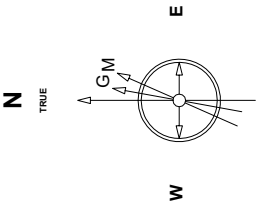


Great Western Operating Company, LLC

Created by	admin
Date plotted	4-Jun-2019
Plot reference is	B-Farm LD 18-034HC (AWB).
Ref wellpath is	B-Farm LD 18-034HC (AWP#1).
Coordinates are in	Feet reference E-10 - B-Farm LD 18-034HC.
True Vertical Depths are	reference Rig Datum.
Measured Depths are	reference Rig Datum.
Rig Datum:	Actual Datum #1
Rig Datum to Mean Sea Level:	5144.50 ft.
Plot North is	aligned to TRUE North.

Location	Colorado	Slot	E-10 - B-Farm LD 18-034HC
Field	Wattenburg	Well	B-Farm LD 18-034HC
Installation	B-Farm	Wellbore	B-Farm LD 18-034HC (AWB)



East (Feet) ->

Scale 1 cm = 400 ft

<- True Vertical Depth (Feet)

Scale 1 cm = 600 ft

Fig. 08.51 (deg) Field 02296.6 m/T
Lat 43N 09 33000 Long 97 104 09 20000
To convert azimuth from Magnetic to TRUE add 35 deg

460 Setback: 8669 / 7960 MD/TVD, 460 FNL, 1543 FEL Sec 07
Top Perf: 8800 / 7969 MD/TVD, 590 FNL, 1541 FEL Sec 07

9.625" Csg: 1718 MD/TVD

460 Setback: 8669 / 7960 MD/TVD, 460 FNL, 1543 FEL Sec 07
Top Perf: 8800 / 7969 MD/TVD, 590 FNL, 1541 FEL Sec 07

Btm Perf: 13,752 / 7966 MD/TVD, 274 FNL, 1540 FEL Sec 18
Btm Toe Sub: 13,786 / 7967 MD/TVD, 308 FNL, 1540 FEL Sec 18
310 Setback: 13,788 / 7967 MD/TVD, 310 FNL, 1540 FEL Sec 18
PBTD: 13,825 / 7968 MD/TVD, 347 FNL, 1541 FEL Sec 18
5.5" Csg: 13,833 / 7968 MD/TVD, 356 FNL, 1541 FEL Sec 18
BHL: 13,833 / 7968 MD/TVD, 355 FNL, 1541 FEL Sec 18

Btm Perf: 13,752 / 7966 MD/TVD, 274 FNL, 1540 FEL Sec 18
Btm Toe Sub: 13,786 / 7967 MD/TVD, 308 FNL, 1540 FEL Sec 18
310 Setback: 13,788 / 7967 MD/TVD, 310 FNL, 1540 FEL Sec 18
PBTD: 13,825 / 7968 MD/TVD, 347 FNL, 1541 FEL Sec 18
5.5" Csg: 13,833 / 7968 MD/TVD, 356 FNL, 1541 FEL Sec 18
BHL: 13,833 / 7968 MD/TVD, 355 FNL, 1541 FEL Sec 18

Vertical Section (Feet) ->

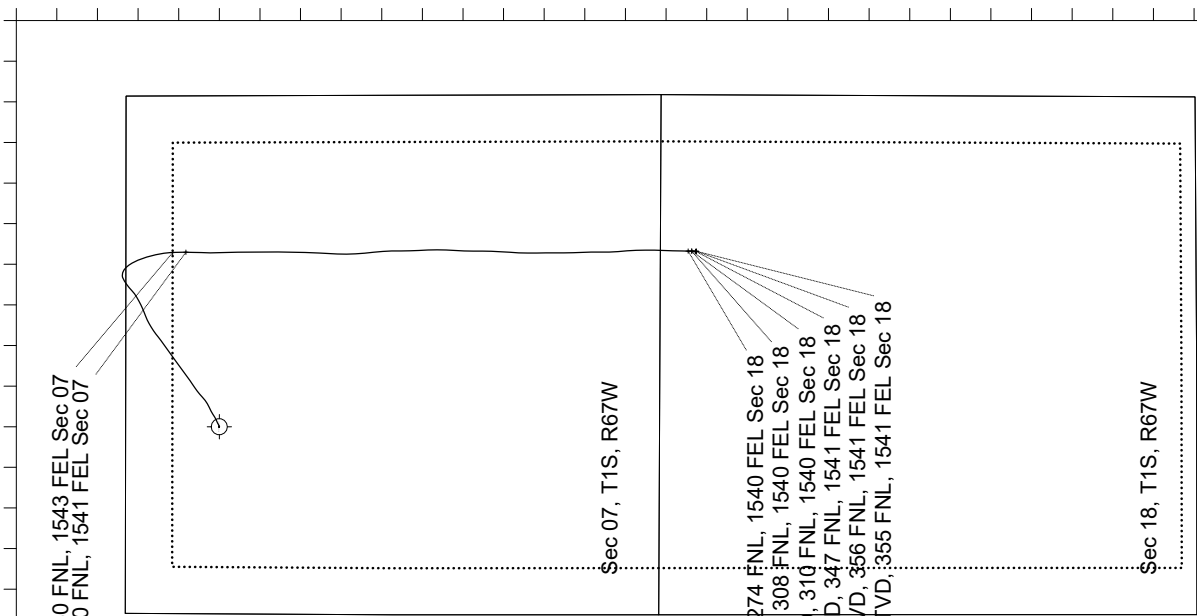
Scale 1 cm = 600 ft

Azimuth 159.80 with reference 0.00 N, 0.00 E from E-10 - B-Farm LD 18-034HC

<- North(Feet)

Scale 1 cm = 400 ft

1600 800 0 -800 -1600 -2400 -3200 -4000 -4800 -5600 -6400 -7200 -8000 -8800 -9600 -10400



Great Western Operating Co, LLC Directional Survey Report Wellpath: B-Farm LD 18-034HC MDs and TVDs are from Rig Floor 5144.5ft above Mean Sea Level

Wellbore Information

Date Created	Date Revised	API #	RKB above GL	Well Name
Nov-8-2018	Jun-4-2019	05-001-10098	20.00	B-Farm LD 18-034HC

Slot Coordinates

Latitude	Longitude
39.98382100	-104.93367100

Pad Information

Pad Name	Ground Elev.
B-Farm	5124.50

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
0.00	0.00	0.000	0.00	0.00	0.00		0.00	39.98382100	-104.93367100
20.00	0.00	153.230	20.00	0.00	0.00	==>	0.00	39.98382100	-104.93367100
214.00	1.10	153.230	213.99	-1.66	0.84	0.57	1.85	39.98381644	-104.93366801
309.00	0.09	78.170	308.98	-2.46	1.32	1.14	2.77	39.98381424	-104.93366628
404.00	0.26	81.600	403.98	-2.41	1.61	0.18	2.82	39.98381437	-104.93366526
500.00	0.40	27.020	499.98	-2.08	1.98	0.34	2.64	39.98381528	-104.93366395
595.00	0.04	323.650	594.98	-1.76	2.11	0.40	2.38	39.98381616	-104.93366348
690.00	1.05	26.670	689.97	-0.96	2.48	1.09	1.75	39.98381837	-104.93366216
786.00	1.01	40.380	785.96	0.47	3.42	0.26	0.74	39.98382230	-104.93365879
881.00	0.66	0.480	880.95	1.66	3.97	0.69	-0.19	39.98382555	-104.93365684
976.00	0.97	327.340	975.94	2.88	3.54	0.58	-1.48	39.98382891	-104.93365837
1070.00	1.32	326.990	1069.92	4.46	2.52	0.37	-3.32	39.98383324	-104.93366201
1165.00	0.83	284.710	1164.91	5.55	1.26	0.95	-4.78	39.98383624	-104.93366651
1261.00	0.57	228.900	1260.90	5.41	0.23	0.72	-5.00	39.98383586	-104.93367019
1356.00	0.83	237.340	1355.89	4.73	-0.71	0.29	-4.69	39.98383399	-104.93367353
1451.00	0.70	237.690	1450.88	4.05	-1.78	0.14	-4.42	39.98383212	-104.93367735
1546.00	0.70	201.130	1545.88	3.20	-2.48	0.46	-3.86	39.98382978	-104.93367985
1640.00	0.70	133.010	1639.87	2.27	-2.27	0.83	-2.92	39.98382724	-104.93367909
1668.00	0.66	132.660	1667.87	2.05	-2.02	0.14	-2.62	39.98382662	-104.93367822
1718.00	0.40	130.990	1717.87	1.74	-1.68	0.52	-2.21	39.98382577	-104.93367699
1800.00	0.04	2.970	1799.87	1.58	-1.46	0.52	-1.98	39.98382533	-104.93367621
1889.00	0.04	173.260	1888.87	1.58	-1.46	0.09	-1.98	39.98382533	-104.93367619
1979.00	0.10	153.770	1978.87	1.48	-1.42	0.07	-1.87	39.98382505	-104.93367606
2068.00	0.15	356.900	2067.87	1.52	-1.39	0.28	-1.91	39.98382518	-104.93367596
2158.00	0.04	172.840	2157.87	1.61	-1.39	0.21	-1.99	39.98382542	-104.93367597
2247.00	0.22	209.560	2246.87	1.43	-1.47	0.21	-1.85	39.98382492	-104.93367625
2336.00	0.09	278.220	2335.87	1.29	-1.63	0.23	-1.77	39.98382454	-104.93367680
2426.00	0.25	115.500	2425.87	1.22	-1.52	0.37	-1.67	39.98382434	-104.93367642
2515.00	0.06	72.100	2514.87	1.15	-1.30	0.24	-1.53	39.98382415	-104.93367563
2604.00	0.03	165.490	2603.87	1.14	-1.25	0.08	-1.50	39.98382413	-104.93367546
2694.00	0.19	222.140	2693.86	1.01	-1.34	0.19	-1.41	39.98382376	-104.93367579
2783.00	0.26	191.060	2782.86	0.70	-1.48	0.16	-1.17	39.98382292	-104.93367628
2872.00	0.26	97.340	2871.86	0.47	-1.32	0.43	-0.90	39.98382230	-104.93367571
2962.00	0.34	331.700	2961.86	0.68	-1.24	0.59	-1.07	39.98382287	-104.93367544
3051.00	0.07	137.560	3050.86	0.88	-1.33	0.46	-1.28	39.98382340	-104.93367575
3141.00	0.28	147.960	3140.86	0.65	-1.18	0.24	-1.02	39.98382278	-104.93367520
3230.00	0.25	234.600	3229.86	0.35	-1.22	0.41	-0.75	39.98382197	-104.93367536
3319.00	0.17	178.350	3318.86	0.11	-1.38	0.24	-0.58	39.98382129	-104.93367591
3409.00	0.07	283.080	3408.86	-0.01	-1.42	0.22	-0.48	39.98382096	-104.93367608
3499.00	0.87	77.890	3498.86	0.14	-0.81	1.04	-0.41	39.98382139	-104.93367389
3588.00	3.44	73.500	3587.79	1.04	2.41	2.89	-0.15	39.98382386	-104.93366240
3678.00	5.99	71.140	3677.48	3.33	9.45	2.84	0.14	39.98383013	-104.93363730
3767.00	8.01	62.000	3765.81	7.74	19.32	2.58	-0.60	39.98384225	-104.93360207
3856.00	11.27	61.610	3853.54	14.79	32.45	3.66	-2.68	39.98386160	-104.93355522
3946.00	13.49	68.750	3941.45	22.78	49.97	2.99	-4.13	39.98388352	-104.93349269
4035.00	17.70	66.290	4027.15	31.98	72.04	4.79	-5.15	39.98390880	-104.93341392
4125.00	19.71	54.080	4112.43	46.39	96.87	4.88	-10.10	39.98394836	-104.93332531
4214.00	22.29	57.540	4195.51	64.26	123.27	3.22	-17.75	39.98399740	-104.93323110
4303.00	25.19	63.310	4276.99	81.83	154.45	4.17	-23.48	39.98404564	-104.93311985
4393.00	26.80	65.650	4357.88	98.80	190.05	2.12	-27.12	39.98409223	-104.93299281
4482.00	27.06	59.510	4437.24	117.35	225.78	3.14	-32.19	39.98414314	-104.93286531
4572.00	27.11	51.630	4517.40	140.48	259.51	3.98	-42.25	39.98420662	-104.93274494
4661.00	26.82	48.110	4596.73	166.47	290.35	1.82	-56.00	39.98427798	-104.93263486
4751.00	26.88	50.200	4677.03	193.05	321.10	1.05	-70.33	39.98435094	-104.93252514
4841.00	26.92	51.990	4757.29	218.62	352.79	0.90	-83.39	39.98442113	-104.93241207
4930.00	27.12	56.400	4836.58	242.26	385.56	2.26	-94.26	39.98448601	-104.93229512
5020.00	27.21	56.140	4916.66	265.07	419.73	0.17	-103.87	39.98454864	-104.93217317
5109.00	26.90	56.420	4995.92	287.55	453.40	0.38	-113.34	39.98461033	-104.93205302
5198.00	27.14	56.670	5075.20	309.84	487.14	0.30	-122.62	39.98467152	-104.93193263
5288.00	27.11	51.840	5155.31	333.79	520.42	2.45	-133.61	39.98473727	-104.93181387
5377.00	27.20	50.360	5234.51	359.29	552.02	0.77	-146.63	39.98480728	-104.93170107
5466.00	27.01	51.690	5313.73	384.80	583.55	0.71	-159.69	39.98487729	-104.93158858
5556.00	26.71	55.290	5394.03	408.99	616.21	1.84	-171.11	39.98494369	-104.93147201
5645.00	27.25	55.910	5473.34	431.80	649.53	0.68	-181.02	39.98500630	-104.93135312
5735.00	27.28	54.630	5553.34	455.29	683.41	0.65	-191.36	39.98507078	-104.93123220
5825.00	27.16	52.470	5633.38	479.74	716.52	1.11	-202.88	39.98513790	-104.93111405
5914.00	27.08	55.110	5712.59	503.70	749.25	1.36	-214.07	39.98520368	-104.93099726
6004.00	27.26	55.750	5792.66	527.02	783.09	0.38	-224.28	39.98526768	-104.93087649
6093.00	27.25	54.680	5871.78	550.27	816.56	0.55	-234.54	39.98533151	-104.93075704
6182.00	27.21	53.100	5950.92	574.27	849.46	0.81	-245.71	39.98539738	-104.93063964
6272.00	27.17	51.700	6030.98	599.36	882.04	0.71	-258.01	39.98546625	-104.93052337
6361.00	27.16	51.930	6110.16	624.48	913.98	0.12	-270.56	39.98553521	-104.93040939
6451.00	27.02	54.710	6190.29	648.96	946.84	1.42	-282.19	39.98560240	-104.93029212
6540.00	27.28	59.730	6269.49	670.92	980.96	2.59	-291.02	39.98566268	-104.93017036
6629.00	26.62	60.710	6348.83	690.96	1015.96	0.89	-297.74	39.98571768	-104.93004543
6719.00	27.10	65.060	6429.13	709.47	1052.14	2.25	-302.62	39.98576849	-104.92991633
6808.00	26.79	67.740	6508.47	725.61	1089.09	1.41	-305.02	39.98581281	-104.92978448
6898.00	26.75	68.280	6588.82	740.79	1126.67	0.27	-306.29	39.98585447	-104.92965034
6987.00	27.06	66.880	6668.19	756.15	1163.90	0.79	-307.86	39.98589664	-104.92951750
7076.00	27.68	64.210	6747.23	773.10	1201.13	1.54	-310.91	39.98594314	-104.92938463
7165.00	27.68	59.600	6826.05	792.55	1237.58	2.41	-316.58	39.98599655	-104.92925456
7255.00	27.48	61.980	6905.83	812.89	1273.94	1.24	-323.11	39.98605236	-104.92912479
7344.00	27.64	53.270	6984.76	834.89	1308.63	4.53	-331.79	39.98611275	-104.92900100
7433.00	27.29	45.780	7063.75	861.47	1339.80	3.90	-345.97	39.98618572	-104.92888974
7523.00	27.18	51.830	7143.79	888.57	1370.76	3.08	-360.72	39.98626010	-104.92877928
7612.00	27.29	54.340	7222.93	913.03	1403.32	1.30	-372.43	39.98632724	-104.92866308
7701.00	27.21	56.070	7302.05	936.28	1436.78	0.89	-382.71	39.98639106	-104.92854367
7790.00	24.40	73.970	7382.29	952.74	1471.39	9.27	-386.21	39.98643625	-104.92842015
7880.00	22.80	100.890	7465.00	954.59	1506.48	12.01	-375.82	39.98644131	-104.92829490
7969.00	25.23	120.570	7546.42	941.66	1539.81	9.36	-352.19	39.98640581	-104.92817598
8059.00	30.36	137.820	7626.14	914.99	1571.67	10.55	-316.15	39.98633259	-104.92806229
8148.00	36.38	149.550	7700.51	875.49	1600.20	9.89	-269.23	39.98622416	-104.92796047
8237.00	43.89	154.370	7768.52	824.83	1626.97	9.13	-212.45	39.98608510	-104.92786497
8327.00	51.64	158.460	7828.99	763.78	1653.47	9.24	-146.00	39.98591749	-104.92777042

