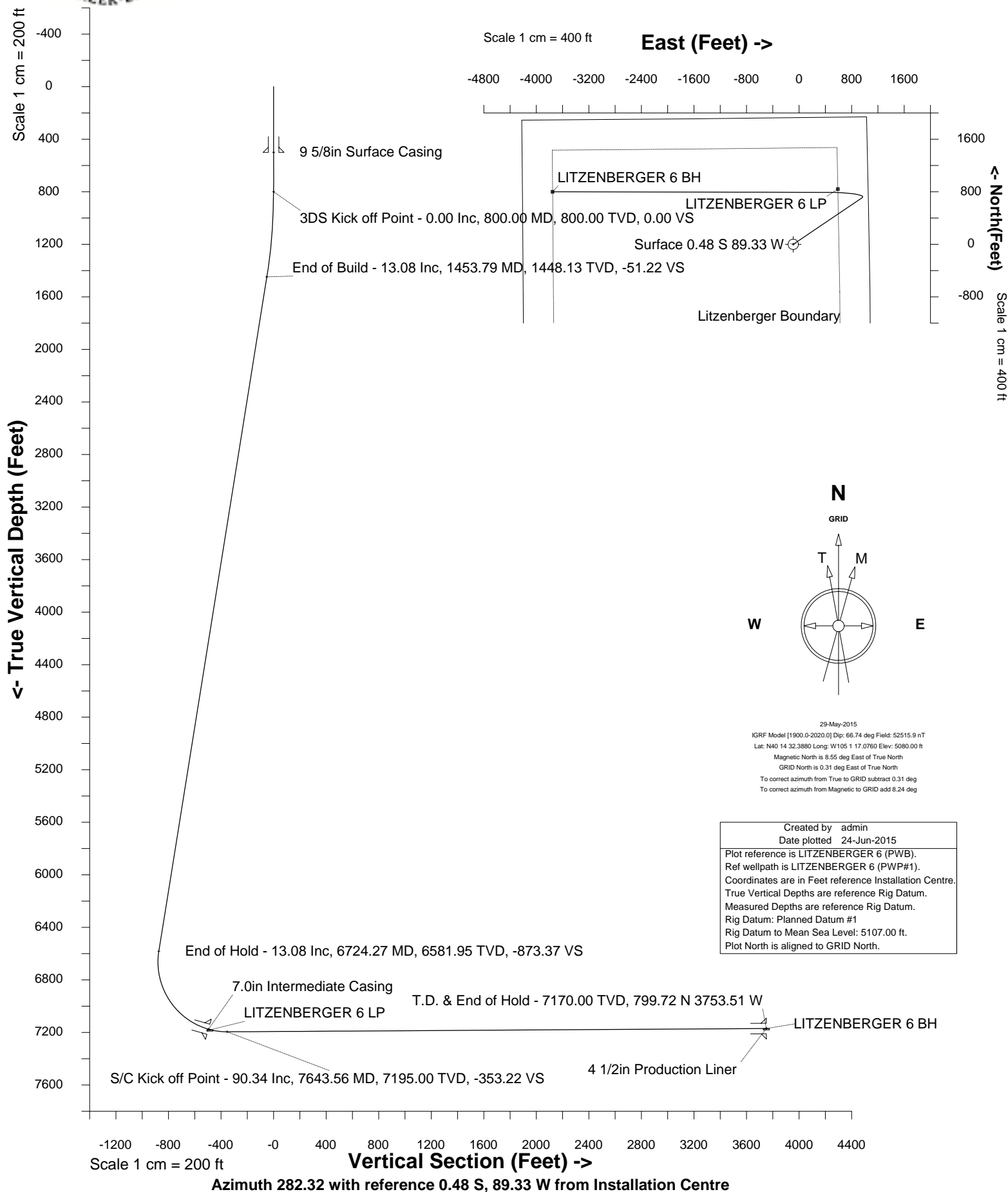




Cub Creek Energy, LLC

Location	Weld County, CO	Slot	LITZENBERGER 6
Field	WATTENBERG	Well	LITZENBERGER 6
Installation	Litzenberger Pad - Finalized	Wellbore	LITZENBERGER 6 (PWB)





SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 6 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
LITZENBERGER 6	40.24233000	-105.02173000	1331482.6704	3133512.2930	0.48S	89.33W	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	1331482.67	3133512.29
800.00	0.00	55.910	800.00	0.00N	0.00E	==>	0.00	1331482.67	3133512.29
11842.23	90.34	270.120	7170.00	800.20N	3664.18W	==>	3750.53	1332282.83	3129848.28

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	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	
800.00	0.00	55.910	800.00	0.00N	0.00E	==>	0.00	
900.00	2.00	55.910	899.98	0.98N	1.45E	2.00	-1.20	
1000.00	4.00	55.910	999.84	3.91N	5.78E	2.00	-4.81	
1100.00	6.00	55.910	1099.45	8.80N	13.00E	2.00	-10.82	
1200.00	8.00	55.910	1198.70	15.63N	23.09E	2.00	-19.22	
1300.00	10.00	55.910	1297.47	24.39N	36.04E	2.00	-30.01	
1400.00	12.00	55.910	1395.62	35.09N	51.84E	2.00	-43.16	
1500.00	13.08	55.910	1493.14	47.49N	70.17E	==>	-58.42	
1600.00	13.08	55.910	1590.55	60.17N	88.91E	==>	-74.02	
1700.00	13.08	55.910	1687.96	72.86N	107.64E	==>	-89.62	
1800.00	13.08	55.910	1785.36	85.54N	126.38E	==>	-105.22	
1900.00	13.08	55.910	1882.77	98.22N	145.12E	==>	-120.82	
2000.00	13.08	55.910	1980.18	110.90N	163.85E	==>	-136.42	
2100.00	13.08	55.910	2077.58	123.58N	182.59E	==>	-152.02	
2200.00	13.08	55.910	2174.99	136.26N	201.32E	==>	-167.62	
2300.00	13.08	55.910	2272.40	148.94N	220.06E	==>	-183.22	
2400.00	13.08	55.910	2369.81	161.62N	238.80E	==>	-198.82	
2500.00	13.08	55.910	2467.21	174.30N	257.53E	==>	-214.41	
2600.00	13.08	55.910	2564.62	186.98N	276.27E	==>	-230.01	
2700.00	13.08	55.910	2662.03	199.67N	295.01E	==>	-245.61	
2800.00	13.08	55.910	2759.43	212.35N	313.74E	==>	-261.21	
2900.00	13.08	55.910	2856.84	225.03N	332.48E	==>	-276.81	
3000.00	13.08	55.910	2954.25	237.71N	351.21E	==>	-292.41	
3100.00	13.08	55.910	3051.66	250.39N	369.95E	==>	-308.01	
3200.00	13.08	55.910	3149.06	263.07N	388.69E	==>	-323.61	
3300.00	13.08	55.910	3246.47	275.75N	407.42E	==>	-339.21	
3400.00	13.08	55.910	3343.88	288.43N	426.16E	==>	-354.81	

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Vertical Section is from 0.00N 0.00E on azimuth 282.320 degrees
Bottom hole distance is 3750.53 Feet on azimuth 282.32 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Jun-2015



SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 6 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
3500.00	13.08	55.910	3441.28	301.11N	444.89E	==>	-370.41	
3600.00	13.08	55.910	3538.69	313.79N	463.63E	==>	-386.01	
3700.00	13.08	55.910	3636.10	326.47N	482.37E	==>	-401.60	
3800.00	13.08	55.910	3733.51	339.16N	501.10E	==>	-417.20	
3900.00	13.08	55.910	3830.91	351.84N	519.84E	==>	-432.80	
4000.00	13.08	55.910	3928.32	364.52N	538.57E	==>	-448.40	
4100.00	13.08	55.910	4025.73	377.20N	557.31E	==>	-464.00	
4200.00	13.08	55.910	4123.13	389.88N	576.05E	==>	-479.60	
4300.00	13.08	55.910	4220.54	402.56N	594.78E	==>	-495.20	
4400.00	13.08	55.910	4317.95	415.24N	613.52E	==>	-510.80	
4500.00	13.08	55.910	4415.36	427.92N	632.25E	==>	-526.40	
4600.00	13.08	55.910	4512.76	440.60N	650.99E	==>	-542.00	
4700.00	13.08	55.910	4610.17	453.28N	669.73E	==>	-557.60	
4800.00	13.08	55.910	4707.58	465.97N	688.46E	==>	-573.19	
4900.00	13.08	55.910	4804.98	478.65N	707.20E	==>	-588.79	
5000.00	13.08	55.910	4902.39	491.33N	725.94E	==>	-604.39	
5100.00	13.08	55.910	4999.80	504.01N	744.67E	==>	-619.99	
5200.00	13.08	55.910	5097.21	516.69N	763.41E	==>	-635.59	
5300.00	13.08	55.910	5194.61	529.37N	782.14E	==>	-651.19	
5400.00	13.08	55.910	5292.02	542.05N	800.88E	==>	-666.79	
5500.00	13.08	55.910	5389.43	554.73N	819.62E	==>	-682.39	
5600.00	13.08	55.910	5486.83	567.41N	838.35E	==>	-697.99	
5700.00	13.08	55.910	5584.24	580.09N	857.09E	==>	-713.59	
5800.00	13.08	55.910	5681.65	592.77N	875.82E	==>	-729.19	
5900.00	13.08	55.910	5779.06	605.46N	894.56E	==>	-744.78	
6000.00	13.08	55.910	5876.46	618.14N	913.30E	==>	-760.38	
6100.00	13.08	55.910	5973.87	630.82N	932.03E	==>	-775.98	
6200.00	13.08	55.910	6071.28	643.50N	950.77E	==>	-791.58	
6300.00	13.08	55.910	6168.68	656.18N	969.50E	==>	-807.18	
6400.00	13.08	55.910	6266.09	668.86N	988.24E	==>	-822.78	
6500.00	13.08	55.910	6363.50	681.54N	1006.98E	==>	-838.38	
6600.00	13.08	55.910	6460.91	694.22N	1025.71E	==>	-853.98	
6700.00	13.08	55.910	6558.31	706.90N	1044.45E	==>	-869.58	
6800.00	7.84	18.410	6656.48	719.70N	1057.74E	11.00	-879.83	
6900.00	11.32	310.920	6755.34	732.64N	1052.46E	11.00	-871.91	
7000.00	20.87	290.210	6851.38	745.26N	1028.25E	11.00	-845.57	
7100.00	31.36	282.550	6941.07	757.11N	986.00E	11.00	-801.76	
7200.00	42.10	278.480	7021.12	767.74N	927.27E	11.00	-742.12	
7300.00	52.92	275.830	7088.57	776.76N	854.21E	11.00	-668.81	
7400.00	63.79	273.850	7140.96	783.85N	769.50E	11.00	-584.55	7.0in Intermediate Casing
7496.00	74.25	272.280	7175.28	788.59N	680.12E	11.00	-496.21	
7500.00	74.69	272.210	7176.35	788.74N	676.27E	11.00	-492.42	
7600.00	85.59	270.740	7193.45	791.26N	577.93E	11.00	-395.80	
7700.00	90.34	270.120	7194.66	791.70N	477.97E	==>	-298.05	
7800.00	90.34	270.120	7194.07	791.90N	377.98E	==>	-200.31	
7900.00	90.34	270.120	7193.47	792.11N	277.98E	==>	-102.58	
8000.00	90.34	270.120	7192.88	792.31N	177.98E	==>	-4.84	
8100.00	90.34	270.120	7192.28	792.52N	77.98E	==>	92.90	
8200.00	90.34	270.120	7191.69	792.72N	22.02W	==>	190.64	
8300.00	90.34	270.120	7191.09	792.93N	122.02W	==>	288.38	
8400.00	90.34	270.120	7190.50	793.13N	222.01W	==>	386.12	
8500.00	90.34	270.120	7189.90	793.34N	322.01W	==>	483.86	
8600.00	90.34	270.120	7189.31	793.54N	422.01W	==>	581.60	
8700.00	90.34	270.120	7188.71	793.75N	522.01W	==>	679.34	
8800.00	90.34	270.120	7188.11	793.95N	622.01W	==>	777.08	
8900.00	90.34	270.120	7187.52	794.16N	722.00W	==>	874.82	
9000.00	90.34	270.120	7186.92	794.37N	822.00W	==>	972.56	
9100.00	90.34	270.120	7186.33	794.57N	922.00W	==>	1070.30	
9200.00	90.34	270.120	7185.73	794.78N	1022.00W	==>	1168.04	
9300.00	90.34	270.120	7185.14	794.98N	1122.00W	==>	1265.77	

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Vertical Section is from 0.00N 0.00E on azimuth 282.320 degrees
Bottom hole distance is 3750.53 Feet on azimuth 282.32 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Jun-2015



SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 6 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
9400.00	90.34	270.120	7184.54	795.19N	1221.99W	==>	1363.51	
9500.00	90.34	270.120	7183.95	795.39N	1321.99W	==>	1461.25	
9600.00	90.34	270.120	7183.35	795.60N	1421.99W	==>	1558.99	
9700.00	90.34	270.120	7182.76	795.80N	1521.99W	==>	1656.73	
9800.00	90.34	270.120	7182.16	796.01N	1621.99W	==>	1754.47	
9900.00	90.34	270.120	7181.56	796.21N	1721.98W	==>	1852.21	
10000.00	90.34	270.120	7180.97	796.42N	1821.98W	==>	1949.95	
10100.00	90.34	270.120	7180.37	796.62N	1921.98W	==>	2047.69	
10200.00	90.34	270.120	7179.78	796.83N	2021.98W	==>	2145.43	
10300.00	90.34	270.120	7179.18	797.03N	2121.98W	==>	2243.17	
10400.00	90.34	270.120	7178.59	797.24N	2221.97W	==>	2340.91	
10500.00	90.34	270.120	7177.99	797.44N	2321.97W	==>	2438.65	
10600.00	90.34	270.120	7177.40	797.65N	2421.97W	==>	2536.39	
10700.00	90.34	270.120	7176.80	797.85N	2521.97W	==>	2634.13	
10800.00	90.34	270.120	7176.21	798.06N	2621.97W	==>	2731.86	
10900.00	90.34	270.120	7175.61	798.27N	2721.96W	==>	2829.60	
11000.00	90.34	270.120	7175.01	798.47N	2821.96W	==>	2927.34	
11100.00	90.34	270.120	7174.42	798.68N	2921.96W	==>	3025.08	
11200.00	90.34	270.120	7173.82	798.88N	3021.96W	==>	3122.82	
11300.00	90.34	270.120	7173.23	799.09N	3121.96W	==>	3220.56	
11400.00	90.34	270.120	7172.63	799.29N	3221.95W	==>	3318.30	
11500.00	90.34	270.120	7172.04	799.50N	3321.95W	==>	3416.04	
11600.00	90.34	270.120	7171.44	799.70N	3421.95W	==>	3513.78	
11700.00	90.34	270.120	7170.85	799.91N	3521.95W	==>	3611.52	
11800.00	90.34	270.120	7170.25	800.11N	3621.95W	==>	3709.26	
11842.23	90.34	270.120	7170.00	800.20N	3664.18W	==>	3750.53	4 1/2in Production Liner

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SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 6 (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	7496.00	7175.28	788.59N	680.12E
6 1/8	7496.00	7175.28	788.59N	680.12E	11842.23	7170.00	800.20N	3664.18W

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	7496.00	7175.28	788.59N	680.12E
4 1/2in Production Liner	6825.00	6681.26	722.94N	1058.21E	11842.23	7170.00	800.20N	3664.18W

Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
LITZENBERGER 6 LP	841.58N	679.42E	7180.00	40.24463000	-105.01928000	1332324.21	3134191.68
LITZENBERGER 6 BH	800.20N	3664.18W	7170.00	40.24458000	-105.03484000	1332282.83	3129848.28

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
391526	Planned	11842.23	7170.00	ISCWSA MWD	Rev 3 + Fixed Rig + Rotating	

Notes

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SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 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
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 6 (PWB)	16-Jun-2015	19-Jun-2015

Well		
Name	Government ID	Last Revised
LITZENBERGER 6		16-Jun-2015

Slot						
Name	Latitude	Longitude	Grid Northing	Grid Easting	North	East
LITZENBERGER 6	40.24233000	-105.02173000	1331482.6704	3133512.2930	0.48S	89.33W

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

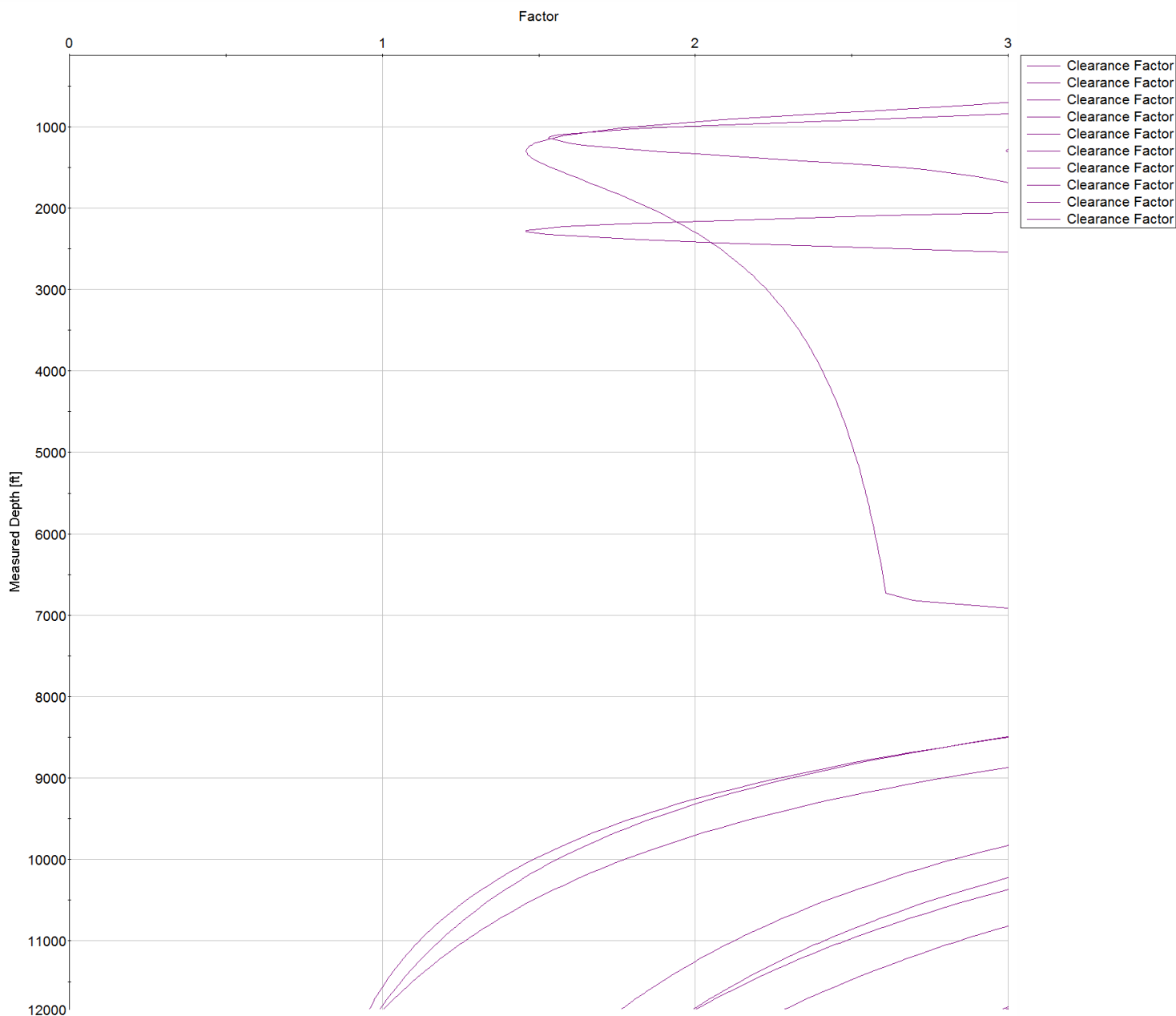
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 7	10.97	1100.02	1100.02	-3.10	11842.23	0.99	11842.23
LITZENBERGER 5	11.24	1107.68	11842.23	-8.43	11842.23	0.96	11842.23
LITZENBERGER 4	22.83	1074.87	11842.23	1.06	11842.23	1.00	11842.23
LITZENBERGER 8	25.24	1128.23	1128.23	17.90	1161.68	1.76	11842.23
LITZENBERGER 19	25.50	800.00	800.00	20.18	828.81	4.61	878.02
LITZENBERGER 20	29.07	750.00	750.00	24.05	779.59	5.49	845.21
LITZENBERGER 18	30.51	828.81	828.81	24.85	894.42	5.19	960.04
Kintz #1	33.50	2273.50	7942.72	10.53	2273.50	1.46	2273.50
LITZENBERGER 21	37.81	700.00	700.00	32.99	763.19	7.12	861.61
LITZENBERGER 3	38.87	1009.25	11842.23	32.26	1042.06	2.00	11842.23
LITZENBERGER 17	39.79	888.81	888.81	34.03	888.81	6.60	992.85
LITZENBERGER 9	44.67	651.00	651.00	40.30	651.00	1.99	11842.23
LITZENBERGER 2	47.09	1002.01	11842.23	40.45	1025.66	2.28	11842.23
LITZENBERGER 16	47.95	1060.73	1060.73	41.17	1074.87	6.81	1156.89
LITZENBERGER 22	51.43	650.00	650.00	46.74	763.19	9.52	894.42
LITZENBERGER 15	59.16	1159.24	1159.24	51.78	1159.24	5.95	11842.23
LITZENBERGER 12	61.42	601.00	601.00	57.31	625.00	3.98	11842.23
LITZENBERGER 23	63.84	697.57	697.57	58.96	763.19	10.95	11842.23
LITZENBERGER 1	64.18	945.60	11842.23	57.81	976.44	2.99	11842.23
Kintz #2	65.65	1614.12	9025.00	54.11	1616.21	5.65	1632.61
LITZENBERGER 14	70.08	1196.95	1196.95	62.47	1196.95	5.44	11842.23



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 6 (PWB)



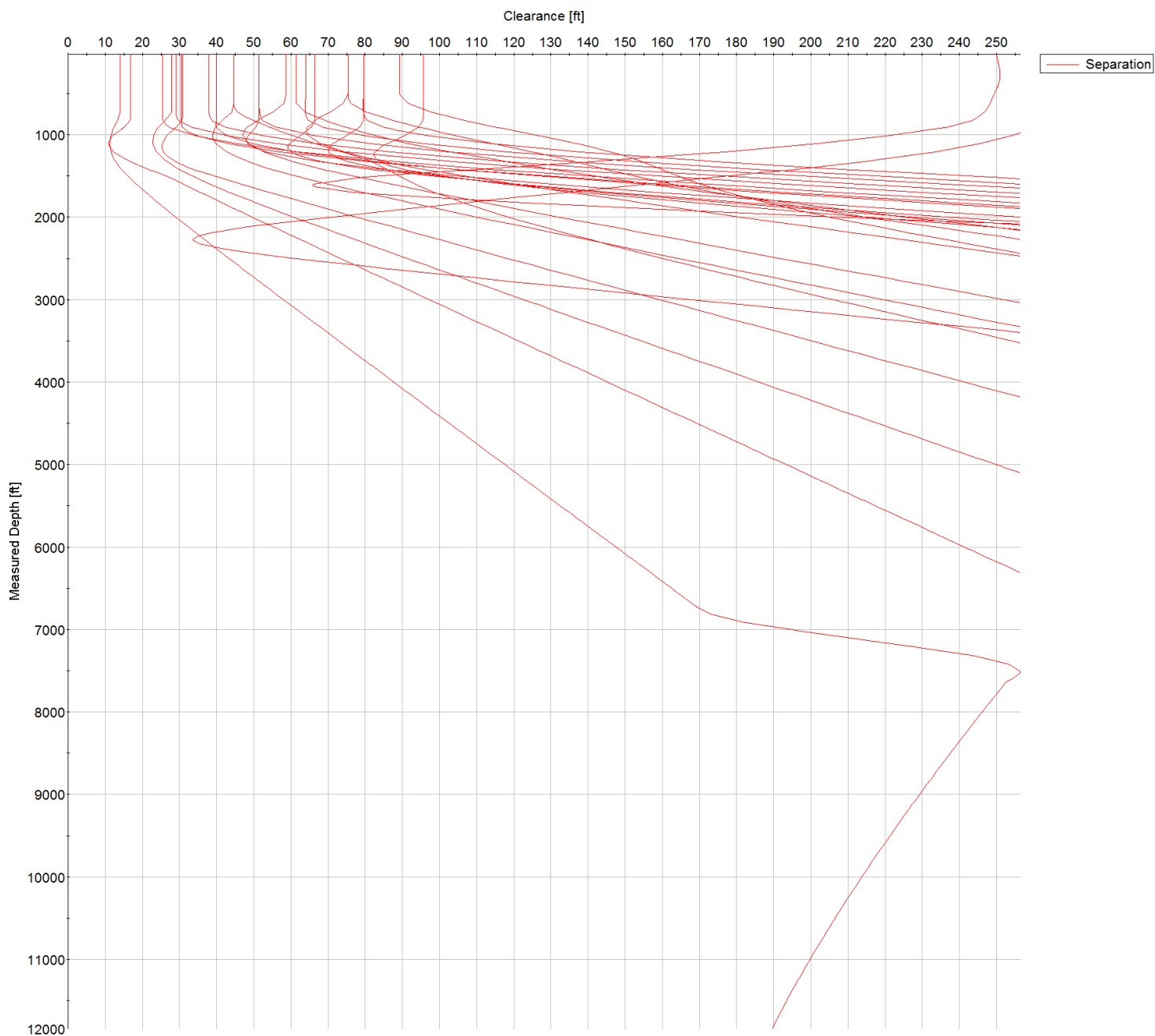
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 11	75.38	551.00	551.00	71.60	566.34	3.58	11842.23
LITZENBERGER 24	79.42	667.57	667.57	74.68	746.78	11.85	11842.23
LITZENBERGER 13	82.33	1233.31	1233.31	74.39	1255.31	4.94	11842.23
LITZENBERGER 10	89.33	502.00	502.00	85.69	484.32	2.98	11842.23
Billings #2A-18H	4253.16	10031.56	10031.56	3862.05	10113.58	10.85	10113.58
Billings #2B-18H	4606.23	10025.00	10025.00	4216.02	10064.37	11.80	10064.37



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 5107.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 282.320 degrees
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Jun-2015



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Closest Approach + Clearance Factor Summary Report
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