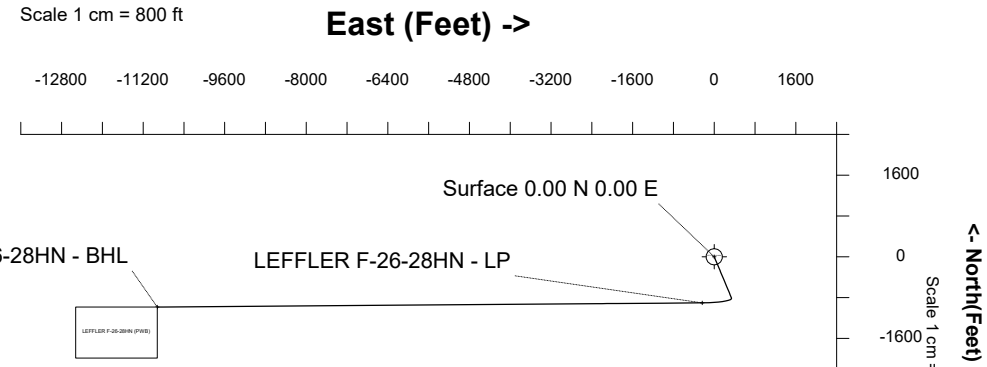
BAYSWATER E & P, LLC

Location	**Weld County, CO**	**Slot**	**LEFFLER F-26-28HN**
Field	**WATTENBERG**	**Well**	**LEFFLER F-26-28HN**
Installation	**Leffler Pad - Updates 05-20-2019**	**Wellbore**	**LEFFLER F-26-28HN (PWB)**

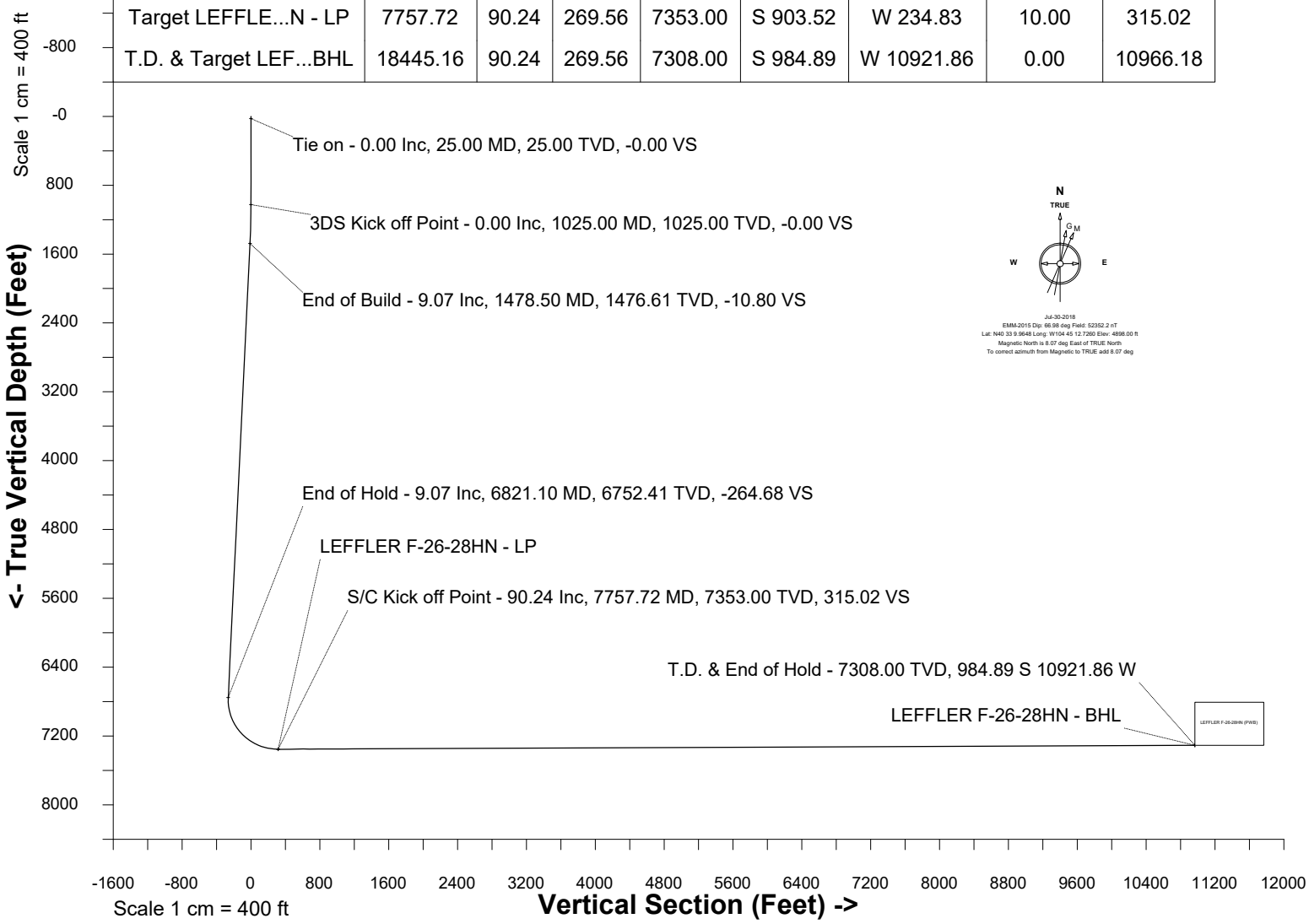
Created by sean.dolfinger
Date plotted 21-May-2019

Plot reference is LEFFLER F-26-28HN (PWB).
Ref wellpath is LEFFLER F-26-28HN (PWP#1).
Coordinates are in Feet reference LEFFLER F-26-28HN.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Planned Datum #1
Rig Datum to Mean Sea Level: 4923.00 ft.
Plot North is aligned to TRUE North.



WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	25.00	0.00	0.00	25.00	S 0.00	W 0.00		-0.00
KOP	1025.00	0.00	157.30	1025.00	S 0.00	W 0.00	0.00	-0.00
End of Build	1478.50	9.07	157.30	1476.61	S 33.05	E 13.82	2.00	-10.80
End of Hold	6821.10	9.07	157.30	6752.41	S 810.04	E 338.80	0.00	-264.68
Target LEFFLE...N - LP	7757.72	90.24	269.56	7353.00	S 903.52	W 234.83	10.00	315.02
T.D. & Target LEF...BHL	18445.16	90.24	269.56	7308.00	S 984.89	W 10921.86	0.00	10966.18



SYSDRILL
Well Design Combined Report
Wellbore: LEFFLER F-26-28HN (PWB)

Wellhead Details

Name	Latitude	Longitude	Northing	Easting	North	East	Slot Elevation Above Ground
LEFFLER F-26-28HN	40.55268500	-104.75342500	1445057.3808	3207458.1092	30.24S	30.57E	0.00

Declination

Date	Source	Time
Jul-30-2018	EMM-2015	11:39

Installation Details

Name	Installation Position (Latitude)	Installation Position (Longitude)	Northing	Easting	Coord System Name	North Alignment
Leffler Pad - Updates 05-20-2019	40.55276800	-104.75353500	1445087.3602	3207427.2886	NAD83 Based Colorado State Planes, Northern Zone, US Feet	True

Summary Wellpath

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	Vertical Depth SS	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
25.00	0.00	0.00	25.00	-4898.00	0.00N	0.00E		0.00
1025.00	0.00	157.30	1025.00	-3898.00	0.00N	0.00E	==>	0.00
1478.50	9.07	157.30	1476.61	-3446.39	33.05S	13.82E	2.00	-10.80
6821.10	9.07	157.30	6752.41	1829.41	810.04S	338.80E	==>	-264.68
7757.72	90.24	269.56	7353.00	2430.00	903.52S	234.83W	10.00	315.02
18445.16	90.24	269.56	7308.00	2385.00	984.89S	10921.86W	==>	10966.18

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	0.00	0.00	0.00N	0.00E		0.00	40.55268500	-104.75342500
25.00	0.00	0.00	25.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
100.00	0.00	0.00	100.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
200.00	0.00	0.00	200.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
300.00	0.00	0.00	300.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
400.00	0.00	0.00	400.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
500.00	0.00	0.00	500.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
600.00	0.00	0.00	600.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
700.00	0.00	0.00	700.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
800.00	0.00	0.00	800.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
900.00	0.00	0.00	900.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
1000.00	0.00	0.00	1000.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
1025.00	0.00	157.30	1025.00	0.00N	0.00E	==>	0.00	40.55268500	-104.75342500
1125.00	2.00	157.30	1124.98	1.61S	0.67E	2.00	-0.53	40.55268058	-104.75342258
1225.00	4.00	157.30	1224.84	6.44S	2.69E	2.00	-2.10	40.55266733	-104.75341531
1325.00	6.00	157.30	1324.45	14.48S	6.06E	2.00	-4.73	40.55264526	-104.75340321
1425.00	8.00	157.30	1423.70	25.72S	10.76E	2.00	-8.40	40.55261440	-104.75338629
1478.50	9.07	157.30	1476.61	33.05S	13.82E	2.00	-10.80	40.55259429	-104.75337526
1525.00	9.07	157.30	1522.53	39.81S	16.65E	==>	-13.01	40.55257573	-104.75336508
1625.00	9.07	157.30	1621.28	54.35S	22.73E	==>	-17.76	40.55253581	-104.75334320
1725.00	9.07	157.30	1720.03	68.90S	28.82E	==>	-22.51	40.55249589	-104.75332131
1825.00	9.07	157.30	1818.78	83.44S	34.90E	==>	-27.26	40.55245598	-104.75329942
1925.00	9.07	157.30	1917.53	97.98S	40.98E	==>	-32.02	40.55241606	-104.75327753
2025.00	9.07	157.30	2016.28	112.52S	47.06E	==>	-36.77	40.55237614	-104.75325564
2125.00	9.07	157.30	2115.02	127.07S	53.15E	==>	-41.52	40.55233622	-104.75323375
2225.00	9.07	157.30	2213.77	141.61S	59.23E	==>	-46.27	40.55229630	-104.75321186
2325.00	9.07	157.30	2312.52	156.15S	65.31E	==>	-51.02	40.55225638	-104.75318997
2425.00	9.07	157.30	2411.27	170.70S	71.39E	==>	-55.78	40.55221646	-104.75316809
2525.00	9.07	157.30	2510.02	185.24S	77.48E	==>	-60.53	40.55217654	-104.75314620
2625.00	9.07	157.30	2608.77	199.78S	83.56E	==>	-65.28	40.55213663	-104.75312431
2725.00	9.07	157.30	2707.52	214.33S	89.64E	==>	-70.03	40.55209671	-104.75310242
2825.00	9.07	157.30	2806.27	228.87S	95.73E	==>	-74.78	40.55205679	-104.75308053

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 4923.0ft above Mean Sea Level)
Vertical Section is from 0.00N 0.00E on azimuth 264.85 degrees
Bottom hole distance is 10966.18 Feet on azimuth 264.85 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-May-2019

