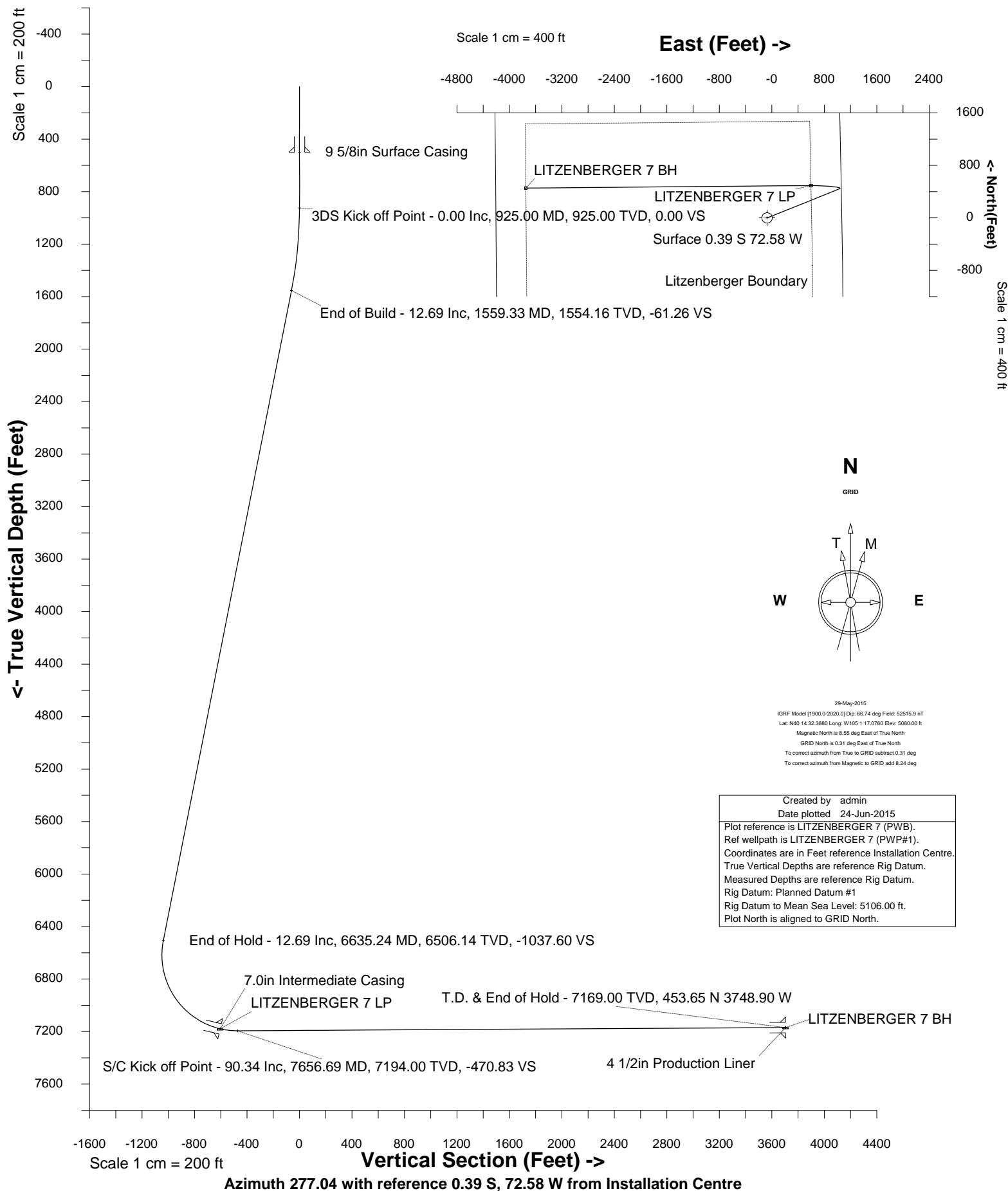




Cub Creek Energy, LLC

Location	Weld County, CO	Slot	LITZENBERGER 7
Field	WATTENBERG	Well	LITZENBERGER 7
Installation	Litzenberger Pad - Finalized	Wellbore	LITZENBERGER 7 (PWB)





SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 7 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
LITZENBERGER 7	40.24233000	-105.02167000	1331482.7608	3133529.0422	0.39S	72.58W	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	1331482.76	3133529.04
11868.40	90.34	269.490	7169.00	454.04N	3676.32W	==>	3704.25	1331936.78	3129852.89

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	0.000	800.00	0.00N	0.00E	==>	0.00	
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	
1000.00	1.50	68.180	999.99	0.36N	0.91E	2.00	-0.86	
1100.00	3.50	68.180	1099.89	1.99N	4.96E	2.00	-4.68	
1200.00	5.50	68.180	1199.58	4.90N	12.24E	2.00	-11.55	
1300.00	7.50	68.180	1298.93	9.11N	22.75E	2.00	-21.47	
1400.00	9.50	68.180	1397.83	14.60N	36.48E	2.00	-34.41	
1500.00	11.50	68.180	1496.15	21.37N	53.39E	2.00	-50.37	
1600.00	12.69	68.180	1593.84	29.31N	73.22E	==>	-69.08	
1700.00	12.69	68.180	1691.40	37.47N	93.61E	==>	-88.31	
1800.00	12.69	68.180	1788.95	45.63N	114.00E	==>	-107.55	
1900.00	12.69	68.180	1886.51	53.80N	134.39E	==>	-126.78	
2000.00	12.69	68.180	1984.07	61.96N	154.78E	==>	-146.02	
2100.00	12.69	68.180	2081.63	70.12N	175.17E	==>	-165.25	
2200.00	12.69	68.180	2179.19	78.28N	195.56E	==>	-184.49	
2300.00	12.69	68.180	2276.75	86.44N	215.95E	==>	-203.72	
2400.00	12.69	68.180	2374.31	94.60N	236.34E	==>	-222.96	
2500.00	12.69	68.180	2471.86	102.76N	256.72E	==>	-242.19	
2600.00	12.69	68.180	2569.42	110.93N	277.11E	==>	-261.43	
2700.00	12.69	68.180	2666.98	119.09N	297.50E	==>	-280.66	
2800.00	12.69	68.180	2764.54	127.25N	317.89E	==>	-299.90	
2900.00	12.69	68.180	2862.10	135.41N	338.28E	==>	-319.13	
3000.00	12.69	68.180	2959.66	143.57N	358.67E	==>	-338.37	
3100.00	12.69	68.180	3057.22	151.73N	379.06E	==>	-357.60	
3200.00	12.69	68.180	3154.77	159.89N	399.45E	==>	-376.84	
3300.00	12.69	68.180	3252.33	168.06N	419.84E	==>	-396.07	
3400.00	12.69	68.180	3349.89	176.22N	440.22E	==>	-415.31	
3500.00	12.69	68.180	3447.45	184.38N	460.61E	==>	-434.54	

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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 277.040 degrees
Bottom hole distance is 3704.25 Feet on azimuth 277.04 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 7 (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	12.69	68.180	3545.01	192.54N	481.00E	==>	-453.78	
3700.00	12.69	68.180	3642.57	200.70N	501.39E	==>	-473.01	
3800.00	12.69	68.180	3740.13	208.86N	521.78E	==>	-492.24	
3900.00	12.69	68.180	3837.68	217.02N	542.17E	==>	-511.48	
4000.00	12.69	68.180	3935.24	225.19N	562.56E	==>	-530.71	
4100.00	12.69	68.180	4032.80	233.35N	582.95E	==>	-549.95	
4200.00	12.69	68.180	4130.36	241.51N	603.34E	==>	-569.18	
4300.00	12.69	68.180	4227.92	249.67N	623.72E	==>	-588.42	
4400.00	12.69	68.180	4325.48	257.83N	644.11E	==>	-607.65	
4500.00	12.69	68.180	4423.04	265.99N	664.50E	==>	-626.89	
4600.00	12.69	68.180	4520.59	274.15N	684.89E	==>	-646.12	
4700.00	12.69	68.180	4618.15	282.32N	705.28E	==>	-665.36	
4800.00	12.69	68.180	4715.71	290.48N	725.67E	==>	-684.59	
4900.00	12.69	68.180	4813.27	298.64N	746.06E	==>	-703.83	
5000.00	12.69	68.180	4910.83	306.80N	766.45E	==>	-723.06	
5100.00	12.69	68.180	5008.39	314.96N	786.84E	==>	-742.30	
5200.00	12.69	68.180	5105.95	323.12N	807.22E	==>	-761.53	
5300.00	12.69	68.180	5203.51	331.28N	827.61E	==>	-780.77	
5400.00	12.69	68.180	5301.06	339.45N	848.00E	==>	-800.00	
5500.00	12.69	68.180	5398.62	347.61N	868.39E	==>	-819.24	
5600.00	12.69	68.180	5496.18	355.77N	888.78E	==>	-838.47	
5700.00	12.69	68.180	5593.74	363.93N	909.17E	==>	-857.71	
5800.00	12.69	68.180	5691.30	372.09N	929.56E	==>	-876.94	
5900.00	12.69	68.180	5788.86	380.25N	949.95E	==>	-896.18	
6000.00	12.69	68.180	5886.42	388.41N	970.34E	==>	-915.41	
6100.00	12.69	68.180	5983.97	396.58N	990.73E	==>	-934.65	
6200.00	12.69	68.180	6081.53	404.74N	1011.11E	==>	-953.88	
6300.00	12.69	68.180	6179.09	412.90N	1031.50E	==>	-973.11	
6400.00	12.69	68.180	6276.65	421.06N	1051.89E	==>	-992.35	
6500.00	12.69	68.180	6374.21	429.22N	1072.28E	==>	-1011.58	
6600.00	12.69	68.180	6471.77	437.38N	1092.67E	==>	-1030.82	
6700.00	7.09	48.330	6569.94	445.56N	1109.45E	10.00	-1046.47	
6800.00	6.61	314.470	6669.48	453.72N	1109.95E	10.00	-1045.97	
6900.00	15.38	286.830	6767.60	461.61N	1093.11E	10.00	-1028.28	
7000.00	25.08	279.590	6861.33	469.00N	1059.42E	10.00	-993.95	
7100.00	34.95	276.240	6947.82	475.66N	1009.92E	10.00	-944.00	
7200.00	44.86	274.230	7024.44	481.40N	946.11E	10.00	-879.97	
7300.00	54.81	272.820	7088.85	486.02N	869.93E	10.00	-803.80	
7400.00	64.76	271.730	7139.12	489.41N	783.70E	10.00	-717.80	7.0in Intermediate Casing
7500.00	74.72	270.800	7173.70	491.45N	690.02E	10.00	-624.58	
7521.00	76.82	270.610	7178.86	491.70N	669.67E	10.00	-604.35	
7600.00	84.69	269.950	7191.54	492.07N	591.76E	10.00	-526.98	
7700.00	90.34	269.490	7193.74	491.41N	491.84E	==>	-427.90	
7800.00	90.34	269.490	7193.15	490.51N	391.85E	==>	-328.77	
7900.00	90.34	269.490	7192.56	489.62N	291.85E	==>	-229.64	
8000.00	90.34	269.490	7191.96	488.72N	191.86E	==>	-130.51	
8100.00	90.34	269.490	7191.37	487.82N	91.86E	==>	-31.38	
8200.00	90.34	269.490	7190.78	486.93N	8.13W	==>	67.75	
8300.00	90.34	269.490	7190.18	486.03N	108.13W	==>	166.88	
8400.00	90.34	269.490	7189.59	485.13N	208.12W	==>	266.01	
8500.00	90.34	269.490	7188.99	484.24N	308.11W	==>	365.15	
8600.00	90.34	269.490	7188.40	483.34N	408.11W	==>	464.28	
8700.00	90.34	269.490	7187.81	482.44N	508.10W	==>	563.41	
8800.00	90.34	269.490	7187.21	481.55N	608.10W	==>	662.54	
8900.00	90.34	269.490	7186.62	480.65N	708.09W	==>	761.67	
9000.00	90.34	269.490	7186.03	479.75N	808.09W	==>	860.80	
9100.00	90.34	269.490	7185.43	478.86N	908.08W	==>	959.93	
9200.00	90.34	269.490	7184.84	477.96N	1008.07W	==>	1059.06	
9300.00	90.34	269.490	7184.25	477.07N	1108.07W	==>	1158.19	
9400.00	90.34	269.490	7183.65	476.17N	1208.06W	==>	1257.32	

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Vertical Section is from 0.00N 0.00E on azimuth 277.040 degrees
Bottom hole distance is 3704.25 Feet on azimuth 277.04 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 7 (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	269.490	7183.06	475.27N	1308.06W	==>	1356.45	
9600.00	90.34	269.490	7182.46	474.38N	1408.05W	==>	1455.58	
9700.00	90.34	269.490	7181.87	473.48N	1508.04W	==>	1554.71	
9800.00	90.34	269.490	7181.28	472.58N	1608.04W	==>	1653.84	
9900.00	90.34	269.490	7180.68	471.69N	1708.03W	==>	1752.97	
10000.00	90.34	269.490	7180.09	470.79N	1808.03W	==>	1852.10	
10100.00	90.34	269.490	7179.50	469.89N	1908.02W	==>	1951.23	
10200.00	90.34	269.490	7178.90	469.00N	2008.02W	==>	2050.36	
10300.00	90.34	269.490	7178.31	468.10N	2108.01W	==>	2149.49	
10400.00	90.34	269.490	7177.72	467.20N	2208.00W	==>	2248.62	
10500.00	90.34	269.490	7177.12	466.31N	2308.00W	==>	2347.75	
10600.00	90.34	269.490	7176.53	465.41N	2407.99W	==>	2446.88	
10700.00	90.34	269.490	7175.94	464.52N	2507.99W	==>	2546.01	
10800.00	90.34	269.490	7175.34	463.62N	2607.98W	==>	2645.14	
10900.00	90.34	269.490	7174.75	462.72N	2707.98W	==>	2744.27	
11000.00	90.34	269.490	7174.15	461.83N	2807.97W	==>	2843.40	
11100.00	90.34	269.490	7173.56	460.93N	2907.96W	==>	2942.53	
11200.00	90.34	269.490	7172.97	460.03N	3007.96W	==>	3041.66	
11300.00	90.34	269.490	7172.37	459.14N	3107.95W	==>	3140.79	
11400.00	90.34	269.490	7171.78	458.24N	3207.95W	==>	3239.93	
11500.00	90.34	269.490	7171.19	457.34N	3307.94W	==>	3339.06	
11600.00	90.34	269.490	7170.59	456.45N	3407.94W	==>	3438.19	
11700.00	90.34	269.490	7170.00	455.55N	3507.93W	==>	3537.32	
11800.00	90.34	269.490	7169.41	454.65N	3607.92W	==>	3636.45	
11868.40	90.34	269.490	7169.00	454.04N	3676.32W	==>	3704.25	4 1/2in Production Liner

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Vertical Section is from 0.00N 0.00E on azimuth 277.040 degrees
Bottom hole distance is 3704.25 Feet on azimuth 277.04 degrees from Wellhead
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Date Printed: 22-Jun-2015



SYSDRILL
Well Design Combined Report
Wellbore: LITZENBERGER 7 (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	7521.00	7178.86	491.70N	669.67E
6 1/8	7521.00	7178.86	491.70N	669.67E	11868.40	7169.00	454.04N	3676.32W

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	7521.00	7178.86	491.70N	669.67E
4 1/2in Production Liner	6755.00	6624.68	450.07N	1111.89E	11868.40	7169.00	454.04N	3676.32W

Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
LITZENBERGER 7 LP	491.80N	670.15E	7179.00	40.24367000	-105.01926000	1331974.53	3134199.16
LITZENBERGER 7 BH	454.04N	3676.32W	7169.00	40.24363000	-105.03483000	1331936.78	3129852.89

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
391525	Planned	11868.40	7169.00	ISCWSA MWD	Rev 3 + Fixed Rig + Rotating	

Notes



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 7 (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 7 (PWB)	16-Jun-2015	19-Jun-2015

Well		
Name	Government ID	Last Revised
LITZENBERGER 7		16-Jun-2015

Slot						
Name	Latitude	Longitude	Grid Northing	Grid Easting	North	East
LITZENBERGER 7	40.24233000	-105.02167000	1331482.7608	3133529.0422	0.39S	72.58W

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

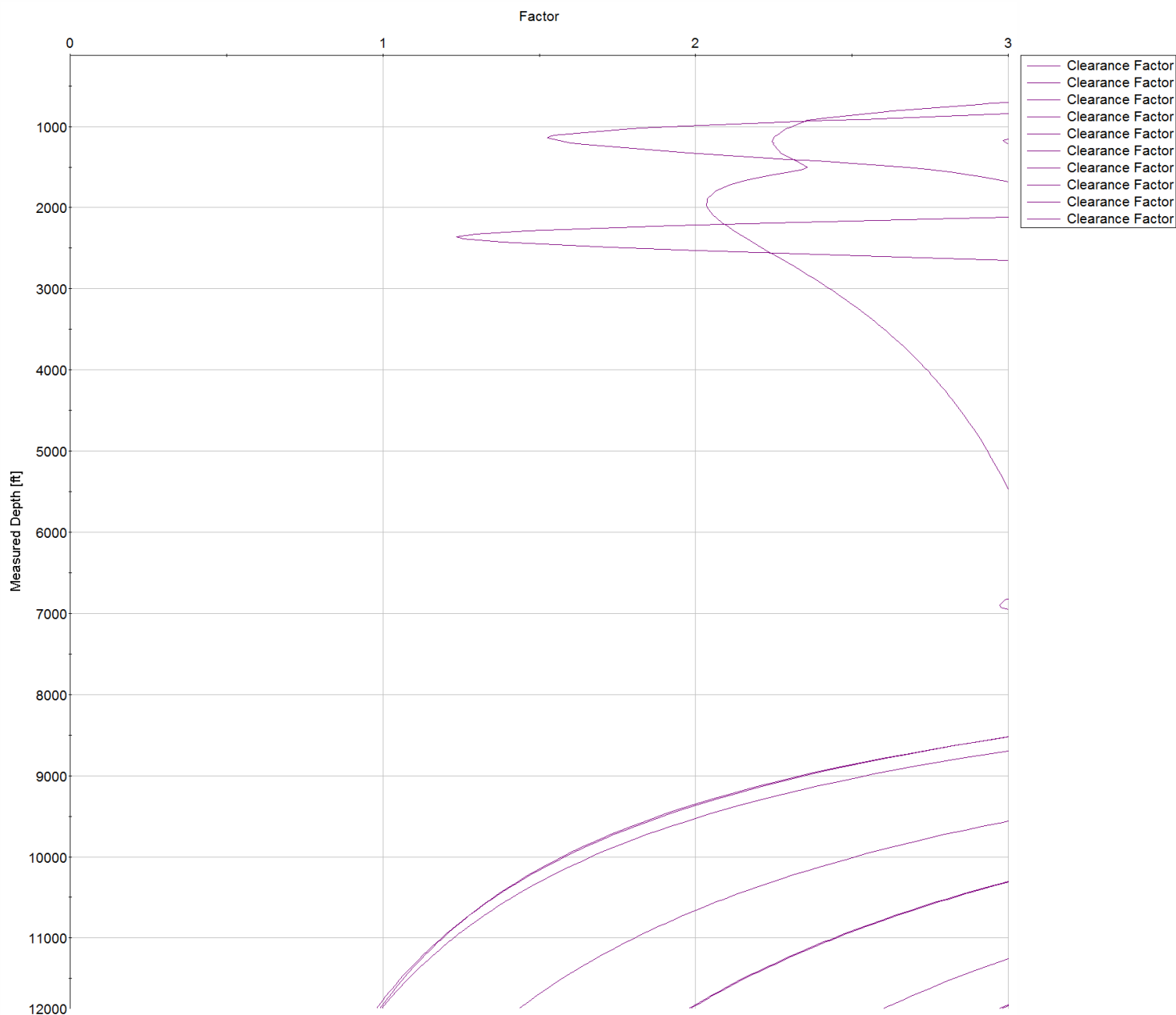
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 6	10.94	1107.68	1107.68	-3.15	11868.40	0.99	11868.40
LITZENBERGER 8	13.96	894.42	7652.95	-6.05	11868.40	0.98	11868.40
LITZENBERGER 5	22.00	1111.58	11868.40	14.76	1140.49	1.44	11868.40
LITZENBERGER 18	25.50	875.00	875.00	19.78	894.42	4.31	960.04
LITZENBERGER 9	27.92	650.00	1747.44	-1.59	11868.40	1.00	11868.40
Kintz #1	28.63	2357.94	7978.06	5.45	2357.94	1.24	2357.94
LITZENBERGER 17	29.07	850.00	850.00	23.54	850.00	5.03	927.23
LITZENBERGER 19	30.51	849.00	849.00	24.90	878.02	5.13	960.04
LITZENBERGER 4	33.66	1107.68	11868.40	26.49	1125.00	1.98	11868.40
LITZENBERGER 16	37.14	1059.06	11868.40	30.38	1059.06	5.31	1156.89
LITZENBERGER 20	39.92	749.00	11868.40	34.71	845.21	6.79	976.44
Kintz #2	40.18	1662.70	9080.12	28.43	1665.42	3.42	1665.42
LITZENBERGER 12	44.67	600.00	600.00	40.56	625.00	2.97	11868.40
LITZENBERGER 15	48.07	1160.53	1160.53	40.63	1189.70	4.93	11868.40
LITZENBERGER 3	50.36	1068.85	1068.85	43.39	1091.27	2.98	11868.40
LITZENBERGER 21	51.43	697.57	697.57	46.27	845.21	8.61	992.85
LITZENBERGER 11	58.63	550.00	7656.69	54.85	566.34	2.60	11868.40
LITZENBERGER 2	58.68	1042.06	11868.40	51.75	1058.46	3.22	11868.40
LITZENBERGER 14	59.19	1228.86	1228.86	51.45	1228.86	4.44	11868.40
LITZENBERGER 22	66.50	697.57	697.57	61.35	828.81	9.91	11868.40
LITZENBERGER 13	71.34	1298.87	1298.87	63.18	1325.00	3.93	11868.40



SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 7 (PWB)



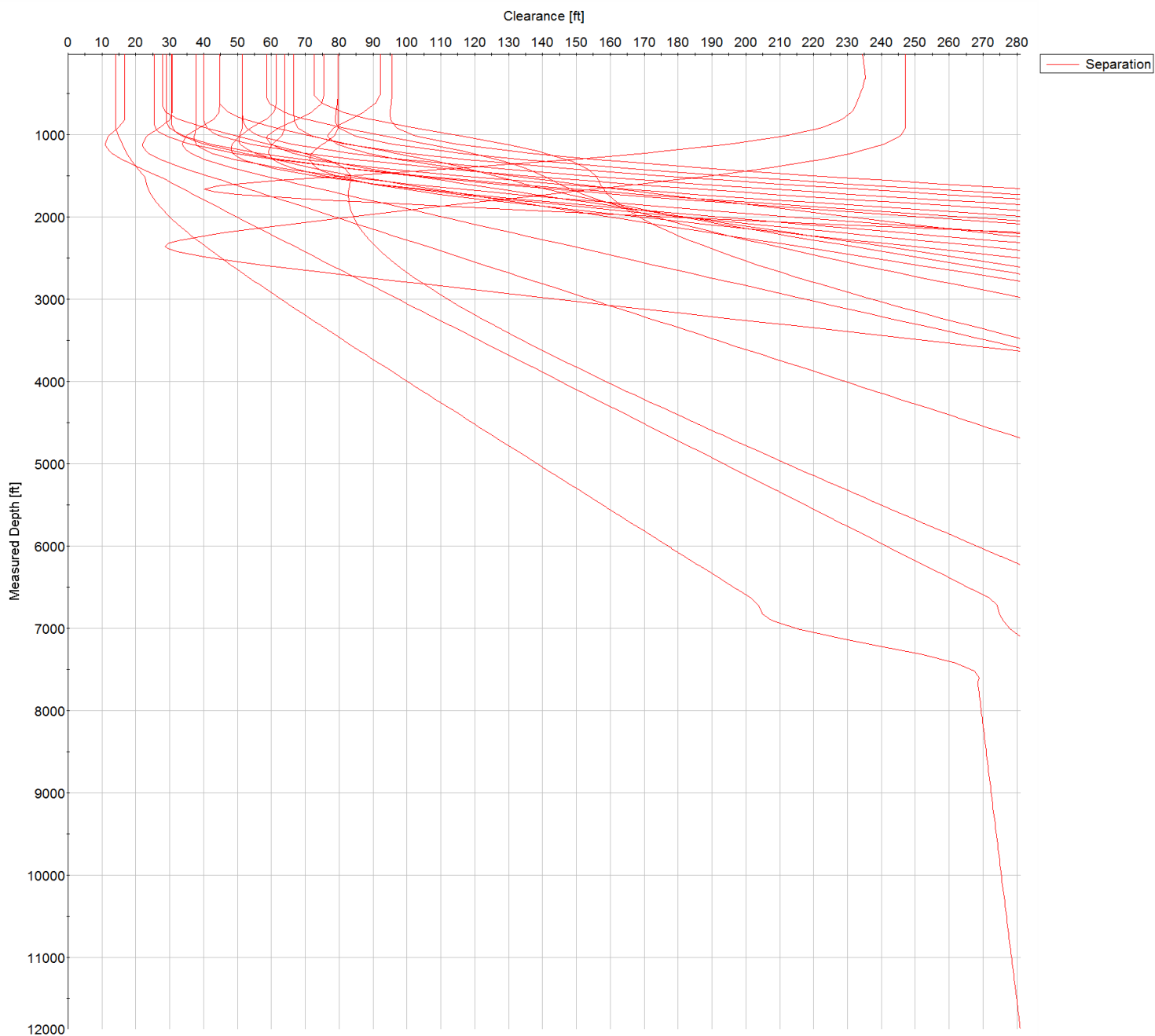
Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
LITZENBERGER 10	72.58	500.72	11868.40	68.93	484.32	1.98	11868.40
LITZENBERGER 1	76.59	1009.25	11868.40	69.86	1025.66	3.96	11868.40
LITZENBERGER 23	78.82	798.38	798.38	73.40	845.21	9.92	11868.40
LITZENBERGER 24	94.92	752.82	752.82	89.75	812.40	10.81	11868.40
Billings #2A-18H	3926.77	10104.89	10104.89	3532.87	10146.39	9.96	10146.39
Billings #2B-18H	4272.68	11868.40	11868.40	3881.09	11851.49	10.89	10451.59



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 277.040 degrees
Prepared by Integrated Petroleum Technologies, Inc.
Date Printed: 22-Jun-2015



SYS DRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LITZENBERGER 7 (PWB)



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