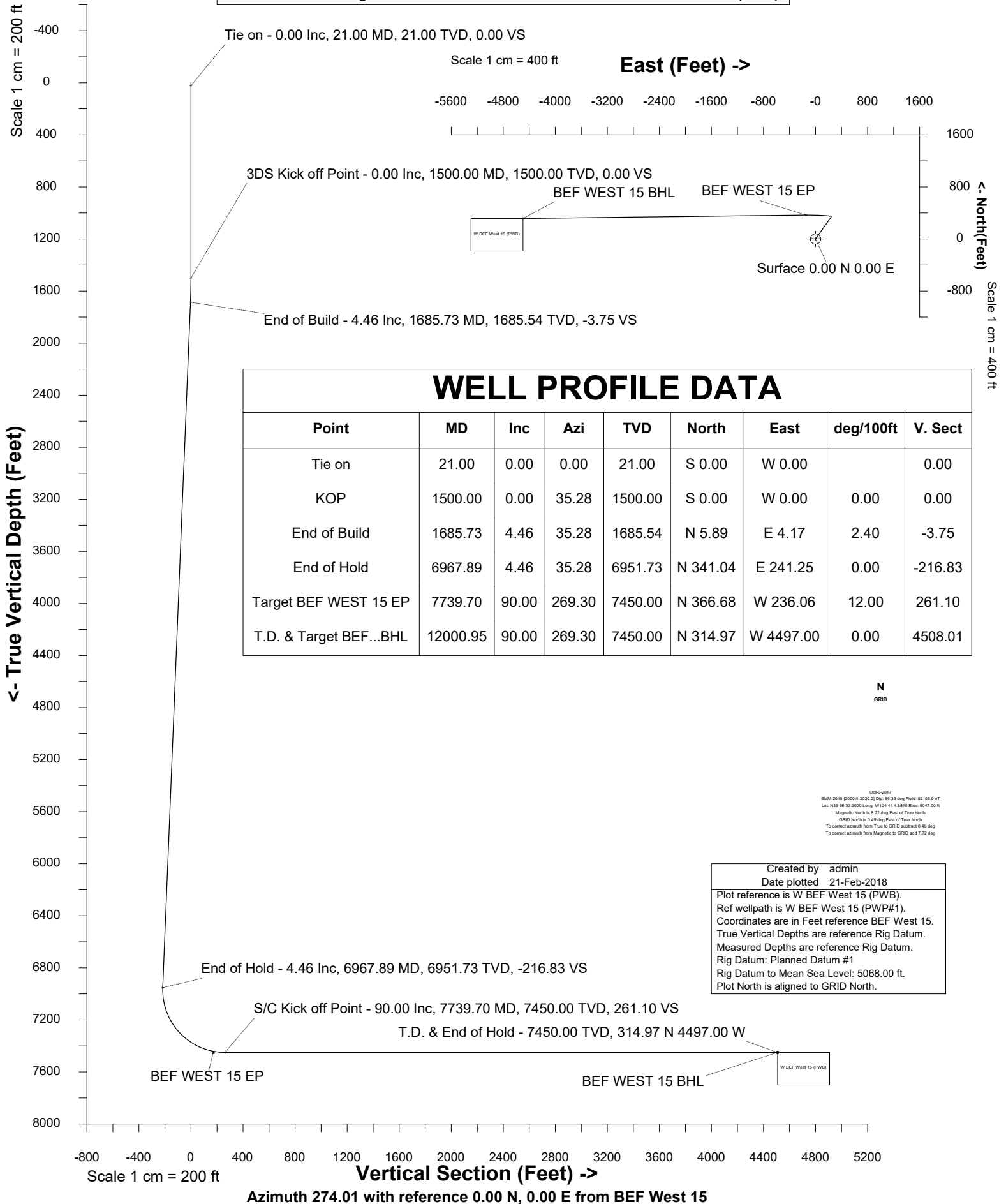


Petro Operating Company			
Location	Weld County, CO	Slot	BEF West 15
Field	Wattenberg	Well	W BEF West 15
Installation	Brighton East Farm Pad	Wellbore	W BEF West 15 (PWB)

Slot BEF West 15

Well W BEF West 15

Wellbore W BEF West 15 (PWB)





SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 15 (PWB)



### Wellhead Details

Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
BEF West 15	39.99463000	-104.73470000	1241815.9329	3214415.7637	684.81N	8.71W	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	35.280	1500.00	-3568.00	0.00N	0.00E	==>	0.00
1685.73	4.46	35.280	1685.54	-3382.46	5.89N	4.17E	2.40	-3.75
6967.89	4.46	35.280	6951.73	1883.73	341.04N	241.25E	==>	-216.83
7739.70	90.00	269.300	7450.00	2382.00	366.68N	236.06W	12.00	261.10
12000.95	90.00	269.300	7450.00	2382.00	314.97N	4497.00W	==>	4508.01

### 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	-104.73470000
21.00	0.00	0.000	21.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
100.00	0.00	0.000	100.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
200.00	0.00	0.000	200.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
300.00	0.00	0.000	300.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
400.00	0.00	0.000	400.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
500.00	0.00	0.000	500.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
600.00	0.00	0.000	600.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
700.00	0.00	0.000	700.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
800.00	0.00	0.000	800.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
900.00	0.00	0.000	900.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1000.00	0.00	0.000	1000.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1100.00	0.00	0.000	1100.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1200.00	0.00	0.000	1200.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1300.00	0.00	0.000	1300.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1400.00	0.00	0.000	1400.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1500.00	0.00	35.280	1500.00	0.00N	0.00E	==>	0.00	39.99463000	-104.73470000
1600.00	2.40	35.280	1599.97	1.71N	1.21E	2.40	-1.09	39.99463466	-104.73469563
1700.00	4.46	35.280	1699.77	6.80N	4.81E	==>	-4.32	39.99464855	-104.73468262
1800.00	4.46	35.280	1799.47	13.15N	9.30E	==>	-8.36	39.99466586	-104.73466641
1900.00	4.46	35.280	1899.16	19.49N	13.79E	==>	-12.39	39.99468317	-104.73465019
2000.00	4.46	35.280	1998.86	25.84N	18.28E	==>	-16.43	39.99470048	-104.73463398
2100.00	4.46	35.280	2098.56	32.18N	22.76E	==>	-20.46	39.99471779	-104.73461777
2200.00	4.46	35.280	2198.26	38.52N	27.25E	==>	-24.49	39.99473510	-104.73460155
2300.00	4.46	35.280	2297.95	44.87N	31.74E	==>	-28.53	39.99475241	-104.73458534
2400.00	4.46	35.280	2397.65	51.21N	36.23E	==>	-32.56	39.99476972	-104.73456912
2500.00	4.46	35.280	2497.35	57.56N	40.72E	==>	-36.60	39.99478703	-104.73455291
2600.00	4.46	35.280	2597.05	63.90N	45.21E	==>	-40.63	39.99480434	-104.73453670
2700.00	4.46	35.280	2696.74	70.25N	49.69E	==>	-44.66	39.99482165	-104.73452048
2800.00	4.46	35.280	2796.44	76.59N	54.18E	==>	-48.70	39.99483896	-104.73450427
2900.00	4.46	35.280	2896.14	82.94N	58.67E	==>	-52.73	39.99485627	-104.73448805
3000.00	4.46	35.280	2995.84	89.28N	63.16E	==>	-56.77	39.99487358	-104.73447184
3100.00	4.46	35.280	3095.54	95.63N	67.65E	==>	-60.80	39.99489089	-104.73445562
3200.00	4.46	35.280	3195.23	101.97N	72.14E	==>	-64.83	39.99490820	-104.73443941

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Coordinates are from Slot MD's are from Rig and TVD's are from Rig ( Planned Datum #1 5068.0ft above Mean Sea Level )  
Vertical Section is from 0.00N 0.00E on azimuth 274.010 degrees  
Bottom hole distance is 4508.01 Feet on azimuth 274.01 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 21-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	4.46	35.280	3294.93	108.32N	76.62E	==>	-68.87	39.99492551	-104.73442320
3400.00	4.46	35.280	3394.63	114.66N	81.11E	==>	-72.90	39.99494282	-104.73440698
3500.00	4.46	35.280	3494.33	121.01N	85.60E	==>	-76.94	39.99496014	-104.73439077
3600.00	4.46	35.280	3594.02	127.35N	90.09E	==>	-80.97	39.99497745	-104.73437455
3700.00	4.46	35.280	3693.72	133.70N	94.58E	==>	-85.01	39.99499476	-104.73435834
3800.00	4.46	35.280	3793.42	140.04N	99.07E	==>	-89.04	39.99501207	-104.73434213
3900.00	4.46	35.280	3893.12	146.39N	103.55E	==>	-93.07	39.99502938	-104.73432591
4000.00	4.46	35.280	3992.81	152.73N	108.04E	==>	-97.11	39.99504669	-104.73430970
4100.00	4.46	35.280	4092.51	159.08N	112.53E	==>	-101.14	39.99506400	-104.73429348
4200.00	4.46	35.280	4192.21	165.42N	117.02E	==>	-105.18	39.99508131	-104.73427727
4300.00	4.46	35.280	4291.91	171.77N	121.51E	==>	-109.21	39.99509862	-104.73426106
4400.00	4.46	35.280	4391.60	178.11N	126.00E	==>	-113.24	39.99511593	-104.73424484
4500.00	4.46	35.280	4491.30	184.46N	130.48E	==>	-117.28	39.99513324	-104.73422863
4600.00	4.46	35.280	4591.00	190.80N	134.97E	==>	-121.31	39.99515055	-104.73421241
4700.00	4.46	35.280	4690.70	197.14N	139.46E	==>	-125.35	39.99516786	-104.73419620
4800.00	4.46	35.280	4790.39	203.49N	143.95E	==>	-129.38	39.99518517	-104.73417998
4900.00	4.46	35.280	4890.09	209.83N	148.44E	==>	-133.41	39.99520248	-104.73416377
5000.00	4.46	35.280	4989.79	216.18N	152.93E	==>	-137.45	39.99521979	-104.73414756
5100.00	4.46	35.280	5089.49	222.52N	157.41E	==>	-141.48	39.99523710	-104.73413134
5200.00	4.46	35.280	5189.18	228.87N	161.90E	==>	-145.52	39.99525441	-104.73411513
5300.00	4.46	35.280	5288.88	235.21N	166.39E	==>	-149.55	39.99527172	-104.73409891
5400.00	4.46	35.280	5388.58	241.56N	170.88E	==>	-153.58	39.99528903	-104.73408270
5500.00	4.46	35.280	5488.28	247.90N	175.37E	==>	-157.62	39.99530634	-104.73406648
5600.00	4.46	35.280	5587.97	254.25N	179.86E	==>	-161.65	39.99532365	-104.73405027
5700.00	4.46	35.280	5687.67	260.59N	184.34E	==>	-165.69	39.99534096	-104.73403406
5800.00	4.46	35.280	5787.37	266.94N	188.83E	==>	-169.72	39.99535827	-104.73401784
5900.00	4.46	35.280	5887.07	273.28N	193.32E	==>	-173.75	39.99537558	-104.73400163
6000.00	4.46	35.280	5986.76	279.63N	197.81E	==>	-177.79	39.99539289	-104.73398541
6100.00	4.46	35.280	6086.46	285.97N	202.30E	==>	-181.82	39.99541020	-104.73396920
6200.00	4.46	35.280	6186.16	292.32N	206.79E	==>	-185.86	39.99542751	-104.73395298
6300.00	4.46	35.280	6285.86	298.66N	211.27E	==>	-189.89	39.99544482	-104.73393677
6400.00	4.46	35.280	6385.55	305.01N	215.76E	==>	-193.92	39.99546213	-104.73392056
6500.00	4.46	35.280	6485.25	311.35N	220.25E	==>	-197.96	39.99547944	-104.73390434
6600.00	4.46	35.280	6584.95	317.70N	224.74E	==>	-201.99	39.99549675	-104.73388813
6700.00	4.46	35.280	6684.65	324.04N	229.23E	==>	-206.03	39.99551406	-104.73387191
6800.00	4.46	35.280	6784.34	330.39N	233.72E	==>	-210.06	39.99553137	-104.73385570
6900.00	4.46	35.280	6884.04	336.73N	238.20E	==>	-214.09	39.99554868	-104.73383948
7000.00	3.82	340.390	6983.76	343.06N	241.61E	12.00	-217.05	39.99556598	-104.73382327
7100.00	13.71	284.290	7082.59	349.15N	228.97E	12.00	-204.01	39.99558297	-104.73380707
7200.00	25.48	276.910	7176.65	354.68N	196.01E	12.00	-170.75	39.99559895	-104.73379086
7300.00	37.39	274.040	7261.83	359.43N	144.19E	12.00	-118.72	39.99561320	-104.73417433
7400.00	49.33	272.410	7334.40	363.17N	75.76E	12.00	-50.20	39.99562511	-104.73441843
7500.00	61.30	271.280	7391.20	365.76N	6.28W	12.00	31.82	39.99563416	-104.73471114
7600.00	73.27	270.390	7429.75	367.08N	98.34W	12.00	123.75	39.99563995	-104.73503968
7700.00	85.25	269.610	7448.35	367.06N	196.41W	12.00	221.58	39.99564223	-104.73538969
7800.00	90.00	269.300	7450.00	365.95N	296.36W	==>	321.20	39.99564155	-104.73574643
7900.00	90.00	269.300	7450.00	364.74N	396.35W	==>	420.87	39.99564058	-104.73610334
8000.00	90.00	269.300	7450.00	363.52N	496.35W	==>	520.53	39.99563961	-104.73646025
8100.00	90.00	269.300	7450.00	362.31N	596.34W	==>	620.20	39.99563865	-104.73681716
8200.00	90.00	269.300	7450.00	361.10N	696.33W	==>	719.86	39.99563768	-104.73717407
8300.00	90.00	269.300	7450.00	359.88N	796.32W	==>	819.52	39.99563671	-104.73753098
8400.00	90.00	269.300	7450.00	358.67N	896.32W	==>	919.19	39.99563573	-104.73788789
8500.00	90.00	269.300	7450.00	357.46N	996.31W	==>	1018.85	39.99563476	-104.73824480
8600.00	90.00	269.300	7450.00	356.24N	1096.30W	==>	1118.51	39.99563379	-104.73860171
8700.00	90.00	269.300	7450.00	355.03N	1196.29W	==>	1218.18	39.99563281	-104.73895862
8800.00	90.00	269.300	7450.00	353.81N	1296.29W	==>	1317.84	39.99563183	-104.73931553
8900.00	90.00	269.300	7450.00	352.60N	1396.28W	==>	1417.50	39.99563086	-104.73967244
9000.00	90.00	269.300	7450.00	351.39N	1496.27W	==>	1517.17	39.99562988	-104.74002935

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Vertical Section is from 0.00N 0.00E on azimuth 274.010 degrees  
Bottom hole distance is 4508.01 Feet on azimuth 274.01 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 21-Feb-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 15 (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	269.300	7450.00	350.17N	1596.26W	==>	1616.83	39.99562890	-104.74038626
9200.00	90.00	269.300	7450.00	348.96N	1696.26W	==>	1716.49	39.99562792	-104.74074317
9300.00	90.00	269.300	7450.00	347.75N	1796.25W	==>	1816.16	39.99562694	-104.74110007
9400.00	90.00	269.300	7450.00	346.53N	1896.24W	==>	1915.82	39.99562595	-104.74145698
9500.00	90.00	269.300	7450.00	345.32N	1996.24W	==>	2015.48	39.99562497	-104.74181389
9600.00	90.00	269.300	7450.00	344.11N	2096.23W	==>	2115.15	39.99562398	-104.74217080
9700.00	90.00	269.300	7450.00	342.89N	2196.22W	==>	2214.81	39.99562300	-104.74252771
9800.00	90.00	269.300	7450.00	341.68N	2296.21W	==>	2314.47	39.99562201	-104.74288462
9900.00	90.00	269.300	7450.00	340.46N	2396.21W	==>	2414.14	39.99562102	-104.74324153
10000.00	90.00	269.300	7450.00	339.25N	2496.20W	==>	2513.80	39.99562003	-104.74359844
10100.00	90.00	269.300	7450.00	338.04N	2596.19W	==>	2613.46	39.99561904	-104.74395535
10200.00	90.00	269.300	7450.00	336.82N	2696.18W	==>	2713.13	39.99561805	-104.74431226
10300.00	90.00	269.300	7450.00	335.61N	2796.18W	==>	2812.79	39.99561706	-104.74466917
10400.00	90.00	269.300	7450.00	334.40N	2896.17W	==>	2912.46	39.99561606	-104.74502608
10500.00	90.00	269.300	7450.00	333.18N	2996.16W	==>	3012.12	39.99561507	-104.74538299
10600.00	90.00	269.300	7450.00	331.97N	3096.15W	==>	3111.78	39.99561407	-104.74573989
10700.00	90.00	269.300	7450.00	330.75N	3196.15W	==>	3211.45	39.99561308	-104.74609680
10800.00	90.00	269.300	7450.00	329.54N	3296.14W	==>	3311.11	39.99561208	-104.74645371
10900.00	90.00	269.300	7450.00	328.33N	3396.13W	==>	3410.77	39.99561108	-104.74681062
11000.00	90.00	269.300	7450.00	327.11N	3496.12W	==>	3510.44	39.99561008	-104.74716753
11100.00	90.00	269.300	7450.00	325.90N	3596.12W	==>	3610.10	39.99560907	-104.74752444
11200.00	90.00	269.300	7450.00	324.69N	3696.11W	==>	3709.76	39.99560807	-104.74788135
11300.00	90.00	269.300	7450.00	323.47N	3796.10W	==>	3809.43	39.99560707	-104.74823826
11400.00	90.00	269.300	7450.00	322.26N	3896.10W	==>	3909.09	39.99560606	-104.74859517
11500.00	90.00	269.300	7450.00	321.05N	3996.09W	==>	4008.75	39.99560506	-104.74895208
11600.00	90.00	269.300	7450.00	319.83N	4096.08W	==>	4108.42	39.99560405	-104.74930899
11700.00	90.00	269.300	7450.00	318.62N	4196.07W	==>	4208.08	39.99560304	-104.74966590
11800.00	90.00	269.300	7450.00	317.40N	4296.07W	==>	4307.74	39.99560203	-104.75002280
11900.00	90.00	269.300	7450.00	316.19N	4396.06W	==>	4407.41	39.99560102	-104.75037971
12000.00	90.00	269.300	7450.00	314.98N	4496.05W	==>	4507.07	39.99560001	-104.75073662
12000.95	90.00	269.300	7450.00	314.97N	4497.00W	==>	4508.01	39.99560000	-104.75074000

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Vertical Section is from 0.00N 0.00E on azimuth 274.010 degrees  
Bottom hole distance is 4508.01 Feet on azimuth 274.01 degrees from Wellhead  
Calculation method uses Minimum Curvature method  
Prepared by IPT  
Date Printed: 21-Feb-2018



SYSDRILL  
Well Design Combined Report  
Wellbore: W BEF West 15 (PWB)



Targets							
Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
BEF WEST 15 BHL	314.97N	4497.00W	7450.00	39.99560000	-104.75074000	1242130.89	3209918.92
BEF WEST 15 EP	366.68N	146.06W	7450.00	39.99564000	-104.73521000	1242182.60	3214269.71

Survey Tool Program						
Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model	
577654	Planned	2000.00	1998.86	WdW Rate Gyro	Standard	
577653	Planned	12000.95	7450.00	ISCWSA MWD	Rev 4 + SAG + FLT	

Notes