

# Cub Creek Energy, LLC

**Location** Weld County, CO  
**Field** WATTENBERG  
**Installation** Knight Pad

**Slot** KNIGHT 22  
**Well** W KNIGHT 22  
**Wellbore** W KNIGHT 22 (PWB)

Nov-6-2017  
 EMM-2015 Dip: 66.59 deg Field: 52154.0 nT  
 Lat: N40 11 52.9440 Long: W105 2 31.0920 Elev: 4993.00 ft  
 Magnetic North is 8.54 deg East of True North  
 GRID North is 0.30 deg East of True North  
 To correct azimuth from True to GRID subtract 0.30 deg  
 To correct azimuth from Magnetic to GRID add 8.25 deg

Created by sean.dollinger  
 Date plotted 14-Jul-2020  
 Plot reference is W KNIGHT 22 (PWB).  
 Ref wellpath is W KNIGHT 22 (PWP#1).  
 Coordinates are in Feet reference KNIGHT 22.  
 True Vertical Depths are reference Rig Datum.  
 Measured Depths are reference Rig Datum.  
 Rig Datum: Planned Datum #1  
 Rig Datum to Mean Sea Level: 5011.00 ft.  
 Plot North is aligned to GRID North.

Scale 1 cm = 400 ft

**East (Feet) ->**

-4000 -3200 -2400 -1600 -800 0 800

## 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	287.71	1517.00	S 0.00	W 0.00	0.00	-0.00
End of Build	3282.60	35.31	287.71	3172.93	N 160.31	W 502.10	2.00	-11.23
End of Hold	7446.73	35.31	287.71	6570.93	N 892.40	W 2795.06	0.00	-62.53
Target Knight 22 EP	8448.62	90.00	179.89	7130.00	N 327.73	W 3170.95	10.00	585.59
T.D. & Target Kni... BH	19417.70	90.00	179.89	7130.00	S 10641.33	W 3149.25	0.00	11097.55

Scale 1 cm = 400 ft

**<- True Vertical Depth (Feet)**

-800

-0

800

1600

2400

3200

4000

4800

5600

6400

7200

8000

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 - 35.31 Inc, 3282.60 MD, 3172.93 TVD, -11.23 VS

End of Hold - 35.31 Inc, 7446.73 MD, 6570.93 TVD, -62.53 VS

Knight 22 EP

S/C Kick off Point - 90.00 Inc, 8448.62 MD, 7130.00 TVD, 585.59 VS

T.D. & End of Hold - 7130.00 TVD, 10641.33 S 3149.25 W

Surface 0.00 N 0.00 E

Knight 22 EP

Knight 22 BH

W KNIGHT 22 (PWB)

Knight 22 BH

W KNIGHT 22 (PWB)

**<- North(Feet)**

1600

800

0

-800

-1600

-2400

-3200

-4000

-4800

-5600

-6400

-7200

-8000

-8800

-9600

-10400

-11200

-12000

Scale 1 cm = 400 ft

-800 -0 800 1600 2400 3200 4000 4800 5600 6400 7200 8000 8800 9600 10400 11200 12000

Scale 1 cm = 400 ft

**Vertical Section (Feet) ->**

**Azimuth 196.49 with reference 0.00 N, 0.00 E from KNIGHT 22**

SYSDRILL  
Well Design Combined Report  
Wellbore: W KNIGHT 22 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
KNIGHT 22	40.19783600	-105.04205500	1315244.4668	3127922.1892	74.44S	23.36W	0.00

Declination		
Date	Source	Time
Nov-6-2017	EMM-2015	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	NAD83 Based Colorado State Planes, Northern Zone, US Feet	Grid

Summary Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	Vertical Depth SS	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
17.00	0.00	0.00	17.00	-4994.00	0.00N	0.00E		0.00
1517.00	0.00	287.71	1517.00	-3494.00	0.00N	0.00E	==>	0.00
3282.60	35.31	287.71	3172.93	-1838.07	160.31N	502.10W	2.00	-11.23
7446.73	35.31	287.71	6570.93	1559.93	892.40N	2795.06W	==>	-62.53
8448.62	90.00	179.89	7130.00	2119.00	327.73N	3170.95W	10.00	585.59
19417.70	90.00	179.89	7130.00	2119.00	10641.33S	3149.25W	==>	11097.55

Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
0.00	0.00	0.00	0.00	0.00N	0.00E		0.00	40.19783600	-105.04205500
17.00	0.00	0.00	17.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1517.00	0.00	287.71	1517.00	0.00N	0.00E	==>	0.00	40.19783600	-105.04205500
1617.00	2.00	287.71	1616.98	0.53N	1.66W	2.00	-0.04	40.19783748	-105.04206094
1717.00	4.00	287.71	1716.84	2.12N	6.65W	2.00	-0.15	40.19784192	-105.04207876
1817.00	6.00	287.71	1816.45	4.77N	14.95W	2.00	-0.33	40.19784931	-105.04210843
1917.00	8.00	287.71	1915.70	8.48N	26.56W	2.00	-0.59	40.19785965	-105.04214992
2017.00	10.00	287.71	2014.47	13.24N	41.46W	2.00	-0.93	40.19787292	-105.04220317
2117.00	12.00	287.71	2112.62	19.04N	59.64W	2.00	-1.33	40.19788911	-105.04226813
2217.00	14.00	287.71	2210.06	25.88N	81.06W	2.00	-1.81	40.19790819	-105.04234471
2317.00	16.00	287.71	2306.64	33.75N	105.72W	2.00	-2.37	40.19793015	-105.04243281
2417.00	18.00	287.71	2402.27	42.65N	133.57W	2.00	-2.99	40.19795495	-105.04253235
2517.00	20.00	287.71	2496.82	52.55N	164.58W	2.00	-3.68	40.19798257	-105.04264318
2617.00	22.00	287.71	2590.17	63.45N	198.72W	2.00	-4.45	40.19801297	-105.04276518
2717.00	24.00	287.71	2682.21	75.33N	235.94W	2.00	-5.28	40.19804612	-105.04289819
2817.00	26.00	287.71	2772.84	88.18N	276.20W	2.00	-6.18	40.19808197	-105.04304206
2917.00	28.00	287.71	2861.94	101.99N	319.44W	2.00	-7.15	40.19812048	-105.04319662

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 196.49 degrees  
Bottom hole distance is 11097.55 Feet on azimuth 196.49 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 14-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: W KNIGHT 22 (PWB)



Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
3017.00	30.00	287.71	2949.39	116.74N	365.63W	2.00	-8.18	40.19816161	-105.04336166
3117.00	32.00	287.71	3035.11	132.40N	414.69W	2.00	-9.28	40.19820530	-105.04353699
3217.00	34.00	287.71	3118.97	148.96N	466.57W	2.00	-10.44	40.19825150	-105.04372240
3282.60	35.31	287.71	3172.93	160.31N	502.10W	2.00	-11.23	40.19828315	-105.04384940
3317.00	35.31	287.71	3201.00	166.36N	521.05W	==>	-11.66	40.19830002	-105.04391710
3417.00	35.31	287.71	3282.60	183.94N	576.11W	==>	-12.89	40.19834905	-105.04411388
3517.00	35.31	287.71	3364.20	201.52N	631.17W	==>	-14.12	40.19839809	-105.04431067
3617.00	35.31	287.71	3445.81	219.10N	686.24W	==>	-15.35	40.19844712	-105.04450746
3717.00	35.31	287.71	3527.41	236.68N	741.30W	==>	-16.59	40.19849616	-105.04470425
3817.00	35.31	287.71	3609.01	254.26N	796.37W	==>	-17.82	40.19854519	-105.04490104
3917.00	35.31	287.71	3690.61	271.84N	851.43W	==>	-19.05	40.19859423	-105.04509783
4017.00	35.31	287.71	3772.21	289.42N	906.50W	==>	-20.28	40.19864326	-105.04529462
4117.00	35.31	287.71	3853.81	307.00N	961.56W	==>	-21.51	40.19869229	-105.04549141
4217.00	35.31	287.71	3935.42	324.58N	1016.62W	==>	-22.74	40.19874133	-105.04568820
4317.00	35.31	287.71	4017.02	342.17N	1071.69W	==>	-23.98	40.19879036	-105.04588500
4417.00	35.31	287.71	4098.62	359.75N	1126.75W	==>	-25.21	40.19883939	-105.04608179
4517.00	35.31	287.71	4180.22	377.33N	1181.82W	==>	-26.44	40.19888842	-105.04627858
4617.00	35.31	287.71	4261.82	394.91N	1236.88W	==>	-27.67	40.19893746	-105.04647537
4717.00	35.31	287.71	4343.42	412.49N	1291.95W	==>	-28.90	40.19898649	-105.04667216
4817.00	35.31	287.71	4425.03	430.07N	1347.01W	==>	-30.14	40.19903552	-105.04686896
4917.00	35.31	287.71	4506.63	447.65N	1402.07W	==>	-31.37	40.19908455	-105.04706575
5017.00	35.31	287.71	4588.23	465.23N	1457.14W	==>	-32.60	40.19913358	-105.04726254
5117.00	35.31	287.71	4669.83	482.81N	1512.20W	==>	-33.83	40.19918261	-105.04745934
5217.00	35.31	287.71	4751.43	500.39N	1567.27W	==>	-35.06	40.19923164	-105.04765613
5317.00	35.31	287.71	4833.03	517.97N	1622.33W	==>	-36.30	40.19928067	-105.04785292
5417.00	35.31	287.71	4914.64	535.55N	1677.40W	==>	-37.53	40.19932970	-105.04804972
5517.00	35.31	287.71	4996.24	553.13N	1732.46W	==>	-38.76	40.19937873	-105.04824651
5617.00	35.31	287.71	5077.84	570.72N	1787.52W	==>	-39.99	40.19942775	-105.04844331
5717.00	35.31	287.71	5159.44	588.30N	1842.59W	==>	-41.22	40.19947678	-105.04864010
5817.00	35.31	287.71	5241.04	605.88N	1897.65W	==>	-42.46	40.19952581	-105.04883690
5917.00	35.31	287.71	5322.64	623.46N	1952.72W	==>	-43.69	40.19957484	-105.04903370
6017.00	35.31	287.71	5404.25	641.04N	2007.78W	==>	-44.92	40.19962386	-105.04923049
6117.00	35.31	287.71	5485.85	658.62N	2062.85W	==>	-46.15	40.19967289	-105.04942729
6217.00	35.31	287.71	5567.45	676.20N	2117.91W	==>	-47.38	40.19972192	-105.04962408
6317.00	35.31	287.71	5649.05	693.78N	2172.98W	==>	-48.62	40.19977094	-105.04982088
6417.00	35.31	287.71	5730.65	711.36N	2228.04W	==>	-49.85	40.19981997	-105.05001768
6517.00	35.31	287.71	5812.25	728.94N	2283.10W	==>	-51.08	40.19986899	-105.05021448
6617.00	35.31	287.71	5893.86	746.52N	2338.17W	==>	-52.31	40.19991802	-105.05041127
6717.00	35.31	287.71	5975.46	764.10N	2393.23W	==>	-53.54	40.19996704	-105.05060807
6817.00	35.31	287.71	6057.06	781.68N	2448.30W	==>	-54.78	40.20001607	-105.05080487
6917.00	35.31	287.71	6138.66	799.27N	2503.36W	==>	-56.01	40.20006509	-105.05100167
7017.00	35.31	287.71	6220.26	816.85N	2558.43W	==>	-57.24	40.20011412	-105.05119847
7117.00	35.31	287.71	6301.86	834.43N	2613.49W	==>	-58.47	40.20016314	-105.05139527
7217.00	35.31	287.71	6383.47	852.01N	2668.55W	==>	-59.70	40.20021216	-105.05159207
7317.00	35.31	287.71	6465.07	869.59N	2723.62W	==>	-60.94	40.20026119	-105.05178887
7417.00	35.31	287.71	6546.67	887.17N	2778.68W	==>	-62.17	40.20031021	-105.05198567
7446.73	35.31	287.71	6570.93	892.40N	2795.06W	==>	-62.53	40.20032478	-105.05204418
7517.00	34.12	275.53	6628.76	900.48N	2834.07W	10.00	-59.22	40.20034752	-105.05218369
7617.00	34.59	257.78	6711.52	897.17N	2889.87W	10.00	-40.20	40.20033920	-105.05238352
7717.00	37.48	241.46	6792.56	876.57N	2944.48W	10.00	-4.96	40.20028342	-105.05257939
7817.00	42.29	227.74	6869.43	839.32N	2996.24W	10.00	45.45	40.20018188	-105.05276535
7917.00	48.43	216.62	6939.77	786.54N	3043.58W	10.00	109.49	40.20003766	-105.05293575
8017.00	55.45	207.56	7001.46	719.84N	3085.05W	10.00	185.22	40.19985515	-105.05308541
8117.00	63.03	199.96	7052.63	641.25N	3119.40W	10.00	270.33	40.19963988	-105.05320979
8217.00	70.97	193.34	7091.71	553.15N	3145.58W	10.00	362.24	40.19939841	-105.05330510
8317.00	79.12	187.34	7117.52	458.22N	3162.80W	10.00	458.16	40.19913807	-105.05336844
8417.00	87.38	181.66	7129.28	359.34N	3170.53W	10.00	555.16	40.19886676	-105.05339791
8448.62	90.00	179.89	7130.00	327.73N	3170.95W	10.00	585.59	40.19878000	-105.05340000

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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 196.49 degrees  
Bottom hole distance is 11097.55 Feet on azimuth 196.49 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 14-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: W KNIGHT 22 (PWB)



Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
8517.00	90.00	179.89	7130.00	259.35N	3170.82W	==>	651.12	40.19859231	-105.05340075
8617.00	90.00	179.89	7130.00	159.35N	3170.62W	==>	746.95	40.19831781	-105.05340184
8717.00	90.00	179.89	7130.00	59.35N	3170.42W	==>	842.78	40.19804331	-105.05340294
8817.00	90.00	179.89	7130.00	40.65S	3170.23W	==>	938.62	40.19776881	-105.05340403
8917.00	90.00	179.89	7130.00	140.64S	3170.03W	==>	1034.45	40.19749432	-105.05340513
9017.00	90.00	179.89	7130.00	240.64S	3169.83W	==>	1130.28	40.19721982	-105.05340622
9117.00	90.00	179.89	7130.00	340.64S	3169.63W	==>	1226.11	40.19694532	-105.05340731
9217.00	90.00	179.89	7130.00	440.64S	3169.43W	==>	1321.95	40.19667082	-105.05340841
9317.00	90.00	179.89	7130.00	540.64S	3169.24W	==>	1417.78	40.19639632	-105.05340950
9417.00	90.00	179.89	7130.00	640.64S	3169.04W	==>	1513.61	40.19612182	-105.05341060
9517.00	90.00	179.89	7130.00	740.64S	3168.84W	==>	1609.44	40.19584733	-105.05341169
9617.00	90.00	179.89	7130.00	840.64S	3168.64W	==>	1705.28	40.19557283	-105.05341279
9717.00	90.00	179.89	7130.00	940.64S	3168.44W	==>	1801.11	40.19529833	-105.05341388
9817.00	90.00	179.89	7130.00	1040.64S	3168.25W	==>	1896.94	40.19502383	-105.05341498
9917.00	90.00	179.89	7130.00	1140.64S	3168.05W	==>	1992.78	40.19474933	-105.05341607
10017.00	90.00	179.89	7130.00	1240.64S	3167.85W	==>	2088.61	40.19447483	-105.05341716
10117.00	90.00	179.89	7130.00	1340.64S	3167.65W	==>	2184.44	40.19420034	-105.05341826
10217.00	90.00	179.89	7130.00	1440.64S	3167.46W	==>	2280.27	40.19392584	-105.05341935
10317.00	90.00	179.89	7130.00	1540.64S	3167.26W	==>	2376.11	40.19365134	-105.05342045
10417.00	90.00	179.89	7130.00	1640.64S	3167.06W	==>	2471.94	40.19337684	-105.05342154
10517.00	90.00	179.89	7130.00	1740.64S	3166.86W	==>	2567.77	40.19310234	-105.05342264
10617.00	90.00	179.89	7130.00	1840.64S	3166.66W	==>	2663.60	40.19282784	-105.05342373
10717.00	90.00	179.89	7130.00	1940.64S	3166.47W	==>	2759.44	40.19255335	-105.05342482
10817.00	90.00	179.89	7130.00	2040.64S	3166.27W	==>	2855.27	40.19227885	-105.05342592
10917.00	90.00	179.89	7130.00	2140.64S	3166.07W	==>	2951.10	40.19200435	-105.05342701
11017.00	90.00	179.89	7130.00	2240.64S	3165.87W	==>	3046.93	40.19172985	-105.05342811
11117.00	90.00	179.89	7130.00	2340.64S	3165.67W	==>	3142.77	40.19145535	-105.05342920
11217.00	90.00	179.89	7130.00	2440.64S	3165.48W	==>	3238.60	40.19118085	-105.05343030
11317.00	90.00	179.89	7130.00	2540.64S	3165.28W	==>	3334.43	40.19090635	-105.05343139
11417.00	90.00	179.89	7130.00	2640.64S	3165.08W	==>	3430.26	40.19063186	-105.05343248
11517.00	90.00	179.89	7130.00	2740.64S	3164.88W	==>	3526.10	40.19035736	-105.05343358
11617.00	90.00	179.89	7130.00	2840.64S	3164.68W	==>	3621.93	40.19008286	-105.05343467
11717.00	90.00	179.89	7130.00	2940.64S	3164.49W	==>	3717.76	40.18980836	-105.05343577
11817.00	90.00	179.89	7130.00	3040.64S	3164.29W	==>	3813.60	40.18953386	-105.05343686
11917.00	90.00	179.89	7130.00	3140.64S	3164.09W	==>	3909.43	40.18925936	-105.05343795
12017.00	90.00	179.89	7130.00	3240.64S	3163.89W	==>	4005.26	40.18898486	-105.05343905
12117.00	90.00	179.89	7130.00	3340.64S	3163.70W	==>	4101.09	40.18871037	-105.05344014
12217.00	90.00	179.89	7130.00	3440.64S	3163.50W	==>	4196.93	40.18843587	-105.05344124
12317.00	90.00	179.89	7130.00	3540.64S	3163.30W	==>	4292.76	40.18816137	-105.05344233
12417.00	90.00	179.89	7130.00	3640.64S	3163.10W	==>	4388.59	40.18788687	-105.05344343
12517.00	90.00	179.89	7130.00	3740.64S	3162.90W	==>	4484.42	40.18761237	-105.05344452
12617.00	90.00	179.89	7130.00	3840.64S	3162.71W	==>	4580.26	40.18733787	-105.05344561
12717.00	90.00	179.89	7130.00	3940.64S	3162.51W	==>	4676.09	40.18706337	-105.05344671
12817.00	90.00	179.89	7130.00	4040.64S	3162.31W	==>	4771.92	40.18678887	-105.05344780
12917.00	90.00	179.89	7130.00	4140.64S	3162.11W	==>	4867.75	40.18651438	-105.05344890
13017.00	90.00	179.89	7130.00	4240.64S	3161.91W	==>	4963.59	40.18623988	-105.05344999
13117.00	90.00	179.89	7130.00	4340.64S	3161.72W	==>	5059.42	40.18596538	-105.05345108
13217.00	90.00	179.89	7130.00	4440.64S	3161.52W	==>	5155.25	40.18569088	-105.05345218
13317.00	90.00	179.89	7130.00	4540.64S	3161.32W	==>	5251.09	40.18541638	-105.05345327
13417.00	90.00	179.89	7130.00	4640.64S	3161.12W	==>	5346.92	40.18514188	-105.05345437
13517.00	90.00	179.89	7130.00	4740.64S	3160.92W	==>	5442.75	40.18486738	-105.05345546
13617.00	90.00	179.89	7130.00	4840.64S	3160.73W	==>	5538.58	40.18459288	-105.05345655
13717.00	90.00	179.89	7130.00	4940.64S	3160.53W	==>	5634.42	40.18431839	-105.05345765
13817.00	90.00	179.89	7130.00	5040.64S	3160.33W	==>	5730.25	40.18404389	-105.05345874
13917.00	90.00	179.89	7130.00	5140.64S	3160.13W	==>	5826.08	40.18376939	-105.05345984
14017.00	90.00	179.89	7130.00	5240.64S	3159.94W	==>	5921.91	40.18349489	-105.05346093
14117.00	90.00	179.89	7130.00	5340.63S	3159.74W	==>	6017.75	40.18322039	-105.05346202
14217.00	90.00	179.89	7130.00	5440.63S	3159.54W	==>	6113.58	40.18294589	-105.05346312
14317.00	90.00	179.89	7130.00	5540.63S	3159.34W	==>	6209.41	40.18267139	-105.05346421

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Vertical Section is from 0.00N 0.00E on azimuth 196.49 degrees  
Bottom hole distance is 11097.55 Feet on azimuth 196.49 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 14-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: W KNIGHT 22 (PWB)



Interpolated Wellpath									
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Station Position (Latitude)	Station Position (Longitude)
14417.00	90.00	179.89	7130.00	5640.63S	3159.14W	==>	6305.24	40.18239689	-105.05346531
14517.00	90.00	179.89	7130.00	5740.63S	3158.95W	==>	6401.08	40.18212239	-105.05346640
14617.00	90.00	179.89	7130.00	5840.63S	3158.75W	==>	6496.91	40.18184790	-105.05346749
14717.00	90.00	179.89	7130.00	5940.63S	3158.55W	==>	6592.74	40.18157340	-105.05346859
14817.00	90.00	179.89	7130.00	6040.63S	3158.35W	==>	6688.57	40.18129890	-105.05346968
14917.00	90.00	179.89	7130.00	6140.63S	3158.15W	==>	6784.41	40.18102440	-105.05347078
15017.00	90.00	179.89	7130.00	6240.63S	3157.96W	==>	6880.24	40.18074990	-105.05347187
15117.00	90.00	179.89	7130.00	6340.63S	3157.76W	==>	6976.07	40.18047540	-105.05347296
15217.00	90.00	179.89	7130.00	6440.63S	3157.56W	==>	7071.91	40.18020090	-105.05347406
15317.00	90.00	179.89	7130.00	6540.63S	3157.36W	==>	7167.74	40.17992640	-105.05347515
15417.00	90.00	179.89	7130.00	6640.63S	3157.16W	==>	7263.57	40.17965190	-105.05347625
15517.00	90.00	179.89	7130.00	6740.63S	3156.97W	==>	7359.40	40.17937740	-105.05347734
15617.00	90.00	179.89	7130.00	6840.63S	3156.77W	==>	7455.24	40.17910291	-105.05347843
15717.00	90.00	179.89	7130.00	6940.63S	3156.57W	==>	7551.07	40.17882841	-105.05347953
15817.00	90.00	179.89	7130.00	7040.63S	3156.37W	==>	7646.90	40.17855391	-105.05348062
15917.00	90.00	179.89	7130.00	7140.63S	3156.18W	==>	7742.73	40.17827941	-105.05348171
16017.00	90.00	179.89	7130.00	7240.63S	3155.98W	==>	7838.57	40.17800491	-105.05348281
16117.00	90.00	179.89	7130.00	7340.63S	3155.78W	==>	7934.40	40.17773041	-105.05348390
16217.00	90.00	179.89	7130.00	7440.63S	3155.58W	==>	8030.23	40.17745591	-105.05348500
16317.00	90.00	179.89	7130.00	7540.63S	3155.38W	==>	8126.06	40.17718141	-105.05348609
16417.00	90.00	179.89	7130.00	7640.63S	3155.19W	==>	8221.90	40.17690691	-105.05348718
16517.00	90.00	179.89	7130.00	7740.63S	3154.99W	==>	8317.73	40.17663241	-105.05348828
16617.00	90.00	179.89	7130.00	7840.63S	3154.79W	==>	8413.56	40.17635791	-105.05348937
16717.00	90.00	179.89	7130.00	7940.63S	3154.59W	==>	8509.39	40.17608342	-105.05349046
16817.00	90.00	179.89	7130.00	8040.63S	3154.39W	==>	8605.23	40.17580892	-105.05349156
16917.00	90.00	179.89	7130.00	8140.63S	3154.20W	==>	8701.06	40.17553442	-105.05349265
17017.00	90.00	179.89	7130.00	8240.63S	3154.00W	==>	8796.89	40.17525992	-105.05349375
17117.00	90.00	179.89	7130.00	8340.63S	3153.80W	==>	8892.73	40.17498542	-105.05349484
17217.00	90.00	179.89	7130.00	8440.63S	3153.60W	==>	8988.56	40.17471092	-105.05349593
17317.00	90.00	179.89	7130.00	8540.63S	3153.40W	==>	9084.39	40.17443642	-105.05349703
17417.00	90.00	179.89	7130.00	8640.63S	3153.21W	==>	9180.22	40.17416192	-105.05349812
17517.00	90.00	179.89	7130.00	8740.63S	3153.01W	==>	9276.06	40.17388742	-105.05349921
17617.00	90.00	179.89	7130.00	8840.63S	3152.81W	==>	9371.89	40.17361292	-105.05350031
17717.00	90.00	179.89	7130.00	8940.63S	3152.61W	==>	9467.72	40.17333842	-105.05350140
17817.00	90.00	179.89	7130.00	9040.63S	3152.41W	==>	9563.55	40.17306392	-105.05350250
17917.00	90.00	179.89	7130.00	9140.63S	3152.22W	==>	9659.39	40.17278942	-105.05350359
18017.00	90.00	179.89	7130.00	9240.63S	3152.02W	==>	9755.22	40.17251493	-105.05350468
18117.00	90.00	179.89	7130.00	9340.63S	3151.82W	==>	9851.05	40.17224043	-105.05350578
18217.00	90.00	179.89	7130.00	9440.63S	3151.62W	==>	9946.88	40.17196593	-105.05350687
18317.00	90.00	179.89	7130.00	9540.63S	3151.43W	==>	10042.72	40.17169143	-105.05350796
18417.00	90.00	179.89	7130.00	9640.63S	3151.23W	==>	10138.55	40.17141693	-105.05350906
18517.00	90.00	179.89	7130.00	9740.63S	3151.03W	==>	10234.38	40.17114243	-105.05351015
18617.00	90.00	179.89	7130.00	9840.63S	3150.83W	==>	10330.21	40.17086793	-105.05351124
18717.00	90.00	179.89	7130.00	9940.63S	3150.63W	==>	10426.05	40.17059343	-105.05351234
18817.00	90.00	179.89	7130.00	10040.63S	3150.44W	==>	10521.88	40.17031893	-105.05351343
18917.00	90.00	179.89	7130.00	10140.63S	3150.24W	==>	10617.71	40.17004443	-105.05351452
19017.00	90.00	179.89	7130.00	10240.63S	3150.04W	==>	10713.55	40.16976993	-105.05351562
19117.00	90.00	179.89	7130.00	10340.63S	3149.84W	==>	10809.38	40.16949543	-105.05351671
19217.00	90.00	179.89	7130.00	10440.62S	3149.64W	==>	10905.21	40.16922093	-105.05351781
19317.00	90.00	179.89	7130.00	10540.62S	3149.45W	==>	11001.04	40.16894643	-105.05351890
19417.00	90.00	179.89	7130.00	10640.62S	3149.25W	==>	11096.88	40.16867193	-105.05351999
19417.70	90.00	179.89	7130.00	10641.33S	3149.25W	==>	11097.55	40.16867000	-105.05352000

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Date Printed: 14-Jul-2020

SYS DRILL  
Well Design Combined Report  
Wellbore: W KNIGHT 22 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
Knight 22 BH	10641.33S	3149.25W	7130.00	40.16867000	-105.05352000	1304603.61	3124773.08
Knight 22 EP	327.73N	3170.95W	7130.00	40.19878000	-105.05340000	1315572.18	3124751.38

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
590328	Planned	1517.00	1517.00	WdW Rate Gyro	Standard	
590327	Planned	19417.70	7130.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes