

Cub Creek Energy, LLC

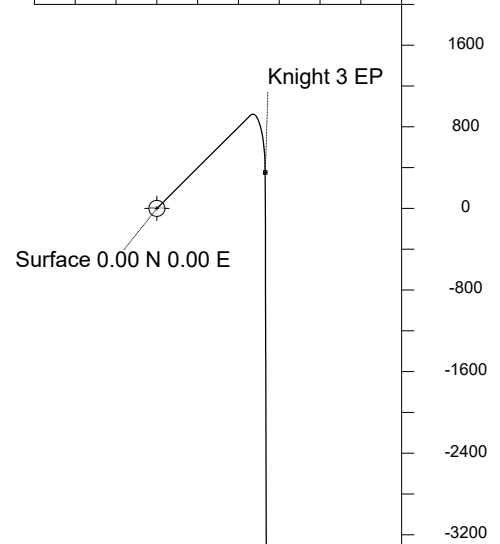
Location	Weld County, CO	Slot	KNIGHT 3
Field	WATTENBERG	Well	W KNIGHT 3
Installation	Knight Pad	Wellbore	W KNIGHT 3 (PWB)

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	17.00	0.00	0.00	17.00	S 0.00	W 0.00		0.00
KOP	1517.00	0.00	45.15	1517.00	S 0.00	W 0.00	0.00	0.00
End of Build	2353.23	16.72	45.15	2341.41	N 85.46	E 85.92	2.00	-76.12
End of Hold	6427.43	16.72	45.15	6243.27	N 912.32	E 917.14	0.00	-812.61
Target Knight 3 EP	7444.21	90.00	179.85	6917.00	N 351.60	E 1062.52	10.00	-239.87
T.D. & Target Kni... BH	18293.06	90.00	179.85	6917.00	S 10497.21	E 1091.07	0.00	10553.76

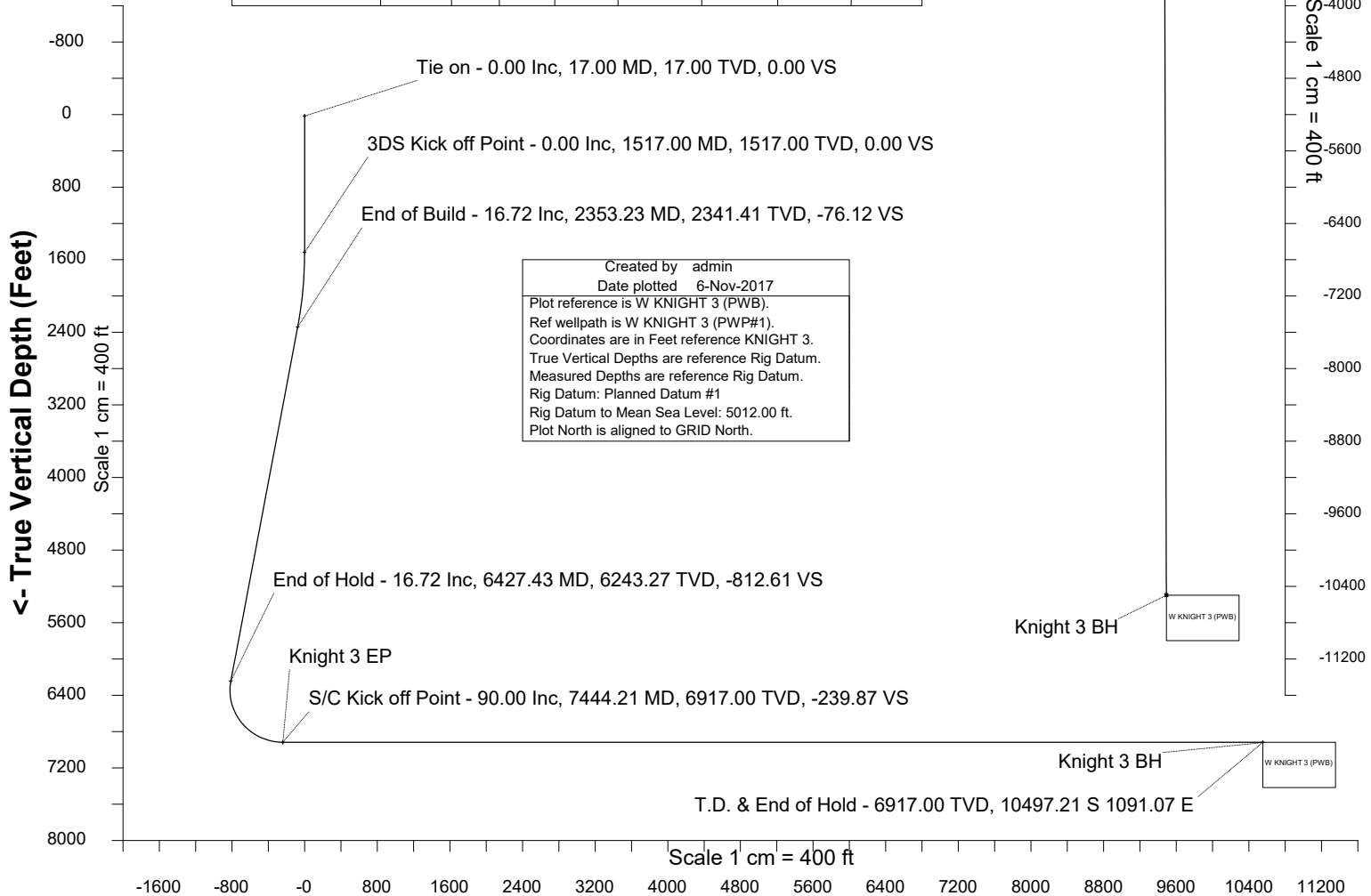
East (Feet) ->

-800 0 800 1600 2400
Scale 1 cm = 400 ft



<- North(Feet)

Scale 1 cm = 400 ft



Created by admin
Date plotted 6-Nov-2017
Plot reference is W KNIGHT 3 (PWB).
Ref wellpath is W KNIGHT 3 (PWP#1).
Coordinates are in Feet reference KNIGHT 3.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 5012.00 ft.
Plot North is aligned to GRID North.

Tie on - 0.00 Inc, 17.00 MD, 17.00 TVD, 0.00 VS

3DS Kick off Point - 0.00 Inc, 1517.00 MD, 1517.00 TVD, 0.00 VS

End of Build - 16.72 Inc, 2353.23 MD, 2341.41 TVD, -76.12 VS

End of Hold - 16.72 Inc, 6427.43 MD, 6243.27 TVD, -812.61 VS

Knight 3 EP

S/C Kick off Point - 90.00 Inc, 7444.21 MD, 6917.00 TVD, -239.87 VS

Knight 3 BH

Knight 3 BH

T.D. & End of Hold - 6917.00 TVD, 10497.21 S 1091.07 E

Scale 1 cm = 400 ft

Vertical Section (Feet) ->

Azimuth 174.07 with reference 0.00 N, 0.00 E from KNIGHT 3



SYSDRILL
Well Design Combined Report
Wellbore: W KNIGHT 3 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
KNIGHT 3	40.19796000	-105.04197000	1315289.7600	3127945.6995	29.14S	0.15E	0.00

Declination		
Date	Source	Time
Nov-6-2017	EMM-2015 [2000.0-2020.0]	14:52

Installation Details						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Knight Pad	40.19804000	-105.04197000	1315318.9022	3127945.5490	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
17.00	0.00	0.000	17.00	0.00N	0.00E		0.00	1315289.76	3127945.70
1517.00	0.00	45.150	1517.00	0.00N	0.00E	==>	0.00	1315289.76	3127945.70
2353.23	16.72	45.150	2341.41	85.46N	85.92E	2.00	-76.12	1315375.22	3128031.61
6427.43	16.72	45.150	6243.27	912.32N	917.14E	==>	-812.61	1316202.04	3128862.80
7444.21	90.00	179.850	6917.00	351.60N	1062.52E	10.00	-239.87	1315641.34	3129008.17
18293.06	90.00	179.850	6917.00	10497.21S	1091.07E	==>	10553.76	1304793.02	3129036.72

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
17.00	0.00	0.000	17.00	0.00N	0.00E	==>	0.00	Slot Datum
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	
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	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	
1500.00	0.00	0.000	1500.00	0.00N	0.00E	==>	0.00	
1600.00	1.66	45.150	1599.99	0.85N	0.85E	2.00	-0.76	
1700.00	3.66	45.150	1699.88	4.12N	4.14E	2.00	-3.67	
1800.00	5.66	45.150	1799.54	9.85N	9.90E	2.00	-8.77	
1900.00	7.66	45.150	1898.86	18.03N	18.12E	2.00	-16.06	
2000.00	9.66	45.150	1997.71	28.65N	28.80E	2.00	-25.52	
2100.00	11.66	45.150	2095.98	41.69N	41.91E	2.00	-37.14	
2200.00	13.66	45.150	2193.55	57.15N	57.45E	2.00	-50.90	
2300.00	15.66	45.150	2290.29	75.00N	75.39E	2.00	-66.80	
2400.00	16.72	45.150	2386.20	94.96N	95.46E	==>	-84.58	
2500.00	16.72	45.150	2481.97	115.25N	115.86E	==>	-102.65	
2600.00	16.72	45.150	2577.74	135.55N	136.26E	==>	-120.73	
2700.00	16.72	45.150	2673.51	155.84N	156.66E	==>	-138.81	
2800.00	16.72	45.150	2769.28	176.13N	177.07E	==>	-156.89	
2900.00	16.72	45.150	2865.05	196.43N	197.47E	==>	-174.96	
3000.00	16.72	45.150	2960.82	216.72N	217.87E	==>	-193.04	
3100.00	16.72	45.150	3056.59	237.02N	238.27E	==>	-211.12	

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig (Planned Datum #1 5012.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 174.070 degrees
Bottom hole distance is 10553.76 Feet on azimuth 174.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 1-Dec-2017



SYSDRILL
Well Design Combined Report
Wellbore: W KNIGHT 3 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
3200.00	16.72	45.150	3152.36	257.31N	258.67E	==>	-229.19	
3300.00	16.72	45.150	3248.13	277.61N	279.08E	==>	-247.27	
3400.00	16.72	45.150	3343.90	297.90N	299.48E	==>	-265.35	
3500.00	16.72	45.150	3439.67	318.20N	319.88E	==>	-283.42	
3600.00	16.72	45.150	3535.44	338.49N	340.28E	==>	-301.50	
3700.00	16.72	45.150	3631.21	358.79N	360.68E	==>	-319.58	
3800.00	16.72	45.150	3726.98	379.08N	381.09E	==>	-337.65	
3900.00	16.72	45.150	3822.75	399.38N	401.49E	==>	-355.73	
4000.00	16.72	45.150	3918.52	419.67N	421.89E	==>	-373.81	
4100.00	16.72	45.150	4014.29	439.97N	442.29E	==>	-391.89	
4200.00	16.72	45.150	4110.05	460.26N	462.70E	==>	-409.96	
4300.00	16.72	45.150	4205.82	480.56N	483.10E	==>	-428.04	
4400.00	16.72	45.150	4301.59	500.85N	503.50E	==>	-446.12	
4500.00	16.72	45.150	4397.36	521.15N	523.90E	==>	-464.19	
4600.00	16.72	45.150	4493.13	541.44N	544.30E	==>	-482.27	
4700.00	16.72	45.150	4588.90	561.74N	564.71E	==>	-500.35	
4800.00	16.72	45.150	4684.67	582.03N	585.11E	==>	-518.42	
4900.00	16.72	45.150	4780.44	602.33N	605.51E	==>	-536.50	
5000.00	16.72	45.150	4876.21	622.62N	625.91E	==>	-554.58	
5100.00	16.72	45.150	4971.98	642.92N	646.31E	==>	-572.65	
5200.00	16.72	45.150	5067.75	663.21N	666.72E	==>	-590.73	
5300.00	16.72	45.150	5163.52	683.51N	687.12E	==>	-608.81	
5400.00	16.72	45.150	5259.29	703.80N	707.52E	==>	-626.88	
5500.00	16.72	45.150	5355.06	724.10N	727.92E	==>	-644.96	
5600.00	16.72	45.150	5450.83	744.39N	748.32E	==>	-663.04	
5700.00	16.72	45.150	5546.60	764.69N	768.73E	==>	-681.12	
5800.00	16.72	45.150	5642.37	784.98N	789.13E	==>	-699.19	
5900.00	16.72	45.150	5738.14	805.28N	809.53E	==>	-717.27	
6000.00	16.72	45.150	5833.91	825.57N	829.93E	==>	-735.35	
6100.00	16.72	45.150	5929.68	845.87N	850.34E	==>	-753.42	
6200.00	16.72	45.150	6025.45	866.16N	870.74E	==>	-771.50	
6300.00	16.72	45.150	6121.22	886.45N	891.14E	==>	-789.58	
6400.00	16.72	45.150	6216.99	906.75N	911.54E	==>	-807.65	
6500.00	12.83	69.540	6313.49	922.51N	932.11E	10.00	-821.20	
6600.00	13.27	114.910	6411.15	921.56N	952.97E	10.00	-818.10	
6700.00	19.61	143.010	6507.16	903.28N	973.53E	10.00	-797.79	
6800.00	28.10	156.270	6598.60	868.22N	993.15E	10.00	-760.90	
6900.00	37.31	163.570	6682.69	817.46N	1011.24E	10.00	-708.54	
7000.00	46.80	168.280	6756.87	752.54N	1027.26E	10.00	-642.31	
7100.00	56.44	171.700	6818.89	675.42N	1040.71E	10.00	-564.21	
7200.00	66.15	174.430	6866.87	588.46N	1051.19E	10.00	-476.63	
7300.00	75.90	176.770	6899.34	494.29N	1058.37E	10.00	-382.22	
7400.00	85.68	178.920	6915.33	395.77N	1062.05E	10.00	-283.85	
7500.00	90.00	179.850	6917.00	295.81N	1062.66E	==>	-184.37	
7600.00	90.00	179.850	6917.00	195.81N	1062.93E	==>	-84.88	
7700.00	90.00	179.850	6917.00	95.81N	1063.19E	==>	14.61	
7800.00	90.00	179.850	6917.00	4.19S	1063.45E	==>	114.11	
7900.00	90.00	179.850	6917.00	104.18S	1063.72E	==>	213.60	
8000.00	90.00	179.850	6917.00	204.18S	1063.98E	==>	313.09	
8100.00	90.00	179.850	6917.00	304.18S	1064.24E	==>	412.58	
8200.00	90.00	179.850	6917.00	404.18S	1064.51E	==>	512.07	
8300.00	90.00	179.850	6917.00	504.18S	1064.77E	==>	611.56	
8400.00	90.00	179.850	6917.00	604.18S	1065.03E	==>	711.05	
8500.00	90.00	179.850	6917.00	704.18S	1065.30E	==>	810.54	
8600.00	90.00	179.850	6917.00	804.18S	1065.56E	==>	910.03	
8700.00	90.00	179.850	6917.00	904.18S	1065.82E	==>	1009.52	
8800.00	90.00	179.850	6917.00	1004.18S	1066.09E	==>	1109.02	
8900.00	90.00	179.850	6917.00	1104.18S	1066.35E	==>	1208.51	
9000.00	90.00	179.850	6917.00	1204.18S	1066.61E	==>	1308.00	

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5012.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 174.070 degrees
Bottom hole distance is 10553.76 Feet on azimuth 174.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 1-Dec-2017



SYSDRILL
Well Design Combined Report
Wellbore: W KNIGHT 3 (PWB)



Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
9100.00	90.00	179.850	6917.00	1304.18S	1066.88E	==>	1407.49	
9200.00	90.00	179.850	6917.00	1404.18S	1067.14E	==>	1506.98	
9300.00	90.00	179.850	6917.00	1504.18S	1067.40E	==>	1606.47	
9400.00	90.00	179.850	6917.00	1604.18S	1067.67E	==>	1705.96	
9500.00	90.00	179.850	6917.00	1704.18S	1067.93E	==>	1805.45	
9600.00	90.00	179.850	6917.00	1804.18S	1068.19E	==>	1904.94	
9700.00	90.00	179.850	6917.00	1904.18S	1068.46E	==>	2004.43	
9800.00	90.00	179.850	6917.00	2004.18S	1068.72E	==>	2103.93	
9900.00	90.00	179.850	6917.00	2104.18S	1068.98E	==>	2203.42	
10000.00	90.00	179.850	6917.00	2204.18S	1069.24E	==>	2302.91	
10100.00	90.00	179.850	6917.00	2304.18S	1069.51E	==>	2402.40	
10200.00	90.00	179.850	6917.00	2404.18S	1069.77E	==>	2501.89	
10300.00	90.00	179.850	6917.00	2504.18S	1070.03E	==>	2601.38	
10400.00	90.00	179.850	6917.00	2604.18S	1070.30E	==>	2700.87	
10500.00	90.00	179.850	6917.00	2704.18S	1070.56E	==>	2800.36	
10600.00	90.00	179.850	6917.00	2804.18S	1070.82E	==>	2899.85	
10700.00	90.00	179.850	6917.00	2904.18S	1071.09E	==>	2999.35	
10800.00	90.00	179.850	6917.00	3004.17S	1071.35E	==>	3098.84	
10900.00	90.00	179.850	6917.00	3104.17S	1071.61E	==>	3198.33	
11000.00	90.00	179.850	6917.00	3204.17S	1071.88E	==>	3297.82	
11100.00	90.00	179.850	6917.00	3304.17S	1072.14E	==>	3397.31	
11200.00	90.00	179.850	6917.00	3404.17S	1072.40E	==>	3496.80	
11300.00	90.00	179.850	6917.00	3504.17S	1072.67E	==>	3596.29	
11400.00	90.00	179.850	6917.00	3604.17S	1072.93E	==>	3695.78	
11500.00	90.00	179.850	6917.00	3704.17S	1073.19E	==>	3795.27	
11600.00	90.00	179.850	6917.00	3804.17S	1073.46E	==>	3894.76	
11700.00	90.00	179.850	6917.00	3904.17S	1073.72E	==>	3994.26	
11800.00	90.00	179.850	6917.00	4004.17S	1073.98E	==>	4093.75	
11900.00	90.00	179.850	6917.00	4104.17S	1074.25E	==>	4193.24	
12000.00	90.00	179.850	6917.00	4204.17S	1074.51E	==>	4292.73	
12100.00	90.00	179.850	6917.00	4304.17S	1074.77E	==>	4392.22	
12200.00	90.00	179.850	6917.00	4404.17S	1075.04E	==>	4491.71	
12300.00	90.00	179.850	6917.00	4504.17S	1075.30E	==>	4591.20	
12400.00	90.00	179.850	6917.00	4604.17S	1075.56E	==>	4690.69	
12500.00	90.00	179.850	6917.00	4704.17S	1075.83E	==>	4790.18	
12600.00	90.00	179.850	6917.00	4804.17S	1076.09E	==>	4889.67	
12700.00	90.00	179.850	6917.00	4904.17S	1076.35E	==>	4989.17	
12800.00	90.00	179.850	6917.00	5004.17S	1076.62E	==>	5088.66	
12900.00	90.00	179.850	6917.00	5104.17S	1076.88E	==>	5188.15	
13000.00	90.00	179.850	6917.00	5204.17S	1077.14E	==>	5287.64	
13100.00	90.00	179.850	6917.00	5304.17S	1077.40E	==>	5387.13	
13200.00	90.00	179.850	6917.00	5404.17S	1077.67E	==>	5486.62	
13300.00	90.00	179.850	6917.00	5504.17S	1077.93E	==>	5586.11	
13400.00	90.00	179.850	6917.00	5604.17S	1078.19E	==>	5685.60	
13500.00	90.00	179.850	6917.00	5704.17S	1078.46E	==>	5785.09	
13600.00	90.00	179.850	6917.00	5804.16S	1078.72E	==>	5884.59	
13700.00	90.00	179.850	6917.00	5904.16S	1078.98E	==>	5984.08	
13800.00	90.00	179.850	6917.00	6004.16S	1079.25E	==>	6083.57	
13900.00	90.00	179.850	6917.00	6104.16S	1079.51E	==>	6183.06	
14000.00	90.00	179.850	6917.00	6204.16S	1079.77E	==>	6282.55	
14100.00	90.00	179.850	6917.00	6304.16S	1080.04E	==>	6382.04	
14200.00	90.00	179.850	6917.00	6404.16S	1080.30E	==>	6481.53	
14300.00	90.00	179.850	6917.00	6504.16S	1080.56E	==>	6581.02	
14400.00	90.00	179.850	6917.00	6604.16S	1080.83E	==>	6680.51	
14500.00	90.00	179.850	6917.00	6704.16S	1081.09E	==>	6780.00	
14600.00	90.00	179.850	6917.00	6804.16S	1081.35E	==>	6879.50	
14700.00	90.00	179.850	6917.00	6904.16S	1081.62E	==>	6978.99	
14800.00	90.00	179.850	6917.00	7004.16S	1081.88E	==>	7078.48	
14900.00	90.00	179.850	6917.00	7104.16S	1082.14E	==>	7177.97	

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Wellbore: W KNIGHT 3 (PWB)



Interpolated Wellpath								
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15000.00	90.00	179.850	6917.00	7204.16S	1082.41E	==>	7277.46	
15100.00	90.00	179.850	6917.00	7304.16S	1082.67E	==>	7376.95	
15200.00	90.00	179.850	6917.00	7404.16S	1082.93E	==>	7476.44	
15300.00	90.00	179.850	6917.00	7504.16S	1083.20E	==>	7575.93	
15400.00	90.00	179.850	6917.00	7604.16S	1083.46E	==>	7675.42	
15500.00	90.00	179.850	6917.00	7704.16S	1083.72E	==>	7774.91	
15600.00	90.00	179.850	6917.00	7804.16S	1083.99E	==>	7874.41	
15700.00	90.00	179.850	6917.00	7904.16S	1084.25E	==>	7973.90	
15800.00	90.00	179.850	6917.00	8004.16S	1084.51E	==>	8073.39	
15900.00	90.00	179.850	6917.00	8104.16S	1084.77E	==>	8172.88	
16000.00	90.00	179.850	6917.00	8204.16S	1085.04E	==>	8272.37	
16100.00	90.00	179.850	6917.00	8304.16S	1085.30E	==>	8371.86	
16200.00	90.00	179.850	6917.00	8404.16S	1085.56E	==>	8471.35	
16300.00	90.00	179.850	6917.00	8504.16S	1085.83E	==>	8570.84	
16400.00	90.00	179.850	6917.00	8604.16S	1086.09E	==>	8670.33	
16500.00	90.00	179.850	6917.00	8704.15S	1086.35E	==>	8769.83	
16600.00	90.00	179.850	6917.00	8804.15S	1086.62E	==>	8869.32	
16700.00	90.00	179.850	6917.00	8904.15S	1086.88E	==>	8968.81	
16800.00	90.00	179.850	6917.00	9004.15S	1087.14E	==>	9068.30	
16900.00	90.00	179.850	6917.00	9104.15S	1087.41E	==>	9167.79	
17000.00	90.00	179.850	6917.00	9204.15S	1087.67E	==>	9267.28	
17100.00	90.00	179.850	6917.00	9304.15S	1087.93E	==>	9366.77	
17200.00	90.00	179.850	6917.00	9404.15S	1088.20E	==>	9466.26	
17300.00	90.00	179.850	6917.00	9504.15S	1088.46E	==>	9565.75	
17400.00	90.00	179.850	6917.00	9604.15S	1088.72E	==>	9665.24	
17500.00	90.00	179.850	6917.00	9704.15S	1088.99E	==>	9764.74	
17600.00	90.00	179.850	6917.00	9804.15S	1089.25E	==>	9864.23	
17700.00	90.00	179.850	6917.00	9904.15S	1089.51E	==>	9963.72	
17800.00	90.00	179.850	6917.00	10004.15S	1089.78E	==>	10063.21	
17900.00	90.00	179.850	6917.00	10104.15S	1090.04E	==>	10162.70	
18000.00	90.00	179.850	6917.00	10204.15S	1090.30E	==>	10262.19	
18100.00	90.00	179.850	6917.00	10304.15S	1090.57E	==>	10361.68	
18200.00	90.00	179.850	6917.00	10404.15S	1090.83E	==>	10461.17	
18293.06	90.00	179.850	6917.00	10497.21S	1091.07E	==>	10553.76	

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 5012.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 174.070 degrees
Bottom hole distance is 10553.76 Feet on azimuth 174.07 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Microsoft
Date Printed: 1-Dec-2017



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
Knight 3 EP	351.60N	1062.52E	6917.00	40.19891000	-105.03816000	1315641.34	3129008.17
Knight 3 BH	10497.21S	1091.07E	6917.00	40.16913000	-105.03826000	1304793.02	3129036.72

Notes