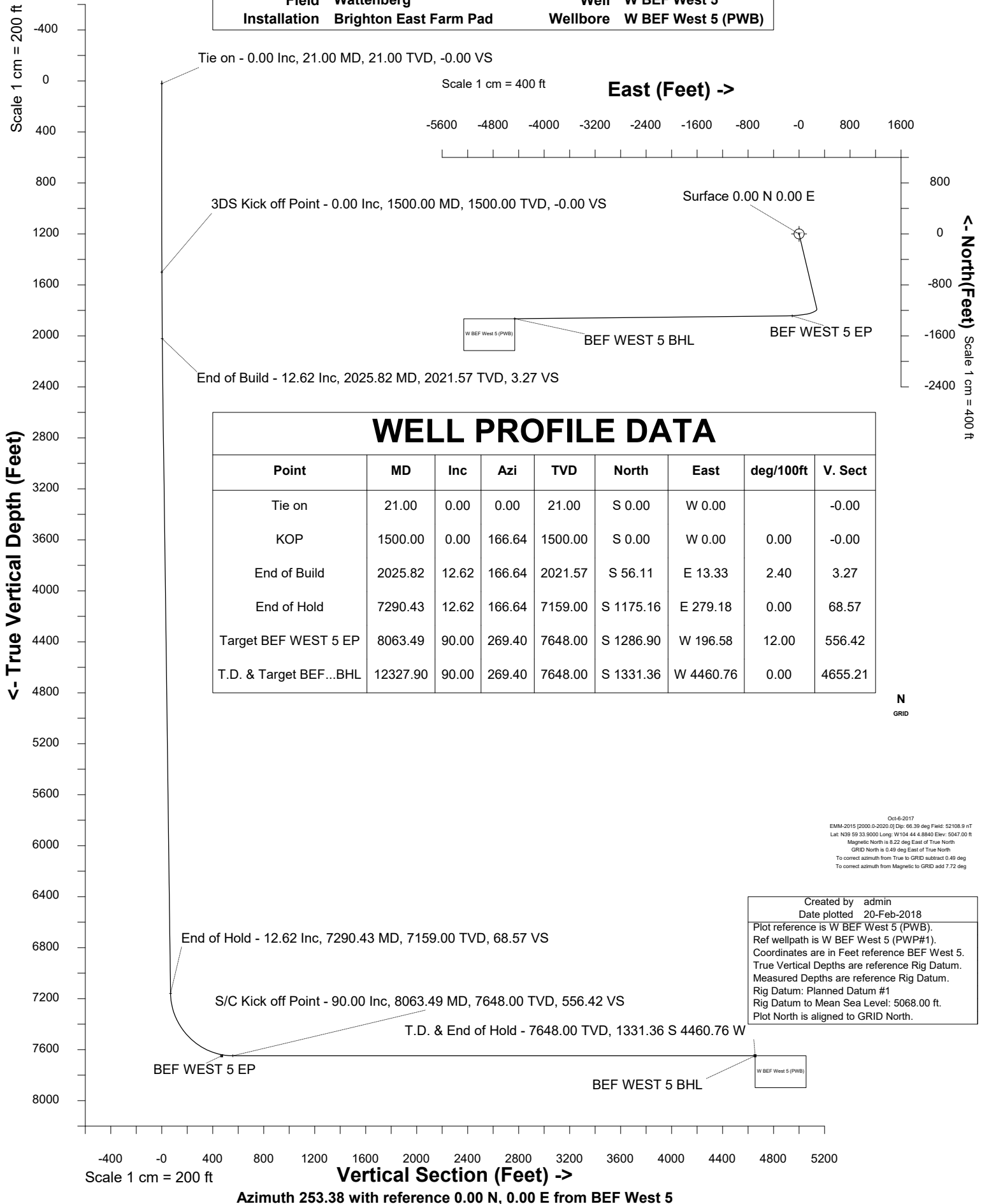


# Petro Operating Company

Location Weld County, CO Slot BEF West 5  
Field Wattenberg Well W BEF West 5  
Installation Brighton East Farm Pad Wellbore W BEF West 5 (PWB)





SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 5 (PWB)



Wellhead Details							
Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 5	39.99318000	-104.73469000	1241287.7799	3214423.1239	156.64N	1.35W	0.00

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	-5047.00	0.00N	0.00E		0.00
1500.00	0.00	166.640	1500.00	-3568.00	0.00N	0.00E	==>	0.00
2025.82	12.62	166.640	2021.57	-3046.43	56.11S	13.33E	2.40	3.27
7290.43	12.62	166.640	7159.00	2091.00	1175.16S	279.18E	==>	68.57
8063.49	90.00	269.400	7648.00	2580.00	1286.90S	196.58W	12.00	556.42
12327.90	90.00	269.400	7648.00	2580.00	1331.36S	4460.76W	==>	4655.21

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	39.99318000	-104.73469000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1500.00	0.00	166.640	1500.00	0.00N	0.00E	==>	0.00	39.99318000	-104.73469000
1600.00	2.40	166.640	1599.97	2.04S	0.48E	2.40	0.12	39.99317440	-104.73468834
1700.00	4.80	166.640	1699.77	8.15S	1.94E	2.40	0.48	39.99315759	-104.73468334
1800.00	7.20	166.640	1799.21	18.32S	4.35E	2.40	1.07	39.99312962	-104.73467504
1900.00	9.60	166.640	1898.13	32.53S	7.73E	2.40	1.90	39.99309053	-104.73466342
2000.00	12.00	166.640	1996.35	50.76S	12.06E	2.40	2.96	39.99304039	-104.73464853
2100.00	12.62	166.640	2093.97	71.88S	17.08E	==>	4.19	39.99298229	-104.73463127
2200.00	12.62	166.640	2191.55	93.14S	22.13E	==>	5.43	39.99292382	-104.73461390
2300.00	12.62	166.640	2289.14	114.39S	27.18E	==>	6.67	39.99286535	-104.73459654
2400.00	12.62	166.640	2386.72	135.65S	32.23E	==>	7.91	39.99280688	-104.73457917
2500.00	12.62	166.640	2484.30	156.90S	37.28E	==>	9.15	39.99274842	-104.73456180
2600.00	12.62	166.640	2581.89	178.16S	42.33E	==>	10.39	39.99268995	-104.73454443
2700.00	12.62	166.640	2679.47	199.42S	47.38E	==>	11.63	39.99263148	-104.73452707
2800.00	12.62	166.640	2777.06	220.67S	52.43E	==>	12.88	39.99257302	-104.73450970
2900.00	12.62	166.640	2874.64	241.93S	57.48E	==>	14.12	39.99251455	-104.73449233
3000.00	12.62	166.640	2972.22	263.18S	62.53E	==>	15.36	39.99245608	-104.73447497
3100.00	12.62	166.640	3069.81	284.44S	67.57E	==>	16.60	39.99239761	-104.73445760
3200.00	12.62	166.640	3167.39	305.70S	72.62E	==>	17.84	39.99233915	-104.73444023

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Vertical Section is from 0.00N 0.00E on azimuth 253.380 degrees  
Bottom hole distance is 4655.21 Feet on azimuth 253.38 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 20-Feb-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)
3300.00	12.62	166.640	3264.98	326.95S	77.67E	==>	19.08	39.99228068	-104.73442286
3400.00	12.62	166.640	3362.56	348.21S	82.72E	==>	20.32	39.99222221	-104.73440550
3500.00	12.62	166.640	3460.15	369.46S	87.77E	==>	21.56	39.99216374	-104.73438813
3600.00	12.62	166.640	3557.73	390.72S	92.82E	==>	22.80	39.99210528	-104.73437076
3700.00	12.62	166.640	3655.31	411.98S	97.87E	==>	24.04	39.99204681	-104.73435340
3800.00	12.62	166.640	3752.90	433.23S	102.92E	==>	25.28	39.99198834	-104.73433603
3900.00	12.62	166.640	3850.48	454.49S	107.97E	==>	26.52	39.99192988	-104.73431866
4000.00	12.62	166.640	3948.07	475.74S	113.02E	==>	27.76	39.99187141	-104.73430130
4100.00	12.62	166.640	4045.65	497.00S	118.07E	==>	29.00	39.99181294	-104.73428393
4200.00	12.62	166.640	4143.24	518.26S	123.12E	==>	30.24	39.99175447	-104.73426656
4300.00	12.62	166.640	4240.82	539.51S	128.17E	==>	31.48	39.99169601	-104.73424920
4400.00	12.62	166.640	4338.40	560.77S	133.22E	==>	32.72	39.99163754	-104.73423183
4500.00	12.62	166.640	4435.99	582.02S	138.27E	==>	33.96	39.99157907	-104.73421446
4600.00	12.62	166.640	4533.57	603.28S	143.32E	==>	35.20	39.99152060	-104.73419710
4700.00	12.62	166.640	4631.16	624.54S	148.37E	==>	36.44	39.99146214	-104.73417973
4800.00	12.62	166.640	4728.74	645.79S	153.42E	==>	37.68	39.99140367	-104.73416236
4900.00	12.62	166.640	4826.32	667.05S	158.47E	==>	38.92	39.99134520	-104.73414500
5000.00	12.62	166.640	4923.91	688.30S	163.52E	==>	40.16	39.99128673	-104.73412763
5100.00	12.62	166.640	5021.49	709.56S	168.57E	==>	41.40	39.99122827	-104.73411026
5200.00	12.62	166.640	5119.08	730.82S	173.62E	==>	42.64	39.99116980	-104.73409290
5300.00	12.62	166.640	5216.66	752.07S	178.67E	==>	43.88	39.99111133	-104.73407553
5400.00	12.62	166.640	5314.25	773.33S	183.72E	==>	45.12	39.99105286	-104.73405816
5500.00	12.62	166.640	5411.83	794.59S	188.77E	==>	46.36	39.99099440	-104.73404080
5600.00	12.62	166.640	5509.41	815.84S	193.82E	==>	47.60	39.99093593	-104.73402343
5700.00	12.62	166.640	5607.00	837.10S	198.87E	==>	48.84	39.99087746	-104.73400607
5800.00	12.62	166.640	5704.58	858.35S	203.92E	==>	50.08	39.99081899	-104.73398870
5900.00	12.62	166.640	5802.17	879.61S	208.97E	==>	51.32	39.99076053	-104.73397133
6000.00	12.62	166.640	5899.75	900.87S	214.02E	==>	52.56	39.99070206	-104.73395397
6100.00	12.62	166.640	5997.34	922.12S	219.07E	==>	53.80	39.99064359	-104.73393660
6200.00	12.62	166.640	6094.92	943.38S	224.12E	==>	55.04	39.99058513	-104.73391923
6300.00	12.62	166.640	6192.50	964.63S	229.17E	==>	56.28	39.99052666	-104.73390187
6400.00	12.62	166.640	6290.09	985.89S	234.22E	==>	57.52	39.99046819	-104.73388450
6500.00	12.62	166.640	6387.67	1007.15S	239.27E	==>	58.76	39.99040972	-104.73386714
6600.00	12.62	166.640	6485.26	1028.40S	244.32E	==>	60.00	39.99035126	-104.73384977
6700.00	12.62	166.640	6582.84	1049.66S	249.37E	==>	61.24	39.99029279	-104.73383240
6800.00	12.62	166.640	6680.43	1070.91S	254.42E	==>	62.48	39.99023432	-104.73381504
6900.00	12.62	166.640	6778.01	1092.17S	259.47E	==>	63.72	39.99017585	-104.73379767
7000.00	12.62	166.640	6875.59	1113.43S	264.52E	==>	64.96	39.99011739	-104.73378031
7100.00	12.62	166.640	6973.18	1134.68S	269.57E	==>	66.20	39.99005892	-104.73376294
7200.00	12.62	166.640	7070.76	1155.94S	274.62E	==>	67.44	39.99000045	-104.73374558
7300.00	12.42	171.860	7168.35	1177.20S	279.57E	12.00	68.78	39.98994198	-104.73372855
7400.00	16.06	220.060	7265.58	1198.51S	272.17E	12.00	81.97	39.98988366	-104.73375563
7500.00	25.39	242.020	7359.15	1219.23S	244.23E	12.00	114.66	39.98982744	-104.73385597
7600.00	36.26	252.090	7444.94	1238.45S	196.98E	12.00	165.44	39.98977578	-104.73402518
7700.00	47.63	257.910	7519.23	1255.35S	132.49E	12.00	232.07	39.98973094	-104.73425587
7800.00	59.19	261.920	7578.76	1269.17S	53.56E	12.00	311.65	39.98969487	-104.73453795
7900.00	70.85	265.050	7620.92	1279.31S	36.34W	12.00	400.70	39.98966915	-104.73485910
8000.00	82.56	267.770	7643.88	1285.34S	133.30W	12.00	495.33	39.98965491	-104.73520528
8100.00	90.00	269.400	7648.00	1287.28S	233.09W	==>	591.51	39.98965195	-104.73556148
8200.00	90.00	269.400	7648.00	1288.32S	333.09W	==>	687.63	39.98965145	-104.73591836
8300.00	90.00	269.400	7648.00	1289.36S	433.08W	==>	783.74	39.98965096	-104.73627524
8400.00	90.00	269.400	7648.00	1290.41S	533.08W	==>	879.86	39.98965046	-104.73663212
8500.00	90.00	269.400	7648.00	1291.45S	633.07W	==>	975.98	39.98964996	-104.73698900
8600.00	90.00	269.400	7648.00	1292.49S	733.07W	==>	1072.09	39.98964946	-104.73734588
8700.00	90.00	269.400	7648.00	1293.54S	833.06W	==>	1168.21	39.98964895	-104.73770276
8800.00	90.00	269.400	7648.00	1294.58S	933.06W	==>	1264.33	39.98964845	-104.73805964
8900.00	90.00	269.400	7648.00	1295.62S	1033.05W	==>	1360.44	39.98964795	-104.73841652
9000.00	90.00	269.400	7648.00	1296.66S	1133.05W	==>	1456.56	39.98964744	-104.73877340

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Vertical Section is from 0.00N 0.00E on azimuth 253.380 degrees  
Bottom hole distance is 4655.21 Feet on azimuth 253.38 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 20-Feb-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 5 (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)
9100.00	90.00	269.400	7648.00	1297.71S	1233.04W	==>	1552.67	39.98964694	-104.73913028
9200.00	90.00	269.400	7648.00	1298.75S	1333.03W	==>	1648.79	39.98964643	-104.73948716
9300.00	90.00	269.400	7648.00	1299.79S	1433.03W	==>	1744.91	39.98964592	-104.73984404
9400.00	90.00	269.400	7648.00	1300.83S	1533.02W	==>	1841.02	39.98964541	-104.74020092
9500.00	90.00	269.400	7648.00	1301.88S	1633.02W	==>	1937.14	39.98964490	-104.74055780
9600.00	90.00	269.400	7648.00	1302.92S	1733.01W	==>	2033.25	39.98964439	-104.74091468
9700.00	90.00	269.400	7648.00	1303.96S	1833.01W	==>	2129.37	39.98964388	-104.74127156
9800.00	90.00	269.400	7648.00	1305.00S	1933.00W	==>	2225.49	39.98964336	-104.74162844
9900.00	90.00	269.400	7648.00	1306.05S	2033.00W	==>	2321.60	39.98964285	-104.74198532
10000.00	90.00	269.400	7648.00	1307.09S	2132.99W	==>	2417.72	39.98964233	-104.74234220
10100.00	90.00	269.400	7648.00	1308.13S	2232.99W	==>	2513.83	39.98964181	-104.74269908
10200.00	90.00	269.400	7648.00	1309.18S	2332.98W	==>	2609.95	39.98964129	-104.74305596
10300.00	90.00	269.400	7648.00	1310.22S	2432.97W	==>	2706.07	39.98964077	-104.74341284
10400.00	90.00	269.400	7648.00	1311.26S	2532.97W	==>	2802.18	39.98964025	-104.74376972
10500.00	90.00	269.400	7648.00	1312.30S	2632.96W	==>	2898.30	39.98963973	-104.74412660
10600.00	90.00	269.400	7648.00	1313.35S	2732.96W	==>	2994.42	39.98963921	-104.74448348
10700.00	90.00	269.400	7648.00	1314.39S	2832.95W	==>	3090.53	39.98963869	-104.74484036
10800.00	90.00	269.400	7648.00	1315.43S	2932.95W	==>	3186.65	39.98963816	-104.74519724
10900.00	90.00	269.400	7648.00	1316.47S	3032.94W	==>	3282.76	39.98963763	-104.74555412
11000.00	90.00	269.400	7648.00	1317.52S	3132.94W	==>	3378.88	39.98963711	-104.74591100
11100.00	90.00	269.400	7648.00	1318.56S	3232.93W	==>	3475.00	39.98963658	-104.74626788
11200.00	90.00	269.400	7648.00	1319.60S	3332.93W	==>	3571.11	39.98963605	-104.74662476
11300.00	90.00	269.400	7648.00	1320.64S	3432.92W	==>	3667.23	39.98963552	-104.74698163
11400.00	90.00	269.400	7648.00	1321.69S	3532.91W	==>	3763.34	39.98963499	-104.74733851
11500.00	90.00	269.400	7648.00	1322.73S	3632.91W	==>	3859.46	39.98963445	-104.74769539
11600.00	90.00	269.400	7648.00	1323.77S	3732.90W	==>	3955.58	39.98963392	-104.74805227
11700.00	90.00	269.400	7648.00	1324.82S	3832.90W	==>	4051.69	39.98963338	-104.74840915
11800.00	90.00	269.400	7648.00	1325.86S	3932.89W	==>	4147.81	39.98963285	-104.74876603
11900.00	90.00	269.400	7648.00	1326.90S	4032.89W	==>	4243.92	39.98963231	-104.74912291
12000.00	90.00	269.400	7648.00	1327.94S	4132.88W	==>	4340.04	39.98963177	-104.74947979
12100.00	90.00	269.400	7648.00	1328.99S	4232.88W	==>	4436.16	39.98963123	-104.74983667
12200.00	90.00	269.400	7648.00	1330.03S	4332.87W	==>	4532.27	39.98963069	-104.75019355
12300.00	90.00	269.400	7648.00	1331.07S	4432.87W	==>	4628.39	39.98963015	-104.75055043
12327.90	90.00	269.400	7648.00	1331.36S	4460.76W	==>	4655.21	39.98963000	-104.75065000

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Bottom hole distance is 4655.21 Feet on azimuth 253.38 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 20-Feb-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 5 (PWB)



Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 5 BHL	1331.36S	4460.76W	7648.00	39.98963000	-104.75065000	1239956.46	3209962.52
BEF WEST 5 EP	1286.90S	106.58W	7648.00	39.98965000	-104.73511000	1240000.93	3214316.54

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
577584	Planned	2000.00	1996.35	WdW Rate Gyro	Standard
577583	Planned	12327.90	7648.00	ISCWSA MWD	Rev 4 + SAG + FLT

Notes

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Vertical Section is from 0.00N 0.00E on azimuth 253.380 degrees  
Bottom hole distance is 4655.21 Feet on azimuth 253.38 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 20-Feb-2018