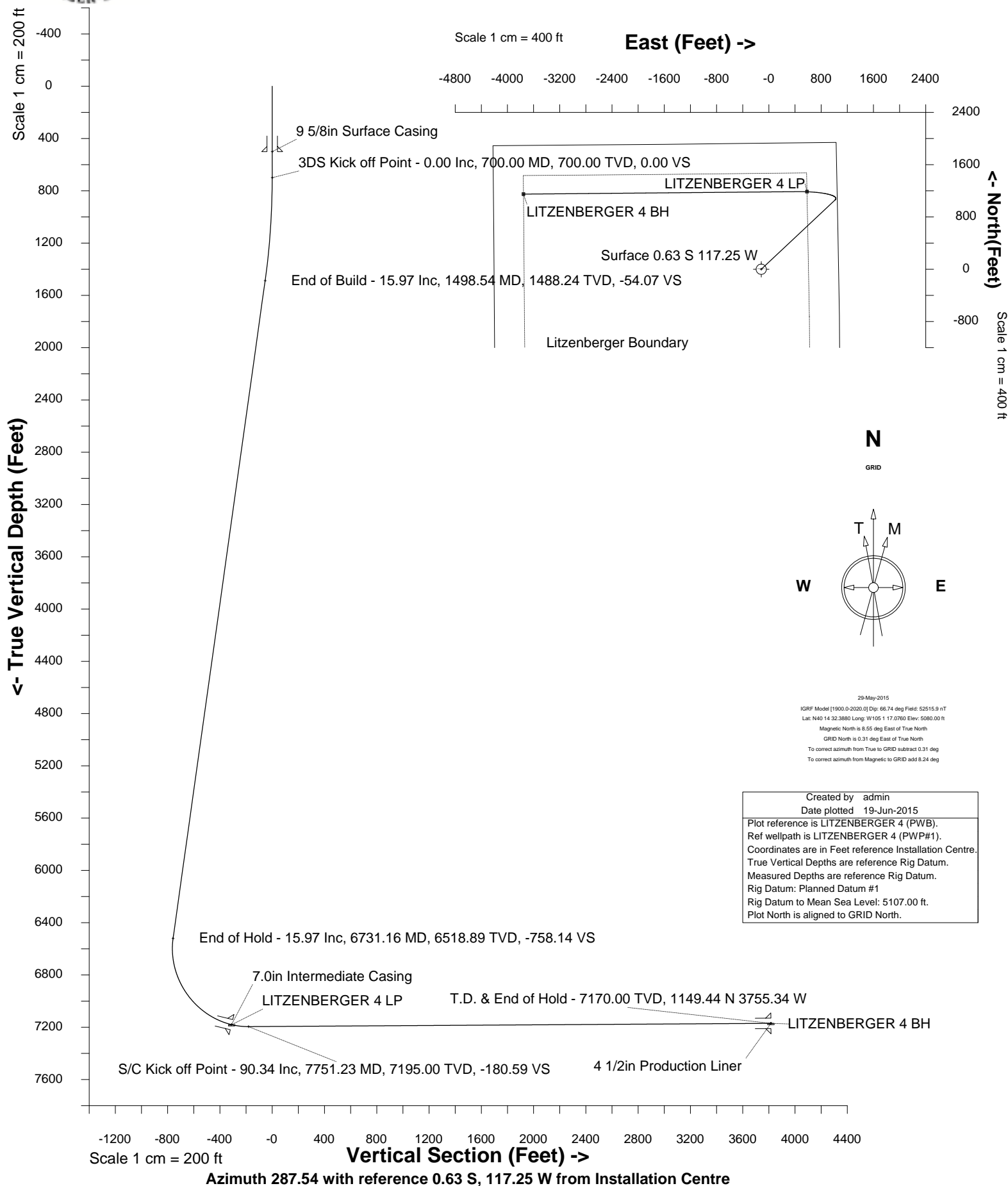




# Cub Creek Energy, LLC

Location	Weld County, CO	Slot	LITZENBERGER 4
Field	WATTENBERG	Well	LITZENBERGER 4
Installation	Litzenberger Pad - Finalized	Wellbore	LITZENBERGER 4 (PWB)





SYSDRILL  
Well Design Combined Report  
Wellbore: LITZENBERGER 4 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
LITZENBERGER 4	40.24233000	-105.02183000	1331482.5199	3133484.3776	0.63S	117.25W	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	1331482.52	3133484.38
700.00	0.00	46.820	700.00	0.00N	0.00E	==>	0.00	1331482.52	3133484.38
11954.44	90.34	269.490	7170.00	1150.08N	3638.09W	==>	3815.55	1332632.54	3129846.45

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	46.820	700.00	0.00N	0.00E	==>	0.00	
800.00	2.00	46.820	799.98	1.19N	1.27E	2.00	-0.85	
900.00	4.00	46.820	899.84	4.78N	5.09E	2.00	-3.41	
1000.00	6.00	46.820	999.45	10.74N	11.44E	2.00	-7.67	
1100.00	8.00	46.820	1098.70	19.08N	20.33E	2.00	-13.63	
1200.00	10.00	46.820	1197.47	29.78N	31.74E	2.00	-21.28	
1300.00	12.00	46.820	1295.62	42.84N	45.65E	2.00	-30.61	
1400.00	14.00	46.820	1393.06	58.23N	62.05E	2.00	-41.61	
1500.00	15.97	46.820	1489.64	75.94N	80.92E	==>	-54.27	
1600.00	15.97	46.820	1585.78	94.77N	100.99E	==>	-67.73	
1700.00	15.97	46.820	1681.92	113.60N	121.05E	==>	-81.18	
1800.00	15.97	46.820	1778.06	132.43N	141.11E	==>	-94.64	
1900.00	15.97	46.820	1874.20	151.26N	161.18E	==>	-108.09	
2000.00	15.97	46.820	1970.34	170.08N	181.24E	==>	-121.55	
2100.00	15.97	46.820	2066.48	188.91N	201.31E	==>	-135.00	
2200.00	15.97	46.820	2162.62	207.74N	221.37E	==>	-148.46	
2300.00	15.97	46.820	2258.76	226.57N	241.43E	==>	-161.91	
2400.00	15.97	46.820	2354.90	245.40N	261.50E	==>	-175.37	
2500.00	15.97	46.820	2451.04	264.23N	281.56E	==>	-188.82	
2600.00	15.97	46.820	2547.18	283.06N	301.62E	==>	-202.28	
2700.00	15.97	46.820	2643.33	301.88N	321.69E	==>	-215.73	
2800.00	15.97	46.820	2739.47	320.71N	341.75E	==>	-229.19	
2900.00	15.97	46.820	2835.61	339.54N	361.82E	==>	-242.64	
3000.00	15.97	46.820	2931.75	358.37N	381.88E	==>	-256.10	
3100.00	15.97	46.820	3027.89	377.20N	401.94E	==>	-269.55	
3200.00	15.97	46.820	3124.03	396.03N	422.01E	==>	-283.01	
3300.00	15.97	46.820	3220.17	414.86N	442.07E	==>	-296.46	
3400.00	15.97	46.820	3316.31	433.68N	462.13E	==>	-309.92	

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Vertical Section is from 0.00N 0.00E on azimuth 287.540 degrees  
Bottom hole distance is 3815.55 Feet on azimuth 287.54 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by Integrated Petroleum Technologies, Inc.  
Date Printed: 19-Jun-2015



SYSDRILL  
Well Design Combined Report  
Wellbore: LITZENBERGER 4 (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	15.97	46.820	3412.45	452.51N	482.20E	==>	-323.38	
3600.00	15.97	46.820	3508.59	471.34N	502.26E	==>	-336.83	
3700.00	15.97	46.820	3604.73	490.17N	522.32E	==>	-350.29	
3800.00	15.97	46.820	3700.87	509.00N	542.39E	==>	-363.74	
3900.00	15.97	46.820	3797.01	527.83N	562.45E	==>	-377.20	
4000.00	15.97	46.820	3893.15	546.66N	582.52E	==>	-390.65	
4100.00	15.97	46.820	3989.29	565.48N	602.58E	==>	-404.11	
4200.00	15.97	46.820	4085.43	584.31N	622.64E	==>	-417.56	
4300.00	15.97	46.820	4181.57	603.14N	642.71E	==>	-431.02	
4400.00	15.97	46.820	4277.71	621.97N	662.77E	==>	-444.47	
4500.00	15.97	46.820	4373.85	640.80N	682.83E	==>	-457.93	
4600.00	15.97	46.820	4469.99	659.63N	702.90E	==>	-471.38	
4700.00	15.97	46.820	4566.13	678.46N	722.96E	==>	-484.84	
4800.00	15.97	46.820	4662.27	697.28N	743.03E	==>	-498.29	
4900.00	15.97	46.820	4758.41	716.11N	763.09E	==>	-511.75	
5000.00	15.97	46.820	4854.55	734.94N	783.15E	==>	-525.20	
5100.00	15.97	46.820	4950.69	753.77N	803.22E	==>	-538.66	
5200.00	15.97	46.820	5046.83	772.60N	823.28E	==>	-552.12	
5300.00	15.97	46.820	5142.97	791.43N	843.34E	==>	-565.57	
5400.00	15.97	46.820	5239.11	810.26N	863.41E	==>	-579.03	
5500.00	15.97	46.820	5335.25	829.08N	883.47E	==>	-592.48	
5600.00	15.97	46.820	5431.39	847.91N	903.53E	==>	-605.94	
5700.00	15.97	46.820	5527.53	866.74N	923.60E	==>	-619.39	
5800.00	15.97	46.820	5623.67	885.57N	943.66E	==>	-632.85	
5900.00	15.97	46.820	5719.81	904.40N	963.73E	==>	-646.30	
6000.00	15.97	46.820	5815.95	923.23N	983.79E	==>	-659.76	
6100.00	15.97	46.820	5912.09	942.06N	1003.85E	==>	-673.21	
6200.00	15.97	46.820	6008.23	960.88N	1023.92E	==>	-686.67	
6300.00	15.97	46.820	6104.37	979.71N	1043.98E	==>	-700.12	
6400.00	15.97	46.820	6200.51	998.54N	1064.04E	==>	-713.58	
6500.00	15.97	46.820	6296.65	1017.37N	1084.11E	==>	-727.03	
6600.00	15.97	46.820	6392.79	1036.20N	1104.17E	==>	-740.49	
6700.00	15.97	46.820	6488.93	1055.03N	1124.24E	==>	-753.94	
6800.00	11.97	23.220	6585.73	1073.95N	1140.22E	10.00	-763.48	
6900.00	12.16	333.930	6683.77	1092.99N	1139.68E	10.00	-757.23	
7000.00	18.70	304.560	6780.26	1111.59N	1121.81E	10.00	-734.58	
7100.00	27.37	291.590	6872.25	1129.18N	1087.14E	10.00	-696.22	
7200.00	36.69	284.660	6956.97	1145.24N	1036.74E	10.00	-643.33	
7300.00	46.26	280.260	7031.83	1159.28N	972.13E	10.00	-577.49	
7400.00	55.95	277.090	7094.55	1170.86N	895.28E	10.00	-500.73	
7500.00	65.71	274.580	7143.24	1179.64N	808.52E	10.00	-415.36	
7600.00	75.50	272.430	7176.41	1185.34N	714.49E	10.00	-323.98	
7614.00	76.87	272.150	7179.75	1185.89N	700.91E	10.00	-310.86	7.0in Intermediate Casing
7700.00	85.31	270.460	7193.06	1187.81N	616.05E	10.00	-229.37	
7800.00	90.34	269.490	7194.71	1187.35N	516.11E	==>	-134.21	
7900.00	90.34	269.490	7194.12	1186.45N	416.11E	==>	-39.14	
8000.00	90.34	269.490	7193.52	1185.55N	316.12E	==>	55.93	
8100.00	90.34	269.490	7192.93	1184.65N	216.12E	==>	151.01	
8200.00	90.34	269.490	7192.33	1183.76N	116.13E	==>	246.08	
8300.00	90.34	269.490	7191.74	1182.86N	16.13E	==>	341.15	
8400.00	90.34	269.490	7191.14	1181.96N	83.86W	==>	436.23	
8500.00	90.34	269.490	7190.55	1181.07N	183.85W	==>	531.30	
8600.00	90.34	269.490	7189.95	1180.17N	283.85W	==>	626.37	
8700.00	90.34	269.490	7189.36	1179.27N	383.84W	==>	721.44	
8800.00	90.34	269.490	7188.76	1178.37N	483.84W	==>	816.52	
8900.00	90.34	269.490	7188.17	1177.48N	583.83W	==>	911.59	
9000.00	90.34	269.490	7187.57	1176.58N	683.83W	==>	1006.66	
9100.00	90.34	269.490	7186.98	1175.68N	783.82W	==>	1101.74	
9200.00	90.34	269.490	7186.38	1174.79N	883.81W	==>	1196.81	
9300.00	90.34	269.490	7185.79	1173.89N	983.81W	==>	1291.88	

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Prepared by Integrated Petroleum Technologies, Inc.  
Date Printed: 19-Jun-2015



SYSDRILL  
Well Design Combined Report  
Wellbore: LITZENBERGER 4 (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	269.490	7185.19	1172.99N	1083.80W	==>	1386.96	
9500.00	90.34	269.490	7184.60	1172.09N	1183.80W	==>	1482.03	
9600.00	90.34	269.490	7184.00	1171.20N	1283.79W	==>	1577.10	
9700.00	90.34	269.490	7183.41	1170.30N	1383.78W	==>	1672.18	
9800.00	90.34	269.490	7182.81	1169.40N	1483.78W	==>	1767.25	
9900.00	90.34	269.490	7182.22	1168.51N	1583.77W	==>	1862.32	
10000.00	90.34	269.490	7181.62	1167.61N	1683.77W	==>	1957.40	
10100.00	90.34	269.490	7181.03	1166.71N	1783.76W	==>	2052.47	
10200.00	90.34	269.490	7180.44	1165.81N	1883.76W	==>	2147.54	
10300.00	90.34	269.490	7179.84	1164.92N	1983.75W	==>	2242.62	
10400.00	90.34	269.490	7179.25	1164.02N	2083.74W	==>	2337.69	
10500.00	90.34	269.490	7178.65	1163.12N	2183.74W	==>	2432.76	
10600.00	90.34	269.490	7178.06	1162.23N	2283.73W	==>	2527.84	
10700.00	90.34	269.490	7177.46	1161.33N	2383.73W	==>	2622.91	
10800.00	90.34	269.490	7176.87	1160.43N	2483.72W	==>	2717.98	
10900.00	90.34	269.490	7176.27	1159.54N	2583.72W	==>	2813.06	
11000.00	90.34	269.490	7175.68	1158.64N	2683.71W	==>	2908.13	
11100.00	90.34	269.490	7175.08	1157.74N	2783.70W	==>	3003.20	
11200.00	90.34	269.490	7174.49	1156.84N	2883.70W	==>	3098.28	
11300.00	90.34	269.490	7173.89	1155.95N	2983.69W	==>	3193.35	
11400.00	90.34	269.490	7173.30	1155.05N	3083.69W	==>	3288.42	
11500.00	90.34	269.490	7172.70	1154.15N	3183.68W	==>	3383.50	
11600.00	90.34	269.490	7172.11	1153.26N	3283.67W	==>	3478.57	
11700.00	90.34	269.490	7171.51	1152.36N	3383.67W	==>	3573.64	
11800.00	90.34	269.490	7170.92	1151.46N	3483.66W	==>	3668.72	
11900.00	90.34	269.490	7170.32	1150.56N	3583.66W	==>	3763.79	
11954.44	90.34	269.490	7170.00	1150.08N	3638.09W	==>	3815.55	4 1/2in Production Liner

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SYSDRILL  
Closest Approach + Clearance Factor Summary Report  
Wellbore: LITZENBERGER 4 (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 4 (PWB)	17-Jun-2015	17-Jun-2015

Well		
Name	Government ID	Last Revised
LITZENBERGER 4		16-Jun-2015

Slot						
Name	Latitude	Longitude	Grid Northing	Grid Easting	North	East
LITZENBERGER 4	40.24233000	-105.02183000	1331482.5199	3133484.3776	0.63S	117.25W

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 5	11.56	1059.23	7734.97	-4.46	11954.44	0.99	11954.44
LITZENBERGER 3	15.33	910.83	910.83	-3.00	11954.44	0.99	11954.44
LITZENBERGER 6	22.86	1093.54	11954.44	1.06	11954.44	1.00	11954.44
LITZENBERGER 2	24.52	930.93	11954.44	18.27	976.44	1.36	11954.44
LITZENBERGER 21	25.50	700.00	700.00	20.85	713.98	5.29	763.19
LITZENBERGER 20	29.07	700.00	11954.44	24.24	746.78	5.73	812.40
LITZENBERGER 22	30.51	650.00	650.00	26.08	681.17	6.46	746.78
LITZENBERGER 7	33.70	1110.71	11954.44	26.51	1125.00	1.98	11954.44
LITZENBERGER 19	37.68	833.29	833.29	32.18	861.61	6.54	927.23
LITZENBERGER 23	39.92	550.00	550.00	35.94	625.00	8.55	763.19
LITZENBERGER 1	40.75	878.02	11954.44	34.85	910.83	1.98	11954.44
LITZENBERGER 8	48.05	1130.18	1130.18	40.82	1130.18	2.70	11954.44
LITZENBERGER 18	49.88	901.75	901.75	43.94	927.23	8.04	1009.25
LITZENBERGER 24	53.88	500.72	500.72	50.02	625.00	11.26	796.00
LITZENBERGER 17	61.83	927.59	927.59	55.84	927.59	8.17	11954.44
LITZENBERGER 16	69.90	1061.96	11954.44	63.04	1091.27	7.82	11954.44
LITZENBERGER 9	72.58	651.00	651.00	68.22	651.00	2.98	11954.44
LITZENBERGER 15	82.05	1130.03	1130.03	74.76	1156.89	6.92	11954.44
LITZENBERGER 12	89.33	601.00	601.00	85.22	625.00	4.96	11954.44
Kintz #1	93.10	2083.90	8063.91	70.85	2091.93	4.15	2125.00
LITZENBERGER 14	93.45	1164.78	1164.78	85.96	1164.78	6.40	11954.44

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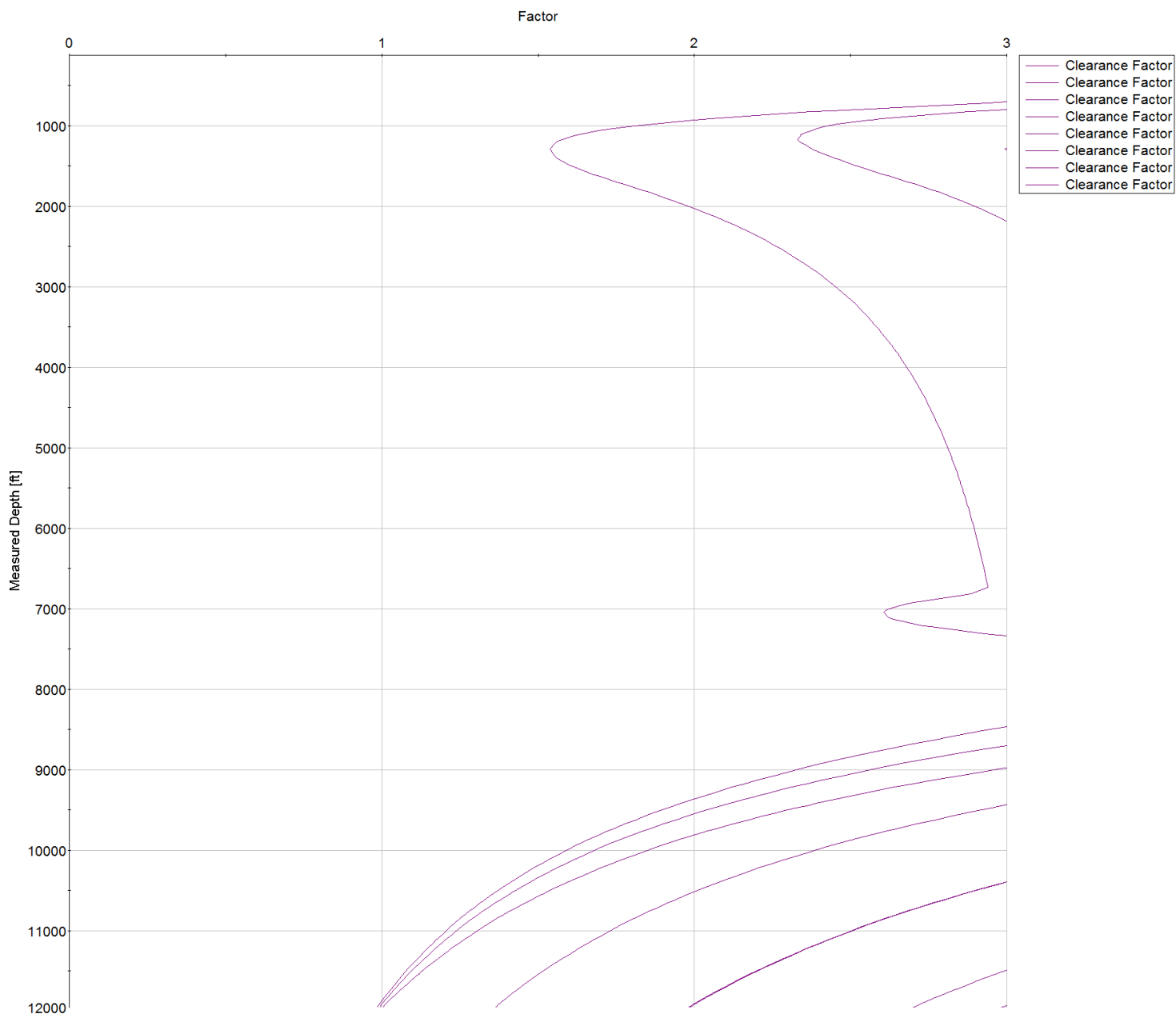
SYSDRILL  
Closest Approach + Clearance Factor Summary Report  
Wellbore: LITZENBERGER 4 (PWB)



Clearance Summary							
Offset WellName	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
Kintz #2	101.25	1583.40	9162.64	89.67	1583.40	8.59	1616.21
LITZENBERGER 11	103.29	551.00	551.00	99.51	566.34	4.55	11954.44
LITZENBERGER 13	106.39	1201.00	1201.00	98.60	1225.00	5.90	11954.44
LITZENBERGER 10	117.25	502.00	11954.44	113.60	484.32	3.96	11954.44
Billings #2A-18H	4622.60	10195.60	10195.60	4228.91	10225.00	11.74	10225.00
Billings #2B-18H	4968.47	11954.44	11954.44	4577.62	11917.36	12.67	10337.48

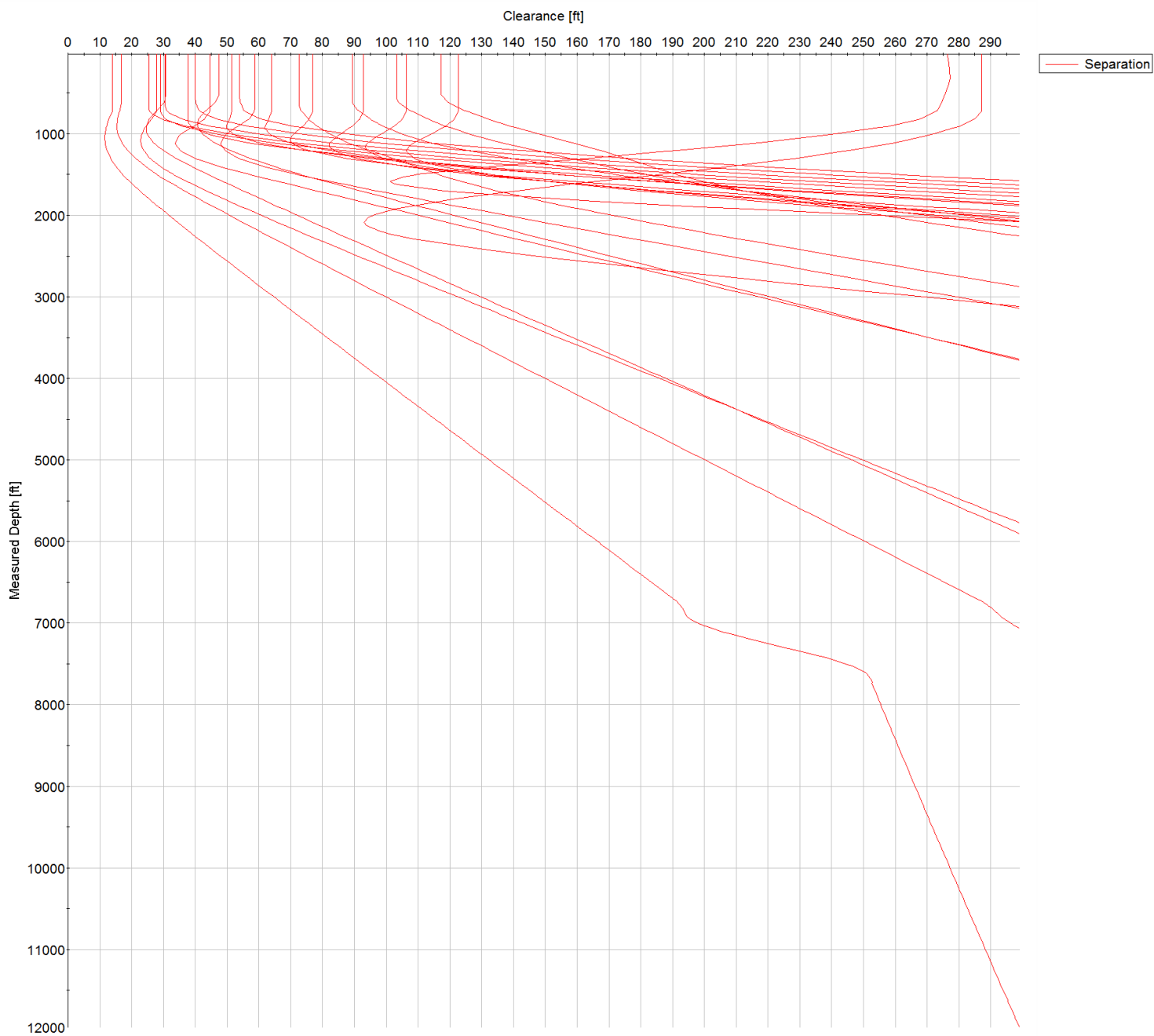


SYSDRILL  
Closest Approach + Clearance Factor Summary Report  
Wellbore: LITZENBERGER 4 (PWB)





SYSDRILL  
Closest Approach + Clearance Factor Summary Report  
Wellbore: LITZENBERGER 4 (PWB)



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SYSDRILL  
Closest Approach + Clearance Factor Summary Report  
Wellbore: LITZENBERGER 4 (PWB)

