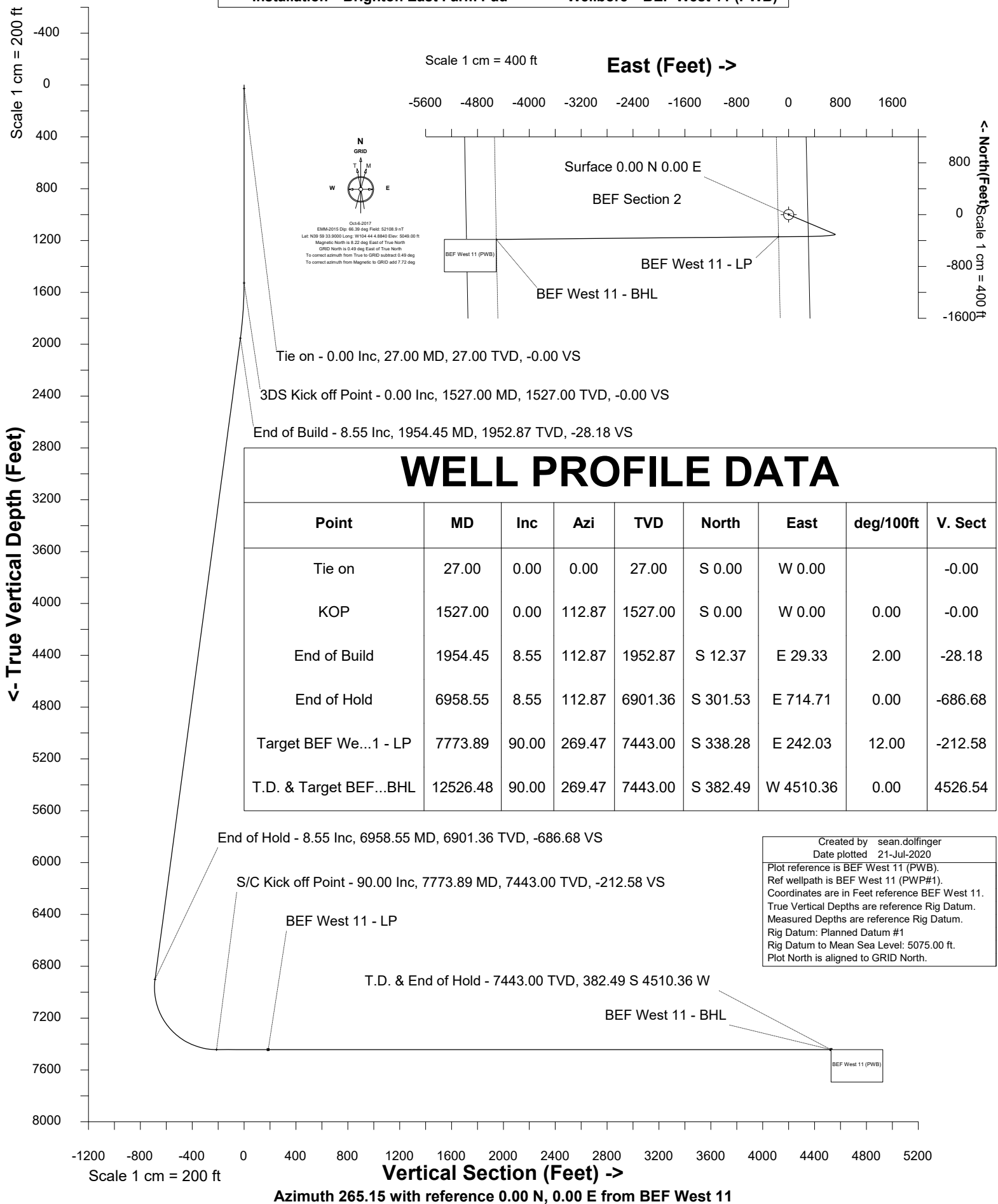


Petro Operating Company

Location	Weld County, CO	Slot	BEF West 11
Field	Wattenberg	Well	BEF West 11
Installation	Brighton East Farm Pad	Wellbore	BEF West 11 (PWB)



SYSDRILL
Well Design Combined Report
Wellbore: BEF West 11 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 11	39.99493810	-104.73461160	1241928.3752	3214439.5616	797.26N	15.09E	0.00

Declination		
Date	Source	Time
Jan-28-2019	EMM-2017	08:45
Jan-28-2019	EMM-2017	09:44
May-20-2019	EMM-2017	09:01
May-20-2019	EMM-2017	09:28
May-20-2019	EMM-2017	09:30
May-20-2019	EMM-2017	09:33
May-20-2019	EMM-2017	09:35
Oct-6-2017	EMM-2015	14:35
May-20-2019	EMM-2017	09:36
May-20-2019	EMM-2017	09:36
May-20-2019	EMM-2017	09:38
May-20-2019	EMM-2017	09:38

Installation Details						
Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Brighton East Farm Pad	39.99275000	-104.73469000	1241131.1481	3214424.4758	NAD83 Colorado State Planes, North Zone, US Foot	Grid

Summary Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	Vertical Depth SS	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
27.00	0.00	0.00	27.00	-5048.00	0.00N	0.00E		0.00
1527.00	0.00	112.87	1527.00	-3548.00	0.00N	0.00E	==>	0.00
1954.45	8.55	112.87	1952.87	-3122.13	12.37S	29.33E	2.00	-28.18
6958.55	8.55	112.87	6901.36	1826.36	301.53S	714.71E	==>	-686.68
7773.89	90.00	269.47	7443.00	2368.00	338.28S	242.03E	12.00	-212.58
12526.48	90.00	269.47	7443.00	2368.00	382.49S	4510.36W	==>	4526.54

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	39.99493810	-104.73461160
27.00	0.00	0.00	27.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1527.00	0.00	112.87	1527.00	0.00N	0.00E	==>	0.00	39.99493810	-104.73461160
1627.00	2.00	112.87	1626.98	0.68S	1.61E	2.00	-1.54	39.99493620	-104.73460588
1727.00	4.00	112.87	1726.84	2.71S	6.43E	2.00	-6.18	39.99493050	-104.73458874
1827.00	6.00	112.87	1826.45	6.10S	14.46E	2.00	-13.89	39.99492101	-104.73456018
1927.00	8.00	112.87	1925.70	10.84S	25.69E	2.00	-24.68	39.99490774	-104.73452026
1954.45	8.55	112.87	1952.87	12.37S	29.33E	2.00	-28.18	39.99490344	-104.73450731

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 5075.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 265.15 degrees
Bottom hole distance is 4526.54 Feet on azimuth 265.15 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-Jul-2020

