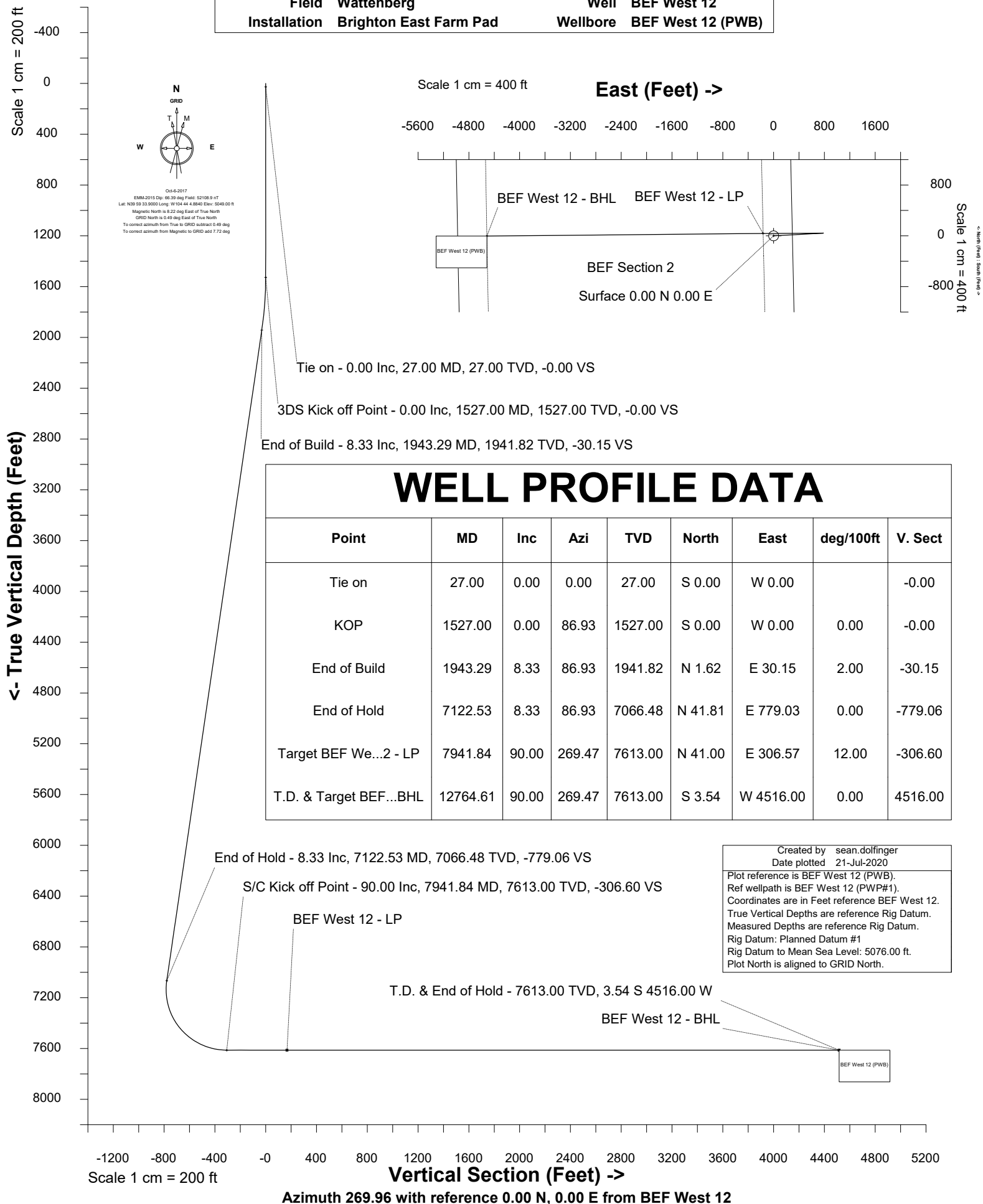


# Petro Operating Company

Location Weld County, CO Slot BEF West 12  
Field Wattenberg Well BEF West 12  
Installation Brighton East Farm Pad Wellbore BEF West 12 (PWB)





SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 12 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 12	39.99498190	-104.73461170	1241944.3295	3214439.3959	813.21N	14.92E	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	86.93	1527.00	-3549.00	0.00N	0.00E	==>	0.00
1943.29	8.33	86.93	1941.82	-3134.18	1.62N	30.15E	2.00	-30.15
7122.53	8.33	86.93	7066.48	1990.48	41.81N	779.03E	==>	-779.06
7941.84	90.00	269.47	7613.00	2537.00	41.00N	306.57E	12.00	-306.60
12764.61	90.00	269.47	7613.00	2537.00	3.54S	4516.00W	==>	4516.00

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	39.99498190	-104.73461170
27.00	0.00	0.00	27.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1100.00	0.00	0.00	1100.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1200.00	0.00	0.00	1200.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1300.00	0.00	0.00	1300.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1400.00	0.00	0.00	1400.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1500.00	0.00	0.00	1500.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1527.00	0.00	86.93	1527.00	0.00N	0.00E	==>	0.00	39.99498190	-104.73461170
1627.00	2.00	86.93	1626.98	0.09N	1.74E	2.00	-1.74	39.99498212	-104.73460548
1727.00	4.00	86.93	1726.84	0.37N	6.97E	2.00	-6.97	39.99498276	-104.73458682
1827.00	6.00	86.93	1826.45	0.84N	15.67E	2.00	-15.67	39.99498384	-104.73455574
1927.00	8.00	86.93	1925.70	1.49N	27.84E	2.00	-27.84	39.99498534	-104.73451229
1943.29	8.33	86.93	1941.82	1.62N	30.15E	2.00	-30.15	39.99498563	-104.73450405

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 269.96 degrees  
Bottom hole distance is 4516.00 Feet on azimuth 269.96 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 21-Jul-2020



SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 12 (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	8.33	86.93	2024.65	2.27N	42.25E	==>	-42.26	39.99498712	-104.73446083
2127.00	8.33	86.93	2123.60	3.04N	56.71E	==>	-56.71	39.99498891	-104.73440920
2227.00	8.33	86.93	2222.55	3.82N	71.17E	==>	-71.17	39.99499070	-104.73435757
2327.00	8.33	86.93	2321.49	4.60N	85.63E	==>	-85.63	39.99499249	-104.73430595
2427.00	8.33	86.93	2420.44	5.37N	100.09E	==>	-100.09	39.99499428	-104.73425432
2527.00	8.33	86.93	2519.38	6.15N	114.55E	==>	-114.55	39.99499606	-104.73420269
2627.00	8.33	86.93	2618.33	6.92N	129.01E	==>	-129.01	39.99499785	-104.73415106
2727.00	8.33	86.93	2717.28	7.70N	143.47E	==>	-143.47	39.99499964	-104.73409943
2827.00	8.33	86.93	2816.22	8.48N	157.93E	==>	-157.93	39.99500143	-104.73404781
2927.00	8.33	86.93	2915.17	9.25N	172.39E	==>	-172.39	39.99500321	-104.73399618
3027.00	8.33	86.93	3014.12	10.03N	186.85E	==>	-186.85	39.99500500	-104.73394455
3127.00	8.33	86.93	3113.06	10.81N	201.30E	==>	-201.31	39.99500679	-104.73389292
3227.00	8.33	86.93	3212.01	11.58N	215.76E	==>	-215.77	39.99500858	-104.73384129
3327.00	8.33	86.93	3310.95	12.36N	230.22E	==>	-230.23	39.99501036	-104.73378967
3427.00	8.33	86.93	3409.90	13.13N	244.68E	==>	-244.69	39.99501215	-104.73373804
3527.00	8.33	86.93	3508.85	13.91N	259.14E	==>	-259.15	39.99501394	-104.73368641
3627.00	8.33	86.93	3607.79	14.69N	273.60E	==>	-273.61	39.99501572	-104.73363478
3727.00	8.33	86.93	3706.74	15.46N	288.06E	==>	-288.07	39.99501751	-104.73358315
3827.00	8.33	86.93	3805.68	16.24N	302.52E	==>	-302.53	39.99501930	-104.73353152
3927.00	8.33	86.93	3904.63	17.01N	316.98E	==>	-316.99	39.99502109	-104.73347990
4027.00	8.33	86.93	4003.58	17.79N	331.44E	==>	-331.45	39.99502287	-104.73342827
4127.00	8.33	86.93	4102.52	18.57N	345.90E	==>	-345.91	39.99502466	-104.73337664
4227.00	8.33	86.93	4201.47	19.34N	360.36E	==>	-360.37	39.99502645	-104.73332501
4327.00	8.33	86.93	4300.41	20.12N	374.81E	==>	-374.83	39.99502824	-104.73327338
4427.00	8.33	86.93	4399.36	20.89N	389.27E	==>	-389.29	39.99503002	-104.73322176
4527.00	8.33	86.93	4498.31	21.67N	403.73E	==>	-403.75	39.99503181	-104.73317013
4627.00	8.33	86.93	4597.25	22.45N	418.19E	==>	-418.21	39.99503360	-104.73311850
4727.00	8.33	86.93	4696.20	23.22N	432.65E	==>	-432.67	39.99503538	-104.73306687
4827.00	8.33	86.93	4795.14	24.00N	447.11E	==>	-447.13	39.99503717	-104.73301524
4927.00	8.33	86.93	4894.09	24.77N	461.57E	==>	-461.59	39.99503896	-104.73296361
5027.00	8.33	86.93	4993.04	25.55N	476.03E	==>	-476.05	39.99504075	-104.73291199
5127.00	8.33	86.93	5091.98	26.33N	490.49E	==>	-490.51	39.99504253	-104.73286036
5227.00	8.33	86.93	5190.93	27.10N	504.95E	==>	-504.97	39.99504432	-104.73280873
5327.00	8.33	86.93	5289.88	27.88N	519.41E	==>	-519.43	39.99504611	-104.73275710
5427.00	8.33	86.93	5388.82	28.66N	533.87E	==>	-533.89	39.99504789	-104.73270547
5527.00	8.33	86.93	5487.77	29.43N	548.33E	==>	-548.35	39.99504968	-104.73265385
5627.00	8.33	86.93	5586.71	30.21N	562.78E	==>	-562.81	39.99505147	-104.73260222
5727.00	8.33	86.93	5685.66	30.98N	577.24E	==>	-577.27	39.99505325	-104.73255059
5827.00	8.33	86.93	5784.61	31.76N	591.70E	==>	-591.73	39.99505504	-104.73249896
5927.00	8.33	86.93	5883.55	32.54N	606.16E	==>	-606.19	39.99505683	-104.73244733
6027.00	8.33	86.93	5982.50	33.31N	620.62E	==>	-620.65	39.99505861	-104.73239571
6127.00	8.33	86.93	6081.44	34.09N	635.08E	==>	-635.11	39.99506040	-104.73234408
6227.00	8.33	86.93	6180.39	34.86N	649.54E	==>	-649.57	39.99506219	-104.73229245
6327.00	8.33	86.93	6279.34	35.64N	664.00E	==>	-664.03	39.99506397	-104.73224082
6427.00	8.33	86.93	6378.28	36.42N	678.46E	==>	-678.49	39.99506576	-104.73218919
6527.00	8.33	86.93	6477.23	37.19N	692.92E	==>	-692.95	39.99506755	-104.73213756
6627.00	8.33	86.93	6576.17	37.97N	707.38E	==>	-707.41	39.99506934	-104.73208594
6727.00	8.33	86.93	6675.12	38.74N	721.84E	==>	-721.87	39.99507112	-104.73203431
6827.00	8.33	86.93	6774.07	39.52N	736.30E	==>	-736.33	39.99507291	-104.73198268
6927.00	8.33	86.93	6873.01	40.30N	750.75E	==>	-750.79	39.99507469	-104.73193105
7027.00	8.33	86.93	6971.96	41.07N	765.21E	==>	-765.25	39.99507648	-104.73187942
7083.64	8.33	86.93	7028.00	41.51N	773.40E	==>	-773.44	39.99507749	-104.73185018
7122.53	8.33	86.93	7066.48	41.81N	779.03E	==>	-779.06	39.99507819	-104.73183010
7127.00	7.79	86.75	7070.91	41.85N	779.65E	12.00	-779.68	39.99507827	-104.73182787
7227.00	4.24	274.50	7170.67	42.53N	782.75E	12.00	-782.78	39.99508005	-104.73181680
7327.00	16.22	270.75	7268.91	43.00N	765.03E	12.00	-765.07	39.99508177	-104.73188001
7427.00	28.22	270.16	7361.31	43.25N	727.28E	12.00	-727.32	39.99508336	-104.73201473
7434.51	29.12	270.14	7367.90	43.26N	723.68E	12.00	-723.71	39.99508347	-104.73202759

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 269.96 degrees  
Bottom hole distance is 4516.00 Feet on azimuth 269.96 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by  
Date Printed: 21-Jul-2020



SYSDRILL  
Well Design Combined Report  
Wellbore: BEF West 12 (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)
7527.00	40.22	269.91	7443.85	43.27N	671.15E	12.00	-671.18	39.99508474	-104.73221508
7627.00	52.22	269.76	7512.91	43.05N	599.08E	12.00	-599.11	39.99508586	-104.73247229
7727.00	64.22	269.65	7565.48	42.61N	514.23E	12.00	-514.26	39.99508666	-104.73277514
7827.00	76.22	269.56	7599.26	41.96N	420.30E	12.00	-420.33	39.99508711	-104.73311038
7927.00	88.22	269.48	7612.77	41.14N	321.41E	12.00	-321.44	39.99508720	-104.73346335
7941.84	90.00	269.47	7613.00	41.00N	306.57E	12.00	-306.60	39.99508718	-104.73351630
8027.00	90.00	269.47	7613.00	40.21N	221.41E	==>	-221.44	39.99508704	-104.73382025
8127.00	90.00	269.47	7613.00	39.29N	121.42E	==>	-121.45	39.99508687	-104.73417716
8227.00	90.00	269.47	7613.00	38.37N	21.42E	==>	-21.45	39.99508671	-104.73453407
8327.00	90.00	269.47	7613.00	37.44N	78.58W	==>	78.55	39.99508654	-104.73489098
8427.00	90.00	269.47	7613.00	36.52N	178.57W	==>	178.54	39.99508637	-104.73524789
8527.00	90.00	269.47	7613.00	35.60N	278.57W	==>	278.54	39.99508621	-104.73560480
8627.00	90.00	269.47	7613.00	34.67N	378.56W	==>	378.54	39.99508604	-104.73596171
8727.00	90.00	269.47	7613.00	33.75N	478.56W	==>	478.53	39.99508587	-104.73631861
8827.00	90.00	269.47	7613.00	32.83N	578.55W	==>	578.53	39.99508570	-104.73667552
8927.00	90.00	269.47	7613.00	31.90N	678.55W	==>	678.52	39.99508552	-104.73703243
9027.00	90.00	269.47	7613.00	30.98N	778.55W	==>	778.52	39.99508535	-104.73738934
9127.00	90.00	269.47	7613.00	30.05N	878.54W	==>	878.52	39.99508517	-104.73774625
9227.00	90.00	269.47	7613.00	29.13N	978.54W	==>	978.51	39.99508500	-104.73810316
9327.00	90.00	269.47	7613.00	28.21N	1078.53W	==>	1078.51	39.99508482	-104.73846007
9427.00	90.00	269.47	7613.00	27.28N	1178.53W	==>	1178.51	39.99508464	-104.73881697
9527.00	90.00	269.47	7613.00	26.36N	1278.52W	==>	1278.50	39.99508446	-104.73917388
9627.00	90.00	269.47	7613.00	25.44N	1378.52W	==>	1378.50	39.99508428	-104.73953079
9727.00	90.00	269.47	7613.00	24.51N	1478.52W	==>	1478.50	39.99508410	-104.73988770
9827.00	90.00	269.47	7613.00	23.59N	1578.51W	==>	1578.49	39.99508392	-104.74024461
9927.00	90.00	269.47	7613.00	22.67N	1678.51W	==>	1678.49	39.99508373	-104.74060152
10027.00	90.00	269.47	7613.00	21.74N	1778.50W	==>	1778.49	39.99508355	-104.74095843
10127.00	90.00	269.47	7613.00	20.82N	1878.50W	==>	1878.48	39.99508336	-104.74131534
10227.00	90.00	269.47	7613.00	19.90N	1978.49W	==>	1978.48	39.99508318	-104.74167224
10327.00	90.00	269.47	7613.00	18.97N	2078.49W	==>	2078.47	39.99508299	-104.74202915
10427.00	90.00	269.47	7613.00	18.05N	2178.49W	==>	2178.47	39.99508280	-104.74238606
10527.00	90.00	269.47	7613.00	17.13N	2278.48W	==>	2278.47	39.99508261	-104.74274297
10627.00	90.00	269.47	7613.00	16.20N	2378.48W	==>	2378.46	39.99508242	-104.74309988
10727.00	90.00	269.47	7613.00	15.28N	2478.47W	==>	2478.46	39.99508222	-104.74345679
10827.00	90.00	269.47	7613.00	14.36N	2578.47W	==>	2578.46	39.99508203	-104.74381370
10927.00	90.00	269.47	7613.00	13.43N	2678.46W	==>	2678.45	39.99508184	-104.74417060
11027.00	90.00	269.47	7613.00	12.51N	2778.46W	==>	2778.45	39.99508164	-104.74452751
11127.00	90.00	269.47	7613.00	11.58N	2878.46W	==>	2878.45	39.99508144	-104.74488442
11227.00	90.00	269.47	7613.00	10.66N	2978.45W	==>	2978.44	39.99508125	-104.74524133
11327.00	90.00	269.47	7613.00	9.74N	3078.45W	==>	3078.44	39.99508105	-104.74559824
11427.00	90.00	269.47	7613.00	8.81N	3178.44W	==>	3178.44	39.99508085	-104.74595515
11527.00	90.00	269.47	7613.00	7.89N	3278.44W	==>	3278.43	39.99508064	-104.74631206
11627.00	90.00	269.47	7613.00	6.97N	3378.43W	==>	3378.43	39.99508044	-104.74666897
11727.00	90.00	269.47	7613.00	6.04N	3478.43W	==>	3478.42	39.99508024	-104.74702587
11827.00	90.00	269.47	7613.00	5.12N	3578.43W	==>	3578.42	39.99508003	-104.74738278
11927.00	90.00	269.47	7613.00	4.20N	3678.42W	==>	3678.42	39.99507983	-104.74773969
12027.00	90.00	269.47	7613.00	3.27N	3778.42W	==>	3778.41	39.99507962	-104.74809660
12127.00	90.00	269.47	7613.00	2.35N	3878.41W	==>	3878.41	39.99507941	-104.74845351
12227.00	90.00	269.47	7613.00	1.43N	3978.41W	==>	3978.41	39.99507920	-104.74881042
12327.00	90.00	269.47	7613.00	0.50N	4078.40W	==>	4078.40	39.99507899	-104.74916733
12427.00	90.00	269.47	7613.00	0.42S	4178.40W	==>	4178.40	39.99507878	-104.74952423
12527.00	90.00	269.47	7613.00	1.34S	4278.40W	==>	4278.40	39.99507857	-104.74988114
12627.00	90.00	269.47	7613.00	2.27S	4378.39W	==>	4378.39	39.99507836	-104.75023805
12727.00	90.00	269.47	7613.00	3.19S	4478.39W	==>	4478.39	39.99507814	-104.75059496
12764.61	90.00	269.47	7613.00	3.54S	4516.00W	==>	4516.00	39.99507806	-104.75072921

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 269.96 degrees  
Bottom hole distance is 4516.00 Feet on azimuth 269.96 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 12 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF West 12 - BHL	3.54S	4516.00W	7613.00	39.99507806	-104.75072921	1241940.79	3209923.55
BEF West 12 - LP	41.00N	168.43W	7613.00	39.99509843	-104.73521155	1241985.33	3214270.97

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
992812	Planned	1527.00	1527.00	WdW Rate Gyro	Standard	
992813	Planned	12764.61	7613.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes