



INTEGRATED PETROLEUM TECHNOLOGIES, INC  
 SYSDRILL  
 Well Design Combined Report  
 Wellbore: SPICER\_FRONTIER #3-32H (PWB)

Wellhead Details							
Name	Northing	Easting	Latitude	Longitude	North	East	Elevation Above Inst.
Slot #1	1436566.1695	2748618.6490	40.52825600	-106.40431900	0.00N	0.00E	-0.00

Declination			
Date	Source	Time	
20-Feb-2014	IGRF Model [1900.0-2015.0]		14:24

Site Details				
Name	Northing	Easting	Coord System Name	North Alignment
SPICER_FRONTIER	1436566.1695	2748618.6490	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	1436566.17	2748618.65
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
1084.80	5.70	198.440	1084.33	13.42S	4.48W	2.00	-14.15	1436552.75	2748614.17
6760.67	5.70	198.440	6732.18	547.82S	182.70W	==>	-577.48	1436018.36	2748435.96
7717.63	90.00	18.450	7362.00	7.00S	2.26W	10.00	-7.36	1436559.17	2748616.39
12005.66	90.00	18.450	7362.00	4060.63N	1354.78E	==>	4280.67	1440626.66	2749973.38

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	1436566.17	2748618.65
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	1436566.17	2748618.65
900.00	2.00	198.440	899.98	1.66S	0.55W	2.00	-1.75	1436564.51	2748618.10
1000.00	4.00	198.440	999.84	6.62S	2.21W	2.00	-6.98	1436559.55	2748616.44
1084.80	5.70	198.440	1084.33	13.42S	4.48W	2.00	-14.15	1436552.75	2748614.17
1100.00	5.70	198.440	1099.46	14.85S	4.95W	==>	-15.65	1436551.32	2748613.70
1200.00	5.70	198.440	1198.96	24.26S	8.09W	==>	-25.58	1436541.91	2748610.56
1300.00	5.70	198.440	1298.47	33.68S	11.23W	==>	-35.50	1436532.49	2748607.42
1400.00	5.70	198.440	1397.97	43.10S	14.37W	==>	-45.43	1436523.08	2748604.28
1500.00	5.70	198.440	1497.48	52.51S	17.51W	==>	-55.35	1436513.66	2748601.14
1600.00	5.70	198.440	1596.99	61.93S	20.65W	==>	-65.28	1436504.25	2748598.00
1700.00	5.70	198.440	1696.49	71.34S	23.79W	==>	-75.20	1436494.83	2748594.86
1800.00	5.70	198.440	1796.00	80.76S	26.93W	==>	-85.13	1436485.42	2748591.72
1900.00	5.70	198.440	1895.51	90.17S	30.07W	==>	-95.05	1436476.00	2748588.58
2000.00	5.70	198.440	1995.01	99.59S	33.21W	==>	-104.98	1436466.58	2748585.44
2100.00	5.70	198.440	2094.52	109.00S	36.35W	==>	-114.91	1436457.17	2748582.30
2200.00	5.70	198.440	2194.02	118.42S	39.49W	==>	-124.83	1436447.75	2748579.16
2300.00	5.70	198.440	2293.53	127.83S	42.63W	==>	-134.76	1436438.34	2748576.02
2400.00	5.70	198.440	2393.04	137.25S	45.77W	==>	-144.68	1436428.92	2748572.88
2500.00	5.70	198.440	2492.54	146.66S	48.91W	==>	-154.61	1436419.51	2748569.74
2600.00	5.70	198.440	2592.05	156.08S	52.05W	==>	-164.53	1436410.09	2748566.60
2700.00	5.70	198.440	2691.56	165.50S	55.19W	==>	-174.46	1436400.68	2748563.46
2800.00	5.70	198.440	2791.06	174.91S	58.33W	==>	-184.38	1436391.26	2748560.32
2900.00	5.70	198.440	2890.57	184.33S	61.47W	==>	-194.31	1436381.85	2748557.18
3000.00	5.70	198.440	2990.07	193.74S	64.61W	==>	-204.23	1436372.43	2748554.04
3100.00	5.70	198.440	3089.58	203.16S	67.75W	==>	-214.16	1436363.02	2748550.90
3200.00	5.70	198.440	3189.09	212.57S	70.89W	==>	-224.08	1436353.60	2748547.76
3300.00	5.70	198.440	3288.59	221.99S	74.03W	==>	-234.01	1436344.19	2748544.62
3400.00	5.70	198.440	3388.10	231.40S	77.17W	==>	-243.93	1436334.77	2748541.48
3500.00	5.70	198.440	3487.61	240.82S	80.31W	==>	-253.86	1436325.36	2748538.34
3600.00	5.70	198.440	3587.11	250.23S	83.45W	==>	-263.78	1436315.94	2748535.20

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 8225.0ft above Mean Sea Level )  
 Vertical Section is from 0.00N 0.00E on azimuth 18.450 degrees  
 Bottom hole distance is 4280.67 Feet on azimuth 18.45 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by Integrated Petroleum Technologies, Inc.  
 Date Printed: 20-Feb-2014



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 SYSDRILL  
 Well Design Combined Report  
 Wellbore: SPICER\_FRONTIER #3-32H (PWB)

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
3700.00	5.70	198.440	3686.62	259.65S	86.59W	==>	-273.71	1436306.53	2748532.06
3800.00	5.70	198.440	3786.12	269.06S	89.73W	==>	-283.63	1436297.11	2748528.92
3900.00	5.70	198.440	3885.63	278.48S	92.87W	==>	-293.56	1436287.70	2748525.78
4000.00	5.70	198.440	3985.14	287.90S	96.01W	==>	-303.48	1436278.28	2748522.64
4100.00	5.70	198.440	4084.64	297.31S	99.15W	==>	-313.41	1436268.87	2748519.50
4200.00	5.70	198.440	4184.15	306.73S	102.29W	==>	-323.33	1436259.45	2748516.36
4300.00	5.70	198.440	4283.66	316.14S	105.43W	==>	-333.26	1436250.04	2748513.22
4400.00	5.70	198.440	4383.16	325.56S	108.57W	==>	-343.18	1436240.62	2748510.08
4500.00	5.70	198.440	4482.67	334.97S	111.71W	==>	-353.11	1436231.21	2748506.94
4600.00	5.70	198.440	4582.17	344.39S	114.85W	==>	-363.03	1436221.79	2748503.80
4700.00	5.70	198.440	4681.68	353.80S	117.99W	==>	-372.96	1436212.38	2748500.66
4800.00	5.70	198.440	4781.19	363.22S	121.13W	==>	-382.88	1436202.96	2748497.52
4900.00	5.70	198.440	4880.69	372.63S	124.27W	==>	-392.81	1436193.55	2748494.38
5000.00	5.70	198.440	4980.20	382.05S	127.41W	==>	-402.73	1436184.13	2748491.24
5100.00	5.70	198.440	5079.71	391.46S	130.55W	==>	-412.66	1436174.72	2748488.10
5200.00	5.70	198.440	5179.21	400.88S	133.69W	==>	-422.59	1436165.30	2748484.96
5300.00	5.70	198.440	5278.72	410.30S	136.83W	==>	-432.51	1436155.89	2748481.82
5400.00	5.70	198.440	5378.22	419.71S	139.97W	==>	-442.44	1436146.47	2748478.68
5500.00	5.70	198.440	5477.73	429.13S	143.11W	==>	-452.36	1436137.06	2748475.54
5600.00	5.70	198.440	5577.24	438.54S	146.25W	==>	-462.29	1436127.64	2748472.40
5700.00	5.70	198.440	5676.74	447.96S	149.39W	==>	-472.21	1436118.23	2748469.26
5800.00	5.70	198.440	5776.25	457.37S	152.53W	==>	-482.14	1436108.81	2748466.12
5900.00	5.70	198.440	5875.76	466.79S	155.67W	==>	-492.06	1436099.40	2748462.98
6000.00	5.70	198.440	5975.26	476.20S	158.81W	==>	-501.99	1436089.98	2748459.84
6100.00	5.70	198.440	6074.77	485.62S	161.95W	==>	-511.91	1436080.57	2748456.70
6200.00	5.70	198.440	6174.27	495.03S	165.09W	==>	-521.84	1436071.15	2748453.56
6300.00	5.70	198.440	6273.78	504.45S	168.23W	==>	-531.76	1436061.74	2748450.42
6400.00	5.70	198.440	6373.29	513.86S	171.37W	==>	-541.69	1436052.32	2748447.28
6500.00	5.70	198.440	6472.79	523.28S	174.51W	==>	-551.61	1436042.91	2748444.14
6600.00	5.70	198.440	6572.30	532.70S	177.65W	==>	-561.54	1436033.49	2748441.00
6700.00	5.70	198.440	6671.81	542.11S	180.79W	==>	-571.46	1436024.08	2748437.86
6760.67	5.70	198.440	6732.18	547.82S	182.70W	==>	-577.48	1436018.36	2748435.96
6800.00	1.76	198.430	6771.41	550.25S	183.51W	10.00	-580.04	1436015.94	2748435.15
6900.00	8.24	18.450	6871.13	544.90S	181.72W	10.00	-574.40	1436021.29	2748436.94
7000.00	18.24	18.450	6968.35	523.21S	174.48W	10.00	-551.53	1436042.98	2748444.17
7100.00	28.24	18.450	7060.12	485.83S	162.01W	10.00	-512.13	1436080.36	2748456.64
7200.00	38.24	18.450	7143.65	433.90S	144.69W	10.00	-457.39	1436132.28	2748473.97
7300.00	48.24	18.450	7216.41	369.00S	123.03W	10.00	-388.97	1436197.18	2748495.62
7400.00	58.24	18.450	7276.19	293.11S	97.71W	10.00	-308.96	1436273.07	2748520.94
7500.00	68.24	18.450	7321.16	208.52S	69.49W	10.00	-219.79	1436357.66	2748549.16
7600.00	78.24	18.450	7349.97	117.80S	39.23W	10.00	-124.16	1436448.37	2748579.42
7700.00	88.24	18.450	7361.73	23.72S	7.84W	10.00	-24.98	1436542.45	2748610.81
7717.63	90.00	18.450	7362.00	7.00S	2.26W	10.00	-7.36	1436559.17	2748616.39
7800.00	90.00	18.450	7362.00	71.14N	23.81E	==>	75.01	1436637.30	2748642.46
7900.00	90.00	18.450	7362.00	166.00N	55.45E	==>	175.01	1436732.16	2748674.10
8000.00	90.00	18.450	7362.00	260.86N	87.10E	==>	275.01	1436827.02	2748705.75
8100.00	90.00	18.450	7362.00	355.72N	118.75E	==>	375.01	1436921.87	2748737.39
8200.00	90.00	18.450	7362.00	450.58N	150.40E	==>	475.01	1437016.73	2748769.04
8300.00	90.00	18.450	7362.00	545.44N	182.04E	==>	575.01	1437111.59	2748800.69
8400.00	90.00	18.450	7362.00	640.30N	213.69E	==>	675.01	1437206.45	2748832.33
8500.00	90.00	18.450	7362.00	735.16N	245.34E	==>	775.01	1437301.30	2748863.98
8600.00	90.00	18.450	7362.00	830.02N	276.99E	==>	875.01	1437396.16	2748895.62
8700.00	90.00	18.450	7362.00	924.88N	308.63E	==>	975.01	1437491.02	2748927.27
8800.00	90.00	18.450	7362.00	1019.74N	340.28E	==>	1075.01	1437585.87	2748958.92
8900.00	90.00	18.450	7362.00	1114.60N	371.93E	==>	1175.01	1437680.73	2748990.56
9000.00	90.00	18.450	7362.00	1209.46N	403.57E	==>	1275.01	1437775.59	2749022.21
9100.00	90.00	18.450	7362.00	1304.32N	435.22E	==>	1375.01	1437870.44	2749053.86
9200.00	90.00	18.450	7362.00	1399.18N	466.87E	==>	1475.01	1437965.30	2749085.50
9300.00	90.00	18.450	7362.00	1494.04N	498.52E	==>	1575.01	1438060.16	2749117.15
9400.00	90.00	18.450	7362.00	1588.90N	530.16E	==>	1675.01	1438155.02	2749148.79
9500.00	90.00	18.450	7362.00	1683.76N	561.81E	==>	1775.01	1438249.87	2749180.44

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 Vertical Section is from 0.00N 0.00E on azimuth 18.450 degrees  
 Bottom hole distance is 4280.67 Feet on azimuth 18.45 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by Integrated Petroleum Technologies, Inc.  
 Date Printed: 20-Feb-2014



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 SYSDRILL  
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Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Northing	Easting
9600.00	90.00	18.450	7362.00	1778.62N	593.46E	==>	1875.01	1438344.73	2749212.09
9700.00	90.00	18.450	7362.00	1873.48N	625.10E	==>	1975.01	1438439.59	2749243.73
9800.00	90.00	18.450	7362.00	1968.34N	656.75E	==>	2075.01	1438534.44	2749275.38
9900.00	90.00	18.450	7362.00	2063.20N	688.40E	==>	2175.01	1438629.30	2749307.02
10000.00	90.00	18.450	7362.00	2158.06N	720.05E	==>	2275.01	1438724.16	2749338.67
10100.00	90.00	18.450	7362.00	2252.92N	751.69E	==>	2375.01	1438819.01	2749370.32
10200.00	90.00	18.450	7362.00	2347.78N	783.34E	==>	2475.01	1438913.87	2749401.96
10300.00	90.00	18.450	7362.00	2442.64N	814.99E	==>	2575.01	1439008.73	2749433.61
10400.00	90.00	18.450	7362.00	2537.50N	846.63E	==>	2675.01	1439103.59	2749465.26
10500.00	90.00	18.450	7362.00	2632.36N	878.28E	==>	2775.01	1439198.44	2749496.90
10600.00	90.00	18.450	7362.00	2727.22N	909.93E	==>	2875.01	1439293.30	2749528.55
10700.00	90.00	18.450	7362.00	2822.08N	941.58E	==>	2975.01	1439388.16	2749560.19
10800.00	90.00	18.450	7362.00	2916.94N	973.22E	==>	3075.01	1439483.01	2749591.84
10900.00	90.00	18.450	7362.00	3011.80N	1004.87E	==>	3175.01	1439577.87	2749623.49
11000.00	90.00	18.450	7362.00	3106.66N	1036.52E	==>	3275.01	1439672.73	2749655.13
11100.00	90.00	18.450	7362.00	3201.52N	1068.16E	==>	3375.01	1439767.58	2749686.78
11200.00	90.00	18.450	7362.00	3296.38N	1099.81E	==>	3475.01	1439862.44	2749718.42
11300.00	90.00	18.450	7362.00	3391.24N	1131.46E	==>	3575.01	1439957.30	2749750.07
11400.00	90.00	18.450	7362.00	3486.10N	1163.11E	==>	3675.01	1440052.16	2749781.72
11500.00	90.00	18.450	7362.00	3580.96N	1194.75E	==>	3775.01	1440147.01	2749813.36
11600.00	90.00	18.450	7362.00	3675.82N	1226.40E	==>	3875.01	1440241.87	2749845.01
11700.00	90.00	18.450	7362.00	3770.68N	1258.05E	==>	3975.01	1440336.73	2749876.65
11800.00	90.00	18.450	7362.00	3865.54N	1289.70E	==>	4075.01	1440431.58	2749908.30
11900.00	90.00	18.450	7362.00	3960.40N	1321.34E	==>	4175.01	1440526.44	2749939.95
12000.00	90.00	18.450	7362.00	4055.26N	1352.99E	==>	4275.01	1440621.30	2749971.59
12005.66	90.00	18.450	7362.00	4060.63N	1354.78E	==>	4280.67	1440626.66	2749973.38

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 Vertical Section is from 0.00N 0.00E on azimuth 18.450 degrees  
 Bottom hole distance is 4280.67 Feet on azimuth 18.45 degrees from Wellhead  
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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	0.00	0.00	0.00N	0.00E	800.00	800.00	0.00N	0.00E
8 3/4	800.00	800.00	0.00N	0.00E	7717.00	7362.00	7.60S	2.46W
6 1/8	7717.00	7362.00	7.60S	2.46W	12005.66	7362.00	4060.63N	1354.78E

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	800.00	800.00	0.00N	0.00E
7.0in Intermediate Casing	0.00	0.00	0.00N	0.00E	7717.00	7362.00	7.60S	2.46W
4 1/2in Production Liner	7517.00	7327.23	193.45S	64.46W	12005.66	7362.00	4060.63N	1354.78E

Targets								
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting	Last Revised
SPICER_FRONTIER #3-32H - BH	4060.63N	1354.78E	7362.00	40.53943900	-106.39959400	1440626.66	2749973.38	23-Apr-2013
SPICER_FRONTIER #3-32H - T1	7.00S	2.26W	7362.00	40.52823672	-106.40432687	1436559.17	2748616.39	23-Apr-2013

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
162154	Planned	12005.66	7362.00	WdW Rate Gyro	Standard	

Notes

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 Vertical Section is from 0.00N 0.00E on azimuth 18.450 degrees  
 Bottom hole distance is 4280.67 Feet on azimuth 18.45 degrees from Wellhead  
 Calculation method uses Minimum Curvature method  
 Prepared by Integrated Petroleum Technologies, Inc.  
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