

Petro Operating Company			
Location	Weld County, CO	Slot	BEF West 3
Field	Wattenberg	Well	W BEF West 3
Installation	Brighton East Farm Pad	Wellbore	W BEF West 3 (PWB)

Slot BEF West 3

Well W BEF West 3

Wellbore W BEF West 3 (PWB)

Created by	admin
Date plotted	29-Oct-2018
Plot reference is W BEF West 3 (PWB).	
Ref wellpath is W BEF West 3 (PWP#1).	
Coordinates are in Feet reference BEF West 3.	
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) ->

The diagram shows two wells, BEF WEST 3 BHL and BEF WEST 3 EP, connected by a horizontal line. BEF WEST 3 BHL is on the left, and BEF WEST 3 EP is on the right. A box labeled 'W BEF West 3 (PWB)' is connected to BEF WEST 3 BHL. A vertical line extends upwards from BEF WEST 3 EP, ending in a circle with a crosshair. Text labels include 'Surface 0.00 N 0.00 E' near the top of the vertical line, and 'D, 1500.00 TVD, -0.00 VS' and '2638.55 TVD, 82.54 VS' further up the vertical line. A horizontal line extends to the left from BEF WEST 3 EP, ending in a circle with a crosshair. Text labels include 'Surface 0.00 N 0.00 E' near the top of this horizontal line, and 'D, 1500.00 TVD, -0.00 VS' and '2638.55 TVD, 82.54 VS' further up the horizontal line.

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

BEF WEST 3 EF

W BEF West 3 (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	172.69	1500.00	S 0.00	W 0.00	0.00	-0.00
End of Build	2670.88	23.42	172.69	2638.55	S 234.04	E 30.04	2.00	82.54
End of Hold	7415.26	23.42	172.69	6992.15	S 2104.26	E 270.11	0.00	742.11
Target BEF WEST 3 EP	8187.31	90.00	269.35	7451.00	S 2307.01	W 204.59	12.00	1256.59
T.D. & Target BEF...BHL	12451.81	90.00	269.35	7451.00	S 2355.12	W 4468.83	0.00	5051.44

BEF WEST 3 BHL

N
GRID

Oct-6-2017
 EMM-2015 [2000.0-2020.0] Dip: 66.39 deg Field: 52108.9 nT
 Lat: N39 59 33.9000 Long: W104 44 4.8840 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

-400 -0 400 800 1200 1600 2000 2400 2800 3200 3600 4000 4400 4800 5200 5600

Vertical Section (Feet) ->

Azimuth 242.21 with reference 0.00 N, 0.00 E from BEF West 3



SYSDRILL
Well Design Combined Report
Wellbore: W BEF West 3 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 3	39.99463000	-104.73461000	1241816.1505	3214440.9786	685.03N	16.50E	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	172.690	1500.00	-3569.00	0.00N	0.00E	==>	0.00
2670.88	23.42	172.690	2638.55	-2430.45	234.04S	30.04E	2.00	82.54
7415.26	23.42	172.690	6992.15	1923.15	2104.26S	270.11E	==>	742.11
8187.31	90.00	269.350	7451.00	2382.00	2307.01S	204.59W	12.00	1256.59
12451.81	90.00	269.350	7451.00	2382.00	2355.12S	4468.83W	==>	5051.44

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	39.99463000	-104.73461000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1500.00	0.00	172.690	1500.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73461000
1600.00	2.00	172.690	1599.98	1.73S	0.22E	2.00	0.61	39.99462524	-104.73460926
1700.00	4.00	172.690	1699.84	6.92S	0.89E	2.00	2.44	39.99461098	-104.73460704
1800.00	6.00	172.690	1799.45	15.57S	2.00E	2.00	5.49	39.99458722	-104.73460335
1900.00	8.00	172.690	1898.70	27.65S	3.55E	2.00	9.75	39.99455401	-104.73459818
2000.00	10.00	172.690	1997.47	43.17S	5.54E	2.00	15.22	39.99451137	-104.73459155
2100.00	12.00	172.690	2095.62	62.09S	7.97E	2.00	21.90	39.99445937	-104.73458347
2200.00	14.00	172.690	2193.06	84.40S	10.83E	2.00	29.77	39.99439806	-104.73457393
2300.00	16.00	172.690	2289.64	110.07S	14.13E	2.00	38.82	39.99432751	-104.73456296
2400.00	18.00	172.690	2385.27	139.07S	17.85E	2.00	49.05	39.99424783	-104.73455057
2500.00	20.00	172.690	2479.82	171.36S	22.00E	2.00	60.43	39.99415909	-104.73453678
2600.00	22.00	172.690	2573.17	206.91S	26.56E	2.00	72.97	39.99406142	-104.73452159
2670.88	23.42	172.690	2638.55	234.04S	30.04E	2.00	82.54	39.99398684	-104.73450999
2700.00	23.42	172.690	2665.27	245.52S	31.52E	==>	86.59	39.99395529	-104.73450509
2800.00	23.42	172.690	2757.04	284.94S	36.58E	==>	100.49	39.99384697	-104.73448824
2900.00	23.42	172.690	2848.80	324.36S	41.64E	==>	114.39	39.99373864	-104.73447140

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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 242.210 degrees
Bottom hole distance is 5051.44 Feet on azimuth 242.21 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	23.42	172.690	2940.56	363.78S	46.70E	==>	128.30	39.99363031	-104.73445456
3100.00	23.42	172.690	3032.33	403.20S	51.76E	==>	142.20	39.99352199	-104.73443771
3200.00	23.42	172.690	3124.09	442.62S	56.82E	==>	156.10	39.99341366	-104.73442087
3300.00	23.42	172.690	3215.85	482.04S	61.88E	==>	170.00	39.99330534	-104.73440402
3400.00	23.42	172.690	3307.62	521.46S	66.94E	==>	183.90	39.99319701	-104.73438718
3500.00	23.42	172.690	3399.38	560.88S	72.00E	==>	197.81	39.99308868	-104.73437034
3600.00	23.42	172.690	3491.14	600.30S	77.06E	==>	211.71	39.99298036	-104.73435349
3700.00	23.42	172.690	3582.91	639.72S	82.12E	==>	225.61	39.99287203	-104.73433665
3800.00	23.42	172.690	3674.67	679.14S	87.18E	==>	239.51	39.99276371	-104.73431981
3900.00	23.42	172.690	3766.43	718.56S	92.24E	==>	253.41	39.99265538	-104.73430296
4000.00	23.42	172.690	3858.20	757.98S	97.30E	==>	267.32	39.99254705	-104.73428612
4100.00	23.42	172.690	3949.96	797.40S	102.36E	==>	281.22	39.99243873	-104.73426928
4200.00	23.42	172.690	4041.72	836.82S	107.42E	==>	295.12	39.99233040	-104.73425243
4300.00	23.42	172.690	4133.49	876.24S	112.48E	==>	309.02	39.99222208	-104.73423559
4400.00	23.42	172.690	4225.25	915.66S	117.54E	==>	322.92	39.99211375	-104.73421875
4500.00	23.42	172.690	4317.01	955.07S	122.59E	==>	336.83	39.99200542	-104.73420190
4600.00	23.42	172.690	4408.78	994.49S	127.65E	==>	350.73	39.99189710	-104.73418506
4700.00	23.42	172.690	4500.54	1033.91S	132.71E	==>	364.63	39.99178877	-104.73416822
4800.00	23.42	172.690	4592.30	1073.33S	137.77E	==>	378.53	39.99168045	-104.73415138
4900.00	23.42	172.690	4684.07	1112.75S	142.83E	==>	392.43	39.99157212	-104.73413453
5000.00	23.42	172.690	4775.83	1152.17S	147.89E	==>	406.34	39.99146379	-104.73411769
5100.00	23.42	172.690	4867.59	1191.59S	152.95E	==>	420.24	39.99135547	-104.73410085
5200.00	23.42	172.690	4959.36	1231.01S	158.01E	==>	434.14	39.99124714	-104.73408400
5300.00	23.42	172.690	5051.12	1270.43S	163.07E	==>	448.04	39.99113881	-104.73406716
5400.00	23.42	172.690	5142.88	1309.85S	168.13E	==>	461.94	39.99103049	-104.73405032
5500.00	23.42	172.690	5234.65	1349.27S	173.19E	==>	475.85	39.99092216	-104.73403348
5600.00	23.42	172.690	5326.41	1388.69S	178.25E	==>	489.75	39.99081384	-104.73401663
5700.00	23.42	172.690	5418.17	1428.11S	183.31E	==>	503.65	39.99070551	-104.73399979
5800.00	23.42	172.690	5509.94	1467.53S	188.37E	==>	517.55	39.99059718	-104.73398295
5900.00	23.42	172.690	5601.70	1506.95S	193.43E	==>	531.46	39.99048886	-104.73396611
6000.00	23.42	172.690	5693.46	1546.37S	198.49E	==>	545.36	39.99038053	-104.73394927
6100.00	23.42	172.690	5785.23	1585.79S	203.55E	==>	559.26	39.99027221	-104.73393242
6200.00	23.42	172.690	5876.99	1625.21S	208.61E	==>	573.16	39.99016388	-104.73391558
6300.00	23.42	172.690	5968.75	1664.63S	213.67E	==>	587.06	39.99005555	-104.73389874
6400.00	23.42	172.690	6060.52	1704.05S	218.73E	==>	600.97	39.98994723	-104.73388190
6500.00	23.42	172.690	6152.28	1743.46S	223.79E	==>	614.87	39.98983890	-104.73386506
6600.00	23.42	172.690	6244.04	1782.88S	228.85E	==>	628.77	39.98973058	-104.73384821
6700.00	23.42	172.690	6335.81	1822.30S	233.91E	==>	642.67	39.98962225	-104.73383137
6800.00	23.42	172.690	6427.57	1861.72S	238.97E	==>	656.57	39.98951392	-104.73381453
6900.00	23.42	172.690	6519.33	1901.14S	244.03E	==>	670.48	39.98940560	-104.73379769
7000.00	23.42	172.690	6611.10	1940.56S	249.09E	==>	684.38	39.98929727	-104.73378085
7100.00	23.42	172.690	6702.86	1979.98S	254.15E	==>	698.28	39.98918894	-104.73376401
7200.00	23.42	172.690	6794.62	2019.40S	259.21E	==>	712.18	39.98908062	-104.73374716
7300.00	23.42	172.690	6886.39	2058.82S	264.27E	==>	726.08	39.98897229	-104.73373032
7400.00	23.42	172.690	6978.15	2098.24S	269.33E	==>	739.99	39.98886397	-104.73371348
7415.26	23.42	172.690	6992.15	2104.26S	270.11E	==>	742.11	39.98884743	-104.73371091
7500.00	24.40	197.830	7069.82	2137.71S	266.88E	12.00	760.56	39.98875569	-104.73372345
7600.00	30.03	221.260	7158.97	2176.32S	243.97E	12.00	798.82	39.98865025	-104.73380639
7700.00	38.46	236.560	7241.72	2212.39S	201.37E	12.00	853.33	39.98855222	-104.73395954
7800.00	48.23	246.760	7314.44	2244.36S	140.93E	12.00	921.71	39.98846591	-104.73417621
7900.00	58.67	254.170	7373.96	2270.82S	65.29E	12.00	1000.95	39.98839507	-104.73444694
8000.00	69.44	260.070	7417.68	2290.62S	22.23W	12.00	1087.61	39.98834281	-104.73475988
8100.00	80.38	265.170	7443.69	2302.88S	117.81W	12.00	1177.89	39.98831140	-104.73510137
8187.31	90.00	269.350	7451.00	2307.01S	204.59W	12.00	1256.59	39.98830213	-104.73541117
8200.00	90.00	269.350	7451.00	2307.15S	217.29W	==>	1267.88	39.98830204	-104.73545648
8300.00	90.00	269.350	7451.00	2308.28S	317.28W	==>	1356.87	39.98830131	-104.73581335
8400.00	90.00	269.350	7451.00	2309.41S	417.27W	==>	1445.86	39.98830058	-104.73617022
8500.00	90.00	269.350	7451.00	2310.54S	517.27W	==>	1534.84	39.98829984	-104.73652709

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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	2311.66S	617.26W	==>	1623.83	39.98829911	-104.73688397
8700.00	90.00	269.350	7451.00	2312.79S	717.26W	==>	1712.82	39.98829837	-104.73724084
8800.00	90.00	269.350	7451.00	2313.92S	817.25W	==>	1801.80	39.98829764	-104.73759771
8900.00	90.00	269.350	7451.00	2315.05S	917.24W	==>	1890.79	39.98829690	-104.73795458
9000.00	90.00	269.350	7451.00	2316.18S	1017.24W	==>	1979.78	39.98829616	-104.73831145
9100.00	90.00	269.350	7451.00	2317.30S	1117.23W	==>	2068.76	39.98829542	-104.73866833
9200.00	90.00	269.350	7451.00	2318.43S	1217.22W	==>	2157.75	39.98829468	-104.73902520
9300.00	90.00	269.350	7451.00	2319.56S	1317.22W	==>	2246.74	39.98829394	-104.73938207
9400.00	90.00	269.350	7451.00	2320.69S	1417.21W	==>	2335.72	39.98829320	-104.73973894
9500.00	90.00	269.350	7451.00	2321.82S	1517.20W	==>	2424.71	39.98829245	-104.74009581
9600.00	90.00	269.350	7451.00	2322.94S	1617.20W	==>	2513.70	39.98829171	-104.74045269
9700.00	90.00	269.350	7451.00	2324.07S	1717.19W	==>	2602.68	39.98829096	-104.74080956
9800.00	90.00	269.350	7451.00	2325.20S	1817.19W	==>	2691.67	39.98829022	-104.74116643
9900.00	90.00	269.350	7451.00	2326.33S	1917.18W	==>	2780.66	39.98828947	-104.74152330
10000.00	90.00	269.350	7451.00	2327.46S	2017.17W	==>	2869.65	39.98828872	-104.74188017
10100.00	90.00	269.350	7451.00	2328.58S	2117.17W	==>	2958.63	39.98828797	-104.74223704
10200.00	90.00	269.350	7451.00	2329.71S	2217.16W	==>	3047.62	39.98828722	-104.74259392
10300.00	90.00	269.350	7451.00	2330.84S	2317.15W	==>	3136.61	39.98828646	-104.74295079
10400.00	90.00	269.350	7451.00	2331.97S	2417.15W	==>	3225.59	39.98828571	-104.74330766
10500.00	90.00	269.350	7451.00	2333.10S	2517.14W	==>	3314.58	39.98828496	-104.74366453
10600.00	90.00	269.350	7451.00	2334.23S	2617.13W	==>	3403.57	39.98828420	-104.74402140
10700.00	90.00	269.350	7451.00	2335.35S	2717.13W	==>	3492.55	39.98828344	-104.74437828
10800.00	90.00	269.350	7451.00	2336.48S	2817.12W	==>	3581.54	39.98828268	-104.74473515
10900.00	90.00	269.350	7451.00	2337.61S	2917.12W	==>	3670.53	39.98828192	-104.74509202
11000.00	90.00	269.350	7451.00	2338.74S	3017.11W	==>	3759.51	39.98828116	-104.74544889
11100.00	90.00	269.350	7451.00	2339.87S	3117.10W	==>	3848.50	39.98828040	-104.74580576
11200.00	90.00	269.350	7451.00	2340.99S	3217.10W	==>	3937.49	39.98827964	-104.74616263
11300.00	90.00	269.350	7451.00	2342.12S	3317.09W	==>	4026.47	39.98827888	-104.74651951
11400.00	90.00	269.350	7451.00	2343.25S	3417.08W	==>	4115.46	39.98827811	-104.74687638
11500.00	90.00	269.350	7451.00	2344.38S	3517.08W	==>	4204.45	39.98827735	-104.74723325
11600.00	90.00	269.350	7451.00	2345.51S	3617.07W	==>	4293.43	39.98827658	-104.74759012
11700.00	90.00	269.350	7451.00	2346.63S	3717.06W	==>	4382.42	39.98827581	-104.74794699
11800.00	90.00	269.350	7451.00	2347.76S	3817.06W	==>	4471.41	39.98827504	-104.74830387
11900.00	90.00	269.350	7451.00	2348.89S	3917.05W	==>	4560.40	39.98827427	-104.74866074
12000.00	90.00	269.350	7451.00	2350.02S	4017.05W	==>	4649.38	39.98827350	-104.74901761
12100.00	90.00	269.350	7451.00	2351.15S	4117.04W	==>	4738.37	39.98827273	-104.74937448
12200.00	90.00	269.350	7451.00	2352.27S	4217.03W	==>	4827.36	39.98827195	-104.74973135
12300.00	90.00	269.350	7451.00	2353.40S	4317.03W	==>	4916.34	39.98827118	-104.75008822
12400.00	90.00	269.350	7451.00	2354.53S	4417.02W	==>	5005.33	39.98827040	-104.75044510
12451.81	90.00	269.350	7451.00	2355.12S	4468.83W	==>	5051.44	39.98827000	-104.75063000



SYSDRILL
Well Design Combined Report
Wellbore: W BEF West 3 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 3 BHL	2355.12S	4468.83W	7451.00	39.98827000	-104.75063000	1239461.12	3209972.31
BEF WEST 3 EP	2307.01S	114.59W	7451.00	39.98830000	-104.73509000	1239509.22	3214326.39

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
577570	Planned	2000.00	1997.47	WdW Rate Gyro	Standard	
577569	Planned	12451.81	7451.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes