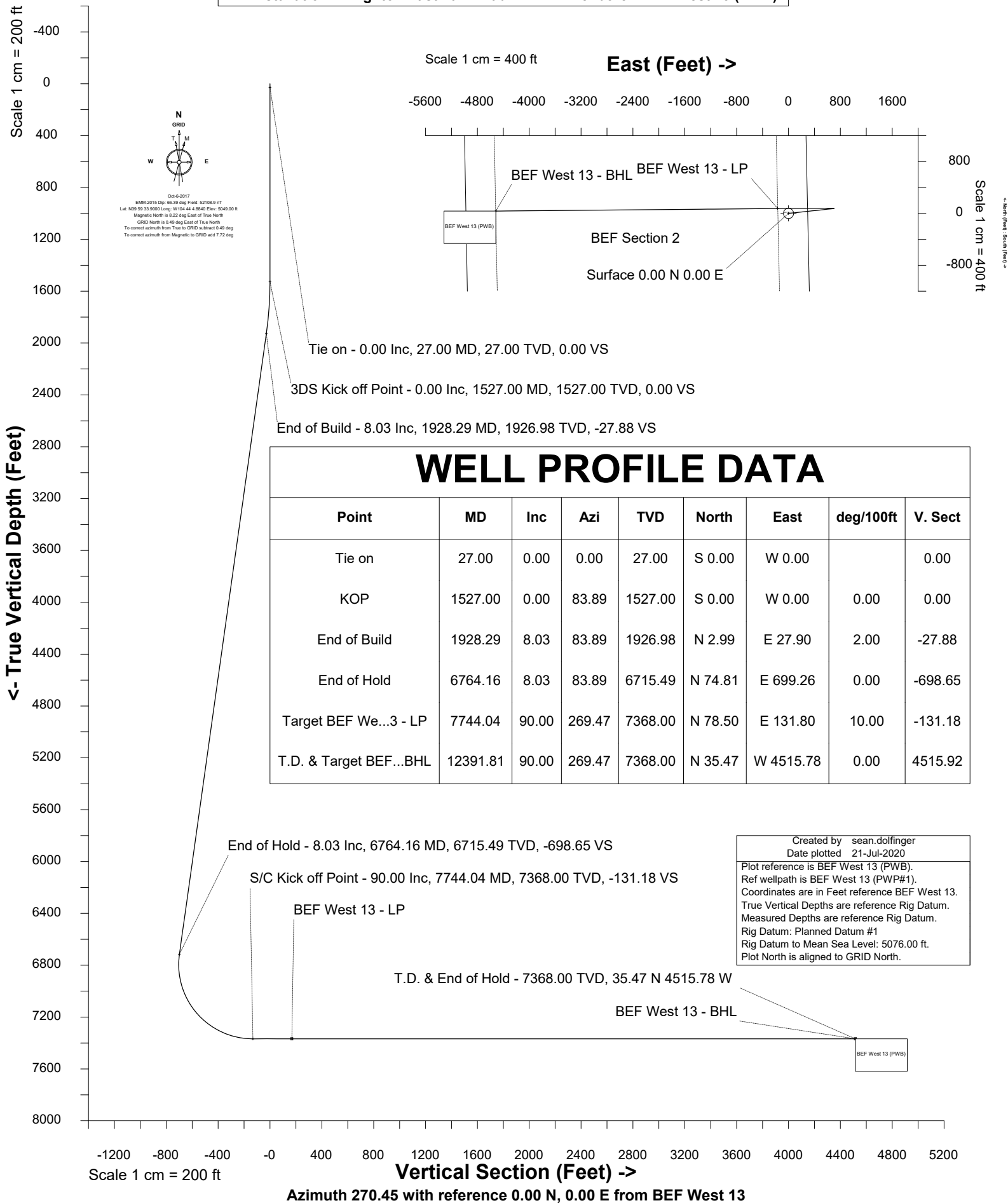


# Petro Operating Company

Location Weld County, CO Slot BEF West 13  
Field Wattenberg Well BEF West 13  
Installation Brighton East Farm Pad Wellbore BEF West 13 (PWB)



SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 13 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 13	39.99502580	-104.73461200	1241960.3198	3214439.1738	829.20N	14.70E	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	-5049.00	0.00N	0.00E		0.00
1527.00	0.00	83.89	1527.00	-3549.00	0.00N	0.00E	==>	0.00
1928.29	8.03	83.89	1926.98	-3149.02	2.99N	27.90E	2.00	-27.88
6764.16	8.03	83.89	6715.49	1639.49	74.81N	699.26E	==>	-698.65
7744.04	90.00	269.47	7368.00	2292.00	78.50N	131.80E	10.00	-131.18
12391.81	90.00	269.47	7368.00	2292.00	35.47N	4515.78W	==>	4515.92

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	39.99502580	-104.73461200
27.00	0.00	0.00	27.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1527.00	0.00	83.89	1527.00	0.00N	0.00E	==>	0.00	39.99502580	-104.73461200
1627.00	2.00	83.89	1626.98	0.19N	1.74E	2.00	-1.73	39.99502627	-104.73460580
1727.00	4.00	83.89	1726.84	0.74N	6.94E	2.00	-6.93	39.99502767	-104.73458721
1827.00	6.00	83.89	1826.45	1.67N	15.60E	2.00	-15.59	39.99503001	-104.73455626
1927.00	8.00	83.89	1925.70	2.97N	27.72E	2.00	-27.70	39.99503328	-104.73451297
1928.29	8.03	83.89	1926.98	2.99N	27.90E	2.00	-27.88	39.99503333	-104.73451233

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 5076.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 270.45 degrees  
Bottom hole distance is 4515.92 Feet on azimuth 270.45 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 21-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 13 (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	8.03	83.89	2024.72	4.45N	41.60E	==>	-41.57	39.99503703	-104.73446338
2127.00	8.03	83.89	2123.74	5.94N	55.49E	==>	-55.44	39.99504078	-104.73441379
2227.00	8.03	83.89	2222.76	7.42N	69.37E	==>	-69.31	39.99504453	-104.73436419
2327.00	8.03	83.89	2321.78	8.91N	83.25E	==>	-83.18	39.99504828	-104.73431460
2427.00	8.03	83.89	2420.80	10.39N	97.14E	==>	-97.05	39.99505203	-104.73426501
2527.00	8.03	83.89	2519.82	11.88N	111.02E	==>	-110.92	39.99505577	-104.73421542
2627.00	8.03	83.89	2618.85	13.36N	124.90E	==>	-124.79	39.99505952	-104.73416582
2727.00	8.03	83.89	2717.87	14.85N	138.78E	==>	-138.66	39.99506327	-104.73411623
2827.00	8.03	83.89	2816.89	16.33N	152.67E	==>	-152.53	39.99506702	-104.73406664
2927.00	8.03	83.89	2915.91	17.82N	166.55E	==>	-166.40	39.99507077	-104.73401704
3027.00	8.03	83.89	3014.93	19.30N	180.43E	==>	-180.28	39.99507451	-104.73396745
3127.00	8.03	83.89	3113.95	20.79N	194.32E	==>	-194.15	39.99507826	-104.73391786
3227.00	8.03	83.89	3212.97	22.28N	208.20E	==>	-208.02	39.99508201	-104.73386827
3327.00	8.03	83.89	3311.99	23.76N	222.08E	==>	-221.89	39.99508576	-104.73381867
3427.00	8.03	83.89	3411.01	25.25N	235.96E	==>	-235.76	39.99508951	-104.73376908
3527.00	8.03	83.89	3510.03	26.73N	249.85E	==>	-249.63	39.99509325	-104.73371949
3627.00	8.03	83.89	3609.05	28.22N	263.73E	==>	-263.50	39.99509700	-104.73366989
3727.00	8.03	83.89	3708.07	29.70N	277.61E	==>	-277.37	39.99510075	-104.73362030
3827.00	8.03	83.89	3807.09	31.19N	291.49E	==>	-291.24	39.99510450	-104.73357071
3927.00	8.03	83.89	3906.11	32.67N	305.38E	==>	-305.11	39.99510824	-104.73352111
4027.00	8.03	83.89	4005.13	34.16N	319.26E	==>	-318.98	39.99511199	-104.73347152
4127.00	8.03	83.89	4104.15	35.64N	333.14E	==>	-332.85	39.99511574	-104.73342193
4227.00	8.03	83.89	4203.17	37.13N	347.03E	==>	-346.72	39.99511949	-104.73337234
4327.00	8.03	83.89	4302.19	38.61N	360.91E	==>	-360.59	39.99512324	-104.73332274
4427.00	8.03	83.89	4401.21	40.10N	374.79E	==>	-374.46	39.99512698	-104.73327315
4527.00	8.03	83.89	4500.23	41.58N	388.67E	==>	-388.34	39.99513073	-104.73322356
4627.00	8.03	83.89	4599.26	43.07N	402.56E	==>	-402.21	39.99513448	-104.73317396
4727.00	8.03	83.89	4698.28	44.55N	416.44E	==>	-416.08	39.99513823	-104.73312437
4827.00	8.03	83.89	4797.30	46.04N	430.32E	==>	-429.95	39.99514197	-104.73307478
4927.00	8.03	83.89	4896.32	47.53N	444.21E	==>	-443.82	39.99514572	-104.73302519
5027.00	8.03	83.89	4995.34	49.01N	458.09E	==>	-457.69	39.99514947	-104.73297559
5127.00	8.03	83.89	5094.36	50.50N	471.97E	==>	-471.56	39.99515322	-104.73292600
5227.00	8.03	83.89	5193.38	51.98N	485.85E	==>	-485.43	39.99515696	-104.73287641
5327.00	8.03	83.89	5292.40	53.47N	499.74E	==>	-499.30	39.99516071	-104.73282681
5427.00	8.03	83.89	5391.42	54.95N	513.62E	==>	-513.17	39.99516446	-104.73277722
5527.00	8.03	83.89	5490.44	56.44N	527.50E	==>	-527.04	39.99516821	-104.73272763
5627.00	8.03	83.89	5589.46	57.92N	541.39E	==>	-540.91	39.99517195	-104.73267803
5727.00	8.03	83.89	5688.48	59.41N	555.27E	==>	-554.78	39.99517570	-104.73262844
5827.00	8.03	83.89	5787.50	60.89N	569.15E	==>	-568.65	39.99517945	-104.73257885
5927.00	8.03	83.89	5886.52	62.38N	583.03E	==>	-582.53	39.99518320	-104.73252926
6027.00	8.03	83.89	5985.54	63.86N	596.92E	==>	-596.40	39.99518694	-104.73247966
6127.00	8.03	83.89	6084.56	65.35N	610.80E	==>	-610.27	39.99519069	-104.73243007
6227.00	8.03	83.89	6183.58	66.83N	624.68E	==>	-624.14	39.99519444	-104.73238048
6327.00	8.03	83.89	6282.60	68.32N	638.56E	==>	-638.01	39.99519818	-104.73233088
6427.00	8.03	83.89	6381.62	69.81N	652.45E	==>	-651.88	39.99520193	-104.73228129
6527.00	8.03	83.89	6480.65	71.29N	666.33E	==>	-665.75	39.99520568	-104.73223170
6627.00	8.03	83.89	6579.67	72.78N	680.21E	==>	-679.62	39.99520943	-104.73218210
6727.00	8.03	83.89	6678.69	74.26N	694.10E	==>	-693.49	39.99521317	-104.73213251
6764.16	8.03	83.89	6715.49	74.81N	699.26E	==>	-698.65	39.99521457	-104.73211408
6827.00	1.88	64.74	6778.06	75.72N	704.55E	10.00	-703.94	39.99521693	-104.73209515
6927.00	8.33	274.84	6877.76	77.03N	698.80E	10.00	-698.17	39.99522067	-104.73211564
7027.00	18.31	271.84	6974.95	78.15N	675.82E	10.00	-675.18	39.99522429	-104.73219763
7127.00	28.31	270.93	7066.67	79.04N	636.31E	10.00	-635.67	39.99522767	-104.73233860
7227.00	38.30	270.46	7150.14	79.68N	581.47E	10.00	-580.83	39.99523072	-104.73253428
7327.00	48.30	270.17	7222.82	80.04N	512.98E	10.00	-512.33	39.99523334	-104.73277873
7427.00	58.30	269.95	7282.51	80.12N	432.90E	10.00	-432.26	39.99523545	-104.73306452
7527.00	68.30	269.78	7327.39	79.91N	343.68E	10.00	-343.04	39.99523699	-104.73338296
7627.00	78.30	269.63	7356.09	79.41N	248.02E	10.00	-247.39	39.99523791	-104.73372437

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 5076.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 270.45 degrees  
Bottom hole distance is 4515.92 Feet on azimuth 270.45 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 21-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 13 (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)
7727.00	88.30	269.49	7367.75	78.65N	148.83E	10.00	-148.21	39.99523818	-104.73407839
7744.04	90.00	269.47	7368.00	78.50N	131.80E	10.00	-131.18	39.99523816	-104.73413920
7827.00	90.00	269.47	7368.00	77.73N	48.84E	==>	-48.23	39.99523802	-104.7343529
7927.00	90.00	269.47	7368.00	76.81N	51.15W	==>	51.76	39.99523784	-104.73479220
8027.00	90.00	269.47	7368.00	75.88N	151.15W	==>	151.74	39.99523767	-104.73514911
8127.00	90.00	269.47	7368.00	74.95N	251.15W	==>	251.73	39.99523750	-104.73550602
8227.00	90.00	269.47	7368.00	74.03N	351.14W	==>	351.71	39.99523732	-104.73586293
8327.00	90.00	269.47	7368.00	73.10N	451.14W	==>	451.70	39.99523714	-104.73621984
8427.00	90.00	269.47	7368.00	72.18N	551.13W	==>	551.68	39.99523697	-104.73657675
8527.00	90.00	269.47	7368.00	71.25N	651.13W	==>	651.67	39.99523679	-104.73693366
8627.00	90.00	269.47	7368.00	70.33N	751.12W	==>	751.65	39.99523661	-104.73729057
8727.00	90.00	269.47	7368.00	69.40N	851.12W	==>	851.64	39.99523643	-104.73764748
8827.00	90.00	269.47	7368.00	68.47N	951.12W	==>	951.62	39.99523625	-104.73800439
8927.00	90.00	269.47	7368.00	67.55N	1051.11W	==>	1051.61	39.99523606	-104.73836130
9027.00	90.00	269.47	7368.00	66.62N	1151.11W	==>	1151.60	39.99523588	-104.73871821
9127.00	90.00	269.47	7368.00	65.70N	1251.10W	==>	1251.58	39.99523569	-104.73907512
9227.00	90.00	269.47	7368.00	64.77N	1351.10W	==>	1351.57	39.99523551	-104.73943203
9327.00	90.00	269.47	7368.00	63.84N	1451.09W	==>	1451.55	39.99523532	-104.73978894
9427.00	90.00	269.47	7368.00	62.92N	1551.09W	==>	1551.54	39.99523513	-104.74014584
9527.00	90.00	269.47	7368.00	61.99N	1651.09W	==>	1651.52	39.99523494	-104.74050275
9627.00	90.00	269.47	7368.00	61.07N	1751.08W	==>	1751.51	39.99523475	-104.74085966
9727.00	90.00	269.47	7368.00	60.14N	1851.08W	==>	1851.49	39.99523456	-104.74121657
9827.00	90.00	269.47	7368.00	59.22N	1951.07W	==>	1951.48	39.99523436	-104.74157348
9927.00	90.00	269.47	7368.00	58.29N	2051.07W	==>	2051.46	39.99523417	-104.74193039
10027.00	90.00	269.47	7368.00	57.36N	2151.06W	==>	2151.45	39.99523397	-104.74228730
10127.00	90.00	269.47	7368.00	56.44N	2251.06W	==>	2251.43	39.99523378	-104.74264421
10227.00	90.00	269.47	7368.00	55.51N	2351.06W	==>	2351.42	39.99523358	-104.74300112
10327.00	90.00	269.47	7368.00	54.59N	2451.05W	==>	2451.40	39.99523338	-104.74335803
10427.00	90.00	269.47	7368.00	53.66N	2551.05W	==>	2551.39	39.99523318	-104.74371494
10527.00	90.00	269.47	7368.00	52.73N	2651.04W	==>	2651.38	39.99523298	-104.74407185
10627.00	90.00	269.47	7368.00	51.81N	2751.04W	==>	2751.36	39.99523278	-104.74442876
10727.00	90.00	269.47	7368.00	50.88N	2851.03W	==>	2851.35	39.99523258	-104.74478567
10827.00	90.00	269.47	7368.00	49.96N	2951.03W	==>	2951.33	39.99523237	-104.74514258
10927.00	90.00	269.47	7368.00	49.03N	3051.03W	==>	3051.32	39.99523217	-104.74549949
11027.00	90.00	269.47	7368.00	48.11N	3151.02W	==>	3151.30	39.99523196	-104.74585640
11127.00	90.00	269.47	7368.00	47.18N	3251.02W	==>	3251.29	39.99523175	-104.74621331
11227.00	90.00	269.47	7368.00	46.25N	3351.01W	==>	3351.27	39.99523154	-104.74657021
11327.00	90.00	269.47	7368.00	45.33N	3451.01W	==>	3451.26	39.99523134	-104.74692712
11427.00	90.00	269.47	7368.00	44.40N	3551.00W	==>	3551.24	39.99523112	-104.74728403
11527.00	90.00	269.47	7368.00	43.48N	3651.00W	==>	3651.23	39.99523091	-104.74764094
11627.00	90.00	269.47	7368.00	42.55N	3751.00W	==>	3751.21	39.99523070	-104.74799785
11727.00	90.00	269.47	7368.00	41.62N	3850.99W	==>	3851.20	39.99523049	-104.74835476
11827.00	90.00	269.47	7368.00	40.70N	3950.99W	==>	3951.19	39.99523027	-104.74871167
11927.00	90.00	269.47	7368.00	39.77N	4050.98W	==>	4051.17	39.99523005	-104.74906858
12027.00	90.00	269.47	7368.00	38.85N	4150.98W	==>	4151.16	39.99522984	-104.74942549
12127.00	90.00	269.47	7368.00	37.92N	4250.97W	==>	4251.14	39.99522962	-104.74978240
12227.00	90.00	269.47	7368.00	37.00N	4350.97W	==>	4351.13	39.99522940	-104.75013931
12327.00	90.00	269.47	7368.00	36.07N	4450.97W	==>	4451.11	39.99522918	-104.75049622
12391.81	90.00	269.47	7368.00	35.47N	4515.78W	==>	4515.92	39.99522903	-104.75072755

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 5076.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 270.45 degrees  
Bottom hole distance is 4515.92 Feet on azimuth 270.45 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 21-Jul-2020

SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 13 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF West 13 - BHL	35.47N	4515.78W	7368.00	39.99522903	-104.75072755	1241995.79	3209923.56
BEF West 13 - LP	78.50N	168.20W	7368.00	39.99524527	-104.73520989	1242038.82	3214270.98

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
992789	Planned	1527.00	1527.00	WdW Rate Gyro	Standard	
992788	Planned	12391.81	7368.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes