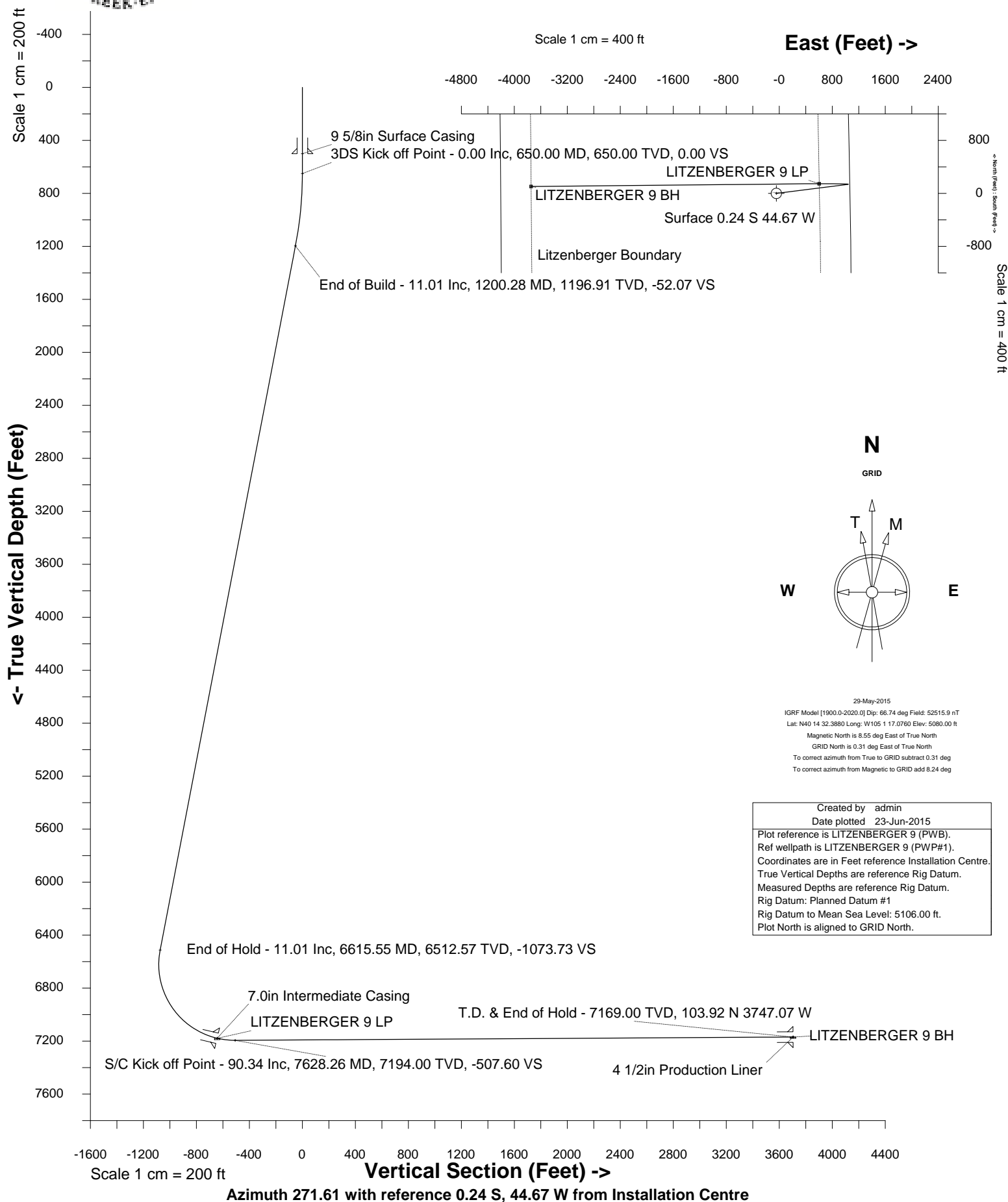




Cub Creek Energy, LLC

Location	Weld County, CO	Slot	LITZENBERGER 9
Field	WATTENBERG	Well	LITZENBERGER 9
Installation	Litzenberger Pad - Finalized	Wellbore	LITZENBERGER 9 (PWB)





SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 9 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
LITZENBERGER 9	40.24233000	-105.02157000	1331482.9114	3133556.9576	0.24S	44.67W	0.00

Declination		
Date	Source	Time
29-May-2015	IGRF Model [1900.0-2020.0]	11:25

Installation Details						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Litzenberger Pad - Finalized	40.24233000	-105.02141000	1331483.1524	3133601.6223	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	1331482.91	3133556.96
11842.83	90.34	269.440	7169.00	104.17N	3702.40W	==>	3703.87	1331587.07	3129854.72

Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
0.00	0.00	0.000	0.00	0.00N	0.00E		0.00	Rig Datum Slot Datum
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	9 5/8in Surface Casing
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	1.00	82.820	700.00	0.05N	0.43E	2.00	-0.43	
800.00	3.00	82.820	799.93	0.49N	3.90E	2.00	-3.88	
900.00	5.00	82.820	899.68	1.36N	10.82E	2.00	-10.77	
1000.00	7.00	82.820	999.13	2.67N	21.19E	2.00	-21.10	
1100.00	9.00	82.820	1098.15	4.41N	34.99E	2.00	-34.86	
1200.00	11.00	82.820	1196.63	6.58N	52.22E	2.00	-52.02	
1300.00	11.01	82.820	1294.79	8.96N	71.16E	==>	-70.88	
1400.00	11.01	82.820	1392.95	11.35N	90.10E	==>	-89.75	
1500.00	11.01	82.820	1491.11	13.73N	109.04E	==>	-108.62	
1600.00	11.01	82.820	1589.27	16.12N	127.99E	==>	-127.48	
1700.00	11.01	82.820	1687.43	18.51N	146.93E	==>	-146.35	
1800.00	11.01	82.820	1785.59	20.89N	165.87E	==>	-165.21	
1900.00	11.01	82.820	1883.75	23.28N	184.81E	==>	-184.08	
2000.00	11.01	82.820	1981.91	25.66N	203.75E	==>	-202.95	
2100.00	11.01	82.820	2080.07	28.05N	222.69E	==>	-221.81	
2200.00	11.01	82.820	2178.24	30.44N	241.63E	==>	-240.68	
2300.00	11.01	82.820	2276.40	32.82N	260.57E	==>	-259.55	
2400.00	11.01	82.820	2374.56	35.21N	279.51E	==>	-278.41	
2500.00	11.01	82.820	2472.72	37.59N	298.45E	==>	-297.28	
2600.00	11.01	82.820	2570.88	39.98N	317.39E	==>	-316.15	
2700.00	11.01	82.820	2669.04	42.36N	336.34E	==>	-335.01	
2800.00	11.01	82.820	2767.20	44.75N	355.28E	==>	-353.88	
2900.00	11.01	82.820	2865.36	47.14N	374.22E	==>	-372.74	
3000.00	11.01	82.820	2963.52	49.52N	393.16E	==>	-391.61	
3100.00	11.01	82.820	3061.68	51.91N	412.10E	==>	-410.48	
3200.00	11.01	82.820	3159.84	54.29N	431.04E	==>	-429.34	
3300.00	11.01	82.820	3258.00	56.68N	449.98E	==>	-448.21	
3400.00	11.01	82.820	3356.17	59.06N	468.92E	==>	-467.08	
3500.00	11.01	82.820	3454.33	61.45N	487.86E	==>	-485.94	

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Bottom hole distance is 3703.87 Feet on azimuth 271.61 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 23-Jun-2015



SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 9 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
3600.00	11.01	82.820	3552.49	63.84N	506.80E	==>	-504.81	
3700.00	11.01	82.820	3650.65	66.22N	525.75E	==>	-523.68	
3800.00	11.01	82.820	3748.81	68.61N	544.69E	==>	-542.54	
3900.00	11.01	82.820	3846.97	70.99N	563.63E	==>	-561.41	
4000.00	11.01	82.820	3945.13	73.38N	582.57E	==>	-580.27	
4100.00	11.01	82.820	4043.29	75.76N	601.51E	==>	-599.14	
4200.00	11.01	82.820	4141.45	78.15N	620.45E	==>	-618.01	
4300.00	11.01	82.820	4239.61	80.54N	639.39E	==>	-636.87	
4400.00	11.01	82.820	4337.77	82.92N	658.33E	==>	-655.74	
4500.00	11.01	82.820	4435.93	85.31N	677.27E	==>	-674.61	
4600.00	11.01	82.820	4534.10	87.69N	696.21E	==>	-693.47	
4700.00	11.01	82.820	4632.26	90.08N	715.15E	==>	-712.34	
4800.00	11.01	82.820	4730.42	92.46N	734.10E	==>	-731.21	
4900.00	11.01	82.820	4828.58	94.85N	753.04E	==>	-750.07	
5000.00	11.01	82.820	4926.74	97.24N	771.98E	==>	-768.94	
5100.00	11.01	82.820	5024.90	99.62N	790.92E	==>	-787.80	
5200.00	11.01	82.820	5123.06	102.01N	809.86E	==>	-806.67	
5300.00	11.01	82.820	5221.22	104.39N	828.80E	==>	-825.54	
5400.00	11.01	82.820	5319.38	106.78N	847.74E	==>	-844.40	
5500.00	11.01	82.820	5417.54	109.16N	866.68E	==>	-863.27	
5600.00	11.01	82.820	5515.70	111.55N	885.62E	==>	-882.14	
5700.00	11.01	82.820	5613.86	113.94N	904.56E	==>	-901.00	
5800.00	11.01	82.820	5712.03	116.32N	923.51E	==>	-919.87	
5900.00	11.01	82.820	5810.19	118.71N	942.45E	==>	-938.74	
6000.00	11.01	82.820	5908.35	121.09N	961.39E	==>	-957.60	
6100.00	11.01	82.820	6006.51	123.48N	980.33E	==>	-976.47	
6200.00	11.01	82.820	6104.67	125.87N	999.27E	==>	-995.33	
6300.00	11.01	82.820	6202.83	128.25N	1018.21E	==>	-1014.20	
6400.00	11.01	82.820	6300.99	130.64N	1037.15E	==>	-1033.07	
6500.00	11.01	82.820	6399.15	133.02N	1056.09E	==>	-1051.93	
6600.00	11.01	82.820	6497.31	135.41N	1075.03E	==>	-1070.80	
6700.00	2.80	62.120	6596.35	137.75N	1087.82E	10.00	-1083.51	
6800.00	7.62	279.090	6696.10	139.95N	1083.41E	10.00	-1079.05	
6900.00	17.56	273.510	6793.58	141.93N	1061.75E	10.00	-1057.34	
7000.00	27.54	271.910	6885.82	143.62N	1023.49E	10.00	-1019.05	
7100.00	37.53	271.120	6970.01	144.99N	969.79E	10.00	-965.33	
7200.00	47.53	270.620	7043.61	145.99N	902.29E	10.00	-897.83	
7300.00	57.52	270.260	7104.38	146.58N	823.03E	10.00	-818.58	
7400.00	67.52	269.980	7150.46	146.76N	734.42E	10.00	-730.01	7.0in Intermediate Casing
7491.00	76.62	269.750	7178.45	146.55N	647.94E	10.00	-643.56	
7500.00	77.52	269.730	7180.46	146.51N	639.16E	10.00	-634.79	
7600.00	87.51	269.500	7193.47	145.84N	540.14E	10.00	-535.83	
7700.00	90.34	269.440	7193.57	144.87N	440.16E	==>	-435.91	
7800.00	90.34	269.440	7192.98	143.89N	340.17E	==>	-335.98	
7900.00	90.34	269.440	7192.39	142.91N	240.17E	==>	-236.06	
8000.00	90.34	269.440	7191.79	141.93N	140.18E	==>	-136.13	
8100.00	90.34	269.440	7191.20	140.94N	40.18E	==>	-36.21	
8200.00	90.34	269.440	7190.61	139.96N	59.81W	==>	63.72	
8300.00	90.34	269.440	7190.02	138.98N	159.80W	==>	163.65	
8400.00	90.34	269.440	7189.42	138.00N	259.80W	==>	263.57	
8500.00	90.34	269.440	7188.83	137.01N	359.79W	==>	363.50	
8600.00	90.34	269.440	7188.24	136.03N	459.78W	==>	463.43	
8700.00	90.34	269.440	7187.64	135.05N	559.78W	==>	563.35	
8800.00	90.34	269.440	7187.05	134.06N	659.77W	==>	663.28	
8900.00	90.34	269.440	7186.46	133.08N	759.76W	==>	763.20	
9000.00	90.34	269.440	7185.86	132.10N	859.76W	==>	863.13	
9100.00	90.34	269.440	7185.27	131.12N	959.75W	==>	963.06	
9200.00	90.34	269.440	7184.68	130.13N	1059.74W	==>	1062.98	
9300.00	90.34	269.440	7184.08	129.15N	1159.74W	==>	1162.91	
9400.00	90.34	269.440	7183.49	128.17N	1259.73W	==>	1262.84	

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Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 23-Jun-2015



SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 9 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
9500.00	90.34	269.440	7182.90	127.19N	1359.72W	==>	1362.76	
9600.00	90.34	269.440	7182.30	126.20N	1459.72W	==>	1462.69	
9700.00	90.34	269.440	7181.71	125.22N	1559.71W	==>	1562.61	
9800.00	90.34	269.440	7181.12	124.24N	1659.70W	==>	1662.54	
9900.00	90.34	269.440	7180.52	123.26N	1759.70W	==>	1762.47	
10000.00	90.34	269.440	7179.93	122.27N	1859.69W	==>	1862.39	
10100.00	90.34	269.440	7179.34	121.29N	1959.68W	==>	1962.32	
10200.00	90.34	269.440	7178.74	120.31N	2059.68W	==>	2062.25	
10300.00	90.34	269.440	7178.15	119.33N	2159.67W	==>	2162.17	
10400.00	90.34	269.440	7177.56	118.34N	2259.66W	==>	2262.10	
10500.00	90.34	269.440	7176.97	117.36N	2359.66W	==>	2362.02	
10600.00	90.34	269.440	7176.37	116.38N	2459.65W	==>	2461.95	
10700.00	90.34	269.440	7175.78	115.40N	2559.64W	==>	2561.88	
10800.00	90.34	269.440	7175.19	114.41N	2659.64W	==>	2661.80	
10900.00	90.34	269.440	7174.59	113.43N	2759.63W	==>	2761.73	
11000.00	90.34	269.440	7174.00	112.45N	2859.62W	==>	2861.66	
11100.00	90.34	269.440	7173.41	111.46N	2959.62W	==>	2961.58	
11200.00	90.34	269.440	7172.81	110.48N	3059.61W	==>	3061.51	
11300.00	90.34	269.440	7172.22	109.50N	3159.60W	==>	3161.43	
11400.00	90.34	269.440	7171.63	108.52N	3259.60W	==>	3261.36	
11500.00	90.34	269.440	7171.03	107.53N	3359.59W	==>	3361.29	
11600.00	90.34	269.440	7170.44	106.55N	3459.58W	==>	3461.21	
11700.00	90.34	269.440	7169.85	105.57N	3559.58W	==>	3561.14	
11800.00	90.34	269.440	7169.25	104.59N	3659.57W	==>	3661.07	
11842.83	90.34	269.440	7169.00	104.17N	3702.40W	==>	3703.87	4 1/2in Production Liner

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SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 9 (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]
12 1/4	25.00	25.00	0.00N	0.00E	500.00	500.00	0.00N	0.00E
8 3/4	500.00	500.00	0.00N	0.00E	7491.00	7178.45	146.55N	647.94E
6 1/8	7491.00	7178.45	146.55N	647.94E	11842.83	7169.00	104.17N	3702.40W

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	500.00	500.00	0.00N	0.00E
7.0in Intermediate Casing	25.00	25.00	0.00N	0.00E	7491.00	7178.45	146.55N	647.94E
4 1/2in Production Liner	6726.00	6622.34	138.34N	1088.35E	11842.83	7169.00	104.17N	3702.40W

Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
LITZENBERGER 9 LP	145.58N	646.90E	7179.00	40.24272000	-105.01925000	1331628.48	3134203.82
LITZENBERGER 9 BH	104.17N	3702.40W	7169.00	40.24267000	-105.03483000	1331587.07	3129854.72

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
391541	Planned	11842.83	7169.00	ISCWSA MWD	Rev 3 + Fixed Rig + Rotating	

Notes

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 9 (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
LITZENBERGER 9 (PWB)	19-Jun-2015	22-Jun-2015

Well		
Name	Government ID	Last Revised
LITZENBERGER 9		16-Jun-2015

Slot						
Name	Latitude	Longitude	Grid Northing	Grid Easting	North	East
LITZENBERGER 9	40.24233000	-105.02157000	1331482.9114	3133556.9576	0.24S	44.67W

Installation						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Easting	Northing	Coord System Name	North Alignment
Litzenberger Pad - Finalized	40.24233000	-105.02141000	3133601.6223	1331483.1524	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

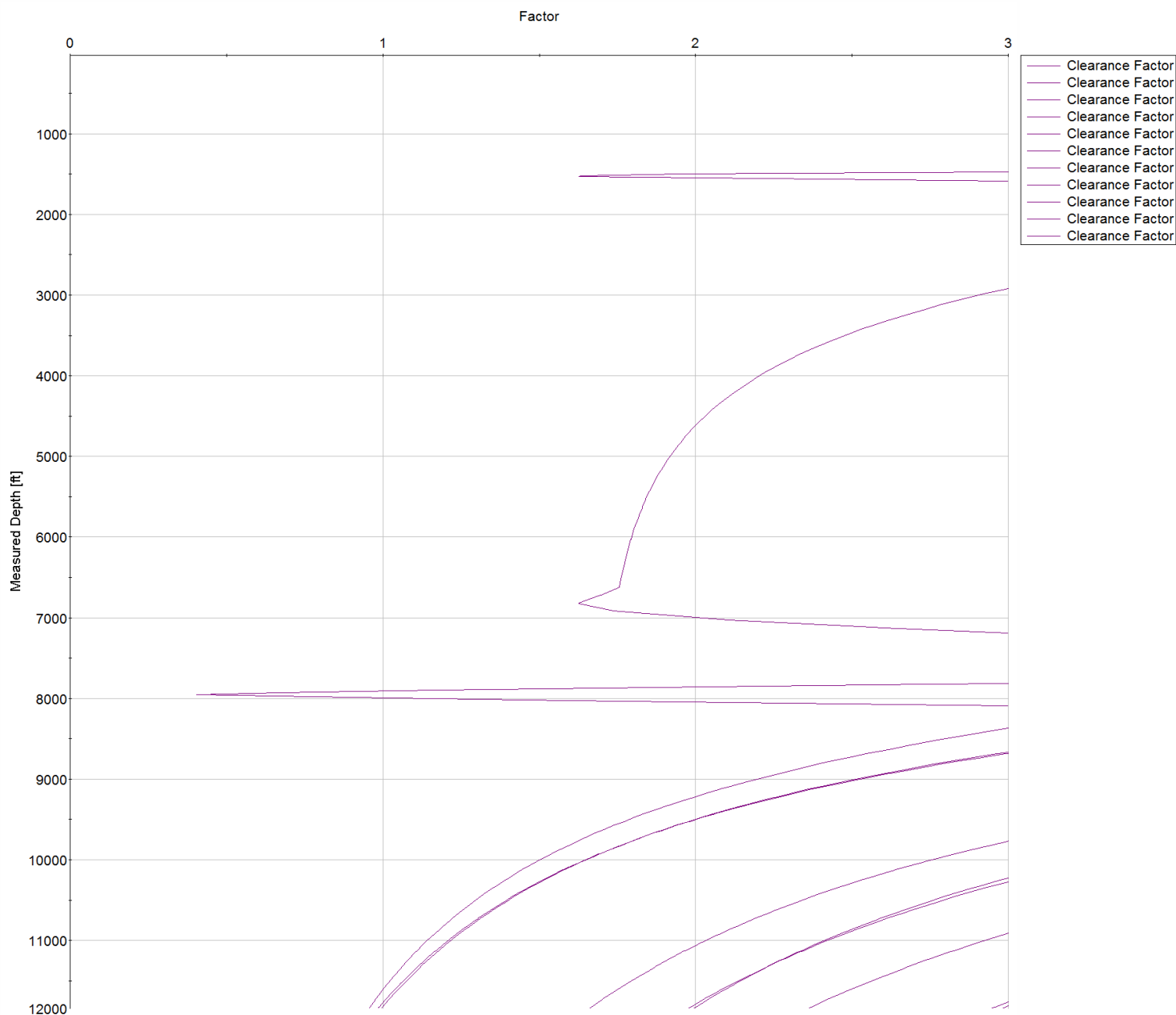
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 8	13.96	650.00	7625.00	-10.07	11842.83	0.96	11842.83
LITZENBERGER 12	16.75	600.00	11842.83	12.64	625.00	1.98	11842.83
Kintz #2	17.56	1528.22	9051.39	6.77	1528.22	1.63	1528.22
Kintz #1	24.81	7951.22	7951.22	-36.48	7951.22	0.40	7951.22
LITZENBERGER 16	25.50	650.00	11842.83	20.81	746.78	4.87	11842.83
LITZENBERGER 15	27.32	929.00	11842.83	21.25	943.64	3.94	11842.83
LITZENBERGER 7	27.92	650.00	1726.08	-1.68	11842.83	1.00	11842.83
LITZENBERGER 14	28.99	1046.74	7628.26	22.23	1058.46	3.46	11842.83
LITZENBERGER 17	29.07	650.00	7628.26	24.62	681.17	5.26	11842.83
LITZENBERGER 11	30.71	550.00	7628.26	26.93	566.34	1.66	11842.83
LITZENBERGER 13	31.58	1140.49	11842.83	24.20	1140.49	2.95	11842.83
LITZENBERGER 18	37.81	650.00	11842.83	33.39	664.76	5.91	11842.83
LITZENBERGER 10	44.67	500.72	11842.83	-5.62	11842.83	0.98	11842.83
LITZENBERGER 6	44.67	650.00	650.00	40.25	664.76	1.99	11842.83
LITZENBERGER 19	51.43	650.00	650.00	47.01	664.76	6.92	11842.83
LITZENBERGER 5	58.63	650.00	11842.83	54.21	664.76	2.36	11842.83
LITZENBERGER 20	63.93	650.00	11842.83	59.51	664.76	7.15	11842.83
LITZENBERGER 4	72.58	650.00	650.00	68.17	664.76	2.98	11842.83
LITZENBERGER 21	76.93	650.00	11842.83	72.52	664.76	7.87	11842.83
LITZENBERGER 3	89.31	664.76	664.76	84.78	697.57	3.98	11842.83
LITZENBERGER 22	92.90	650.00	650.00	88.48	664.76	8.92	11842.83



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 9 (PWB)



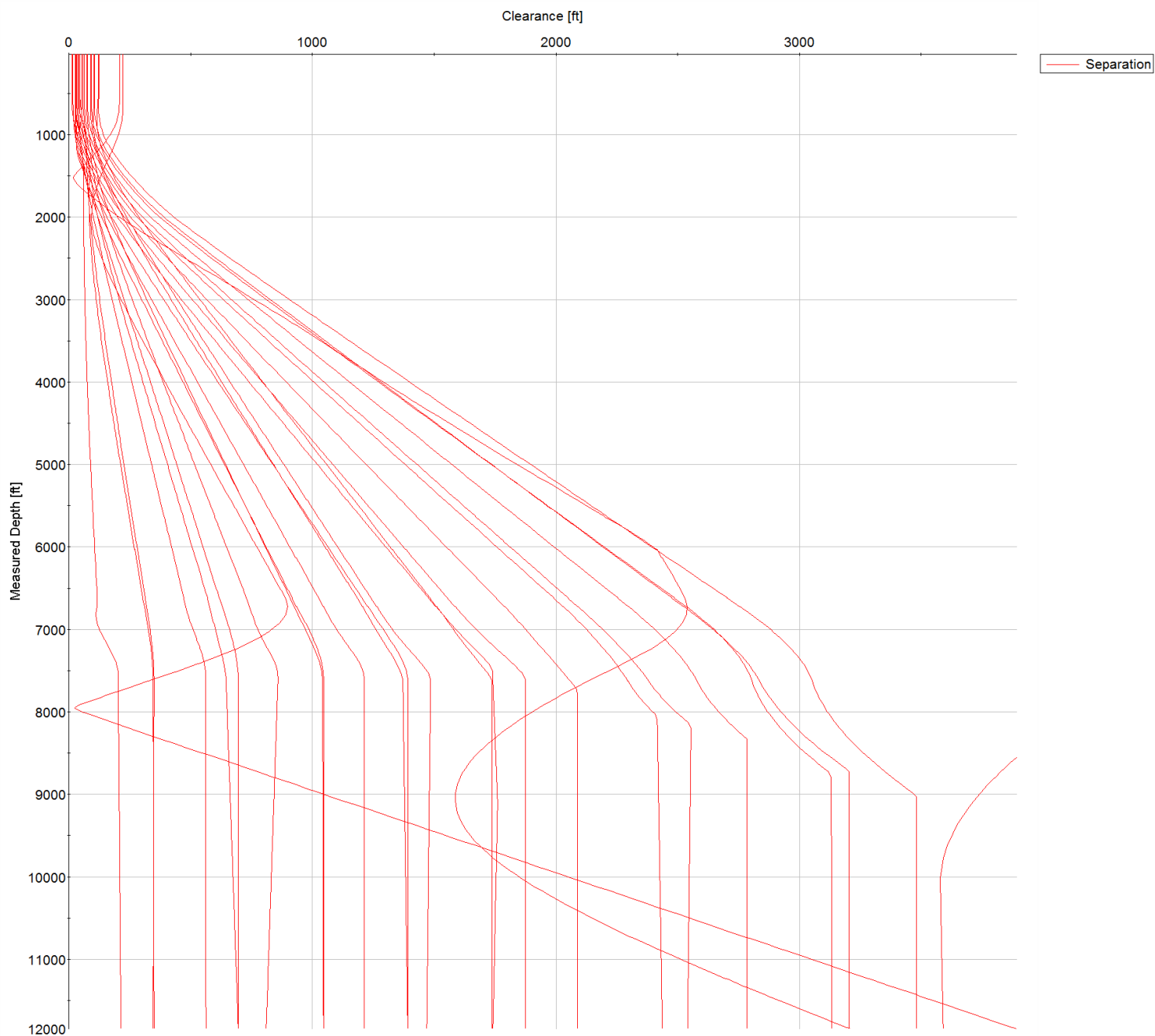
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 2	100.12	812.40	11842.83	94.68	845.21	4.20	11842.83
LITZENBERGER 23	105.92	681.17	11842.83	101.34	697.57	8.95	11842.83
LITZENBERGER 1	115.37	796.00	11836.02	109.99	828.81	4.96	11842.83
LITZENBERGER 24	121.98	681.17	11842.83	117.41	697.57	9.82	11842.83
Billings #2A-18H	3578.57	10081.11	10081.11	3184.84	10113.58	9.09	10113.58
Billings #2B-18H	3922.97	11842.83	11842.83	3532.01	11842.83	10.00	10079.34



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 5106.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 271.610 degrees
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 23-Jun-2015



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