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
8416.00	59.64	163.500	7879.20	694.36	1677.23	10.13	-72.65	39.98572693	-104.92768563
8505.00	68.08	168.750	7918.39	616.87	1696.24	10.86	6.64	39.98551421	-104.92761783
8594.00	76.59	173.260	7945.39	533.20	1709.40	10.71	89.71	39.98528453	-104.92757087
8668.48	81.12	176.600	7959.79	460.44	1715.84	7.51	160.22	39.98508479	-104.92754791
8669.22	81.17	176.630	7959.90	459.71	1715.88	7.50	160.92	39.98508279	-104.92754776
8684.00	82.07	177.280	7962.05	445.11	1716.66	7.50	174.89	39.98504270	-104.92754499
8773.00	89.32	180.220	7968.73	356.45	1718.58	8.79	258.76	39.98479933	-104.92753815
8800.00	89.32	180.510	7969.05	329.45	1718.41	1.07	284.04	39.98472522	-104.92753877
8863.00	89.32	181.180	7969.80	266.46	1717.48	1.07	342.84	39.98455231	-104.92754209
8952.00	88.28	181.660	7971.66	177.51	1715.28	1.29	425.56	39.98430813	-104.92754998
9041.00	88.44	181.180	7974.21	88.58	1713.07	0.57	508.26	39.98406399	-104.92755787
9131.00	88.21	178.790	7976.84	-1.38	1713.10	2.67	592.70	39.98381705	-104.92755781
9220.00	89.48	178.710	7978.64	-90.34	1715.04	1.43	676.86	39.98357285	-104.92755091
9309.00	89.45	178.270	7979.47	-179.30	1717.38	0.50	761.16	39.98332863	-104.92754256
9399.00	89.48	178.340	7980.31	-269.26	1720.04	0.08	846.51	39.98308169	-104.92753308
9488.00	89.66	179.000	7980.98	-358.23	1722.11	0.77	930.72	39.98283745	-104.92752573
9578.00	89.42	179.610	7981.70	-448.22	1723.20	0.73	1015.56	39.98259042	-104.92752186
9667.00	89.48	179.970	7982.55	-537.22	1723.53	0.41	1099.19	39.98234612	-104.92752072
9757.00	89.60	183.650	7983.28	-627.15	1720.69	4.09	1182.62	39.98209924	-104.92753088
9846.00	89.35	181.980	7984.09	-716.04	1716.32	1.90	1264.53	39.98185524	-104.92754650
9936.00	89.38	179.890	7985.09	-806.02	1714.85	2.32	1348.47	39.98160824	-104.92755176
10025.00	89.94	181.630	7985.62	-895.00	1713.67	2.05	1431.58	39.98136397	-104.92755600
10114.00	89.82	182.720	7985.80	-983.94	1710.29	1.23	1513.88	39.98111983	-104.92756807
10204.00	90.09	183.390	7985.87	-1073.81	1705.49	0.80	1596.57	39.98087313	-104.92758521
10293.00	89.78	182.530	7985.97	-1162.69	1700.90	1.03	1678.40	39.98062914	-104.92760163
10383.00	89.75	178.590	7986.34	-1252.67	1700.02	4.38	1762.54	39.98038215	-104.92760479
10472.00	91.32	176.860	7985.51	-1341.59	1703.55	2.62	1847.21	39.98013805	-104.92759221
10562.00	91.20	175.040	7983.53	-1431.34	1709.90	2.03	1933.64	39.97989168	-104.92756955
10651.00	90.31	173.640	7982.36	-1519.89	1718.68	1.86	2019.78	39.97964858	-104.92753826
10741.00	90.12	175.690	7982.02	-1609.50	1727.05	2.29	2106.76	39.97940261	-104.92750842
10830.00	90.22	178.840	7981.76	-1698.38	1731.29	3.54	2191.65	39.97915861	-104.92749329
10919.00	89.94	180.760	7981.63	-1787.38	1731.61	2.18	2275.28	39.97891430	-104.92749221
11009.00	90.03	177.940	7981.66	-1877.36	1732.63	3.13	2360.09	39.97866729	-104.92748859
11098.00	90.03	176.920	7981.61	-1966.27	1736.62	1.15	2444.91	39.97842322	-104.92747437
11187.00	90.06	178.350	7981.54	-2055.20	1740.29	1.61	2529.63	39.97817912	-104.92746129
11277.00	90.03	179.910	7981.47	-2145.18	1741.66	1.73	2614.56	39.97793210	-104.92745643