SYSDRILL
Well Design Combined Report
Wellbore: BEF West 11 (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)
2027.00	8.55	112.87	2024.61	16.57S	39.26E	==>	-37.72	39.99489170	-104.73447198
2127.00	8.55	112.87	2123.50	22.34S	52.96E	==>	-50.88	39.99487551	-104.73442328
2227.00	8.55	112.87	2222.39	28.12S	66.66E	==>	-64.04	39.99485932	-104.73437457
2327.00	8.55	112.87	2321.28	33.90S	80.35E	==>	-77.20	39.99484314	-104.73432587
2427.00	8.55	112.87	2420.17	39.68S	94.05E	==>	-90.36	39.99482695	-104.73427716
2527.00	8.55	112.87	2519.05	45.46S	107.75E	==>	-103.52	39.99481077	-104.73422846
2627.00	8.55	112.87	2617.94	51.24S	121.44E	==>	-116.68	39.99479458	-104.73417976
2727.00	8.55	112.87	2716.83	57.01S	135.14E	==>	-129.84	39.99477839	-104.73413105
2827.00	8.55	112.87	2815.72	62.79S	148.84E	==>	-143.00	39.99476221	-104.73408235
2927.00	8.55	112.87	2914.61	68.57S	162.53E	==>	-156.16	39.99474602	-104.73403364
3027.00	8.55	112.87	3013.50	74.35S	176.23E	==>	-169.32	39.99472983	-104.73398494
3127.00	8.55	112.87	3112.39	80.13S	189.93E	==>	-182.48	39.99471365	-104.73393624
3227.00	8.55	112.87	3211.28	85.91S	203.62E	==>	-195.63	39.99469746	-104.73388753
3327.00	8.55	112.87	3310.17	91.69S	217.32E	==>	-208.79	39.99468127	-104.73383883
3427.00	8.55	112.87	3409.05	97.46S	231.01E	==>	-221.95	39.99466509	-104.73379013
3527.00	8.55	112.87	3507.94	103.24S	244.71E	==>	-235.11	39.99464890	-104.73374142
3627.00	8.55	112.87	3606.83	109.02S	258.41E	==>	-248.27	39.99463271	-104.73369272
3727.00	8.55	112.87	3705.72	114.80S	272.10E	==>	-261.43	39.99461652	-104.73364401
3827.00	8.55	112.87	3804.61	120.58S	285.80E	==>	-274.59	39.99460034	-104.73359531
3927.00	8.55	112.87	3903.50	126.36S	299.50E	==>	-287.75	39.99458415	-104.73354661
4027.00	8.55	112.87	4002.39	132.14S	313.19E	==>	-300.91	39.99456796	-104.73349790
4127.00	8.55	112.87	4101.28	137.91S	326.89E	==>	-314.07	39.99455178	-104.73344920
4227.00	8.55	112.87	4200.17	143.69S	340.59E	==>	-327.23	39.99453559	-104.73340050
4327.00	8.55	112.87	4299.05	149.47S	354.28E	==>	-340.39	39.99451940	-104.73335179
4427.00	8.55	112.87	4397.94	155.25S	367.98E	==>	-353.55	39.99450322	-104.73330309
4527.00	8.55	112.87	4496.83	161.03S	381.68E	==>	-366.70	39.99448703	-104.73325439
4627.00	8.55	112.87	4595.72	166.81S	395.37E	==>	-379.86	39.99447084	-104.73320568
4727.00	8.55	112.87	4694.61	172.58S	409.07E	==>	-393.02	39.99445466	-104.73315698
4827.00	8.55	112.87	4793.50	178.36S	422.77E	==>	-406.18	39.99443847	-104.73310828
4927.00	8.55	112.87	4892.39	184.14S	436.46E	==>	-419.34	39.99442228	-104.73305957
5027.00	8.55	112.87	4991.28	189.92S	450.16E	==>	-432.50	39.99440609	-104.73301087
5127.00	8.55	112.87	5090.17	195.70S	463.86E	==>	-445.66	39.99438991	-104.73296217
5227.00	8.55	112.87	5189.05	201.48S	477.55E	==>	-458.82	39.99437372	-104.73291346
5327.00	8.55	112.87	5287.94	207.26S	491.25E	==>	-471.98	39.99435753	-104.73286476
5427.00	8.55	112.87	5386.83	213.03S	504.94E	==>	-485.14	39.99434135	-104.73281606
5527.00	8.55	112.87	5485.72	218.81S	518.64E	==>	-498.30	39.99432516	-104.73276735
5627.00	8.55	112.87	5584.61	224.59S	532.34E	==>	-511.46	39.99430897	-104.73271865
5727.00	8.55	112.87	5683.50	230.37S	546.03E	==>	-524.62	39.99429278	-104.73266995
5827.00	8.55	112.87	5782.39	236.15S	559.73E	==>	-537.77	39.99427660	-104.73262124
5927.00	8.55	112.87	5881.28	241.93S	573.43E	==>	-550.93	39.99426041	-104.73257254
6027.00	8.55	112.87	5980.17	247.71S	587.12E	==>	-564.09	39.99424422	-104.73252384
6127.00	8.55	112.87	6079.05	253.48S	600.82E	==>	-577.25	39.99422803	-104.73247513
6227.00	8.55	112.87	6177.94	259.26S	614.52E	==>	-590.41	39.99421185	-104.73242643
6327.00	8.55	112.87	6276.83	265.04S	628.21E	==>	-603.57	39.99419566	-104.73237773
6427.00	8.55	112.87	6375.72	270.82S	641.91E	==>	-616.73	39.99417947	-104.73232903
6527.00	8.55	112.87	6474.61	276.60S	655.61E	==>	-629.89	39.99416328	-104.73228032
6627.00	8.55	112.87	6573.50	282.38S	669.30E	==>	-643.05	39.99414710	-104.73223162
6727.00	8.55	112.87	6672.39	288.15S	683.00E	==>	-656.21	39.99413091	-104.73218292
6827.00	8.55	112.87	6771.28	293.93S	696.70E	==>	-669.37	39.99411472	-104.73213421
6927.00	8.55	112.87	6870.17	299.71S	710.39E	==>	-682.53	39.99409853	-104.73208551
6958.55	8.55	112.87	6901.36	301.53S	714.71E	==>	-686.68	39.99409343	-104.73207015
7027.00	3.44	185.71	6969.49	305.56S	719.20E	12.00	-690.81	39.99408227	-104.73205424
7127.00	12.83	254.26	7068.51	311.58S	708.18E	12.00	-679.32	39.99406601	-104.73209377
7161.65	16.87	258.11	7102.00	313.66S	699.55E	12.00	-670.55	39.99406051	-104.73212463
7227.00	24.60	261.97	7163.07	317.52S	676.77E	12.00	-647.52	39.99405046	-104.73220605
7327.00	36.51	264.84	7249.04	323.12S	626.35E	12.00	-596.81	39.99403627	-104.73238617
7427.00	48.46	266.43	7322.65	328.14S	559.12E	12.00	-529.39	39.99402409	-104.73262626
7527.00	60.43	267.53	7380.69	332.36S	478.02E	12.00	-448.23	39.99401443	-104.73291583

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Planned Datum #1 5075.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 265.15 degrees
Bottom hole distance is 4526.54 Feet on azimuth 265.15 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-Jul-2020

SYSDRILL
Well Design Combined Report
Wellbore: BEF West 11 (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)
7627.00	72.41	268.38	7420.62	335.60S	386.60E	12.00	-356.86	39.99400772	-104.73324221
7727.00	84.38	269.13	7440.70	337.71S	288.84E	12.00	-259.27	39.99400425	-104.73359115
7762.74	88.66	269.39	7442.87	338.17S	253.18E	12.00	-223.70	39.99400383	-104.73371843
7773.89	90.00	269.47	7443.00	338.28S	242.03E	12.00	-212.58	39.99400379	-104.73375823
7827.00	90.00	269.47	7443.00	338.77S	188.92E	==>	-159.62	39.99400369	-104.73394778
7927.00	90.00	269.47	7443.00	339.70S	88.93E	==>	-59.91	39.99400351	-104.73430469
8027.00	90.00	269.47	7443.00	340.63S	11.07W	==>	39.81	39.99400332	-104.73466159
8127.00	90.00	269.47	7443.00	341.56S	111.06W	==>	139.53	39.99400314	-104.73501849
8227.00	90.00	269.47	7443.00	342.49S	211.06W	==>	239.24	39.99400295	-104.73537539
8327.00	90.00	269.47	7443.00	343.43S	311.05W	==>	338.96	39.99400277	-104.73573230
8427.00	90.00	269.47	7443.00	344.36S	411.05W	==>	438.68	39.99400258	-104.73608920
8527.00	90.00	269.47	7443.00	345.29S	511.04W	==>	538.39	39.99400239	-104.73644610
8627.00	90.00	269.47	7443.00	346.22S	611.04W	==>	638.11	39.99400220	-104.73680301
8727.00	90.00	269.47	7443.00	347.15S	711.04W	==>	737.83	39.99400201	-104.73715991
8827.00	90.00	269.47	7443.00	348.08S	811.03W	==>	837.54	39.99400181	-104.73751681
8927.00	90.00	269.47	7443.00	349.01S	911.03W	==>	937.26	39.99400162	-104.73787372
9027.00	90.00	269.47	7443.00	349.94S	1011.02W	==>	1036.98	39.99400143	-104.73823062
9127.00	90.00	269.47	7443.00	350.87S	1111.02W	==>	1136.69	39.99400123	-104.73858752
9227.00	90.00	269.47	7443.00	351.80S	1211.01W	==>	1236.41	39.99400103	-104.73894442
9327.00	90.00	269.47	7443.00	352.73S	1311.01W	==>	1336.13	39.99400083	-104.73930133
9427.00	90.00	269.47	7443.00	353.66S	1411.01W	==>	1435.84	39.99400063	-104.73965823
9527.00	90.00	269.47	7443.00	354.59S	1511.00W	==>	1535.56	39.99400043	-104.74001513
9627.00	90.00	269.47	7443.00	355.52S	1611.00W	==>	1635.28	39.99400023	-104.74037204
9727.00	90.00	269.47	7443.00	356.45S	1710.99W	==>	1734.99	39.99400003	-104.74072894
9827.00	90.00	269.47	7443.00	357.38S	1810.99W	==>	1834.71	39.99399983	-104.74108584
9927.00	90.00	269.47	7443.00	358.31S	1910.98W	==>	1934.43	39.99399962	-104.74144275
10027.00	90.00	269.47	7443.00	359.24S	2010.98W	==>	2034.14	39.99399942	-104.74179965
10127.00	90.00	269.47	7443.00	360.17S	2110.98W	==>	2133.86	39.99399921	-104.74215655
10227.00	90.00	269.47	7443.00	361.10S	2210.97W	==>	2233.58	39.99399900	-104.74251345
10327.00	90.00	269.47	7443.00	362.03S	2310.97W	==>	2333.29	39.99399879	-104.74287036
10427.00	90.00	269.47	7443.00	362.96S	2410.96W	==>	2433.01	39.99399858	-104.74322726
10527.00	90.00	269.47	7443.00	363.89S	2510.96W	==>	2532.73	39.99399837	-104.74358416
10627.00	90.00	269.47	7443.00	364.82S	2610.95W	==>	2632.44	39.99399816	-104.74394107
10727.00	90.00	269.47	7443.00	365.75S	2710.95W	==>	2732.16	39.99399794	-104.74429797
10827.00	90.00	269.47	7443.00	366.68S	2810.95W	==>	2831.88	39.99399773	-104.74465487
10927.00	90.00	269.47	7443.00	367.61S	2910.94W	==>	2931.59	39.99399751	-104.74501178
11027.00	90.00	269.47	7443.00	368.54S	3010.94W	==>	3031.31	39.99399730	-104.74536868
11127.00	90.00	269.47	7443.00	369.47S	3110.93W	==>	3131.03	39.99399708	-104.74572558
11227.00	90.00	269.47	7443.00	370.40S	3210.93W	==>	3230.74	39.99399686	-104.74608248
11327.00	90.00	269.47	7443.00	371.33S	3310.92W	==>	3330.46	39.99399664	-104.74643939
11427.00	90.00	269.47	7443.00	372.26S	3410.92W	==>	3430.18	39.99399642	-104.74679629
11527.00	90.00	269.47	7443.00	373.19S	3510.92W	==>	3529.89	39.99399619	-104.74715319
11627.00	90.00	269.47	7443.00	374.12S	3610.91W	==>	3629.61	39.99399597	-104.74751010
11727.00	90.00	269.47	7443.00	375.05S	3710.91W	==>	3729.33	39.99399575	-104.74786700
11827.00	90.00	269.47	7443.00	375.98S	3810.90W	==>	3829.04	39.99399552	-104.74822390
11927.00	90.00	269.47	7443.00	376.91S	3910.90W	==>	3928.76	39.99399529	-104.74858080
12027.00	90.00	269.47	7443.00	377.84S	4010.89W	==>	4028.48	39.99399507	-104.74893771
12127.00	90.00	269.47	7443.00	378.77S	4110.89W	==>	4128.19	39.99399484	-104.74929461
12227.00	90.00	269.47	7443.00	379.70S	4210.88W	==>	4227.91	39.99399461	-104.74965151
12327.00	90.00	269.47	7443.00	380.63S	4310.88W	==>	4327.63	39.99399438	-104.75000842
12427.00	90.00	269.47	7443.00	381.56S	4410.88W	==>	4427.34	39.99399414	-104.75036532
12526.48	90.00	269.47	7443.00	382.49S	4510.36W	==>	4526.54	39.99399391	-104.75072038

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 5075.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 265.15 degrees
Bottom hole distance is 4526.54 Feet on azimuth 265.15 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-Jul-2020

SYS DRILL
Well Design Combined Report
Wellbore: BEF West 11 (PWB)



Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF West 11 - BHL	382.49S	4510.36W	7443.00	39.99399391	-104.75072038	1241545.90	3209929.36
BEF West 11 - LP	338.28S	157.97W	7443.00	39.99401327	-104.73518578	1241590.11	3214281.60

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
992840	Planned	1527.00	1527.00	WdW Rate Gyro	Standard
992839	Planned	12526.48	7443.00	ISCWSA MWD	Rev 4 + SAG + FLT

Notes

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