

Cub Creek Energy, LLC

Location	Weld County, CO	Slot	KNIGHT 6
Field	WATTENBERG	Well	W KNIGHT 6
Installation	Knight Pad	Wellbore	W KNIGHT 6 (PWB)

N

GRID

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	20.08	1517.00	S 0.00	W 0.00	0.00	0.00
End of Build	2160.39	12.87	20.08	2155.00	N 67.57	E 24.71	2.00	-66.50
End of Hold	6336.76	12.87	20.08	6226.48	N 941.10	E 344.10	0.00	-926.16
Target Knight 6 EP	7357.36	90.00	179.84	6917.00	N 380.95	E 400.30	10.00	-364.17
T.D. & Target Kni... BH	18224.42	90.00	179.84	6917.00	S 10486.06	E 431.46	0.00	10494.94

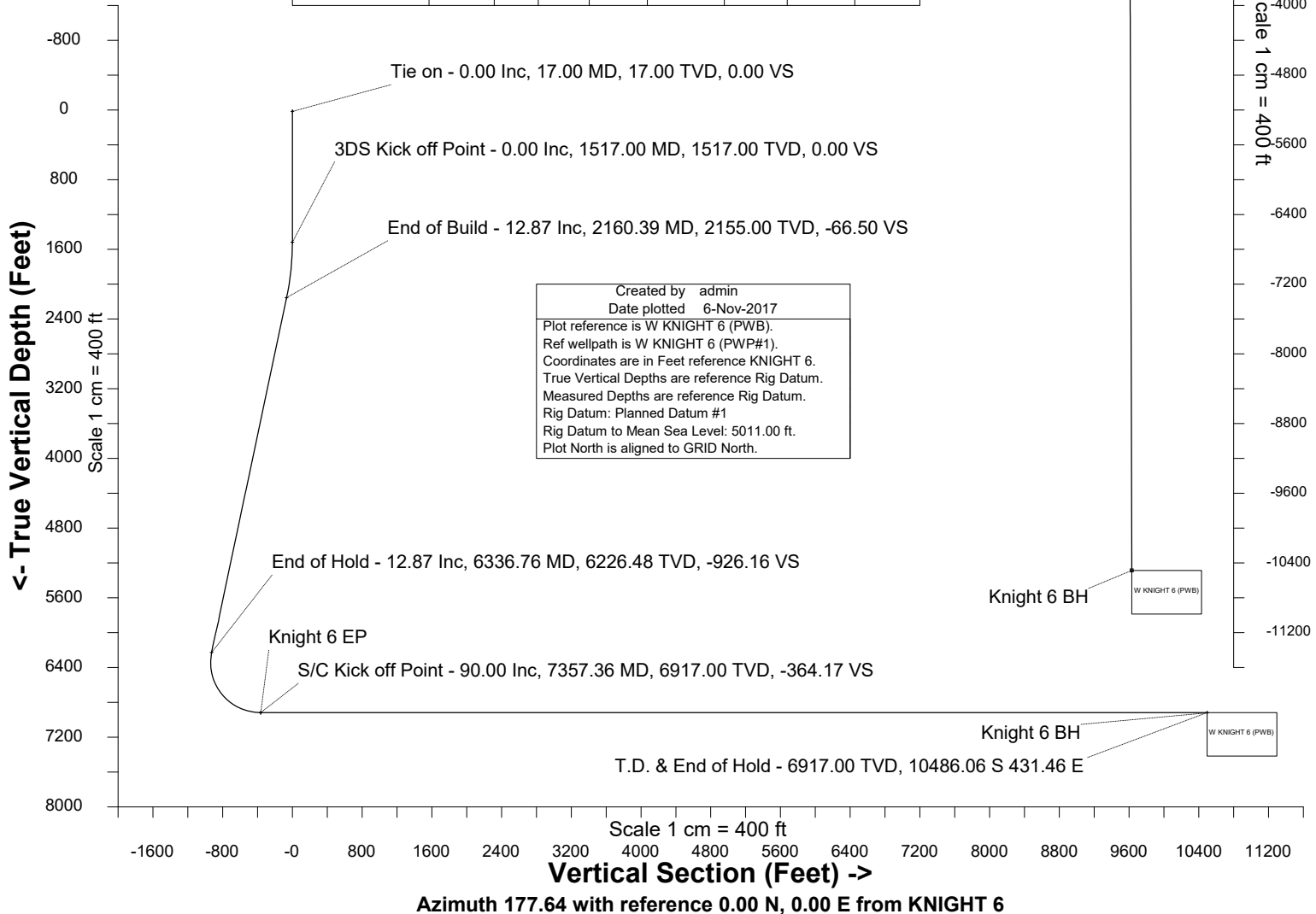
East (Feet) ->

-800 0 800 1600
Scale 1 cm = 400 ft

Knight 6 EP
Surface 0.00 N 0.00 E

1600
800
0
-800
-1600
-2400
-3200
-4000
-4800
-5600
-6400
-7200
-8000
-8800
-9600
-10400
-11200

<- North(Feet)
Scale 1 cm = 400 ft





SYSDRILL
Well Design Combined Report
Wellbore: W KNIGHT 6 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
KNIGHT 6	40.19784000	-105.04197000	1315246.0466	3127945.9253	72.86S	0.38E	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	1315246.05	3127945.93
1517.00	0.00	20.080	1517.00	0.00N	0.00E	==>	0.00	1315246.05	3127945.93
2160.39	12.87	20.080	2155.00	67.57N	24.71E	2.00	-66.50	1315313.61	3127970.63
6336.76	12.87	20.080	6226.48	941.10N	344.10E	==>	-926.16	1316187.10	3128290.01
7357.36	90.00	179.840	6917.00	380.95N	400.30E	10.00	-364.17	1315626.98	3128346.21
18224.42	90.00	179.840	6917.00	10486.06S	431.46E	==>	10494.94	1304760.45	3128377.36

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	20.080	1599.99	1.13N	0.41E	2.00	-1.11	
1700.00	3.66	20.080	1699.88	5.49N	2.01E	2.00	-5.40	
1800.00	5.66	20.080	1799.54	13.12N	4.80E	2.00	-12.91	
1900.00	7.66	20.080	1898.86	24.01N	8.78E	2.00	-23.63	
2000.00	9.66	20.080	1997.71	38.15N	13.95E	2.00	-37.54	
2100.00	11.66	20.080	2095.98	55.52N	20.30E	2.00	-54.64	
2200.00	12.87	20.080	2193.61	75.85N	27.74E	==>	-74.65	
2300.00	12.87	20.080	2291.10	96.77N	35.38E	==>	-95.23	
2400.00	12.87	20.080	2388.59	117.69N	43.03E	==>	-115.82	
2500.00	12.87	20.080	2486.08	138.60N	50.68E	==>	-136.40	
2600.00	12.87	20.080	2583.56	159.52N	58.33E	==>	-156.99	
2700.00	12.87	20.080	2681.05	180.43N	65.97E	==>	-177.57	
2800.00	12.87	20.080	2778.54	201.35N	73.62E	==>	-198.15	
2900.00	12.87	20.080	2876.03	222.27N	81.27E	==>	-218.74	
3000.00	12.87	20.080	2973.52	243.18N	88.92E	==>	-239.32	
3100.00	12.87	20.080	3071.01	264.10N	96.56E	==>	-259.91	

All data is in Feet unless otherwise stated
Coordinates are from Slot MD's are from Rig (Planned Datum #1 5011.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 177.640 degrees
Bottom hole distance is 10494.94 Feet on azimuth 177.64 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 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
3200.00	12.87	20.080	3168.50	285.01N	104.21E	==>	-280.49	
3300.00	12.87	20.080	3265.99	305.93N	111.86E	==>	-301.07	
3400.00	12.87	20.080	3363.47	326.85N	119.51E	==>	-321.66	
3500.00	12.87	20.080	3460.96	347.76N	127.15E	==>	-342.24	
3600.00	12.87	20.080	3558.45	368.68N	134.80E	==>	-362.83	
3700.00	12.87	20.080	3655.94	389.59N	142.45E	==>	-383.41	
3800.00	12.87	20.080	3753.43	410.51N	150.10E	==>	-403.99	
3900.00	12.87	20.080	3850.92	431.43N	157.75E	==>	-424.58	
4000.00	12.87	20.080	3948.41	452.34N	165.39E	==>	-445.16	
4100.00	12.87	20.080	4045.89	473.26N	173.04E	==>	-465.74	
4200.00	12.87	20.080	4143.38	494.17N	180.69E	==>	-486.33	
4300.00	12.87	20.080	4240.87	515.09N	188.34E	==>	-506.91	
4400.00	12.87	20.080	4338.36	536.01N	195.98E	==>	-527.50	
4500.00	12.87	20.080	4435.85	556.92N	203.63E	==>	-548.08	
4600.00	12.87	20.080	4533.34	577.84N	211.28E	==>	-568.66	
4700.00	12.87	20.080	4630.83	598.75N	218.93E	==>	-589.25	
4800.00	12.87	20.080	4728.31	619.67N	226.57E	==>	-609.83	
4900.00	12.87	20.080	4825.80	640.59N	234.22E	==>	-630.42	
5000.00	12.87	20.080	4923.29	661.50N	241.87E	==>	-651.00	
5100.00	12.87	20.080	5020.78	682.42N	249.52E	==>	-671.58	
5200.00	12.87	20.080	5118.27	703.33N	257.17E	==>	-692.17	
5300.00	12.87	20.080	5215.76	724.25N	264.81E	==>	-712.75	
5400.00	12.87	20.080	5313.25	745.17N	272.46E	==>	-733.34	
5500.00	12.87	20.080	5410.74	766.08N	280.11E	==>	-753.92	
5600.00	12.87	20.080	5508.22	787.00N	287.76E	==>	-774.50	
5700.00	12.87	20.080	5605.71	807.92N	295.40E	==>	-795.09	
5800.00	12.87	20.080	5703.20	828.83N	303.05E	==>	-815.67	
5900.00	12.87	20.080	5800.69	849.75N	310.70E	==>	-836.26	
6000.00	12.87	20.080	5898.18	870.66N	318.35E	==>	-856.84	
6100.00	12.87	20.080	5995.67	891.58N	325.99E	==>	-877.42	
6200.00	12.87	20.080	6093.16	912.50N	333.64E	==>	-898.01	
6300.00	12.87	20.080	6190.64	933.41N	341.29E	==>	-918.59	
6400.00	7.30	37.950	6288.73	950.89N	348.99E	10.00	-935.74	
6500.00	6.21	133.240	6388.29	952.20N	356.86E	10.00	-936.72	
6600.00	14.95	162.610	6486.55	936.14N	364.68E	10.00	-920.36	
6700.00	24.66	169.920	6580.54	903.21N	372.20E	10.00	-887.15	
6800.00	34.52	173.240	6667.40	854.41N	379.21E	10.00	-838.10	
6900.00	44.45	175.210	6744.48	791.22N	385.48E	10.00	-774.71	
7000.00	54.39	176.590	6809.45	715.56N	390.84E	10.00	-698.89	
7100.00	64.35	177.660	6860.34	629.73N	395.11E	10.00	-612.95	
7200.00	74.31	178.560	6895.59	536.34N	398.16E	10.00	-519.51	
7300.00	84.28	179.380	6914.14	438.22N	399.91E	10.00	-421.40	
7400.00	90.00	179.840	6917.00	338.31N	400.42E	==>	-321.56	
7500.00	90.00	179.840	6917.00	238.31N	400.71E	==>	-221.64	
7600.00	90.00	179.840	6917.00	138.31N	401.00E	==>	-121.71	
7700.00	90.00	179.840	6917.00	38.31N	401.28E	==>	-21.78	
7800.00	90.00	179.840	6917.00	61.69S	401.57E	==>	78.14	
7900.00	90.00	179.840	6917.00	161.69S	401.86E	==>	178.07	
8000.00	90.00	179.840	6917.00	261.69S	402.14E	==>	278.00	
8100.00	90.00	179.840	6917.00	361.69S	402.43E	==>	377.92	
8200.00	90.00	179.840	6917.00	461.68S	402.72E	==>	477.85	
8300.00	90.00	179.840	6917.00	561.68S	403.00E	==>	577.78	
8400.00	90.00	179.840	6917.00	661.68S	403.29E	==>	677.70	
8500.00	90.00	179.840	6917.00	761.68S	403.58E	==>	777.63	
8600.00	90.00	179.840	6917.00	861.68S	403.86E	==>	877.56	
8700.00	90.00	179.840	6917.00	961.68S	404.15E	==>	977.48	
8800.00	90.00	179.840	6917.00	1061.68S	404.44E	==>	1077.41	
8900.00	90.00	179.840	6917.00	1161.68S	404.72E	==>	1177.34	
9000.00	90.00	179.840	6917.00	1261.68S	405.01E	==>	1277.27	

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Bottom hole distance is 10494.94 Feet on azimuth 177.64 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 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
9100.00	90.00	179.840	6917.00	1361.68S	405.30E	==>	1377.19	
9200.00	90.00	179.840	6917.00	1461.68S	405.58E	==>	1477.12	
9300.00	90.00	179.840	6917.00	1561.68S	405.87E	==>	1577.05	
9400.00	90.00	179.840	6917.00	1661.68S	406.16E	==>	1676.97	
9500.00	90.00	179.840	6917.00	1761.68S	406.44E	==>	1776.90	
9600.00	90.00	179.840	6917.00	1861.68S	406.73E	==>	1876.83	
9700.00	90.00	179.840	6917.00	1961.68S	407.02E	==>	1976.75	
9800.00	90.00	179.840	6917.00	2061.68S	407.30E	==>	2076.68	
9900.00	90.00	179.840	6917.00	2161.68S	407.59E	==>	2176.61	
10000.00	90.00	179.840	6917.00	2261.68S	407.88E	==>	2276.53	
10100.00	90.00	179.840	6917.00	2361.68S	408.16E	==>	2376.46	
10200.00	90.00	179.840	6917.00	2461.68S	408.45E	==>	2476.39	
10300.00	90.00	179.840	6917.00	2561.68S	408.74E	==>	2576.31	
10400.00	90.00	179.840	6917.00	2661.68S	409.02E	==>	2676.24	
10500.00	90.00	179.840	6917.00	2761.68S	409.31E	==>	2776.17	
10600.00	90.00	179.840	6917.00	2861.67S	409.60E	==>	2876.09	
10700.00	90.00	179.840	6917.00	2961.67S	409.88E	==>	2976.02	
10800.00	90.00	179.840	6917.00	3061.67S	410.17E	==>	3075.95	
10900.00	90.00	179.840	6917.00	3161.67S	410.46E	==>	3175.87	
11000.00	90.00	179.840	6917.00	3261.67S	410.74E	==>	3275.80	
11100.00	90.00	179.840	6917.00	3361.67S	411.03E	==>	3375.73	
11200.00	90.00	179.840	6917.00	3461.67S	411.32E	==>	3475.66	
11300.00	90.00	179.840	6917.00	3561.67S	411.60E	==>	3575.58	
11400.00	90.00	179.840	6917.00	3661.67S	411.89E	==>	3675.51	
11500.00	90.00	179.840	6917.00	3761.67S	412.18E	==>	3775.44	
11600.00	90.00	179.840	6917.00	3861.67S	412.46E	==>	3875.36	
11700.00	90.00	179.840	6917.00	3961.67S	412.75E	==>	3975.29	
11800.00	90.00	179.840	6917.00	4061.67S	413.04E	==>	4075.22	
11900.00	90.00	179.840	6917.00	4161.67S	413.32E	==>	4175.14	
12000.00	90.00	179.840	6917.00	4261.67S	413.61E	==>	4275.07	
12100.00	90.00	179.840	6917.00	4361.67S	413.90E	==>	4375.00	
12200.00	90.00	179.840	6917.00	4461.67S	414.18E	==>	4474.92	
12300.00	90.00	179.840	6917.00	4561.67S	414.47E	==>	4574.85	
12400.00	90.00	179.840	6917.00	4661.67S	414.76E	==>	4674.78	
12500.00	90.00	179.840	6917.00	4761.67S	415.04E	==>	4774.70	
12600.00	90.00	179.840	6917.00	4861.67S	415.33E	==>	4874.63	
12700.00	90.00	179.840	6917.00	4961.67S	415.62E	==>	4974.56	
12800.00	90.00	179.840	6917.00	5061.67S	415.90E	==>	5074.48	
12900.00	90.00	179.840	6917.00	5161.67S	416.19E	==>	5174.41	
13000.00	90.00	179.840	6917.00	5261.66S	416.48E	==>	5274.34	
13100.00	90.00	179.840	6917.00	5361.66S	416.76E	==>	5374.27	
13200.00	90.00	179.840	6917.00	5461.66S	417.05E	==>	5474.19	
13300.00	90.00	179.840	6917.00	5561.66S	417.34E	==>	5574.12	
13400.00	90.00	179.840	6917.00	5661.66S	417.62E	==>	5674.05	
13500.00	90.00	179.840	6917.00	5761.66S	417.91E	==>	5773.97	
13600.00	90.00	179.840	6917.00	5861.66S	418.20E	==>	5873.90	
13700.00	90.00	179.840	6917.00	5961.66S	418.48E	==>	5973.83	
13800.00	90.00	179.840	6917.00	6061.66S	418.77E	==>	6073.75	
13900.00	90.00	179.840	6917.00	6161.66S	419.06E	==>	6173.68	
14000.00	90.00	179.840	6917.00	6261.66S	419.34E	==>	6273.61	
14100.00	90.00	179.840	6917.00	6361.66S	419.63E	==>	6373.53	
14200.00	90.00	179.840	6917.00	6461.66S	419.92E	==>	6473.46	
14300.00	90.00	179.840	6917.00	6561.66S	420.20E	==>	6573.39	
14400.00	90.00	179.840	6917.00	6661.66S	420.49E	==>	6673.31	
14500.00	90.00	179.840	6917.00	6761.66S	420.78E	==>	6773.24	
14600.00	90.00	179.840	6917.00	6861.66S	421.06E	==>	6873.17	
14700.00	90.00	179.840	6917.00	6961.66S	421.35E	==>	6973.09	
14800.00	90.00	179.840	6917.00	7061.66S	421.64E	==>	7073.02	
14900.00	90.00	179.840	6917.00	7161.66S	421.92E	==>	7172.95	

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Vertical Section is from 0.00N 0.00E on azimuth 177.640 degrees
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Interpolated Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	All Station Comments
15000.00	90.00	179.840	6917.00	7261.66S	422.21E	==>	7272.88	
15100.00	90.00	179.840	6917.00	7361.66S	422.50E	==>	7372.80	
15200.00	90.00	179.840	6917.00	7461.66S	422.78E	==>	7472.73	
15300.00	90.00	179.840	6917.00	7561.66S	423.07E	==>	7572.66	
15400.00	90.00	179.840	6917.00	7661.66S	423.36E	==>	7672.58	
15500.00	90.00	179.840	6917.00	7761.65S	423.64E	==>	7772.51	
15600.00	90.00	179.840	6917.00	7861.65S	423.93E	==>	7872.44	
15700.00	90.00	179.840	6917.00	7961.65S	424.22E	==>	7972.36	
15800.00	90.00	179.840	6917.00	8061.65S	424.50E	==>	8072.29	
15900.00	90.00	179.840	6917.00	8161.65S	424.79E	==>	8172.22	
16000.00	90.00	179.840	6917.00	8261.65S	425.08E	==>	8272.14	
16100.00	90.00	179.840	6917.00	8361.65S	425.37E	==>	8372.07	
16200.00	90.00	179.840	6917.00	8461.65S	425.65E	==>	8472.00	
16300.00	90.00	179.840	6917.00	8561.65S	425.94E	==>	8571.92	
16400.00	90.00	179.840	6917.00	8661.65S	426.23E	==>	8671.85	
16500.00	90.00	179.840	6917.00	8761.65S	426.51E	==>	8771.78	
16600.00	90.00	179.840	6917.00	8861.65S	426.80E	==>	8871.70	
16700.00	90.00	179.840	6917.00	8961.65S	427.09E	==>	8971.63	
16800.00	90.00	179.840	6917.00	9061.65S	427.37E	==>	9071.56	
16900.00	90.00	179.840	6917.00	9161.65S	427.66E	==>	9171.48	
17000.00	90.00	179.840	6917.00	9261.65S	427.95E	==>	9271.41	
17100.00	90.00	179.840	6917.00	9361.65S	428.23E	==>	9371.34	
17200.00	90.00	179.840	6917.00	9461.65S	428.52E	==>	9471.27	
17300.00	90.00	179.840	6917.00	9561.65S	428.81E	==>	9571.19	
17400.00	90.00	179.840	6917.00	9661.65S	429.09E	==>	9671.12	
17500.00	90.00	179.840	6917.00	9761.65S	429.38E	==>	9771.05	
17600.00	90.00	179.840	6917.00	9861.65S	429.67E	==>	9870.97	
17700.00	90.00	179.840	6917.00	9961.65S	429.95E	==>	9970.90	
17800.00	90.00	179.840	6917.00	10061.65S	430.24E	==>	10070.83	
17900.00	90.00	179.840	6917.00	10161.64S	430.53E	==>	10170.75	
18000.00	90.00	179.840	6917.00	10261.64S	430.81E	==>	10270.68	
18100.00	90.00	179.840	6917.00	10361.64S	431.10E	==>	10370.61	
18200.00	90.00	179.840	6917.00	10461.64S	431.39E	==>	10470.53	
18224.42	90.00	179.840	6917.00	10486.06S	431.46E	==>	10494.94	

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 5011.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 177.640 degrees
Bottom hole distance is 10494.94 Feet on azimuth 177.64 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 6 EP	380.95N	400.30E	6917.00	40.19888000	-105.04053000	1315626.98	3128346.21
Knight 6 BH	10486.06S	431.46E	6917.00	40.16905000	-105.04062000	1304760.45	3128377.36

Notes