SYSDRILL
Well Design Combined Report
Wellbore: LEFFLER F-26-28HN (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)
2925.00	9.07	157.30	2905.02	243.41S	101.81E	==>	-79.54	40.55201687	-104.75305864
3025.00	9.07	157.30	3003.77	257.96S	107.89E	==>	-84.29	40.55197695	-104.75303675
3125.00	9.07	157.30	3102.52	272.50S	113.97E	==>	-89.04	40.55193703	-104.75301487
3225.00	9.07	157.30	3201.27	287.04S	120.06E	==>	-93.79	40.55189711	-104.75299298
3325.00	9.07	157.30	3300.02	301.59S	126.14E	==>	-98.54	40.55185719	-104.75297109
3425.00	9.07	157.30	3398.77	316.13S	132.22E	==>	-103.30	40.55181727	-104.75294920
3525.00	9.07	157.30	3497.52	330.67S	138.31E	==>	-108.05	40.55177736	-104.75292731
3625.00	9.07	157.30	3596.27	345.22S	144.39E	==>	-112.80	40.55173744	-104.75290542
3725.00	9.07	157.30	3695.02	359.76S	150.47E	==>	-117.55	40.55169752	-104.75288353
3825.00	9.07	157.30	3793.77	374.30S	156.55E	==>	-122.30	40.55165760	-104.75286165
3925.00	9.07	157.30	3892.52	388.85S	162.64E	==>	-127.06	40.55161768	-104.75283976
4025.00	9.07	157.30	3991.27	403.39S	168.72E	==>	-131.81	40.55157776	-104.75281787
4125.00	9.07	157.30	4090.02	417.93S	174.80E	==>	-136.56	40.55153784	-104.75279598
4225.00	9.07	157.30	4188.77	432.48S	180.88E	==>	-141.31	40.55149792	-104.75277409
4325.00	9.07	157.30	4287.52	447.02S	186.97E	==>	-146.06	40.55145800	-104.75275221
4425.00	9.07	157.30	4386.27	461.56S	193.05E	==>	-150.82	40.55141809	-104.75273032
4525.00	9.07	157.30	4485.02	476.11S	199.13E	==>	-155.57	40.55137817	-104.75270843
4625.00	9.07	157.30	4583.77	490.65S	205.22E	==>	-160.32	40.55133825	-104.75268654
4725.00	9.07	157.30	4682.52	505.19S	211.30E	==>	-165.07	40.55129833	-104.75266465
4825.00	9.07	157.30	4781.27	519.74S	217.38E	==>	-169.82	40.55125841	-104.75264276
4925.00	9.07	157.30	4880.01	534.28S	223.46E	==>	-174.58	40.55121849	-104.75262088
5025.00	9.07	157.30	4978.76	548.82S	229.55E	==>	-179.33	40.55117857	-104.75259899
5125.00	9.07	157.30	5077.51	563.37S	235.63E	==>	-184.08	40.55113865	-104.75257710
5225.00	9.07	157.30	5176.26	577.91S	241.71E	==>	-188.83	40.55109873	-104.75255521
5325.00	9.07	157.30	5275.01	592.45S	247.80E	==>	-193.58	40.55105882	-104.75253332
5425.00	9.07	157.30	5373.76	607.00S	253.88E	==>	-198.34	40.55101890	-104.75251144
5525.00	9.07	157.30	5472.51	621.54S	259.96E	==>	-203.09	40.55097898	-104.75248955
5625.00	9.07	157.30	5571.26	636.08S	266.04E	==>	-207.84	40.55093906	-104.75246766
5725.00	9.07	157.30	5670.01	650.63S	272.13E	==>	-212.59	40.55089914	-104.75244577
5825.00	9.07	157.30	5768.76	665.17S	278.21E	==>	-217.34	40.55085922	-104.75242389
5925.00	9.07	157.30	5867.51	679.71S	284.29E	==>	-222.10	40.55081930	-104.75240200
6025.00	9.07	157.30	5966.26	694.26S	290.37E	==>	-226.85	40.55077938	-104.75238011
6125.00	9.07	157.30	6065.01	708.80S	296.46E	==>	-231.60	40.55073946	-104.75235822
6225.00	9.07	157.30	6163.76	723.34S	302.54E	==>	-236.35	40.55069954	-104.75233633
6325.00	9.07	157.30	6262.51	737.89S	308.62E	==>	-241.10	40.55065963	-104.75231445
6425.00	9.07	157.30	6361.26	752.43S	314.71E	==>	-245.86	40.55061971	-104.75229256
6525.00	9.07	157.30	6460.01	766.97S	320.79E	==>	-250.61	40.55057979	-104.75227067
6625.00	9.07	157.30	6558.76	781.52S	326.87E	==>	-255.36	40.55053987	-104.75224878
6725.00	9.07	157.30	6657.51	796.06S	332.95E	==>	-260.11	40.55049995	-104.75222690
6821.10	9.07	157.30	6752.41	810.04S	338.80E	==>	-264.68	40.55046159	-104.75220586
6825.00	8.93	159.63	6756.26	810.60S	339.02E	10.00	-264.85	40.55046003	-104.75220506
6925.00	10.90	219.44	6855.00	825.22S	335.71E	10.00	-260.24	40.55041990	-104.75221699
7025.00	18.88	243.93	6951.65	839.68S	315.11E	10.00	-238.42	40.55038023	-104.75229111
7125.00	28.16	253.50	7043.28	853.52S	277.85E	10.00	-200.08	40.55034222	-104.75242517
7225.00	37.78	258.54	7127.09	866.34S	225.08E	10.00	-146.36	40.55030704	-104.75261509
7325.00	47.54	261.76	7200.54	877.75S	158.38E	10.00	-78.90	40.55027573	-104.75285510
7425.00	57.37	264.10	7261.41	887.39S	79.78E	10.00	0.24	40.55024927	-104.75313791
7525.00	67.23	265.97	7307.84	894.98S	8.32W	10.00	88.66	40.55022844	-104.75345493
7625.00	77.11	267.59	7338.41	900.28S	103.25W	10.00	183.69	40.55021389	-104.75379652
7725.00	87.00	269.08	7352.21	903.13S	202.12W	10.00	282.42	40.55020606	-104.75415231
7757.72	90.24	269.56	7353.00	903.52S	234.83W	10.00	315.02	40.55020500	-104.75427000
7825.00	90.24	269.56	7352.72	904.03S	302.10W	==>	382.07	40.55020359	-104.75451208
7925.00	90.24	269.56	7352.30	904.79S	402.10W	==>	481.73	40.55020150	-104.75487191
8025.00	90.24	269.56	7351.87	905.55S	502.10W	==>	581.40	40.55019940	-104.75523174
8125.00	90.24	269.56	7351.45	906.31S	602.09W	==>	681.06	40.55019731	-104.75559156
8225.00	90.24	269.56	7351.03	907.07S	702.09W	==>	780.72	40.55019521	-104.75595139
8325.00	90.24	269.56	7350.61	907.84S	802.08W	==>	880.38	40.55019311	-104.75631121
8425.00	90.24	269.56	7350.19	908.60S	902.08W	==>	980.04	40.55019101	-104.75667104

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Vertical Section is from 0.00N 0.00E on azimuth 264.85 degrees
Bottom hole distance is 10966.18 Feet on azimuth 264.85 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-May-2019

SYSDRILL
Well Design Combined Report
Wellbore: LEFFLER F-26-28HN (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)
8525.00	90.24	269.56	7349.77	909.36S	1002.08W	==>	1079.70	40.55018891	-104.75703086
8625.00	90.24	269.56	7349.35	910.12S	1102.07W	==>	1179.36	40.55018681	-104.75739069
8725.00	90.24	269.56	7348.93	910.88S	1202.07W	==>	1279.02	40.55018471	-104.75775051
8825.00	90.24	269.56	7348.51	911.64S	1302.06W	==>	1378.68	40.55018260	-104.75811034
8925.00	90.24	269.56	7348.09	912.40S	1402.06W	==>	1478.34	40.55018050	-104.75847016
9025.00	90.24	269.56	7347.66	913.17S	1502.06W	==>	1578.00	40.55017839	-104.75882999
9125.00	90.24	269.56	7347.24	913.93S	1602.05W	==>	1677.66	40.55017629	-104.75918981
9225.00	90.24	269.56	7346.82	914.69S	1702.05W	==>	1777.32	40.55017418	-104.75954964
9325.00	90.24	269.56	7346.40	915.45S	1802.05W	==>	1876.98	40.55017207	-104.75990946
9425.00	90.24	269.56	7345.98	916.21S	1902.04W	==>	1976.64	40.55016996	-104.76026929
9525.00	90.24	269.56	7345.56	916.97S	2002.04W	==>	2076.30	40.55016785	-104.76062911
9625.00	90.24	269.56	7345.14	917.73S	2102.03W	==>	2175.96	40.55016573	-104.76098894
9725.00	90.24	269.56	7344.72	918.50S	2202.03W	==>	2275.62	40.55016362	-104.76134876
9825.00	90.24	269.56	7344.30	919.26S	2302.03W	==>	2375.28	40.55016150	-104.76170859
9925.00	90.24	269.56	7343.87	920.02S	2402.02W	==>	2474.94	40.55015939	-104.76206841
10025.00	90.24	269.56	7343.45	920.78S	2502.02W	==>	2574.61	40.55015727	-104.76242824
10125.00	90.24	269.56	7343.03	921.54S	2602.02W	==>	2674.27	40.55015515	-104.76278806
10225.00	90.24	269.56	7342.61	922.30S	2702.01W	==>	2773.93	40.55015303	-104.76314789
10325.00	90.24	269.56	7342.19	923.06S	2802.01W	==>	2873.59	40.55015091	-104.76350771
10425.00	90.24	269.56	7341.77	923.83S	2902.00W	==>	2973.25	40.55014879	-104.76386754
10525.00	90.24	269.56	7341.35	924.59S	3002.00W	==>	3072.91	40.55014667	-104.76422736
10625.00	90.24	269.56	7340.93	925.35S	3102.00W	==>	3172.57	40.55014454	-104.76458719
10725.00	90.24	269.56	7340.51	926.11S	3201.99W	==>	3272.23	40.55014242	-104.76494701
10825.00	90.24	269.56	7340.09	926.87S	3301.99W	==>	3371.89	40.55014029	-104.76530684
10925.00	90.24	269.56	7339.66	927.63S	3401.99W	==>	3471.55	40.55013816	-104.76566666
11025.00	90.24	269.56	7339.24	928.39S	3501.98W	==>	3571.21	40.55013604	-104.76602649
11125.00	90.24	269.56	7338.82	929.16S	3601.98W	==>	3670.87	40.55013391	-104.76638631
11225.00	90.24	269.56	7338.40	929.92S	3701.97W	==>	3770.53	40.55013178	-104.76674614
11325.00	90.24	269.56	7337.98	930.68S	3801.97W	==>	3870.19	40.55012964	-104.76710596
11425.00	90.24	269.56	7337.56	931.44S	3901.97W	==>	3969.85	40.55012751	-104.76746579
11525.00	90.24	269.56	7337.14	932.20S	4001.96W	==>	4069.51	40.55012538	-104.76782561
11625.00	90.24	269.56	7336.72	932.96S	4101.96W	==>	4169.17	40.55012324	-104.76818544
11725.00	90.24	269.56	7336.30	933.72S	4201.96W	==>	4268.83	40.55012111	-104.76854526
11825.00	90.24	269.56	7335.87	934.49S	4301.95W	==>	4368.49	40.55011897	-104.76890508
11925.00	90.24	269.56	7335.45	935.25S	4401.95W	==>	4468.15	40.55011683	-104.76926491
12025.00	90.24	269.56	7335.03	936.01S	4501.94W	==>	4567.81	40.55011469	-104.76962473
12125.00	90.24	269.56	7334.61	936.77S	4601.94W	==>	4667.48	40.55011255	-104.76998456
12225.00	90.24	269.56	7334.19	937.53S	4701.94W	==>	4767.14	40.55011041	-104.77034438
12325.00	90.24	269.56	7333.77	938.29S	4801.93W	==>	4866.80	40.55010827	-104.77070421
12425.00	90.24	269.56	7333.35	939.05S	4901.93W	==>	4966.46	40.55010612	-104.77106403
12525.00	90.24	269.56	7332.93	939.81S	5001.92W	==>	5066.12	40.55010398	-104.77142386
12625.00	90.24	269.56	7332.51	940.58S	5101.92W	==>	5165.78	40.55010183	-104.77178368
12725.00	90.24	269.56	7332.09	941.34S	5201.92W	==>	5265.44	40.55009968	-104.77214350
12825.00	90.24	269.56	7331.66	942.10S	5301.91W	==>	5365.10	40.55009754	-104.77250333
12925.00	90.24	269.56	7331.24	942.86S	5401.91W	==>	5464.76	40.55009539	-104.77286315
13025.00	90.24	269.56	7330.82	943.62S	5501.91W	==>	5564.42	40.55009323	-104.77322298
13125.00	90.24	269.56	7330.40	944.38S	5601.90W	==>	5664.08	40.55009108	-104.77358280
13225.00	90.24	269.56	7329.98	945.14S	5701.90W	==>	5763.74	40.55008893	-104.77394263
13325.00	90.24	269.56	7329.56	945.91S	5801.89W	==>	5863.40	40.55008678	-104.77430245
13425.00	90.24	269.56	7329.14	946.67S	5901.89W	==>	5963.06	40.55008462	-104.77466227
13525.00	90.24	269.56	7328.72	947.43S	6001.89W	==>	6062.72	40.55008246	-104.77502210
13625.00	90.24	269.56	7328.30	948.19S	6101.88W	==>	6162.38	40.55008031	-104.77538192
13725.00	90.24	269.56	7327.87	948.95S	6201.88W	==>	6262.04	40.55007815	-104.77574175
13825.00	90.24	269.56	7327.45	949.71S	6301.88W	==>	6361.70	40.55007599	-104.77610157
13925.00	90.24	269.56	7327.03	950.47S	6401.87W	==>	6461.36	40.55007383	-104.77646140
14025.00	90.24	269.56	7326.61	951.24S	6501.87W	==>	6561.02	40.55007167	-104.77682122
14125.00	90.24	269.56	7326.19	952.00S	6601.86W	==>	6660.69	40.55006950	-104.77718104
14225.00	90.24	269.56	7325.77	952.76S	6701.86W	==>	6760.35	40.55006734	-104.77754087
14325.00	90.24	269.56	7325.35	953.52S	6801.86W	==>	6860.01	40.55006518	-104.77790069

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Vertical Section is from 0.00N 0.00E on azimuth 264.85 degrees
Bottom hole distance is 10966.18 Feet on azimuth 264.85 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-May-2019

SYSDRILL
Well Design Combined Report
Wellbore: LEFFLER F-26-28HN (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)
14425.00	90.24	269.56	7324.93	954.28S	6901.85W	==>	6959.67	40.55006301	-104.77826052
14525.00	90.24	269.56	7324.51	955.04S	7001.85W	==>	7059.33	40.55006084	-104.77862034
14625.00	90.24	269.56	7324.08	955.80S	7101.85W	==>	7158.99	40.55005867	-104.77898016
14725.00	90.24	269.56	7323.66	956.57S	7201.84W	==>	7258.65	40.55005650	-104.77933999
14825.00	90.24	269.56	7323.24	957.33S	7301.84W	==>	7358.31	40.55005433	-104.77969981
14925.00	90.24	269.56	7322.82	958.09S	7401.83W	==>	7457.97	40.55005216	-104.78005964
15025.00	90.24	269.56	7322.40	958.85S	7501.83W	==>	7557.63	40.55004999	-104.78041946
15125.00	90.24	269.56	7321.98	959.61S	7601.83W	==>	7657.29	40.55004781	-104.78077928
15225.00	90.24	269.56	7321.56	960.37S	7701.82W	==>	7756.95	40.55004564	-104.78113911
15325.00	90.24	269.56	7321.14	961.13S	7801.82W	==>	7856.61	40.55004346	-104.78149893
15425.00	90.24	269.56	7320.72	961.90S	7901.82W	==>	7956.27	40.55004129	-104.78185875
15525.00	90.24	269.56	7320.30	962.66S	8001.81W	==>	8055.93	40.55003911	-104.78221858
15625.00	90.24	269.56	7319.87	963.42S	8101.81W	==>	8155.59	40.55003693	-104.78257840
15725.00	90.24	269.56	7319.45	964.18S	8201.80W	==>	8255.25	40.55003475	-104.78293823
15825.00	90.24	269.56	7319.03	964.94S	8301.80W	==>	8354.91	40.55003256	-104.78329805
15925.00	90.24	269.56	7318.61	965.70S	8401.80W	==>	8454.57	40.55003038	-104.78365787
16025.00	90.24	269.56	7318.19	966.46S	8501.79W	==>	8554.23	40.55002820	-104.78401770
16125.00	90.24	269.56	7317.77	967.23S	8601.79W	==>	8653.89	40.55002601	-104.78437752
16225.00	90.24	269.56	7317.35	967.99S	8701.78W	==>	8753.56	40.55002383	-104.78473734
16325.00	90.24	269.56	7316.93	968.75S	8801.78W	==>	8853.22	40.55002164	-104.78509717
16425.00	90.24	269.56	7316.51	969.51S	8901.78W	==>	8952.88	40.55001945	-104.78545699
16525.00	90.24	269.56	7316.08	970.27S	9001.77W	==>	9052.54	40.55001726	-104.78581681
16625.00	90.24	269.56	7315.66	971.03S	9101.77W	==>	9152.20	40.55001507	-104.78617664
16725.00	90.24	269.56	7315.24	971.79S	9201.77W	==>	9251.86	40.55001288	-104.78653646
16825.00	90.24	269.56	7314.82	972.56S	9301.76W	==>	9351.52	40.55001068	-104.78689628
16925.00	90.24	269.56	7314.40	973.32S	9401.76W	==>	9451.18	40.55000849	-104.78725611
17025.00	90.24	269.56	7313.98	974.08S	9501.75W	==>	9550.84	40.55000630	-104.78761593
17125.00	90.24	269.56	7313.56	974.84S	9601.75W	==>	9650.50	40.55000410	-104.78797575
17225.00	90.24	269.56	7313.14	975.60S	9701.75W	==>	9750.16	40.55000190	-104.78833558
17325.00	90.24	269.56	7312.72	976.36S	9801.74W	==>	9849.82	40.54999970	-104.78869540
17425.00	90.24	269.56	7312.30	977.12S	9901.74W	==>	9949.48	40.54999750	-104.78905522
17525.00	90.24	269.56	7311.87	977.89S	10001.74W	==>	10049.14	40.54999530	-104.78941505
17625.00	90.24	269.56	7311.45	978.65S	10101.73W	==>	10148.80	40.54999310	-104.78977487
17725.00	90.24	269.56	7311.03	979.41S	10201.73W	==>	10248.46	40.54999090	-104.79013469
17825.00	90.24	269.56	7310.61	980.17S	10301.72W	==>	10348.12	40.54998869	-104.79049452
17925.00	90.24	269.56	7310.19	980.93S	10401.72W	==>	10447.78	40.54998649	-104.79085434
18025.00	90.24	269.56	7309.77	981.69S	10501.72W	==>	10547.44	40.54998428	-104.79121416
18125.00	90.24	269.56	7309.35	982.45S	10601.71W	==>	10647.10	40.54998207	-104.79157399
18225.00	90.24	269.56	7308.93	983.21S	10701.71W	==>	10746.77	40.54997987	-104.79193381
18325.00	90.24	269.56	7308.51	983.98S	10801.71W	==>	10846.43	40.54997766	-104.79229363
18425.00	90.24	269.56	7308.08	984.74S	10901.70W	==>	10946.09	40.54997545	-104.79265346
18445.16	90.24	269.56	7308.00	984.89S	10921.86W	==>	10966.18	40.54997500	-104.79272600

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Calculation method uses Minimum Curvature method
Prepared by
Date Printed: 21-May-2019

SYSDRILL
Well Design Combined Report
Wellbore: LEFFLER F-26-28HN (PWB)

Targets

Name	North[ft]	East[ft]	TVD[ft]	Latitude	Longitude	Northing	Easting
LEFFLER F-26-28HN - LP	903.52S	234.83W	7353.00	40.55020500	-104.75427000	1444151.95	3207230.90
LEFFLER F-26-28HN - BHL	984.89S	10921.86W	7308.00	40.54997500	-104.79272600	1443980.61	3196545.27

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
836543	Planned	1025.00	1025.00	WdW Rate Gyro	Standard
836542	Planned	18445.16	7308.00	ISCWSA MWD	Rev 4 + SAG + FLT

Notes

All data is in Feet unless otherwise stated
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Date Printed: 21-May-2019

SYSDRILL
Closest Approach + Clearance Factor Summary Report
Wellbore: LEFFLER F-26-28HN (PWB)
Wellpath: LEFFLER F-26-28HN (PWP#1)
Ellipse separations are reported ONLY if BOTH wells have uncertainty data
Only Depth and Magnetic Reference Field error terms are correlated across tie points
Scan limit is calculated on CENTRE to CENTRE distance

Summary data uses Closest Approach clearance calculation for all minima
Hole size/Casings ARE included
Hole size/Casings are NOT subtracted from Centre-Centre distance
Confidence limit of 95.00% / 2.80 SD.
Errors on Ref start at Slot Permanent Datum (25.00)

Report uses Common: D/(E+Csg) Factor Calculation

Wellbore

Name	Created	Last Revised
LEFFLER F-26-28HN (PWB)	May-20-2019	May-20-2019

Well

Name	Government ID	Last Revised
LEFFLER F-26-28HN		May-20-2019

Slot

Name	Grid Northing	Grid Easting	Latitude	Longitude	North	East
LEFFLER F-26-28HN	1445057.3808	3207458.1092	40.55268500	-104.75342500	30.24S	30.57E

Installation

Name	Easting	Northing	Map Name	North Alignment
Leffler Pad - Updates 05-20-2019	3207427.2886	1445087.3602	NAD83 Based Colorado State Planes, Northern Zone, US Feet	True

Field

Name	Easting	Northing	Map Name	North Alignment
WATTENBERG	3230716.7970	1397094.8569	NAD83 Based Colorado State Planes, Northern Zone, US Feet	Grid

Clearance Summary

Offset WellName	Offset Wellbore	Offset Slot	Offset Structure	Separation [ft]	MD[ft]	Diverging From[ft]	Ellipse Separation [ft]	Ellipse MD[ft]	Clearance Factor	Clearance MD[ft]
W Thornton 21K-443	W Thornton 21K-443 (AWB)	Thornton 21K-443	Leffler Pad OFFSETS	92.88	17429.83	17429.83	-18.95	17372.05	0.85	17388.45
W Leffler 27C	W Leffler 27C (AWB)	Leffler 27C	Leffler Pad OFFSETS	177.80	9043.04	9043.04	99.59	9055.12	2.27	9055.12
W Leffler 1-27	W Leffler 1-27 (AWB)	Leffler 1-27	Leffler Pad OFFSETS	487.83	9705.74	9705.74	386.57	9711.29	4.81	9727.69
W Leffler 41-27	W Leffler 41-27 (AWB)	Leffler 41-27	Leffler Pad OFFSETS	592.64	8317.56	8317.56	537.97	8333.33	10.69	8398.95
W Leffler 31-27	W Leffler 31-27 (AWB)	Leffler 31-27	Leffler Pad OFFSETS	603.02	9985.75	9985.75	492.07	9990.16	5.42	10022.97
W Leffler 32-27	W Leffler 32-27 (AWB)	Leffler 32-27	Leffler Pad OFFSETS	1052.31	9985.04	9985.04	940.27	10025.00	9.04	10219.82
W Leffler 42-27	W Leffler 42-27 (AWB)	Leffler 42-27	Leffler Pad OFFSETS	1110.55	8334.42	8334.42	1054.80	8366.14	17.25	8841.86

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Vertical Section is from 0.00N 0.00E on azimuth 264.85 degrees
Prepared by
Date Printed: 22-May-2019