11366.00	89.97	182.230	7981.47	-2234.16	1739.99	2.61	2697.49	39.97768784	-104.92746239
11455.00	90.52	183.290	7981.09	-2323.05	1735.71	1.34	2779.44	39.97744382	-104.92747770
11544.00	90.18	182.210	7980.55	-2411.95	1731.44	1.27	2861.40	39.97719980	-104.92749296
11634.00	90.09	180.300	7980.33	-2501.92	1729.47	2.12	2945.16	39.97695281	-104.92750001
11723.00	90.43	180.240	7979.93	-2590.92	1729.05	0.39	3028.54	39.97670850	-104.92750153
11812.00	90.31	181.790	7979.36	-2679.90	1727.47	1.75	3111.51	39.97646424	-104.92750718
11902.00	90.12	182.970	7979.02	-2769.82	1723.73	1.33	3194.61	39.97621740	-104.92752054
11991.00	90.18	184.500	7978.79	-2858.63	1717.94	1.72	3275.96	39.97597362	-104.92754124
12081.00	90.06	182.280	7978.60	-2948.47	1712.62	2.47	3358.43	39.97572701	-104.92756025
12170.00	90.34	180.010	7978.29	-3037.44	1710.84	2.57	3441.32	39.97548276	-104.92756662
12260.00	90.15	179.530	7977.90	-3127.44	1711.20	0.57	3525.91	39.97523571	-104.92756535
12349.00	90.89	179.780	7977.09	-3216.44	1711.73	0.88	3609.62	39.97499141	-104.92756346
12438.00	90.12	179.350	7976.31	-3305.43	1712.41	0.99	3693.38	39.97474711	-104.92756107
12528.00	91.54	179.890	7975.01	-3395.41	1713.01	1.69	3778.04	39.97450009	-104.92755897
12617.00	90.15	178.950	7973.69	-3484.40	1713.91	1.89	3861.86	39.97425583	-104.92755577
12706.00	90.15	177.260	7973.46	-3573.34	1716.85	1.90	3946.36	39.97401165	-104.92754530
12796.00	91.14	178.390	7972.45	-3663.27	1720.27	1.67	4031.93	39.97376480	-104.92753313
12885.00	91.26	181.350	7970.58	-3752.24	1720.47	3.33	4115.50	39.97352056	-104.92753243
12974.00	92.06	179.070	7968.00	-3841.20	1720.14	2.71	4198.88	39.97327637	-104.92753362
13062.00	91.97	174.290	7964.91	-3928.97	1725.23	5.43	4283.01	39.97303543	-104.92751547
13151.00	90.52	175.270	7962.97	-4017.58	1733.33	1.97	4368.96	39.97279219	-104.92748661
13241.00	89.88	178.650	7962.66	-4107.44	1738.10	3.82	4454.95	39.97254552	-104.92746961
13331.00	90.06	179.570	7962.71	-4197.42	1739.50	1.04	4539.88	39.97229849	-104.92746465
13420.00	89.88	181.000	7962.75	-4286.42	1739.06	1.62	4623.26	39.97205419	-104.92746625
13509.00	89.97	182.470	7962.87	-4375.38	1736.36	1.65	4705.81	39.97180999	-104.92747588
13599.00	90.06	181.250	7962.85	-4465.33	1733.44	1.36	4789.23	39.97156307	-104.92748633
13689.00	88.15	181.240	7964.25	-4555.29	1731.49	2.12	4872.98	39.97131611	-104.92749333
13752.00	88.24	181.130	7966.24	-4618.25	1730.18	0.22	4931.62	39.97114329	-104.92749799
13778.00	88.28	181.090	7967.02	-4644.23	1729.68	0.22	4955.83	39.97107197	-104.92749980
13785.55	88.48	181.120	7967.24	-4651.78	1729.53	2.65	4962.86	39.97105125	-104.92750032
13786.00	88.49	181.120	7967.25	-4652.23	1729.52	2.65	4963.28	39.97105002	-104.92750035
13787.77	88.54	181.130	7967.30	-4653.99	1729.49	2.72	4964.93	39.97104516	-104.92750048
13809.00	89.11	181.200	7967.73	-4675.22	1729.06	2.72	4984.70	39.97098691	-104.92750202
13824.51	89.11	181.200	7967.97	-4690.72	1728.73	==>	4999.14	39.97094435	-104.92750318
13825.00	89.11	181.200	7967.98	-4691.21	1728.72	==>	4999.59	39.97094300	-104.92750322
13833.00	89.11	181.200	7968.10	-4699.21	1728.55	==>	5007.04	39.97092105	-104.92750382

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1718.00	1717.87	1.74	-1.68	39.98382577	-104.93367699	9.625" Csg: 1718 MD/TVD
8669.22	7959.90	459.71	1715.88	39.98508279	-104.92754776	460 Setback: 8669 / 7960 MD/TVD, 460 FNL, 1543 FEL Sec 07
8800.00	7969.05	329.45	1718.41	39.98472522	-104.92753877	Top Perf: 8800 / 7969 MD/TVD, 590 FNL, 1541 FEL Sec 07
13752.00	7966.24	-4618.25	1730.18	39.97114329	-104.92749799	Btm Perf: 13,752 / 7966 MD/TVD, 274 FNL, 1540 FEL Sec 18
13785.55	7967.24	-4651.78	1729.53	39.97105125	-104.92750032	Btm Toe Sub: 13,786 / 7967 MD/TVD, 308 FNL, 1540 FEL Sec 18
13787.77	7967.30	-4653.99	1729.49	39.97104516	-104.92750048	310 Setback: 13,788 / 7967 MD/TVD, 310 FNL, 1540 FEL Sec 18
13824.51	7967.97	-4690.72	1728.73	39.97094435	-104.92750318	PBTD: 13,825 / 7968 MD/TVD, 347 FNL, 1541 FEL Sec 18
13833.00	7968.10	-4699.21	1728.55	39.97092105	-104.92750382	5.5" Csg: 13,833 / 7968 MD/TVD, 356 FNL, 1541 FEL Sec 18
13833.00	7968.10	-4699.21	1728.55	39.97092105	-104.92750382	BHL: 13,833 / 7968 MD/TVD, 355 FNL, 1541 FEL Sec 18

Hole Sections

Diameter [in]	Start MD[ft]	Start TVD[ft]	Start North[ft]	Start East[ft]	End MD[ft]	End TVD[ft]	End North[ft]	End East[ft]
13.500	0.00	0.00	0.00	0.00	1718.00	1717.87	1.74	-1.68
8.500	1718.00	1717.87	1.74	-1.68	13833.00	7968.10	-4699.21	1728.55

Casings

Name	Top MD[ft]	Top TVD[ft]	Top North[ft]	Top East[ft]	Shoe MD[ft]	Shoe TVD[ft]	Shoe North[ft]	Shoe East[ft]
9 5/8in Casing	0.00	0.00	0.00	0.00	1718.00	1717.87	1.74	-1.68
5 1/2in Casing	0.00	0.00	0.00	0.00	13833.00	7968.10	-4699.21	1728.55

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
485824	As Drilled - 20181108	13833.00	7968.10	MWD

Coordinates are from Slot
MD's and TVD's are from Rig Floor 5144.5ft above Mean Sea Level
Vertical Section is from 0.00 0.00 on azimuth 159.800 degrees
Bottom hole distance is 5007.04 Feet on azimuth 159.80 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Great Western Operating Co.
Date Printed: