87	841.36N	275.98W	==>	862.22	1234559.93	3156080.09

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Well Design Combined Report
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9134.48	90.21	5.120	7864.74	875.70N	272.90W	==>	896.16	1234594.27	3156083.17
9200.00	90.20	4.470	7864.51	940.99N	267.43W	1.00	960.73	1234659.56	3156088.64
9300.00	90.19	3.470	7864.17	1040.75N	260.51W	1.00	1059.50	1234759.31	3156095.56
9400.00	90.17	2.470	7863.86	1140.61N	255.33W	1.00	1158.54	1234859.17	3156100.74
9500.00	90.16	1.470	7863.57	1240.55N	251.90W	1.00	1257.80	1234959.11	3156104.17
9600.00	90.14	0.470	7863.31	1340.54N	250.21W	1.00	1357.25	1235059.09	3156105.85
9700.00	90.13	359.470	7863.06	1440.53N	250.27W	1.00	1456.87	1235159.09	3156105.80
9800.00	90.12	358.470	7862.85	1540.52N	252.07W	1.00	1556.63	1235259.06	3156103.99
9900.00	90.10	357.470	7862.65	1640.45N	255.62W	1.00	1656.50	1235359.00	3156100.45
10000.00	90.09	356.470	7862.49	1740.31N	260.91W	1.00	1756.44	1235458.85	3156095.16
10100.00	90.08	355.470	7862.34	1840.06N	267.94W	1.00	1856.42	1235558.60	3156088.13
10134.76	90.07	355.120	7862.30	1874.70N	270.80W	1.00	1891.18	1235593.24	3156085.27
10200.00	90.07	355.120	7862.21	1939.71N	276.35W	==>	1956.42	1235658.24	3156079.72
10300.00	90.07	355.120	7862.09	2039.34N	284.85W	==>	2056.42	1235757.88	3156071.22
10400.00	90.07	355.120	7861.97	2138.98N	293.36W	==>	2156.42	1235857.51	3156062.71
10500.00	90.07	355.120	7861.84	2238.62N	301.87W	==>	2256.42	1235957.14	3156054.20
10600.00	90.07	355.120	7861.72	2338.26N	310.37W	==>	2356.42	1236056.78	3156045.70
10700.00	90.07	355.120	7861.59	2437.89N	318.88W	==>	2456.42	1236156.41	3156037.19
10800.00	90.07	355.120	7861.47	2537.53N	327.39W	==>	2556.42	1236256.05	3156028.68
10900.00	90.07	355.120	7861.34	2637.17N	335.90W	==>	2656.42	1236355.68	3156020.18
11000.00	90.07	355.120	7861.22	2736.81N	344.40W	==>	2756.42	1236455.32	3156011.67
11100.00	90.07	355.120	7861.10	2836.44N	352.91W	==>	2856.42	1236554.95	3156003.16
11200.00	90.07	355.120	7860.97	2936.08N	361.42W	==>	2956.42	1236654.58	3155994.66
11225.08	90.07	355.120	7860.94	2961.07N	363.55W	==>	2981.49	1236679.57	3155992.52
11300.00	90.08	355.870	7860.84	3035.76N	369.44W	1.00	3056.41	1236754.26	3155986.64
11400.00	90.10	356.870	7860.69	3135.56N	375.77W	1.00	3156.38	1236854.05	3155980.30
11500.00	90.11	357.870	7860.51	3235.45N	380.36W	1.00	3256.30	1236953.94	3155975.71
11600.00	90.12	358.870	7860.30	3335.41N	383.21W	1.00	3356.12	1237053.90	3155972.87
11700.00	90.14	359.870	7860.08	3435.40N	384.31W	1.00	3455.83	1237153.88	3155971.77
11800.00	90.15	0.870	7859.83	3535.40N	383.66W	1.00	3555.39	1237253.88	3155972.41
11850.47	90.16	1.370	7859.69	3585.85N	382.68W	1.00	3605.56	1237304.33	3155973.40
11900.00	90.16	1.370	7859.56	3635.37N	381.49W	==>	3654.79	1237353.85	3155974.58
12000.00	90.16	1.370	7859.28	3735.34N	379.09W	==>	3754.17	1237453.82	3155976.98
12100.00	90.16	1.370	7859.01	3835.31N	376.70W	==>	3853.55	1237553.79	3155979.38
12200.00	90.16	1.370	7858.73	3935.28N	374.30W	==>	3952.93	1237653.75	3155981.77
12300.00	90.16	1.370	7858.46	4035.26N	371.90W	==>	4052.32	1237753.72	3155984.17
12400.00	90.16	1.370	7858.18	4135.23N	369.51W	==>	4151.70	1237853.69	3155986.57
12466.54	90.16	1.370	7858.00	4201.75N	367.91W	==>	4217.83	1237920.21	3155988.16

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5153.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 355.000 degrees
Bottom hole distance is 4217.83 Feet on azimuth 355.00 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 3-Dec-2013



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: AFTON #12-16H-3 (PWB)

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	0.00	0.00	0.00N	0.00E	1250.00	1248.54	27.28S	17.17W
8 3/4	1250.00	1248.54	27.28S	17.17W	8236.00	7868.00	19.19S	353.11W
6 1/8	8236.00	7868.00	19.19S	353.11W	12466.00	7858.00	4201.21N	367.93W

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	0.00	0.00	0.00N	0.00E	1250.00	1248.54	27.28S	17.17W
7.0in Intermediate Casing	0.00	0.00	0.00N	0.00E	8236.00	7868.00	19.19S	353.11W
4 1/2in Production Liner	7300.00	7261.45	593.18S	373.60W	12466.00	7858.00	4201.21N	367.93W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
AFTON	138.71S	353.07W	7856.00	39.97321634	-104.94336683	1233579.89	3156003.00	8-Jul-2013
#12-16H-3 - T1								
AFTON	4201.75N	367.91W	7858.00	39.98513138	-104.94332256	1237920.21	3155988.16	8-Jul-2013
#12-16H-3 - T2								
OFFSET #1	1355.70N	357.90W	7864.74	39.97731865	-104.94335060	1235074.25	3155998.17	8-Jul-2013
OFFSET #2	2961.07N	363.55W	7860.94	39.98172557	-104.94333479	1236679.57	3155992.52	8-Jul-2013

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
54750	Planned	12466.54	7858.00	WdW Rate Gyro	Standard	

Notes

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: AFTON #12-16H-3 (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
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-3 (PWB)	9-Jul-2013	3-Dec-2013

Well		
Name	Government ID	Last Revised
AFTON #12-16H-3		9-Jul-2013

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #3	1233718.6000	3156356.0600	39.97359103	-104.94210400	0.09S	31.90E

Installation					
Name	Easting	Northing	Coord System Name	North Alignment	
AFTON	3156324.1590	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	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
AFTON #12-16H-4	AFTON #12-16H-4 (PWB)	Slot #4	AFTON	15.98	803.81	12466.54	13.72	803.81	5.63	12450.79
ELMS #2	ELMS #2 (AWB)	ELMS #2	Offsets	76.47	11218.82	11218.82	41.68	11218.82	2.20	11218.82
PULIS #12-8	PULIS #12-8 (AWB)	PULIS #12-8	Offsets	102.39	1283.85	8310.95	98.43	1246.72	24.64	1673.23
DARLOW UNIT #12-16B	DARLOW UNIT #12-16B (AWB)	DARLOW UNIT #12-16B	Offsets	108.68	8333.73	8333.73	94.78	8333.73	7.82	8333.33
BARKER #12-9	BARKER #12-9 (AWB)	BARKER #12-9	Offsets	156.10	9614.29	9614.29	134.74	9614.29	7.25	9629.27
Ruby #1	Ruby #1 (AWB)	Ruby #1	Offsets	1009.77	8182.96	8182.96	995.71	8182.96	70.79	7874.02
TUDEX REINHOLT #NC4	TUDEX REINHOLT #NC4 (AWB)	TUDEX REINHOLT #NC4	Offsets	1062.62	11982.72	11982.72	1021.46	12000.00	25.15	12171.92
MALLO #1	MALLO #1 (AWB)	MALLO #1	Offsets	1168.87	5225.62	8236.47	1158.17	5225.62	108.55	5331.36
Ruby #2	Ruby #2 (AWB)	Ruby #2	Offsets	1249.99	9626.31	9626.31	1221.72	9645.67	41.59	9990.16
DARLOW #12-2	DARLOW #12-2 (AWB)	DARLOW #12-2	Offsets	1442.30	803.81	9650.92	1439.07	803.81	184.02	5249.34
BELLINGER R #12-7	BELLINGER #12-7	BELLINGER R #12-7	Offsets	1931.00	803.81	9653.45	1927.71	820.21	173.47	11154.86

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: AFTON #12-16H-3 (PWB)

Clearance Summary										
Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
(AWB)										
TUDEX BRINK #S-2	TUDEX BRINK #S-2 (AWB)	TUDEX BRINK #S-2	Offsets	2409.16	180.45	10373.89	2407.10	803.81	167.40	11482.94
ELMS #12-4	ELMS #12-4 (AWB)	ELMS #12-4	Offsets	2655.97	803.81	10892.39	2652.69	803.81	161.95	11778.22
SEVENS #1	SEVENS #1 (AWB)	SEVENS #1	Offsets	2815.34	12290.98	12290.98	2796.51	12300.00	147.00	12450.79
LENART #S-1	LENART #S-1 (AWB)	LENART #S-1	Offsets	2863.62	11663.39	11663.39	2844.60	11663.39	140.38	12450.79
CROFF #12-5	CROFF #12-5 (AWB)	CROFF #12-5	Offsets	2967.50	11023.62	11023.62	2949.11	11040.03	143.87	12171.92
REINHOLT #12-6	REINHOLT #12-6 (AWB)	REINHOLT #12-6	Offsets	2979.40	12024.28	12024.28	2957.81	12040.68	128.78	12450.79