

Petro Operating Company			
Location	Weld County, CO	Slot	BEF West 8
Field	Wattenberg	Well	W BEF West 8
Installation	Brighton East Farm Pad	Wellbore	W BEF West 8 (PWB)

Slot BEF West 8

Well W BEF West 8

Wellbore W BEF West 8 (PWB)

Created by	admin
Date plotted	29-Oct-2018
Plot reference is W BEF West 8 (PWB). Ref wellpath is W BEF West 8 (PWP#1). Coordinates are in Feet reference BEF West 8. 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) ->

Surface 0.00 N 0.00 E

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

BEF WEST 8 BHL

BEF WEST 8 EP

W BEF West 8 (PWB)

<- True Vertical Depth (Feet)

Scale 1 cm = 200 ft

N
GRID

Oct-6-2017
 E886-2615 (2000-0-2020) Q Dip: 66.39 deg Field: 52108.9 nT
 Lat: N39 59 33.9000 Long: W104 44 8.8840 Elev: 5047.00 ft
 Magnetic North is 8.22 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

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 8 (PVA)

Scale 1 cm = 200 ft

Vertical Section (Feet) ->

Azimuth 254.09 with reference 0.00 N, 0.00 E from BEF West 8



SYSDRILL
Well Design Combined Report
Wellbore: W BEF West 8 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 8	39.99485000	-104.73461000	1241896.2877	3214440.2869	765.17N	15.81E	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	167.570	1500.00	-3569.00	0.00N	0.00E	==>	0.00
2106.60	12.13	167.570	2102.07	-2966.93	62.48S	13.78E	2.00	3.88
7281.81	12.13	167.570	7161.71	2092.71	1124.61S	247.97E	==>	69.87
8052.32	90.00	269.350	7649.00	2580.00	1232.52S	227.87W	12.00	557.06
12316.62	90.00	269.350	7649.00	2580.00	1280.63S	4491.91W	==>	4670.89

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	39.99485000	-104.73461000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1500.00	0.00	167.570	1500.00	0.00N	0.00E	==>	0.00	39.99485000	-104.73461000
1600.00	2.00	167.570	1599.98	1.70S	0.38E	2.00	0.11	39.99484531	-104.73460871
1700.00	4.00	167.570	1699.84	6.81S	1.50E	2.00	0.42	39.99483126	-104.73460485
1800.00	6.00	167.570	1799.45	15.33S	3.38E	2.00	0.95	39.99480785	-104.73459841
1900.00	8.00	167.570	1898.70	27.23S	6.00E	2.00	1.69	39.99477512	-104.73458941
2000.00	10.00	167.570	1997.47	42.50S	9.37E	2.00	2.64	39.99473311	-104.73457786
2100.00	12.00	167.570	2095.62	61.13S	13.48E	2.00	3.80	39.99468187	-104.73456378
2106.60	12.13	167.570	2102.07	62.48S	13.78E	2.00	3.88	39.99467817	-104.73456276
2200.00	12.13	167.570	2193.39	81.65S	18.00E	==>	5.07	39.99462544	-104.73454826
2300.00	12.13	167.570	2291.16	102.17S	22.53E	==>	6.35	39.99456900	-104.73453275
2400.00	12.13	167.570	2388.92	122.70S	27.05E	==>	7.62	39.99451256	-104.73451723
2500.00	12.13	167.570	2486.69	143.22S	31.58E	==>	8.90	39.99445611	-104.73450171
2600.00	12.13	167.570	2584.46	163.74S	36.10E	==>	10.17	39.99439967	-104.73448619
2700.00	12.13	167.570	2682.22	184.27S	40.63E	==>	11.45	39.99434323	-104.73447067
2800.00	12.13	167.570	2779.99	204.79S	45.15E	==>	12.72	39.99428678	-104.73445516
2900.00	12.13	167.570	2877.76	225.31S	49.68E	==>	14.00	39.99423034	-104.73443964

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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 254.090 degrees
Bottom hole distance is 4670.89 Feet on azimuth 254.09 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	12.13	167.570	2975.52	245.84S	54.20E	==>	15.27	39.99417390	-104.73442412
3100.00	12.13	167.570	3073.29	266.36S	58.73E	==>	16.55	39.99411745	-104.73440860
3200.00	12.13	167.570	3171.06	286.88S	63.26E	==>	17.82	39.99406101	-104.73439309
3300.00	12.13	167.570	3268.82	307.41S	67.78E	==>	19.10	39.99400456	-104.73437757
3400.00	12.13	167.570	3366.59	327.93S	72.31E	==>	20.37	39.99394812	-104.73436205
3500.00	12.13	167.570	3464.36	348.45S	76.83E	==>	21.65	39.99389168	-104.73434653
3600.00	12.13	167.570	3562.12	368.98S	81.36E	==>	22.92	39.99383523	-104.73433102
3700.00	12.13	167.570	3659.89	389.50S	85.88E	==>	24.20	39.99377879	-104.73431550
3800.00	12.13	167.570	3757.66	410.02S	90.41E	==>	25.47	39.99372235	-104.73429998
3900.00	12.13	167.570	3855.42	430.55S	94.93E	==>	26.75	39.99366590	-104.73428446
4000.00	12.13	167.570	3953.19	451.07S	99.46E	==>	28.03	39.99360946	-104.73426895
4100.00	12.13	167.570	4050.96	471.59S	103.98E	==>	29.30	39.99355302	-104.73425343
4200.00	12.13	167.570	4148.72	492.12S	108.51E	==>	30.58	39.99349657	-104.73423791
4300.00	12.13	167.570	4246.49	512.64S	113.03E	==>	31.85	39.99344013	-104.73422239
4400.00	12.13	167.570	4344.26	533.16S	117.56E	==>	33.13	39.99338368	-104.73420688
4500.00	12.13	167.570	4442.02	553.69S	122.08E	==>	34.40	39.99332724	-104.73419136
4600.00	12.13	167.570	4539.79	574.21S	126.61E	==>	35.68	39.99327080	-104.73417584
4700.00	12.13	167.570	4637.56	594.73S	131.13E	==>	36.95	39.99321435	-104.73416033
4800.00	12.13	167.570	4735.32	615.26S	135.66E	==>	38.23	39.99315791	-104.73414481
4900.00	12.13	167.570	4833.09	635.78S	140.18E	==>	39.50	39.99310147	-104.73412929
5000.00	12.13	167.570	4930.86	656.30S	144.71E	==>	40.78	39.99304502	-104.73411377
5100.00	12.13	167.570	5028.62	676.83S	149.23E	==>	42.05	39.99298858	-104.73409826
5200.00	12.13	167.570	5126.39	697.35S	153.76E	==>	43.33	39.99293214	-104.73408274
5300.00	12.13	167.570	5224.16	717.87S	158.28E	==>	44.60	39.99287569	-104.73406722
5400.00	12.13	167.570	5321.92	738.40S	162.81E	==>	45.88	39.99281925	-104.73405171
5500.00	12.13	167.570	5419.69	758.92S	167.33E	==>	47.15	39.99276280	-104.73403619
5600.00	12.13	167.570	5517.46	779.44S	171.86E	==>	48.43	39.99270636	-104.73402067
5700.00	12.13	167.570	5615.22	799.97S	176.39E	==>	49.70	39.99264992	-104.73400515
5800.00	12.13	167.570	5712.99	820.49S	180.91E	==>	50.98	39.99259347	-104.73398964
5900.00	12.13	167.570	5810.76	841.01S	185.44E	==>	52.25	39.99253703	-104.73397412
6000.00	12.13	167.570	5908.52	861.54S	189.96E	==>	53.53	39.99248059	-104.73395860
6100.00	12.13	167.570	6006.29	882.06S	194.49E	==>	54.80	39.99242414	-104.73394309
6200.00	12.13	167.570	6104.06	902.58S	199.01E	==>	56.08	39.99236770	-104.73392757
6300.00	12.13	167.570	6201.82	923.11S	203.54E	==>	57.35	39.99231125	-104.73391205
6400.00	12.13	167.570	6299.59	943.63S	208.06E	==>	58.63	39.99225481	-104.73389654
6500.00	12.13	167.570	6397.36	964.15S	212.59E	==>	59.90	39.99219837	-104.73388102
6600.00	12.13	167.570	6495.12	984.68S	217.11E	==>	61.18	39.99214192	-104.73386550
6700.00	12.13	167.570	6592.89	1005.20S	221.64E	==>	62.45	39.99208548	-104.73384999
6800.00	12.13	167.570	6690.66	1025.72S	226.16E	==>	63.73	39.99202904	-104.73383447
6900.00	12.13	167.570	6788.42	1046.25S	230.69E	==>	65.00	39.99197259	-104.73381895
7000.00	12.13	167.570	6886.19	1066.77S	235.21E	==>	66.28	39.99191615	-104.73380344
7100.00	12.13	167.570	6983.96	1087.29S	239.74E	==>	67.55	39.99185971	-104.73378792
7200.00	12.13	167.570	7081.72	1107.82S	244.26E	==>	68.83	39.99180326	-104.73377240
7281.81	12.13	167.570	7161.71	1124.61S	247.97E	==>	69.87	39.99175708	-104.73375971
7300.00	11.89	178.000	7179.50	1128.35S	248.44E	12.00	70.44	39.99174681	-104.73375812
7400.00	16.63	224.570	7276.69	1148.91S	238.72E	12.00	85.42	39.99169059	-104.73379345
7500.00	26.38	244.250	7369.73	1168.83S	208.56E	12.00	119.89	39.99163663	-104.73390170
7600.00	37.40	253.380	7454.56	1187.24S	159.28E	12.00	172.33	39.99158727	-104.73407815
7700.00	48.83	258.750	7527.47	1203.33S	93.02E	12.00	240.46	39.99154467	-104.73431509
7800.00	60.44	262.500	7585.26	1216.40S	12.70E	12.00	321.29	39.99151070	-104.73460215
7900.00	72.13	265.460	7625.43	1225.87S	78.19W	12.00	411.29	39.99148684	-104.73492681
8000.00	83.86	268.060	7646.20	1231.35S	175.67W	12.00	506.54	39.99147413	-104.73527485
8052.32	90.00	269.350	7649.00	1232.52S	227.87W	12.00	557.06	39.99147213	-104.73546119
8100.00	90.00	269.350	7649.00	1233.06S	275.55W	==>	603.06	39.99147178	-104.73563136
8200.00	90.00	269.350	7649.00	1234.19S	375.54W	==>	699.53	39.99147105	-104.73598825
8300.00	90.00	269.350	7649.00	1235.32S	475.54W	==>	796.01	39.99147032	-104.73634514
8400.00	90.00	269.350	7649.00	1236.45S	575.53W	==>	892.48	39.99146959	-104.73670203
8500.00	90.00	269.350	7649.00	1237.57S	675.53W	==>	988.95	39.99146885	-104.73705892

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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 254.090 degrees
Bottom hole distance is 4670.89 Feet on azimuth 254.09 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 8 (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	7649.00	1238.70S	775.52W	==>	1085.42	39.99146812	-104.73741580
8700.00	90.00	269.350	7649.00	1239.83S	875.51W	==>	1181.89	39.99146738	-104.73777269
8800.00	90.00	269.350	7649.00	1240.96S	975.51W	==>	1278.36	39.99146664	-104.73812958
8900.00	90.00	269.350	7649.00	1242.09S	1075.50W	==>	1374.83	39.99146590	-104.73848647
9000.00	90.00	269.350	7649.00	1243.21S	1175.49W	==>	1471.30	39.99146516	-104.73884336
9100.00	90.00	269.350	7649.00	1244.34S	1275.49W	==>	1567.78	39.99146442	-104.73920025
9200.00	90.00	269.350	7649.00	1245.47S	1375.48W	==>	1664.25	39.99146368	-104.73955714
9300.00	90.00	269.350	7649.00	1246.60S	1475.47W	==>	1760.72	39.99146294	-104.73991402
9400.00	90.00	269.350	7649.00	1247.73S	1575.47W	==>	1857.19	39.99146219	-104.74027091
9500.00	90.00	269.350	7649.00	1248.85S	1675.46W	==>	1953.66	39.99146145	-104.74062780
9600.00	90.00	269.350	7649.00	1249.98S	1775.46W	==>	2050.13	39.99146070	-104.74098469
9700.00	90.00	269.350	7649.00	1251.11S	1875.45W	==>	2146.60	39.99145995	-104.74134158
9800.00	90.00	269.350	7649.00	1252.24S	1975.44W	==>	2243.07	39.99145921	-104.74169847
9900.00	90.00	269.350	7649.00	1253.37S	2075.44W	==>	2339.55	39.99145846	-104.74205536
10000.00	90.00	269.350	7649.00	1254.49S	2175.43W	==>	2436.02	39.99145770	-104.74241224
10100.00	90.00	269.350	7649.00	1255.62S	2275.42W	==>	2532.49	39.99145695	-104.74276913
10200.00	90.00	269.350	7649.00	1256.75S	2375.42W	==>	2628.96	39.99145620	-104.74312602
10300.00	90.00	269.350	7649.00	1257.88S	2475.41W	==>	2725.43	39.99145545	-104.74348291
10400.00	90.00	269.350	7649.00	1259.01S	2575.40W	==>	2821.90	39.99145469	-104.74383980
10500.00	90.00	269.350	7649.00	1260.14S	2675.40W	==>	2918.37	39.99145393	-104.74419669
10600.00	90.00	269.350	7649.00	1261.26S	2775.39W	==>	3014.84	39.99145318	-104.74455357
10700.00	90.00	269.350	7649.00	1262.39S	2875.39W	==>	3111.32	39.99145242	-104.74491046
10800.00	90.00	269.350	7649.00	1263.52S	2975.38W	==>	3207.79	39.99145166	-104.74526735
10900.00	90.00	269.350	7649.00	1264.65S	3075.37W	==>	3304.26	39.99145090	-104.74562424
11000.00	90.00	269.350	7649.00	1265.78S	3175.37W	==>	3400.73	39.99145013	-104.74598113
11100.00	90.00	269.350	7649.00	1266.90S	3275.36W	==>	3497.20	39.99144937	-104.74633802
11200.00	90.00	269.350	7649.00	1268.03S	3375.35W	==>	3593.67	39.99144861	-104.74669490
11300.00	90.00	269.350	7649.00	1269.16S	3475.35W	==>	3690.14	39.99144784	-104.74705179
11400.00	90.00	269.350	7649.00	1270.29S	3575.34W	==>	3786.61	39.99144708	-104.74740868
11500.00	90.00	269.350	7649.00	1271.42S	3675.33W	==>	3883.09	39.99144631	-104.74776557
11600.00	90.00	269.350	7649.00	1272.54S	3775.33W	==>	3979.56	39.99144554	-104.74812246
11700.00	90.00	269.350	7649.00	1273.67S	3875.32W	==>	4076.03	39.99144477	-104.74847935
11800.00	90.00	269.350	7649.00	1274.80S	3975.32W	==>	4172.50	39.99144400	-104.74883623
11900.00	90.00	269.350	7649.00	1275.93S	4075.31W	==>	4268.97	39.99144323	-104.74919312
12000.00	90.00	269.350	7649.00	1277.06S	4175.30W	==>	4365.44	39.99144245	-104.74955001
12100.00	90.00	269.350	7649.00	1278.18S	4275.30W	==>	4461.91	39.99144168	-104.74990690
12200.00	90.00	269.350	7649.00	1279.31S	4375.29W	==>	4558.38	39.99144091	-104.75026379
12300.00	90.00	269.350	7649.00	1280.44S	4475.28W	==>	4654.86	39.99144013	-104.75062068
12316.62	90.00	269.350	7649.00	1280.63S	4491.91W	==>	4670.89	39.99144000	-104.75068000

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 254.090 degrees
Bottom hole distance is 4670.89 Feet on azimuth 254.09 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by IPT
Date Printed: 29-Oct-2018



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 8 BHL	1280.63S	4491.91W	7649.00	39.99144000	-104.75068000	1240615.71	3209948.54
BEF WEST 8 EP	1232.52S	137.87W	7649.00	39.99147000	-104.73514000	1240663.81	3214302.42

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
577605	Planned	2000.00	1997.47	WdW Rate Gyro	Standard	
577604	Planned	12316.62	7649.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes