

Petro Operating Company			
Location	Weld County, CO	Slot	BEF West 7
Field	Wattenberg	Well	W BEF West 7
Installation	Brighton East Farm Pad	Wellbore	W BEF West 7 (PWB)

Slot BEF West 7

Well W BEF West 7

Wellbore W BEF West 7 (PWB)

Created by	admin
Date plotted	29-Oct-2018
Plot reference is W BEF West 7 (PWB).	
Ref wellpath is W BEF West 7 (PWP#1).	
Coordinates are in Feet reference BEF West 7.	
True Vertical Depths are reference Rig Datum.	
Measured Depths are reference Rig Datum.	
Rig Datum: Planned Datum #1	
Rig Datum to Mean Sea Level: 5069.00 ft.	
Plot North is aligned to GRID North.	

**East (Feet) ->**

Diagram illustrating the layout of the BEF WEST 7 (PWB) well. The diagram shows the well path starting from the surface (0.00 N 0.00 E) and extending to the bottom hole (BEF WEST 7 BHL). The wellhead is located at BEF WEST 7 EP. The diagram also indicates the well's position relative to the 1500.00 TVD, -0.00 VS and 98.79 TVD, 9.60 VS coordinates.

-2400

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

End of Build - 14.12 Inc, 2205.91 MD, 2198.79 TVD, 9.60 VS

BEF WEST 7 EP

W BEF West 7 (PWB)

WELL PROFILE DATA								
Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	21.00	0.00	0.00	21.00	S 0.00	W 0.00		-0.00
KOP	1500.00	0.00	168.70	1500.00	S 0.00	W 0.00	0.00	-0.00
End of Build	2205.91	14.12	168.70	2198.79	S 84.86	E 16.96	2.00	9.60
End of Hold	7122.10	14.12	168.70	6966.48	S 1260.78	E 251.95	0.00	142.70
Target BEF WEST 7 EP	7893.74	90.00	269.40	7451.00	S 1385.49	W 223.75	12.00	633.81
T.D. & Target BEF...BHL	12158.06	90.00	269.40	7451.00	S 1429.96	W 4487.84	0.00	4710.15

## Sect

0.00

0.00

9.60

42.70

33.81

10.15

T.D. & End of Hold - 7451.00 TVD, 1429.96 S 4487.84 W

N

Oct 6, 2017  
EMMA 2016 (2006-0-0000 Q) Op- 66.38 deg Field- 82108.6  
Lat- N39 39 33.0000 Long- W104 44.6880 Elev- 1047.00  
Magnetic North is 2.20 deg East of True North  
GRID North is 0.49 deg East of True North  
The nearest azimuth from True to GRID is 0.49 deg  
The nearest azimuth from Magnetic to GRID is 2.72 deg

BEF WEST 7 BHL

1

Scale 1 cm = 200 ft

**Vertical Section (Feet) ->**

**Azimuth 252.33 with reference 0.00 N, 0.00 E from BEF West 7**



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 7 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 7	39.99481000	-104.73461000	1241881.7173	3214440.4126	750.60N	15.94E	1.00

Declination		
Date	Source	Time
Oct-6-2017	EMM-2015 [2000.0-2020.0]	14:35

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	CO83-NF on NORTH AMERICAN DATUM 1983 datum	Grid

Summary Wellpath								
MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	Vertical Depth SS	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
21.00	0.00	0.000	21.00	-5048.00	0.00N	0.00E		0.00
1500.00	0.00	168.700	1500.00	-3569.00	0.00N	0.00E	==>	0.00
2205.91	14.12	168.700	2198.79	-2870.21	84.86S	16.96E	2.00	9.60
7122.10	14.12	168.700	6966.48	1897.48	1260.78S	251.95E	==>	142.70
7893.74	90.00	269.400	7451.00	2382.00	1385.49S	223.75W	12.00	633.81
12158.06	90.00	269.400	7451.00	2382.00	1429.96S	4487.84W	==>	4710.15

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	0.000	0.00	0.00N	0.00E		0.00	39.99481000	-104.73461000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1500.00	0.00	168.700	1500.00	0.00N	0.00E	==>	0.00	39.99481000	-104.73461000
1600.00	2.00	168.700	1599.98	1.71S	0.34E	2.00	0.19	39.99480529	-104.73460883
1700.00	4.00	168.700	1699.84	6.84S	1.37E	2.00	0.77	39.99479118	-104.73460533
1800.00	6.00	168.700	1799.45	15.39S	3.08E	2.00	1.74	39.99476768	-104.73459950
1900.00	8.00	168.700	1898.70	27.34S	5.46E	2.00	3.09	39.99473482	-104.73459134
2000.00	10.00	168.700	1997.47	42.68S	8.53E	2.00	4.83	39.99469265	-104.73458088
2100.00	12.00	168.700	2095.62	61.39S	12.27E	2.00	6.95	39.99464120	-104.73456811
2200.00	14.00	168.700	2193.06	83.45S	16.68E	2.00	9.44	39.99458054	-104.73455306
2205.91	14.12	168.700	2198.79	84.86S	16.96E	2.00	9.60	39.99457667	-104.73455210
2300.00	14.12	168.700	2290.04	107.36S	21.45E	==>	12.15	39.99451479	-104.73453674
2400.00	14.12	168.700	2387.02	131.28S	26.23E	==>	14.86	39.99444902	-104.73452042
2500.00	14.12	168.700	2483.99	155.20S	31.01E	==>	17.57	39.99438324	-104.73450409
2600.00	14.12	168.700	2580.97	179.12S	35.79E	==>	20.27	39.99431747	-104.73448777
2700.00	14.12	168.700	2677.95	203.04S	40.57E	==>	22.98	39.99425170	-104.73447145
2800.00	14.12	168.700	2774.93	226.96S	45.35E	==>	25.69	39.99418593	-104.73445513
2900.00	14.12	168.700	2871.91	250.88S	50.13E	==>	28.40	39.99412016	-104.73443880

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig ( Planned Datum #1 5069.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 252.330 degrees  
Bottom hole distance is 4710.15 Feet on azimuth 252.33 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 29-Oct-2018

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)
3000.00	14.12	168.700	2968.89	274.80S	54.91E	==>	31.10	39.99405439	-104.73442248
3100.00	14.12	168.700	3065.87	298.72S	59.69E	==>	33.81	39.99398861	-104.73440616
3200.00	14.12	168.700	3162.85	322.64S	64.47E	==>	36.52	39.99392284	-104.73438984
3300.00	14.12	168.700	3259.83	346.55S	69.25E	==>	39.23	39.99385707	-104.73437352
3400.00	14.12	168.700	3356.81	370.47S	74.03E	==>	41.93	39.99379130	-104.73435719
3500.00	14.12	168.700	3453.79	394.39S	78.81E	==>	44.64	39.99372553	-104.73434087
3600.00	14.12	168.700	3550.77	418.31S	83.59E	==>	47.35	39.99365975	-104.73432455
3700.00	14.12	168.700	3647.75	442.23S	88.37E	==>	50.05	39.99359398	-104.73430823
3800.00	14.12	168.700	3744.73	466.15S	93.15E	==>	52.76	39.99352821	-104.73429190
3900.00	14.12	168.700	3841.71	490.07S	97.93E	==>	55.47	39.99346244	-104.73427558
4000.00	14.12	168.700	3938.69	513.99S	102.71E	==>	58.18	39.99339667	-104.73425926
4100.00	14.12	168.700	4035.67	537.91S	107.49E	==>	60.88	39.99333089	-104.73424294
4200.00	14.12	168.700	4132.65	561.83S	112.27E	==>	63.59	39.99326512	-104.73422662
4300.00	14.12	168.700	4229.62	585.75S	117.05E	==>	66.30	39.99319935	-104.73421030
4400.00	14.12	168.700	4326.60	609.67S	121.83E	==>	69.01	39.99313358	-104.73419397
4500.00	14.12	168.700	4423.58	633.59S	126.61E	==>	71.71	39.99306780	-104.73417765
4600.00	14.12	168.700	4520.56	657.51S	131.39E	==>	74.42	39.99300203	-104.73416133
4700.00	14.12	168.700	4617.54	681.43S	136.17E	==>	77.13	39.99293626	-104.73414501
4800.00	14.12	168.700	4714.52	705.35S	140.95E	==>	79.84	39.99287049	-104.73412869
4900.00	14.12	168.700	4811.50	729.27S	145.73E	==>	82.54	39.99280472	-104.73411237
5000.00	14.12	168.700	4908.48	753.19S	150.51E	==>	85.25	39.99273894	-104.73409604
5100.00	14.12	168.700	5005.46	777.11S	155.29E	==>	87.96	39.99267317	-104.73407972
5200.00	14.12	168.700	5102.44	801.02S	160.07E	==>	90.66	39.99260740	-104.73406340
5300.00	14.12	168.700	5199.42	824.94S	164.85E	==>	93.37	39.99254163	-104.73404708
5400.00	14.12	168.700	5296.40	848.86S	169.63E	==>	96.08	39.99247586	-104.73403076
5500.00	14.12	168.700	5393.38	872.78S	174.41E	==>	98.79	39.99241008	-104.73401444
5600.00	14.12	168.700	5490.36	896.70S	179.19E	==>	101.49	39.99234431	-104.73399811
5700.00	14.12	168.700	5587.34	920.62S	183.97E	==>	104.20	39.99227854	-104.73398179
5800.00	14.12	168.700	5684.32	944.54S	188.75E	==>	106.91	39.99221277	-104.73396547
5900.00	14.12	168.700	5781.30	968.46S	193.53E	==>	109.62	39.99214700	-104.73394915
6000.00	14.12	168.700	5878.28	992.38S	198.31E	==>	112.32	39.99208122	-104.73393283
6100.00	14.12	168.700	5975.25	1016.30S	203.09E	==>	115.03	39.99201545	-104.73391651
6200.00	14.12	168.700	6072.23	1040.22S	207.87E	==>	117.74	39.99194968	-104.73390019
6300.00	14.12	168.700	6169.21	1064.14S	212.65E	==>	120.45	39.99188391	-104.73388387
6400.00	14.12	168.700	6266.19	1088.06S	217.43E	==>	123.15	39.99181814	-104.73386754
6500.00	14.12	168.700	6363.17	1111.98S	222.21E	==>	125.86	39.99175236	-104.73385122
6600.00	14.12	168.700	6460.15	1135.90S	226.99E	==>	128.57	39.99168659	-104.73383490
6700.00	14.12	168.700	6557.13	1159.82S	231.77E	==>	131.27	39.99162082	-104.73381858
6800.00	14.12	168.700	6654.11	1183.74S	236.55E	==>	133.98	39.99155505	-104.73380226
6900.00	14.12	168.700	6751.09	1207.66S	241.33E	==>	136.69	39.99148928	-104.73378594
7000.00	14.12	168.700	6848.07	1231.58S	246.11E	==>	139.40	39.99142350	-104.73376962
7100.00	14.12	168.700	6945.05	1255.49S	250.89E	==>	142.10	39.99135773	-104.73375330
7122.10	14.12	168.700	6966.48	1260.78S	251.95E	==>	142.70	39.99134319	-104.73374969
7200.00	15.41	205.660	7041.97	1279.47S	249.32E	12.00	150.88	39.99129197	-104.73375964
7300.00	23.18	234.150	7136.48	1303.05S	227.54E	12.00	178.80	39.99122774	-104.73383812
7400.00	33.46	247.440	7224.48	1325.24S	185.97E	12.00	225.13	39.99116783	-104.73398713
7500.00	44.53	254.850	7302.13	1345.05S	126.45E	12.00	287.86	39.99111486	-104.73420016
7600.00	55.93	259.780	7366.02	1361.62S	51.57E	12.00	364.24	39.99107115	-104.73446789
7700.00	67.47	263.520	7413.36	1374.23S	35.39W	12.00	450.92	39.99103860	-104.73477863
7800.00	79.08	266.670	7442.10	1382.32S	130.64W	12.00	544.13	39.99101863	-104.73511880
7893.74	90.00	269.400	7451.00	1385.49S	223.75W	12.00	633.81	39.99101213	-104.73545119
7900.00	90.00	269.400	7451.00	1385.56S	230.01W	==>	639.80	39.99101210	-104.73547353
8000.00	90.00	269.400	7451.00	1386.60S	330.01W	==>	735.39	39.99101160	-104.73583042
8100.00	90.00	269.400	7451.00	1387.64S	430.00W	==>	830.98	39.99101111	-104.73618730
8200.00	90.00	269.400	7451.00	1388.69S	529.99W	==>	926.57	39.99101061	-104.73654419
8300.00	90.00	269.400	7451.00	1389.73S	629.99W	==>	1022.16	39.99101011	-104.73690108
8400.00	90.00	269.400	7451.00	1390.77S	729.98W	==>	1117.76	39.99100961	-104.73725796
8500.00	90.00	269.400	7451.00	1391.82S	829.98W	==>	1213.35	39.99100911	-104.73761485

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Vertical Section is from 0.00N 0.00E on azimuth 252.330 degrees  
Bottom hole distance is 4710.15 Feet on azimuth 252.33 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 29-Oct-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 7 (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)
8600.00	90.00	269.400	7451.00	1392.86S	929.97W	==>	1308.94	39.99100860	-104.73797174
8700.00	90.00	269.400	7451.00	1393.90S	1029.97W	==>	1404.53	39.99100810	-104.73832863
8800.00	90.00	269.400	7451.00	1394.94S	1129.96W	==>	1500.12	39.99100760	-104.73868551
8900.00	90.00	269.400	7451.00	1395.99S	1229.96W	==>	1595.71	39.99100709	-104.73904240
9000.00	90.00	269.400	7451.00	1397.03S	1329.95W	==>	1691.31	39.99100658	-104.73939929
9100.00	90.00	269.400	7451.00	1398.07S	1429.95W	==>	1786.90	39.99100607	-104.73975617
9200.00	90.00	269.400	7451.00	1399.11S	1529.94W	==>	1882.49	39.99100556	-104.74011306
9300.00	90.00	269.400	7451.00	1400.16S	1629.93W	==>	1978.08	39.99100505	-104.74046995
9400.00	90.00	269.400	7451.00	1401.20S	1729.93W	==>	2073.67	39.99100454	-104.74082683
9500.00	90.00	269.400	7451.00	1402.24S	1829.92W	==>	2169.26	39.99100403	-104.74118372
9600.00	90.00	269.400	7451.00	1403.28S	1929.92W	==>	2264.86	39.99100352	-104.74154061
9700.00	90.00	269.400	7451.00	1404.33S	2029.91W	==>	2360.45	39.99100300	-104.74189749
9800.00	90.00	269.400	7451.00	1405.37S	2129.91W	==>	2456.04	39.99100249	-104.74225438
9900.00	90.00	269.400	7451.00	1406.41S	2229.90W	==>	2551.63	39.99100197	-104.74261127
10000.00	90.00	269.400	7451.00	1407.46S	2329.90W	==>	2647.22	39.99100145	-104.74296815
10100.00	90.00	269.400	7451.00	1408.50S	2429.89W	==>	2742.81	39.99100093	-104.74332504
10200.00	90.00	269.400	7451.00	1409.54S	2529.89W	==>	2838.40	39.99100041	-104.74368193
10300.00	90.00	269.400	7451.00	1410.58S	2629.88W	==>	2934.00	39.99099989	-104.74403881
10400.00	90.00	269.400	7451.00	1411.63S	2729.88W	==>	3029.59	39.99099937	-104.74439570
10500.00	90.00	269.400	7451.00	1412.67S	2829.87W	==>	3125.18	39.99099884	-104.74475259
10600.00	90.00	269.400	7451.00	1413.71S	2929.86W	==>	3220.77	39.99099832	-104.74510947
10700.00	90.00	269.400	7451.00	1414.75S	3029.86W	==>	3316.36	39.99099779	-104.74546636
10800.00	90.00	269.400	7451.00	1415.80S	3129.85W	==>	3411.95	39.99099727	-104.74582325
10900.00	90.00	269.400	7451.00	1416.84S	3229.85W	==>	3507.55	39.99099674	-104.74618013
11000.00	90.00	269.400	7451.00	1417.88S	3329.84W	==>	3603.14	39.99099621	-104.74653702
11100.00	90.00	269.400	7451.00	1418.92S	3429.84W	==>	3698.73	39.99099568	-104.74689391
11200.00	90.00	269.400	7451.00	1419.97S	3529.83W	==>	3794.32	39.99099515	-104.74725079
11300.00	90.00	269.400	7451.00	1421.01S	3629.83W	==>	3889.91	39.99099461	-104.74760768
11400.00	90.00	269.400	7451.00	1422.05S	3729.82W	==>	3985.50	39.99099408	-104.74796457
11500.00	90.00	269.400	7451.00	1423.09S	3829.82W	==>	4081.10	39.99099355	-104.74832145
11600.00	90.00	269.400	7451.00	1424.14S	3929.81W	==>	4176.69	39.99099301	-104.74867834
11700.00	90.00	269.400	7451.00	1425.18S	4029.80W	==>	4272.28	39.99099247	-104.74903523
11800.00	90.00	269.400	7451.00	1426.22S	4129.80W	==>	4367.87	39.99099194	-104.74939211
11900.00	90.00	269.400	7451.00	1427.27S	4229.79W	==>	4463.46	39.99099140	-104.74974900
12000.00	90.00	269.400	7451.00	1428.31S	4329.79W	==>	4559.05	39.99099086	-104.75010589
12100.00	90.00	269.400	7451.00	1429.35S	4429.78W	==>	4654.65	39.99099031	-104.75046277
12158.06	90.00	269.400	7451.00	1429.96S	4487.84W	==>	4710.15	39.99099000	-104.75067000

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 5069.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 252.330 degrees  
Bottom hole distance is 4710.15 Feet on azimuth 252.33 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 29-Oct-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 7 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 7 BHL	1429.96S	4487.84W	7451.00	39.99099000	-104.75067000	1240451.81	3209952.73
BEF WEST 7 EP	1385.49S	133.75W	7451.00	39.99101000	-104.73513000	1240496.27	3214306.67

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
577598	Planned	2000.00	1997.47	WdW Rate Gyro	Standard	
577597	Planned	12158.06	7451.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes