

Petro Operating Company			
Location	Weld County, CO	Slot	BEF West 4
Field	Wattenberg	Well	W BEF West 4
Installation	Brighton East Farm Pad	Wellbore	W BEF West 4 (PWB)

Slot BEF West 4

Well W BEF West 4

Wellbore W BEF West 4 (PWB)

Created by	admin
Date plotted	29-Oct-2018
Plot reference is W BEF West 4 (PWB).	
Ref wellpath is W BEF West 4 (PWP#1).	
Coordinates are in Feet reference BEF West 4.	
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) ->

[illegible]

BEF WEST 4 EP

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

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	171.80	1500.00	S 0.00	W 0.00	0.00	-0.00
End of Build	2514.37	20.29	171.80	2493.31	S 175.90	E 25.36	2.00	49.97
End of Hold	7300.20	20.29	171.80	6982.25	S 1818.31	E 262.12	0.00	516.59
Target BEF WEST 4 EP	8071.98	90.00	269.35	7451.00	S 1995.46	W 212.88	12.00	1022.26
T.D. & Target BEF...BHL	12336.43	90.00	269.35	7451.00	S 2043.56	W 4477.06	0.00	4921.41

Oct-6-2017
ENM6-2015 [2000.0-2020.0] Dip: 66.39 deg Field: 52108.9 nT
Lat: N29 59 33.9000 Long: W104 44 4.8840 Elev: 5047.00 m
Magnetic North is 0.22 deg East of True North
GRID North is 0.49 deg East of True North
To correct azimuth from True to GRID subtract 0.49 deg
To correct azimuth from Magnetic to GRID add 7.72 deg

W BEF West 4 (PW)

1600 2000 2400 2800 3200
Vertical Section (Feet) ->

Azimuth 245.47 with reference 0.00 N, 0.00 E from BEF West 4



SYSDRILL
Well Design Combined Report
Wellbore: W BEF West 4 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 4	39.99467460	-104.73461000	1241832.3965	3214440.8383	701.27N	16.36E	2.00

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	171.800	1500.00	-3569.00	0.00N	0.00E	==>	0.00
2514.37	20.29	171.800	2493.31	-2575.69	175.90S	25.36E	2.00	49.97
7300.20	20.29	171.800	6982.25	1913.25	1818.31S	262.12E	==>	516.59
8071.98	90.00	269.350	7451.00	2382.00	1995.46S	212.88W	12.00	1022.26
12336.43	90.00	269.350	7451.00	2382.00	2043.56S	4477.06W	==>	4921.41

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	39.99467460	-104.73461000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1500.00	0.00	171.800	1500.00	0.00N	0.00E	==>	0.00	39.99467460	-104.73461000
1600.00	2.00	171.800	1599.98	1.73S	0.25E	2.00	0.49	39.99466985	-104.73460916
1700.00	4.00	171.800	1699.84	6.91S	1.00E	2.00	1.96	39.99465562	-104.73460666
1800.00	6.00	171.800	1799.45	15.53S	2.24E	2.00	4.41	39.99463191	-104.73460249
1900.00	8.00	171.800	1898.70	27.59S	3.98E	2.00	7.84	39.99459876	-104.73459665
2000.00	10.00	171.800	1997.47	43.08S	6.21E	2.00	12.24	39.99455621	-104.73458916
2100.00	12.00	171.800	2095.62	61.96S	8.93E	2.00	17.60	39.99450430	-104.73458003
2200.00	14.00	171.800	2193.06	84.23S	12.14E	2.00	23.93	39.99444311	-104.73456926
2300.00	16.00	171.800	2289.64	109.84S	15.83E	2.00	31.21	39.99437271	-104.73455687
2400.00	18.00	171.800	2385.27	138.78S	20.01E	2.00	39.43	39.99429318	-104.73454288
2500.00	20.00	171.800	2479.82	171.00S	24.65E	2.00	48.58	39.99420462	-104.73452729
2514.37	20.29	171.800	2493.31	175.90S	25.36E	2.00	49.97	39.99419116	-104.73452492
2600.00	20.29	171.800	2573.62	205.29S	29.59E	==>	58.32	39.99411039	-104.73451071
2700.00	20.29	171.800	2667.42	239.60S	34.54E	==>	68.07	39.99401607	-104.73449411
2800.00	20.29	171.800	2761.22	273.92S	39.49E	==>	77.82	39.99392175	-104.73447751
2900.00	20.29	171.800	2855.01	308.24S	44.43E	==>	87.57	39.99382743	-104.73446092

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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 245.470 degrees
Bottom hole distance is 4921.41 Feet on azimuth 245.47 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	20.29	171.800	2948.81	342.56S	49.38E	==>	97.32	39.99373311	-104.73444432
3100.00	20.29	171.800	3042.61	376.88S	54.33E	==>	107.07	39.99363879	-104.73442772
3200.00	20.29	171.800	3136.40	411.19S	59.27E	==>	116.82	39.99354447	-104.73441112
3300.00	20.29	171.800	3230.20	445.51S	64.22E	==>	126.57	39.99345015	-104.73439452
3400.00	20.29	171.800	3324.00	479.83S	69.17E	==>	136.32	39.99335583	-104.73437793
3500.00	20.29	171.800	3417.79	514.15S	74.12E	==>	146.07	39.99326151	-104.73436133
3600.00	20.29	171.800	3511.59	548.47S	79.06E	==>	155.82	39.99316719	-104.73434473
3700.00	20.29	171.800	3605.39	582.79S	84.01E	==>	165.57	39.99307287	-104.73432813
3800.00	20.29	171.800	3699.18	617.10S	88.96E	==>	175.32	39.99297855	-104.73431153
3900.00	20.29	171.800	3792.98	651.42S	93.90E	==>	185.07	39.99288423	-104.73429494
4000.00	20.29	171.800	3886.78	685.74S	98.85E	==>	194.82	39.99278991	-104.73427834
4100.00	20.29	171.800	3980.57	720.06S	103.80E	==>	204.57	39.99269559	-104.73426174
4200.00	20.29	171.800	4074.37	754.38S	108.75E	==>	214.32	39.99260126	-104.73424514
4300.00	20.29	171.800	4168.16	788.70S	113.69E	==>	224.07	39.99250694	-104.73422855
4400.00	20.29	171.800	4261.96	823.01S	118.64E	==>	233.82	39.99241262	-104.73421195
4500.00	20.29	171.800	4355.76	857.33S	123.59E	==>	243.57	39.99231830	-104.73419535
4600.00	20.29	171.800	4449.55	891.65S	128.53E	==>	253.32	39.99222398	-104.73417875
4700.00	20.29	171.800	4543.35	925.97S	133.48E	==>	263.07	39.99212966	-104.73416216
4800.00	20.29	171.800	4637.15	960.29S	138.43E	==>	272.82	39.99203534	-104.73414556
4900.00	20.29	171.800	4730.94	994.61S	143.38E	==>	282.57	39.99194102	-104.73412896
5000.00	20.29	171.800	4824.74	1028.92S	148.32E	==>	292.32	39.99184670	-104.73411236
5100.00	20.29	171.800	4918.54	1063.24S	153.27E	==>	302.07	39.99175238	-104.73409577
5200.00	20.29	171.800	5012.33	1097.56S	158.22E	==>	311.82	39.99165806	-104.73407917
5300.00	20.29	171.800	5106.13	1131.88S	163.16E	==>	321.57	39.99156374	-104.73406257
5400.00	20.29	171.800	5199.93	1166.20S	168.11E	==>	331.32	39.99146942	-104.73404598
5500.00	20.29	171.800	5293.72	1200.51S	173.06E	==>	341.07	39.99137510	-104.73402938
5600.00	20.29	171.800	5387.52	1234.83S	178.00E	==>	350.82	39.99128078	-104.73401278
5700.00	20.29	171.800	5481.32	1269.15S	182.95E	==>	360.57	39.99118646	-104.73399619
5800.00	20.29	171.800	5575.11	1303.47S	187.90E	==>	370.32	39.99109213	-104.73397959
5900.00	20.29	171.800	5668.91	1337.79S	192.85E	==>	380.07	39.99099781	-104.73396299
6000.00	20.29	171.800	5762.71	1372.11S	197.79E	==>	389.82	39.99090349	-104.73394639
6100.00	20.29	171.800	5856.50	1406.42S	202.74E	==>	399.57	39.99080917	-104.73392980
6200.00	20.29	171.800	5950.30	1440.74S	207.69E	==>	409.32	39.99071485	-104.73391320
6300.00	20.29	171.800	6044.09	1475.06S	212.63E	==>	419.07	39.99062053	-104.73389660
6400.00	20.29	171.800	6137.89	1509.38S	217.58E	==>	428.82	39.99052621	-104.73388001
6500.00	20.29	171.800	6231.69	1543.70S	222.53E	==>	438.57	39.99043189	-104.73386341
6600.00	20.29	171.800	6325.48	1578.02S	227.48E	==>	448.32	39.99033757	-104.73384681
6700.00	20.29	171.800	6419.28	1612.33S	232.42E	==>	458.07	39.99024325	-104.73383022
6800.00	20.29	171.800	6513.08	1646.65S	237.37E	==>	467.82	39.99014893	-104.73381362
6900.00	20.29	171.800	6606.87	1680.97S	242.32E	==>	477.57	39.99005461	-104.73379703
7000.00	20.29	171.800	6700.67	1715.29S	247.26E	==>	487.32	39.98996029	-104.73378043
7100.00	20.29	171.800	6794.47	1749.61S	252.21E	==>	497.07	39.98986597	-104.73376383
7200.00	20.29	171.800	6888.26	1783.93S	257.16E	==>	506.82	39.98977165	-104.73374724
7300.00	20.29	171.800	6982.06	1818.24S	262.11E	==>	516.57	39.98967733	-104.73373064
7300.20	20.29	171.800	6982.25	1818.31S	262.12E	==>	516.59	39.98967714	-104.73373061
7400.00	22.11	204.960	7075.62	1852.59S	256.64E	12.00	535.80	39.98958317	-104.73375121
7500.00	29.02	228.020	7165.99	1886.01S	230.57E	12.00	573.39	39.98949206	-104.73384527
7600.00	38.35	241.760	7249.23	1917.02S	185.04E	12.00	627.69	39.98940800	-104.73400872
7700.00	48.72	250.590	7321.69	1944.29S	122.03E	12.00	696.33	39.98933465	-104.73423439
7800.00	59.58	256.930	7380.21	1966.61S	44.31E	12.00	776.30	39.98927521	-104.73451244
7900.00	70.67	261.970	7422.23	1983.02S	44.73W	12.00	864.12	39.98923230	-104.73483071
8000.00	81.89	266.360	7445.92	1992.79S	141.21W	12.00	955.94	39.98920777	-104.73517530
8071.98	90.00	269.350	7451.00	1995.46S	212.88W	12.00	1022.26	39.98920213	-104.73543118
8100.00	90.00	269.350	7451.00	1995.77S	240.91W	==>	1047.88	39.98920193	-104.73553118
8200.00	90.00	269.350	7451.00	1996.90S	340.90W	==>	1139.31	39.98920120	-104.73588806
8300.00	90.00	269.350	7451.00	1998.03S	440.89W	==>	1230.75	39.98920046	-104.73624494
8400.00	90.00	269.350	7451.00	1999.16S	540.89W	==>	1322.18	39.98919973	-104.73660181
8500.00	90.00	269.350	7451.00	2000.29S	640.88W	==>	1413.61	39.98919900	-104.73695869

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Vertical Section is from 0.00N 0.00E on azimuth 245.470 degrees
Bottom hole distance is 4921.41 Feet on azimuth 245.47 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by IPT
Date Printed: 29-Oct-2018



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Well Design Combined Report
Wellbore: W BEF West 4 (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	269.350	7451.00	2001.41S	740.87W	==>	1505.05	39.98919826	-104.73731557
8700.00	90.00	269.350	7451.00	2002.54S	840.87W	==>	1596.48	39.98919752	-104.73767244
8800.00	90.00	269.350	7451.00	2003.67S	940.86W	==>	1687.92	39.98919679	-104.73802932
8900.00	90.00	269.350	7451.00	2004.80S	1040.85W	==>	1779.35	39.98919605	-104.73838620
9000.00	90.00	269.350	7451.00	2005.93S	1140.85W	==>	1870.78	39.98919531	-104.73874307
9100.00	90.00	269.350	7451.00	2007.05S	1240.84W	==>	1962.22	39.98919457	-104.73909995
9200.00	90.00	269.350	7451.00	2008.18S	1340.84W	==>	2053.65	39.98919383	-104.73945683
9300.00	90.00	269.350	7451.00	2009.31S	1440.83W	==>	2145.08	39.98919308	-104.73981370
9400.00	90.00	269.350	7451.00	2010.44S	1540.82W	==>	2236.52	39.98919234	-104.74017058
9500.00	90.00	269.350	7451.00	2011.57S	1640.82W	==>	2327.95	39.98919159	-104.74052746
9600.00	90.00	269.350	7451.00	2012.69S	1740.81W	==>	2419.39	39.98919085	-104.74088433
9700.00	90.00	269.350	7451.00	2013.82S	1840.80W	==>	2510.82	39.98919010	-104.74124121
9800.00	90.00	269.350	7451.00	2014.95S	1940.80W	==>	2602.25	39.98918935	-104.74159809
9900.00	90.00	269.350	7451.00	2016.08S	2040.79W	==>	2693.69	39.98918860	-104.74195496
10000.00	90.00	269.350	7451.00	2017.21S	2140.78W	==>	2785.12	39.98918785	-104.74231184
10100.00	90.00	269.350	7451.00	2018.33S	2240.78W	==>	2876.56	39.98918710	-104.74266872
10200.00	90.00	269.350	7451.00	2019.46S	2340.77W	==>	2967.99	39.98918635	-104.74302559
10300.00	90.00	269.350	7451.00	2020.59S	2440.77W	==>	3059.42	39.98918559	-104.74338247
10400.00	90.00	269.350	7451.00	2021.72S	2540.76W	==>	3150.86	39.98918484	-104.74373935
10500.00	90.00	269.350	7451.00	2022.85S	2640.75W	==>	3242.29	39.98918408	-104.74409622
10600.00	90.00	269.350	7451.00	2023.98S	2740.75W	==>	3333.72	39.98918333	-104.74445310
10700.00	90.00	269.350	7451.00	2025.10S	2840.74W	==>	3425.16	39.98918257	-104.74480997
10800.00	90.00	269.350	7451.00	2026.23S	2940.73W	==>	3516.59	39.98918181	-104.74516685
10900.00	90.00	269.350	7451.00	2027.36S	3040.73W	==>	3608.03	39.98918105	-104.74552373
11000.00	90.00	269.350	7451.00	2028.49S	3140.72W	==>	3699.46	39.98918029	-104.74588060
11100.00	90.00	269.350	7451.00	2029.62S	3240.71W	==>	3790.89	39.98917952	-104.74623748
11200.00	90.00	269.350	7451.00	2030.74S	3340.71W	==>	3882.33	39.98917876	-104.74659436
11300.00	90.00	269.350	7451.00	2031.87S	3440.70W	==>	3973.76	39.98917799	-104.74695123
11400.00	90.00	269.350	7451.00	2033.00S	3540.70W	==>	4065.20	39.98917723	-104.74730811
11500.00	90.00	269.350	7451.00	2034.13S	3640.69W	==>	4156.63	39.98917646	-104.74766499
11600.00	90.00	269.350	7451.00	2035.26S	3740.68W	==>	4248.06	39.98917569	-104.74802186
11700.00	90.00	269.350	7451.00	2036.38S	3840.68W	==>	4339.50	39.98917492	-104.74837874
11800.00	90.00	269.350	7451.00	2037.51S	3940.67W	==>	4430.93	39.98917415	-104.74873562
11900.00	90.00	269.350	7451.00	2038.64S	4040.66W	==>	4522.36	39.98917338	-104.74909249
12000.00	90.00	269.350	7451.00	2039.77S	4140.66W	==>	4613.80	39.98917261	-104.74944937
12100.00	90.00	269.350	7451.00	2040.90S	4240.65W	==>	4705.23	39.98917183	-104.74980625
12200.00	90.00	269.350	7451.00	2042.02S	4340.64W	==>	4796.67	39.98917106	-104.75016312
12300.00	90.00	269.350	7451.00	2043.15S	4440.64W	==>	4888.10	39.98917028	-104.75052000
12336.43	90.00	269.350	7451.00	2043.56S	4477.06W	==>	4921.41	39.98917000	-104.75065000

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 245.470 degrees
Bottom hole distance is 4921.41 Feet on azimuth 245.47 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 4 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 4 BHL	2043.56S	4477.06W	7451.00	39.98917000	-104.75065000	1239788.90	3209963.93
BEF WEST 4 EP	1995.46S	122.89W	7451.00	39.98920000	-104.73511000	1239837.01	3214317.96

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
577577	Planned	2000.00	1997.47	WdW Rate Gyro	Standard	
577576	Planned	12336.43	7451.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes