

MINERAL RESOURCES, INC. (Original)

Location Weld County, CO, USA (Original)

Slot Slot #8

Field Wattenberg

Well DT-Habitat #3-5-6

Installation Downtown

Wellbore DT-Habitat #3-5-6 (PWB_2)

Scale 1 cm = 800 ft

East (feet) ->

-9600 -8000 -6400 -4800 -3200 -1600 0 1600

1600

North(feet)

Scale 1 cm = 800 ft

Surface 0.00 N 0.00 E

DT-Habitat #3-5-6 - T2

D36

DT-Habitat #3-5-6 - T1

Created by admin

Date plotted 13-Dec-2013

Plot reference is DT-Habitat #3-5-6 (PWB_2).

Ref wellpath is DT-Habitat #3-5-6 (PWP#1).

Coordinates are in feet reference Slot #8.

True Vertical Depths are reference Rig Datum.

Measured Depths are reference Rig Datum.

Rig Datum: Planned Datum #1

Rig Datum to Mean Sea Level: 4658.55 ft.

Plot North is aligned to GRID North.

Tie on - 0.00 Inc, 16.00 MD, 16.00 TVD, -0.00 VS

12 1/4in Surface Casing

3DS Kick off Point - 0.00 Inc, 1025.00 MD, 1025.00 TVD, -0.00 VS

End of Build - 11.40 Inc, 1594.91 MD, 1591.16 TVD, 28.83 VS

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	16.00	0.00	0.00	16.00	0.00	0.00	0.00	-0.00
KOP	1025.00	0.00	0.00	1025.00	0.00	0.00	0.00	-0.00
End of Build	1594.91	11.40	205.25	1591.16	-51.10	-24.10	2.00	28.83
End of Hold	6358.88	11.40	205.25	6261.17	-902.66	-425.66	0.00	509.28
Target DT-Habitat #3-5	7581.06	90.00	272.14	7003.55	-1009.70	-1246.29	7.00	1336.36
Target D36	9774.33	90.00	272.14	7003.55	-927.64	-3438.02	0.00	3510.45
End of Turn	9802.78	90.00	271.58	7003.55	-926.71	-3466.46	2.00	3538.67
T.D. & Target DT-Habita	14668.79	90.00	271.58	7003.55	-792.96	-8330.64	0.00	8368.29

End of Hold - 11.40 Inc, 6358.88 MD, 6261.17 TVD, 509.28 VS

7.0in Intermediate Casing

T.D. & End of Hold - 7003.55 TVD, 792.96 S 8330.64 W

DT-Habitat #3-5-6 - T1

D36

4 1/2in Production Liner

DT-Habitat #3-5-6 - T2

S/C Kick off Point - 90.00 Inc, 7581.06 MD, 7003.55 TVD, 1336.36 VS

3DJ Kick off Point - 90.00 Inc, 9774.33 MD, 7003.55 TVD, 3510.45 VS

Scale 1 cm = 300 ft

True Vertical Depth (feet)

-1200 -600 0 600 1200 1800 2400 3000 3600 4200 4800 5400 6000 6600 7200 7800 8400 9000

Scale 1 cm = 300 ft

Vertical Section (feet) ->

Azimuth 264.56 with reference 0.00 N, 0.00 E from Slot #8



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: DT-Habitat #3-5-6 (PWB_2)

Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #8	1402581.1103	3227066.6798	40.43562000	-104.68427000	112.96S	1.74W	-0.50

Declination			
Date	Source	Time	
30-Jan-2013	IGRF Model [1900.0-2015.0]	10:11	
5-Dec-2013	IGRF Model [1900.0-2015.0]	14:34	
5-Dec-2013	IGRF Model [1900.0-2015.0]	14:37	
5-Dec-2013	IGRF Model [1900.0-2015.0]	14:38	
5-Dec-2013	IGRF Model [1900.0-2015.0]	14:41	

Site Details				
Name	Northing	Easting	Coord System Name	North Alignment
Downtown	1402694.0641	3227068.4245	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
16.00	0.00	0.000	16.00	0.00N	0.00E		0.00	1402581.11	3227066.68
1025.00	0.00	0.000	1025.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
1594.91	11.40	205.250	1591.16	51.10S	24.10W	2.00	28.83	1402530.01	3227042.58
6358.88	11.40	205.250	6261.17	902.66S	425.66W	==>	509.28	1401678.49	3226641.04
7581.06	90.00	272.140	7003.55	1009.70S	1246.29W	7.00	1336.36	1401571.45	3225820.44
9774.33	90.00	272.140	7003.55	927.64S	3438.02W	==>	3510.45	1401653.51	3223628.80
9802.78	90.00	271.580	7003.55	926.71S	3466.46W	2.00	3538.67	1401654.43	3223600.36
14668.79	90.00	271.580	7003.55	792.96S	8330.64W	==>	8368.29	1401788.18	3218736.38

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	1402581.11	3227066.68
16.00	0.00	0.000	16.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
1009.00	0.00	0.000	1009.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
1025.00	0.00	0.000	1025.00	0.00N	0.00E	==>	0.00	1402581.11	3227066.68
1109.00	1.68	205.250	1108.99	1.11S	0.53W	2.00	0.63	1402580.00	3227066.15
1209.00	3.68	205.250	1208.87	5.34S	2.52W	2.00	3.01	1402575.77	3227064.16
1309.00	5.68	205.250	1308.54	12.72S	6.00W	2.00	7.18	1402568.39	3227060.68
1409.00	7.68	205.250	1407.85	23.24S	10.96W	2.00	13.11	1402557.87	3227055.72
1509.00	9.68	205.250	1506.70	36.89S	17.40W	2.00	20.81	1402544.22	3227049.28
1594.91	11.40	205.250	1591.16	51.10S	24.10W	2.00	28.83	1402530.01	3227042.58
1600.00	11.40	205.250	1596.15	52.01S	24.53W	==>	29.35	1402529.10	3227042.15
1700.00	11.40	205.250	1694.18	69.89S	32.96W	==>	39.43	1402511.22	3227033.72
1800.00	11.40	205.250	1792.20	87.76S	41.39W	==>	49.52	1402493.35	3227025.30
1900.00	11.40	205.250	1890.23	105.64S	49.82W	==>	59.60	1402475.48	3227016.87
2000.00	11.40	205.250	1988.26	123.51S	58.24W	==>	69.69	1402457.60	3227008.44
2100.00	11.40	205.250	2086.29	141.39S	66.67W	==>	79.77	1402439.73	3227000.01
2200.00	11.40	205.250	2184.31	159.26S	75.10W	==>	89.86	1402421.85	3226991.58
2300.00	11.40	205.250	2282.34	177.14S	83.53W	==>	99.94	1402403.98	3226983.15
2400.00	11.40	205.250	2380.37	195.01S	91.96W	==>	110.03	1402386.10	3226974.72
2500.00	11.40	205.250	2478.40	212.89S	100.39W	==>	120.11	1402368.23	3226966.29
2600.00	11.40	205.250	2576.43	230.76S	108.82W	==>	130.20	1402350.36	3226957.86
2700.00	11.40	205.250	2674.45	248.64S	117.25W	==>	140.28	1402332.48	3226949.44
2800.00	11.40	205.250	2772.48	266.51S	125.68W	==>	150.37	1402314.61	3226941.01

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 4658.6ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 264.560 degrees
Bottom hole distance is 8368.29 Feet on azimuth 264.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 13-Dec-2013



INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL

Well Design Combined Report
Wellbore: DT-Habitat #3-5-6 (PWB_2)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
2900.00	11.40	205.250	2870.51	284.39S	134.11W	==>	160.45	1402296.73	3226932.58
3000.00	11.40	205.250	2968.54	302.26S	142.54W	==>	170.54	1402278.86	3226924.15
3100.00	11.40	205.250	3066.56	320.14S	150.97W	==>	180.62	1402260.99	3226915.72
3200.00	11.40	205.250	3164.59	338.01S	159.39W	==>	190.71	1402243.11	3226907.29
3300.00	11.40	205.250	3262.62	355.89S	167.82W	==>	200.79	1402225.24	3226898.86
3400.00	11.40	205.250	3360.65	373.76S	176.25W	==>	210.88	1402207.36	3226890.43
3500.00	11.40	205.250	3458.67	391.64S	184.68W	==>	220.96	1402189.49	3226882.01
3600.00	11.40	205.250	3556.70	409.51S	193.11W	==>	231.05	1402171.61	3226873.58
3700.00	11.40	205.250	3654.73	427.39S	201.54W	==>	241.13	1402153.74	3226865.15
3800.00	11.40	205.250	3752.76	445.26S	209.97W	==>	251.22	1402135.87	3226856.72
3900.00	11.40	205.250	3850.79	463.14S	218.40W	==>	261.30	1402117.99	3226848.29
4000.00	11.40	205.250	3948.81	481.01S	226.83W	==>	271.39	1402100.12	3226839.86
4100.00	11.40	205.250	4046.84	498.89S	235.26W	==>	281.47	1402082.24	3226831.43
4200.00	11.40	205.250	4144.87	516.76S	243.69W	==>	291.56	1402064.37	3226823.00
4300.00	11.40	205.250	4242.90	534.64S	252.12W	==>	301.64	1402046.49	3226814.57
4400.00	11.40	205.250	4340.92	552.51S	260.54W	==>	311.73	1402028.62	3226806.15
4500.00	11.40	205.250	4438.95	570.39S	268.97W	==>	321.81	1402010.75	3226797.72
4600.00	11.40	205.250	4536.98	588.26S	277.40W	==>	331.90	1401992.87	3226789.29
4700.00	11.40	205.250	4635.01	606.14S	285.83W	==>	341.98	1401975.00	3226780.86
4800.00	11.40	205.250	4733.04	624.01S	294.26W	==>	352.07	1401957.12	3226772.43
4900.00	11.40	205.250	4831.06	641.89S	302.69W	==>	362.15	1401939.25	3226764.00
5000.00	11.40	205.250	4929.09	659.76S	311.12W	==>	372.24	1401921.37	3226755.57
5100.00	11.40	205.250	5027.12	677.64S	319.55W	==>	382.32	1401903.50	3226747.14
5200.00	11.40	205.250	5125.15	695.51S	327.98W	==>	392.41	1401885.63	3226738.71
5300.00	11.40	205.250	5223.17	713.39S	336.41W	==>	402.49	1401867.75	3226730.29
5400.00	11.40	205.250	5321.20	731.26S	344.84W	==>	412.58	1401849.88	3226721.86
5500.00	11.40	205.250	5419.23	749.14S	353.27W	==>	422.66	1401832.00	3226713.43
5600.00	11.40	205.250	5517.26	767.01S	361.69W	==>	432.75	1401814.13	3226705.00
5700.00	11.40	205.250	5615.28	784.89S	370.12W	==>	442.83	1401796.26	3226696.57
5800.00	11.40	205.250	5713.31	802.76S	378.55W	==>	452.92	1401778.38	3226688.14
5900.00	11.40	205.250	5811.34	820.64S	386.98W	==>	463.00	1401760.51	3226679.71
6000.00	11.40	205.250	5909.37	838.51S	395.41W	==>	473.09	1401742.63	3226671.28
6100.00	11.40	205.250	6007.40	856.39S	403.84W	==>	483.17	1401724.76	3226662.86
6200.00	11.40	205.250	6105.42	874.26S	412.27W	==>	493.26	1401706.88	3226654.43
6300.00	11.40	205.250	6203.45	892.14S	420.70W	==>	503.34	1401689.01	3226646.00
6358.88	11.40	205.250	6261.17	902.66S	425.66W	==>	509.28	1401678.49	3226641.04
6400.00	12.78	217.330	6301.38	909.95S	430.15W	7.00	514.44	1401671.19	3226636.54
6500.00	17.70	236.620	6397.90	927.14S	449.58W	7.00	535.41	1401654.01	3226617.12
6600.00	23.66	247.110	6491.44	943.33S	480.80W	7.00	568.03	1401637.82	3226585.89
6700.00	30.06	253.460	6580.62	958.28S	523.35W	7.00	611.80	1401622.87	3226543.35
6800.00	36.66	257.720	6664.11	971.78S	576.60W	7.00	666.09	1401609.37	3226490.10
6900.00	43.37	260.820	6740.66	983.62S	639.74W	7.00	730.07	1401597.53	3226426.96
7000.00	50.15	263.240	6809.14	993.63S	711.85W	7.00	802.80	1401587.52	3226354.86
7100.00	56.96	265.220	6868.51	1001.65S	791.83W	7.00	883.18	1401579.50	3226274.88
7200.00	63.81	266.910	6917.90	1007.57S	878.51W	7.00	970.03	1401573.58	3226188.20
7300.00	70.67	268.410	6956.57	1011.30S	970.59W	7.00	1062.05	1401569.85	3226096.13
7400.00	77.54	269.800	6983.94	1012.78S	1066.69W	7.00	1157.86	1401568.37	3226000.03
7500.00	84.42	271.110	6999.61	1011.99S	1165.39W	7.00	1256.04	1401569.16	3225901.33
7581.06	90.00	272.140	7003.55	1009.70S	1246.29W	7.00	1336.36	1401571.45	3225820.44
7600.00	90.00	272.140	7003.55	1008.99S	1265.22W	==>	1355.13	1401572.16	3225801.51
7700.00	90.00	272.140	7003.55	1005.25S	1365.15W	==>	1454.26	1401575.90	3225701.59
7800.00	90.00	272.140	7003.55	1001.50S	1465.08W	==>	1553.39	1401579.65	3225601.66
7900.00	90.00	272.140	7003.55	997.76S	1565.01W	==>	1652.51	1401583.39	3225501.73
8000.00	90.00	272.140	7003.55	994.02S	1664.94W	==>	1751.64	1401587.13	3225401.81
8100.00	90.00	272.140	7003.55	990.28S	1764.87W	==>	1850.76	1401590.87	3225301.88
8200.00	90.00	272.140	7003.55	986.54S	1864.80W	==>	1949.89	1401594.61	3225201.96
8300.00	90.00	272.140	7003.55	982.80S	1964.73W	==>	2049.02	1401598.35	3225102.03
8400.00	90.00	272.140	7003.55	979.06S	2064.66W	==>	2148.14	1401602.09	3225002.10
8500.00	90.00	272.140	7003.55	975.32S	2164.59W	==>	2247.27	1401605.83	3224902.18
8600.00	90.00	272.140	7003.55	971.57S	2264.52W	==>	2346.39	1401609.58	3224802.25
8700.00	90.00	272.140	7003.55	967.83S	2364.45W	==>	2445.52	1401613.32	3224702.33

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Vertical Section is from 0.00N 0.00E on azimuth 264.560 degrees
Bottom hole distance is 8368.29 Feet on azimuth 264.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 13-Dec-2013



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Well Design Combined Report
Wellbore: DT-Habitat #3-5-6 (PWB_2)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
8800.00	90.00	272.140	7003.55	964.09S	2464.38W	==>	2544.64	1401617.06	3224602.40
8900.00	90.00	272.140	7003.55	960.35S	2564.31W	==>	2643.77	1401620.80	3224502.47
9000.00	90.00	272.140	7003.55	956.61S	2664.24W	==>	2742.90	1401624.54	3224402.55
9100.00	90.00	272.140	7003.55	952.87S	2764.17W	==>	2842.02	1401628.28	3224302.62
9200.00	90.00	272.140	7003.55	949.13S	2864.10W	==>	2941.15	1401632.02	3224202.70
9300.00	90.00	272.140	7003.55	945.38S	2964.03W	==>	3040.27	1401635.76	3224102.77
9400.00	90.00	272.140	7003.55	941.64S	3063.96W	==>	3139.40	1401639.50	3224002.84
9500.00	90.00	272.140	7003.55	937.90S	3163.89W	==>	3238.53	1401643.25	3223902.92
9600.00	90.00	272.140	7003.55	934.16S	3263.82W	==>	3337.65	1401646.99	3223802.99
9700.00	90.00	272.140	7003.55	930.42S	3363.75W	==>	3436.78	1401650.73	3223703.07
9774.33	90.00	272.140	7003.55	927.64S	3438.02W	==>	3510.45	1401653.51	3223628.80
9800.00	90.00	271.630	7003.55	926.79S	3463.68W	2.00	3535.92	1401654.35	3223603.14
9802.78	90.00	271.580	7003.55	926.71S	3466.46W	2.00	3538.67	1401654.43	3223600.36
9900.00	90.00	271.580	7003.55	924.04S	3563.64W	==>	3635.17	1401657.10	3223503.18
10000.00	90.00	271.580	7003.55	921.29S	3663.61W	==>	3734.42	1401659.85	3223403.22
10100.00	90.00	271.580	7003.55	918.54S	3763.57W	==>	3833.67	1401662.60	3223303.26
10200.00	90.00	271.580	7003.55	915.80S	3863.53W	==>	3932.93	1401665.35	3223203.30
10300.00	90.00	271.580	7003.55	913.05S	3963.49W	==>	4032.18	1401668.10	3223103.34
10400.00	90.00	271.580	7003.55	910.30S	4063.46W	==>	4131.43	1401670.85	3223003.39
10500.00	90.00	271.580	7003.55	907.55S	4163.42W	==>	4230.68	1401673.60	3222903.43
10600.00	90.00	271.580	7003.55	904.80S	4263.38W	==>	4329.93	1401676.35	3222803.47
10700.00	90.00	271.580	7003.55	902.05S	4363.34W	==>	4429.18	1401679.09	3222703.51
10800.00	90.00	271.580	7003.55	899.30S	4463.30W	==>	4528.44	1401681.84	3222603.55
10900.00	90.00	271.580	7003.55	896.55S	4563.27W	==>	4627.69	1401684.59	3222503.60
11000.00	90.00	271.580	7003.55	893.81S	4663.23W	==>	4726.94	1401687.34	3222403.64
11100.00	90.00	271.580	7003.55	891.06S	4763.19W	==>	4826.19	1401690.09	3222303.68
11200.00	90.00	271.580	7003.55	888.31S	4863.15W	==>	4925.44	1401692.84	3222203.72
11300.00	90.00	271.580	7003.55	885.56S	4963.12W	==>	5024.70	1401695.59	3222103.76
11400.00	90.00	271.580	7003.55	882.81S	5063.08W	==>	5123.95	1401698.34	3222003.80
11500.00	90.00	271.580	7003.55	880.06S	5163.04W	==>	5223.20	1401701.08	3221903.85
11600.00	90.00	271.580	7003.55	877.31S	5263.00W	==>	5322.45	1401703.83	3221803.89
11700.00	90.00	271.580	7003.55	874.56S	5362.96W	==>	5421.70	1401706.58	3221703.93
11800.00	90.00	271.580	7003.55	871.82S	5462.93W	==>	5520.96	1401709.33	3221603.97
11900.00	90.00	271.580	7003.55	869.07S	5562.89W	==>	5620.21	1401712.08	3221504.01
12000.00	90.00	271.580	7003.55	866.32S	5662.85W	==>	5719.46	1401714.83	3221404.06
12100.00	90.00	271.580	7003.55	863.57S	5762.81W	==>	5818.71	1401717.58	3221304.10
12200.00	90.00	271.580	7003.55	860.82S	5862.78W	==>	5917.96	1401720.32	3221204.14
12300.00	90.00	271.580	7003.55	858.07S	5962.74W	==>	6017.22	1401723.07	3221104.18
12400.00	90.00	271.580	7003.55	855.32S	6062.70W	==>	6116.47	1401725.82	3221004.22
12500.00	90.00	271.580	7003.55	852.57S	6162.66W	==>	6215.72	1401728.57	3220904.26
12600.00	90.00	271.580	7003.55	849.82S	6262.62W	==>	6314.97	1401731.32	3220804.31
12700.00	90.00	271.580	7003.55	847.08S	6362.59W	==>	6414.22	1401734.07	3220704.35
12800.00	90.00	271.580	7003.55	844.33S	6462.55W	==>	6513.48	1401736.82	3220604.39
12900.00	90.00	271.580	7003.55	841.58S	6562.51W	==>	6612.73	1401739.57	3220504.43
13000.00	90.00	271.580	7003.55	838.83S	6662.47W	==>	6711.98	1401742.31	3220404.47
13100.00	90.00	271.580	7003.55	836.08S	6762.44W	==>	6811.23	1401745.06	3220304.51
13200.00	90.00	271.580	7003.55	833.33S	6862.40W	==>	6910.48	1401747.81	3220204.56
13300.00	90.00	271.580	7003.55	830.58S	6962.36W	==>	7009.74	1401750.56	3220104.60
13400.00	90.00	271.580	7003.55	827.83S	7062.32W	==>	7108.99	1401753.31	3220004.64
13500.00	90.00	271.580	7003.55	825.09S	7162.28W	==>	7208.24	1401756.06	3219904.68
13600.00	90.00	271.580	7003.55	822.34S	7262.25W	==>	7307.49	1401758.81	3219804.72
13700.00	90.00	271.580	7003.55	819.59S	7362.21W	==>	7406.74	1401761.55	3219704.77
13800.00	90.00	271.580	7003.55	816.84S	7462.17W	==>	7506.00	1401764.30	3219604.81
13900.00	90.00	271.580	7003.55	814.09S	7562.13W	==>	7605.25	1401767.05	3219504.85
14000.00	90.00	271.580	7003.55	811.34S	7662.10W	==>	7704.50	1401769.80	3219404.89
14100.00	90.00	271.580	7003.55	808.59S	7762.06W	==>	7803.75	1401772.55	3219304.93
14200.00	90.00	271.580	7003.55	805.84S	7862.02W	==>	7903.00	1401775.30	3219204.97
14300.00	90.00	271.580	7003.55	803.10S	7961.98W	==>	8002.26	1401778.05	3219105.02
14400.00	90.00	271.580	7003.55	800.35S	8061.94W	==>	8101.51	1401780.80	3219005.06
14500.00	90.00	271.580	7003.55	797.60S	8161.91W	==>	8200.76	1401783.54	3218905.10
14600.00	90.00	271.580	7003.55	794.85S	8261.87W	==>	8300.01	1401786.29	3218805.14

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Vertical Section is from 0.00N 0.00E on azimuth 264.560 degrees
Bottom hole distance is 8368.29 Feet on azimuth 264.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
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INTEGRATED PETROLEUM TECHNOLOGIES, INC
SYSDRILL
Well Design Combined Report
Wellbore: DT-Habitat #3-5-6 (PWB_2)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
14668.79	90.00	271.580	7003.55	792.96S	8330.64W	==>	8368.29	1401788.18	3218736.38

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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]
12 1/4	16.00	16.00	0.00N	0.00E	1000.00	1000.00	0.00N	0.00E
8 3/4	1000.00	1000.00	0.00N	0.00E	7581.00	7003.55	1009.70S	1246.23W
6 1/8	7581.00	7003.55	1009.70S	1246.23W	14668.79	7003.55	792.96S	8330.64W

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]
12 1/4in Surface Casing	16.00	16.00	0.00N	0.00E	1000.00	1000.00	0.00N	0.00E
7.0in Intermediate Casing	16.00	16.00	0.00N	0.00E	7581.00	7003.55	1009.70S	1246.23W
4 1/2in Production Liner	6358.00	6260.31	902.50S	425.59W	14668.79	7003.55	792.96S	8330.64W

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
D36	927.64S	3438.02W	7003.55	40.43316000	-104.69665000	1401653.51	3223628.80	27-Nov-2013
DT-Habitat #3-5-6	1009.70S	1246.29W	7003.55	40.43288000	-104.68878000	1401571.45	3225820.44	27-Nov-2013
- T1								
DT-Habitat #3-5-6	792.96S	8330.64W	7003.55	40.43365000	-104.71422000	1401788.18	3218736.38	27-Nov-2013
- T2								

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
142839	Planned	14668.79	7003.55	WdW Rate Gyro	Standard	

Notes

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: DT-Habitat #3-5-6 (PWB_2)

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	
DT-Habitat #3-5-6 (PWB_2)	12-Dec-2013	13-Dec-2013	

Well		
Name	Government ID	Last Revised
DT-Habitat #3-5-6		4-Apr-2013

Slot						
Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
Slot #8	1402581.1103	3227066.6798	40.43562000	-104.68427000	112.96S	1.74W

Installation				
Name	Easting	Northing	Coord System Name	North Alignment
Downtown	3227068.4245	1402694.0641	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Field				
Name	Easting	Northing	Coord System Name	North Alignment
Wattenberg	3211772.6087	1400656.3763	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]
DT-Habitat #2-5-6	DT-Habitat #2-5-6 (PWB_2)	Slot #7	Downtown	14.84	1025.00	14668.79	12.36	983.85	2.59	14668.79
DT-Habitat #4-5-6	DT-Habitat #4-5-6 (PWB_2)	Slot #9	Downtown	16.40	1242.74	14659.79	13.76	1242.74	2.63	14668.79
DT-Habitat #5-5-6	DT-Habitat #5-5-6 (PWB_2)	Slot #10	Downtown	32.79	1000.25	14650.92	30.32	983.85	4.33	14668.79
DT-Habitat #1-5-6	DT-Habitat #1-5-6 (PWB_2)	Slot #6	Downtown	32.91	1025.00	14668.79	30.43	983.85	4.34	14668.79
DT-Lopez #2-5-6	DT-Lopez #2-5-6 (PWB)	Slot #5	Downtown	45.89	1049.46	12527.55	43.57	1049.46	5.58	12762.06
DT-Martinez #1-5-6	DT-Martinez #1-5-6 (PWB)	Slot #11	Downtown	47.36	850.20	14641.92	45.21	850.20	6.66	14668.79
Erbes #5-2H5	Erbes #5-2H5 (AWB)	Erbes #5-2H5	Downtown Pad offsets	48.24	2542.25	2542.25	31.34	2542.25	2.85	2558.65
ERBES #5-2H5	ERBES #5-2H5 (AWB)	ERBES #5-2H5	Island Grove Offsets	48.24	2542.25	2542.25	31.34	2542.25	2.85	2558.65
DT-Lextron #1-32-32	DT-Lextron #1-32-32 (PWB)	Slot #4	Downtown	62.00	704.98	704.98	60.04	770.59	27.19	983.85
DT-Pioneer #2-5-17	DT-Pioneer #2-5-17 (PWB)	Slot #12	Downtown	65.58	800.30	800.30	63.51	800.30	29.63	967.44

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Wellbore: DT-Habitat #3-5-6 (PWB_2)

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]
DT-Pioneer #1-5-17	DT-Pioneer #1-5-17 (PWB)	Slot #13	Downtown	80.15	750.40	750.40	78.16	750.40	37.15	967.44
DT-Lopez #1-5-6	DT-Lopez #1-5-6 (PWB)	Slot #3	Downtown	80.20	699.60	12574.87	78.29	699.60	7.80	12762.06
DT-Heath #2-5-8	DT-Heath #2-5-8 (PWB)	Slot #2	Downtown	94.76	649.50	7016.00	92.94	649.50	22.07	7135.42
DT-StarPak #5-5-17	DT-StarPak #5-5-17 (PWB)	Slot #14	Downtown	98.36	700.40	700.40	96.46	700.40	46.81	951.04
DT-StarPak #4-5-17	DT-StarPak #4-5-17 (PWB)	Slot #15	Downtown	112.97	650.60	650.60	111.15	650.60	55.37	918.23
DT-Heath #1-5-8	DT-Heath #1-5-8 (PWB)	Slot #1	Downtown	112.97	599.50	7152.82	106.25	7168.23	6.55	7201.04
DT-StarPak #3-5-17	DT-StarPak #3-5-17 (PWB)	Slot #16	Downtown	127.54	600.60	600.60	125.75	557.34	64.22	901.83
Warnoco 6-2-6	Warnoco 6-2-6 (AWB)	Warnoco 6-2-6	Island Grove Offsets	138.79	11053.16	11053.16	36.22	11016.00	1.33	11006.81
DT-StarPak #2-5-17	DT-StarPak #2-5-17 (PWB)	Slot #17	Downtown	145.75	550.50	550.50	143.98	550.50	59.22	7086.21
DT-StarPak #1-5-17	DT-StarPak #1-5-17 (PWB)	Slot #18	Downtown	160.32	491.72	491.72	158.64	491.72	55.64	7250.25
Gas 2-2-5	Gas 2-2-5 (AWB)	Gas 2-2-5	Island Grove Offsets	173.87	8521.00	8521.00	107.61	8562.59	2.46	8595.40
DT-Martinez #2-5-6	DT-Martinez #2-5-6 (PWB)	Slot #19	Downtown	178.54	450.40	14630.13	176.92	450.40	8.67	14668.79
DT-Martinez #3-5-6	DT-Martinez #3-5-6 (PWB)	Slot #20	Downtown	193.11	400.40	14618.62	191.58	400.40	10.89	14668.79
DT-Forbes #1-5-6	DT-Forbes #1-5-6 (PWB)	Slot #21	Downtown	207.68	350.60	14606.57	206.23	350.60	13.00	14668.79
DT-Forbes #2-5-6	DT-Forbes #2-5-6 (PWB)	Slot #22	Downtown	225.89	300.80	14594.52	224.52	300.80	15.29	14668.79
DT-Forbes #3-5-6	DT-Forbes #3-5-6 (PWB)	Slot #23	Downtown	240.45	250.55	14582.93	239.15	250.55	17.45	14668.79
DT-Forbes #4-5-6	DT-Forbes #4-5-6 (PWB)	Slot #24	Downtown	255.04	200.55	200.55	253.82	200.55	133.89	6774.53
DT-Forbes #5-5-6	DT-Forbes #5-5-6 (PWB)	Slot #25	Downtown	273.25	151.55	151.55	272.11	151.55	158.81	6282.40
DT-Luther #1-5-6	DT-Luther #1-5-6 (PWB)	Slot #26	Downtown	287.82	101.55	101.55	286.77	101.55	166.71	5970.72
CS-Longmeadow #2-1-12	CS-Longmeadow #2-1-12 (PWB)	Slot #17	C Street Pad	461.84	14668.79	14668.79	430.57	14668.79	14.77	14668.79
CS-Longmeadow #1-1-12	CS-Longmeadow #1-1-12 (PWB)	Slot #18	C Street Pad	794.53	14668.79	14668.79	764.05	14668.79	26.07	14668.79
W Mcelroy #41-5	W Mcelroy #41-5 (AWB)	Mcelroy #41-5	Downtown Pad offsets	994.58	1640.43	1640.43	981.57	1771.25	45.49	5954.32
Namara	Namara	Namara	Island Grove	1015.90	819.81	7859.83	1011.69	934.64	36.21	8070.46

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Wellbore: DT-Habitat #3-5-6 (PWB_2)

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]
3-7-32	3-7-32 (AWB)	3-7-32	Offsets							
Joz A 5-7-32	Joz A 5-7-32 (AWB)	Joz A 5-7-32	Island Grove Offsets	1045.75	1025.00	1025.00	1035.66	983.85	71.71	5872.30
Thermo 5-5-32	Thermo 5-5-32 (AWB)	Thermo 5-5-32	Island Grove Offsets	1048.66	17.55	17.55	1046.95	130.83	136.29	4297.50
CS-Kinkade #5-1-12	CS-Kinkade #5-1-12 (PWB)	Slot #19	C Street Pad	1126.11	14668.79	14668.79	1095.05	14668.79	36.26	14668.79
CS-Kinkade #4-1-12	CS-Kinkade #4-1-12 (PWB)	Slot #20	C Street Pad	1460.01	14668.79	14668.79	1429.33	14668.79	47.59	14668.79
CS-Kinkade #3-1-12	CS-Kinkade #3-1-12 (PWB)	Slot #21	C Street Pad	1791.90	14668.79	14668.79	1761.07	14668.79	58.12	14668.79
4H 5-7-31	4H 5-7-31 (AWB)	4H 5-7-31	Island Grove Offsets	1803.85	11868.09	11868.09	1687.64	11843.43	15.38	11679.39
Arnold #1	Arnold #1 (AWB)	Arnold #1	Downtown Pad offsets	1862.32	6380.83	6380.83	1830.49	6380.83	57.71	6610.49
Island Grove 2-32	Island Grove 2-32 (AWB)	Island Grove 2-32	Island Grove Offsets	1890.69	8540.72	8540.72	1835.49	8562.59	31.60	9136.73
CS-Kinkade #2-1-12	CS-Kinkade #2-1-12 (PWB)	Slot #22	C Street Pad	2126.72	14668.79	14668.79	2096.14	14668.79	69.54	14668.79
CS-Kinkade #1-1-12	CS-Kinkade #1-1-12 (PWB)	Slot #23	C Street Pad	2460.28	14668.79	14668.79	2429.52	14668.79	79.98	14668.79