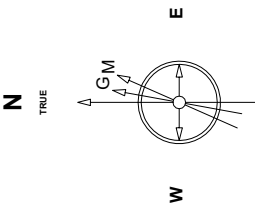
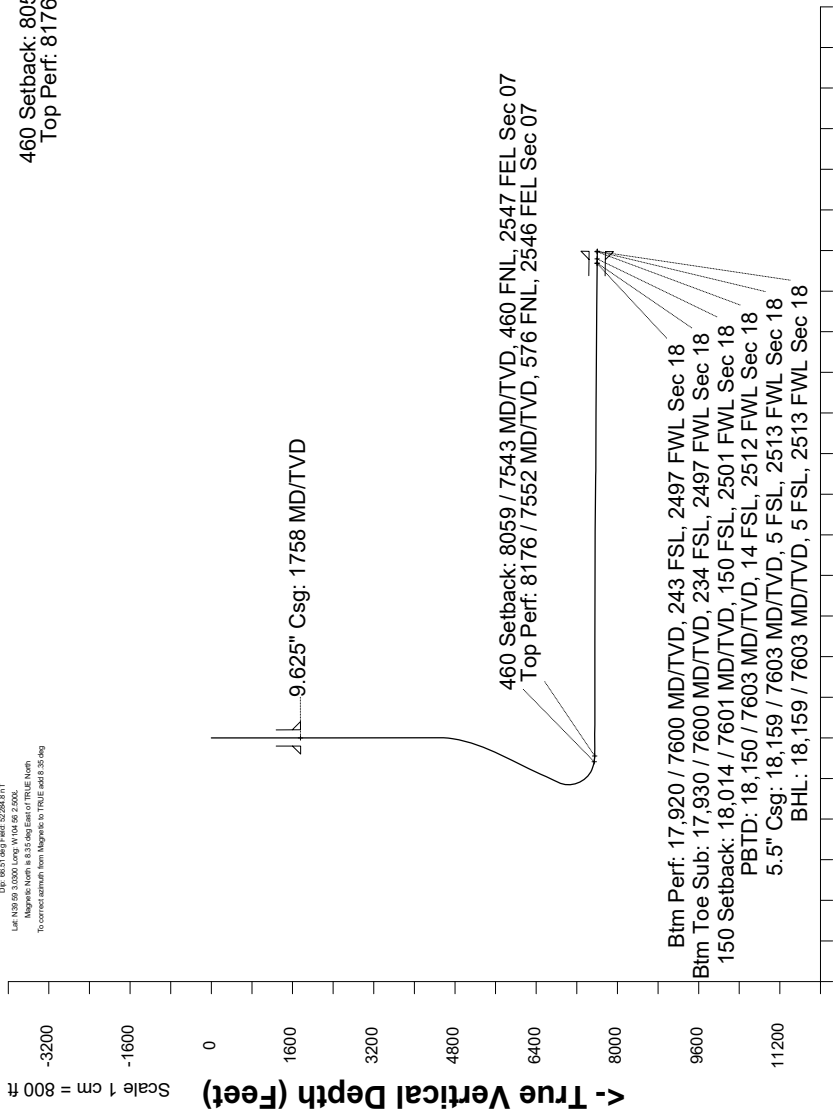


# Great Western Operating Company, LLC

Location	Colorado	Slot	E-16 - B-Farm LD 18-391HNX	Created by	admin
Field	Wattenburg	Well	B-Farm LD 18-391HNX	Date plotted	4-Jun-2019
Installation	B-Farm	Wellbore	B-Farm LD 18-391HNX (AWB)	Plot reference is B-Farm LD 18-391HNX (AWB).	
Scale 1 cm = 400 ft				Ref wellpath is B-Farm LD 18-391HNX (AWP#1).	
				Coordinates are in Feet reference E-16 - B-Farm LD 18-391HNX	
				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.	



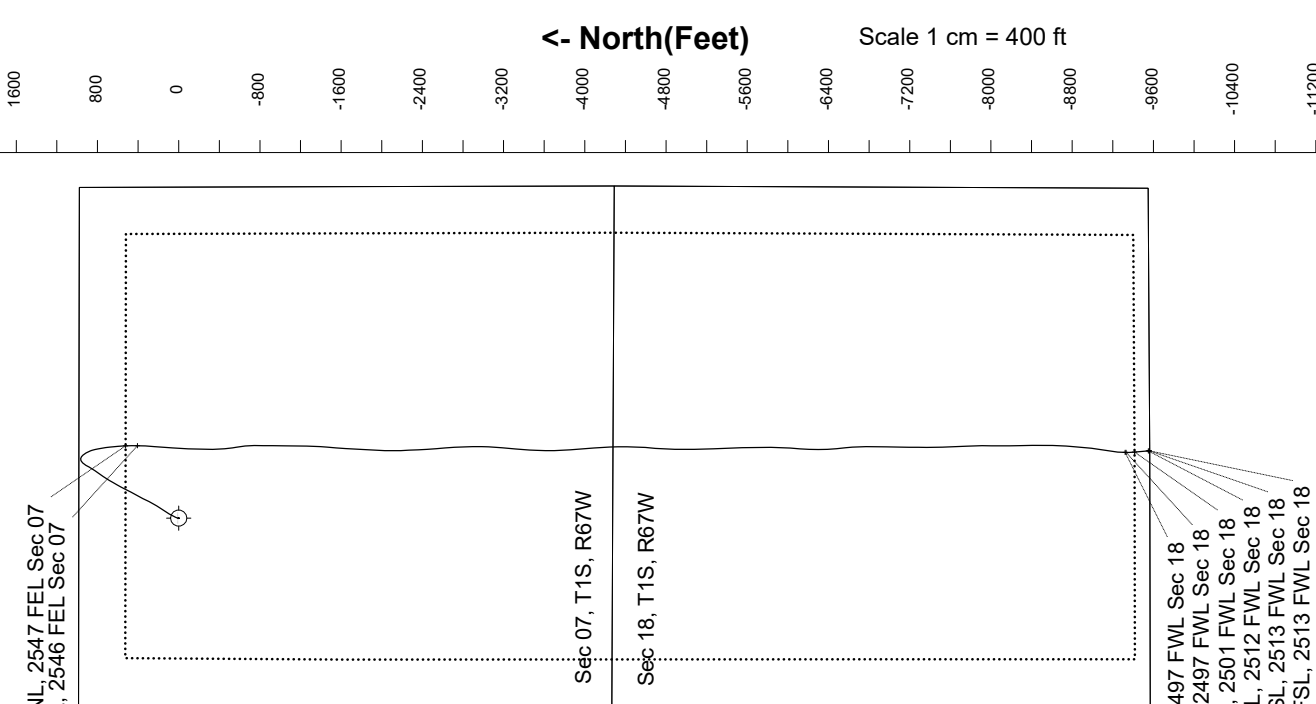
Step-2-2016  
Dip: 48.51 deg / Field: 52.266 deg / T  
Lat: 43.02 deg / Longitude: 104.09 / 2.000  
To convert azimuth from Magnetic to TRUE add 0.35 deg



Scale 1 cm = 800 ft

**Vertical Section (Feet) ->**

**Azimuth 176.03 with reference 0.00 N, 0.00 E from E-16 - B-Farm LD 18-391HNX**



Great Western Operating Co, LLC  
Directional Survey Report  
Wellpath: B-Farm LD 18-391HNX  
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
Mar-17-2019	Jun-4-2019	05-001-10258	20.00	B-Farm LD 18-391HNX

**Slot Coordinates**

Latitude	Longitude
39.98365300	-104.93367200

**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	39.98365300	-104.93367200
20.00	0.00	86.690	20.00	0.00	0.00	==>	0.00	39.98365300	-104.93367200
161.00	0.18	86.690	161.00	0.01	0.22	0.13	0.00	39.98365304	-104.93367121
246.00	0.26	98.120	246.00	-0.01	0.55	0.11	0.04	39.98365298	-104.93367005
306.00	0.26	112.360	306.00	-0.08	0.81	0.11	0.13	39.98365279	-104.93366912
396.00	0.31	118.250	396.00	-0.27	1.21	0.06	0.35	39.98365226	-104.93366768
486.00	0.57	318.990	486.00	-0.05	1.13	0.96	0.13	39.98365287	-104.93366797
576.00	0.18	344.040	575.99	0.43	0.80	0.46	-0.37	39.98365417	-104.93366915
666.00	0.40	352.480	665.99	0.87	0.72	0.25	-0.82	39.98365540	-104.93366944
756.00	0.70	346.940	755.99	1.72	0.55	0.34	-1.68	39.98365772	-104.93367003
846.00	0.75	340.520	845.98	2.81	0.23	0.11	-2.79	39.98366072	-104.93367117
936.00	0.44	265.290	935.98	3.34	-0.31	0.85	-3.35	39.98366216	-104.93367310
1026.00	0.18	98.120	1025.98	3.29	-0.51	0.69	-3.32	39.98366203	-104.93367383
1116.00	0.53	127.210	1115.98	3.02	-0.04	0.43	-3.01	39.98366128	-104.93367215
1206.00	0.75	145.930	1205.97	2.28	0.62	0.33	-2.23	39.98365925	-104.93366979
1296.00	1.19	248.410	1295.96	1.45	0.08	1.71	-1.44	39.98365697	-104.93367171
1386.00	0.48	316.180	1385.95	1.37	-1.05	1.22	-1.44	39.98365677	-104.93367575
1476.00	0.57	351.510	1475.95	2.09	-1.38	0.37	-2.18	39.98365873	-104.93367691
1566.00	0.53	129.320	1565.95	2.27	-1.12	1.14	-2.34	39.98365923	-104.93367600
1656.00	1.10	151.730	1655.94	1.24	-0.39	0.71	-1.27	39.98365641	-104.93367339
1707.00	0.53	174.760	1706.93	0.58	-0.14	1.27	-0.59	39.98365459	-104.93367249
1758.00	0.25	172.320	1757.93	0.23	-0.10	0.54	-0.24	39.98365363	-104.93367236
1794.00	0.06	156.890	1793.93	0.13	-0.08	0.54	-0.14	39.98365337	-104.93367229
1884.00	0.04	16.220	1883.93	0.12	-0.05	0.10	-0.13	39.98365333	-104.93367220
1973.00	0.00	8.270	1972.93	0.15	-0.05	0.04	-0.15	39.98365342	-104.93367216
2063.00	0.03	227.280	2062.93	0.14	-0.06	0.03	-0.14	39.98365337	-104.93367223
2153.00	0.37	349.970	2152.93	0.41	-0.13	0.43	-0.41	39.98365411	-104.93367247
2242.00	0.21	301.590	2241.93	0.77	-0.32	0.31	-0.79	39.98365513	-104.93367314
2332.00	1.25	66.050	2331.92	1.26	0.44	1.53	-1.23	39.98365646	-104.93367044
2422.00	1.73	78.850	2421.89	1.92	2.67	0.65	-1.73	39.98365827	-104.93366248
2512.00	0.19	166.040	2511.88	2.04	4.04	1.92	-1.75	39.98365860	-104.93365760
2601.00	0.99	253.680	2600.87	1.68	3.33	1.12	-1.44	39.98365761	-104.93366011
2691.00	3.20	244.860	2690.81	0.39	0.31	2.47	-0.37	39.98365408	-104.93367088
2781.00	0.20	158.540	2780.76	-0.82	-1.90	3.55	0.69	39.98365075	-104.93367880
2870.00	0.04	121.840	2869.76	-0.98	-1.82	0.19	0.85	39.98365031	-104.93367850
2960.00	0.03	192.120	2959.76	-1.02	-1.80	0.05	0.89	39.98365020	-104.93367842
3050.00	0.10	244.810	3049.76	-1.08	-1.88	0.09	0.95	39.98365004	-104.93367869
3140.00	0.34	221.980	3139.76	-1.31	-2.13	0.28	1.16	39.98364941	-104.93367958
3229.00	0.26	198.490	3228.76	-1.70	-2.37	0.16	1.53	39.98364834	-104.93368044
3319.00	0.14	270.150	3318.76	-1.89	-2.54	0.28	1.71	39.98364781	-104.93368107
3409.00	0.04	218.700	3408.76	-1.91	-2.67	0.13	1.73	39.98364774	-104.93368153
3498.00	0.14	235.670	3497.76	-2.00	-2.78	0.12	1.80	39.98364751	-104.93368192
3588.00	0.44	120.140	3587.76	-2.24	-2.57	0.57	2.05	39.98364686	-104.93368118
3678.00	0.88	188.070	3677.75	-3.09	-2.37	0.91	2.92	39.98364451	-104.93368046
3768.00	0.03	259.040	3767.75	-3.78	-2.49	0.97	3.60	39.98364262	-104.93368088
3857.00	0.09	212.340	3856.75	-3.85	-2.55	0.08	3.66	39.98364244	-104.93368110
3947.00	0.26	229.110	3946.75	-4.04	-2.74	0.20	3.84	39.98364191	-104.93368179
4037.00	0.98	13.760	4036.75	-3.43	-2.71	1.34	3.23	39.98364360	-104.93368168
4127.00	0.22	281.620	4126.74	-2.64	-2.70	1.12	2.45	39.98364574	-104.93368163
4216.00	0.04	258.670	4215.74	-2.61	-2.90	0.21	2.41	39.98364582	-104.93368234
4306.00	0.09	216.840	4305.74	-2.68	-2.97	0.07	2.47	39.98364565	-104.93368260
4396.00	0.11	232.430	4395.74	-2.79	-3.08	0.04	2.57	39.98364535	-104.93368300
4486.00	1.01	201.950	4485.73	-3.58	-3.45	1.02	3.33	39.98364319	-104.93368430
4575.00	2.44	5.310	4574.71	-2.42	-3.56	3.84	2.16	39.98364637	-104.93368472
4665.00	6.97	17.970	4664.39	4.69	-1.70	5.13	-4.80	39.98366587	-104.93367807
4755.00	9.89	21.910	4753.41	17.06	2.87	3.31	-16.82	39.98369982	-104.93366176
4844.00	13.03	24.280	4840.62	33.30	9.85	3.57	-32.54	39.98374441	-104.93363686
4934.00	15.70	26.210	4927.80	53.48	19.40	3.01	-52.01	39.98379980	-104.93360277
5024.00	18.12	28.030	5013.90	76.76	31.36	2.75	-74.41	39.98386371	-104.93356010
5114.00	21.22	32.690	5098.65	102.83	46.74	3.86	-99.35	39.98393527	-104.93350523
5203.00	21.00	33.260	5181.68	129.72	64.18	0.34	-124.97	39.98400909	-104.93344297
5293.00	21.08	33.520	5265.68	156.70	81.96	0.14	-150.65	39.98408315	-104.93337951
5383.00	23.74	31.850	5348.87	185.58	100.46	3.04	-178.19	39.98416245	-104.93331349
5473.00	26.24	31.370	5430.44	217.97	120.38	2.79	-209.12	39.98425134	-104.93324241
5562.00	29.26	30.170	5509.19	253.58	141.56	3.45	-243.18	39.98434909	-104.93316683
5652.00	30.02	27.700	5587.42	292.53	163.08	1.60	-280.55	39.98445602	-104.93309003
5742.00	29.74	25.280	5665.46	332.65	183.08	1.38	-319.19	39.98456615	-104.93301867
5832.00	29.44	26.710	5743.72	372.59	202.56	0.85	-357.69	39.98467580	-104.93294917
5921.00	29.91	28.660	5821.05	411.60	223.03	1.21	-395.19	39.98478288	-104.93287610
6011.00	29.97	29.060	5899.04	450.94	244.71	0.23	-432.94	39.98489087	-104.93279873
6101.00	30.02	28.100	5976.99	490.45	266.23	0.54	-470.86	39.98499933	-104.93272193

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
6191.00	30.15	26.990	6054.86	530.45	287.10	0.63	-509.33	39.98510914	-104.93264748
6280.00	29.65	27.720	6132.02	569.86	307.48	0.69	-547.23	39.98521730	-104.93257473
6370.00	29.65	29.130	6210.23	609.01	328.67	0.78	-584.82	39.98532478	-104.93249911
6460.00	30.26	29.850	6288.21	648.12	350.80	0.79	-622.31	39.98543215	-104.93242016
6549.00	29.91	30.120	6365.22	686.77	373.09	0.42	-659.32	39.98553823	-104.93234059
6639.00	29.90	33.740	6443.25	724.83	396.81	2.01	-695.65	39.98564273	-104.93225593
6729.00	30.24	36.480	6521.14	761.71	422.75	1.57	-730.65	39.98574396	-104.93216338
6818.00	30.18	34.810	6598.05	798.10	448.84	0.95	-765.15	39.98584385	-104.93207025
6908.00	30.01	32.180	6675.92	835.72	473.75	1.48	-800.96	39.98594713	-104.93198139
6998.00	30.18	30.390	6753.79	874.29	497.18	1.01	-837.81	39.98605299	-104.93189776
7087.00	30.20	29.870	6830.72	913.00	519.64	0.29	-874.87	39.98615925	-104.93181759
7177.00	23.90	45.620	6910.94	945.45	544.00	10.55	-905.56	39.98624834	-104.93173066
7267.00	16.30	69.620	6995.53	962.65	568.95	12.30	-921.00	39.98629556	-104.93164163
7357.00	16.21	107.070	7082.17	963.37	592.86	11.46	-920.06	39.98629751	-104.93155629
7446.00	19.78	136.750	7166.98	948.72	615.11	10.91	-903.91	39.98625730	-104.93147690
7536.00	27.05	147.410	7249.55	920.33	636.60	9.32	-874.10	39.98617938	-104.93140020
7626.00	35.71	157.150	7326.36	878.78	657.88	11.12	-831.18	39.98606531	-104.93132427
7715.00	44.82	166.150	7394.26	824.23	675.53	12.12	-775.53	39.98591556	-104.93126130
7805.00	54.86	170.930	7452.25	756.90	688.96	11.87	-707.44	39.98573072	-104.93121337
7895.00	66.55	173.180	7496.21	679.29	699.70	13.17	-629.27	39.98551769	-104.93117505
7984.00	74.55	175.860	7525.83	595.82	707.66	9.43	-545.46	39.98528857	-104.93114666
8059.48	79.83	177.850	7542.56	522.36	711.69	7.45	-471.89	39.98508691	-104.93113230
8074.00	80.85	178.220	7544.99	508.06	712.18	7.45	-457.59	39.98504764	-104.93113055
8164.00	89.94	180.510	7552.21	418.45	713.16	10.41	-368.13	39.98480166	-104.93112705
8176.00	89.95	180.850	7552.22	406.45	713.02	2.86	-356.17	39.98476873	-104.93112756
8254.00	90.03	183.080	7552.24	328.50	710.34	2.86	-278.59	39.98455475	-104.93113712
8343.00	89.97	184.060	7552.24	239.68	704.80	1.10	-190.36	39.98431091	-104.93115691
8433.00	89.60	184.840	7552.57	149.95	697.82	0.96	-101.33	39.98406460	-104.93118183
8523.00	89.54	184.110	7553.25	60.23	690.79	0.81	-12.31	39.98381831	-104.93120690
8612.00	89.54	182.640	7553.96	-28.61	685.55	1.65	75.95	39.98357443	-104.93122561
8702.00	89.97	181.540	7554.35	-118.55	682.27	1.31	165.45	39.98332754	-104.93123733
8792.00	90.09	181.930	7554.30	-208.51	679.55	0.45	255.00	39.98308060	-104.93124706
8881.00	90.00	180.690	7554.23	-297.48	677.51	1.40	343.63	39.98283635	-104.93125433
8971.00	89.88	178.350	7554.33	-387.47	678.27	2.60	433.45	39.98258932	-104.93125165
9061.00	89.97	173.450	7554.44	-477.22	684.70	5.45	523.43	39.98234297	-104.93122870
9151.00	89.91	170.310	7554.54	-566.30	697.41	3.49	613.18	39.98209842	-104.93118335
9240.00	89.97	173.290	7554.63	-654.38	710.10	3.35	701.92	39.98185663	-104.93113807
9330.00	89.91	181.200	7554.73	-744.21	714.43	8.79	791.83	39.98161005	-104.93112266
9420.00	90.00	180.470	7554.80	-834.20	713.11	0.82	881.52	39.98136302	-104.93112734
9509.00	90.12	178.970	7554.70	-923.19	713.55	1.69	970.33	39.98111872	-104.93112580
9599.00	89.97	182.010	7554.63	-1013.18	712.78	3.38	1060.05	39.98087170	-104.93112856
9689.00	89.94	180.440	7554.70	-1103.16	710.85	1.74	1149.68	39.98062470	-104.93113543
9778.00	90.00	180.570	7554.75	-1192.15	710.07	0.16	1238.40	39.98038040	-104.93113824
9868.00	89.91	180.560	7554.82	-1282.15	709.18	0.10	1328.12	39.98013335	-104.93114142
9958.00	90.12	183.020	7554.80	-1372.10	706.37	2.74	1417.66	39.97988643	-104.93115146
10048.00	90.09	185.970	7554.63	-1461.81	699.32	3.28	1506.67	39.97964016	-104.93117663
10137.00	90.18	184.870	7554.42	-1550.41	690.91	1.24	1594.48	39.97939694	-104.93120664
10227.00	90.09	182.470	7554.21	-1640.22	685.15	2.67	1683.68	39.97915041	-104.93122720
10317.00	90.09	183.100	7554.07	-1730.11	680.78	0.70	1773.05	39.97890365	-104.93124281
10406.00	90.43	183.590	7553.67	-1818.96	675.59	0.67	1861.33	39.97865975	-104.93126135
10496.00	90.09	182.610	7553.26	-1908.83	670.72	1.15	1950.64	39.97841306	-104.93127873
10586.00	90.06	184.160	7553.14	-1998.67	665.41	1.72	2039.90	39.97816644	-104.93129770
10676.00	89.45	178.110	7553.52	-2088.61	663.62	6.76	2129.50	39.97791955	-104.93130406
10765.00	89.11	177.790	7554.64	-2177.54	666.81	0.52	2218.44	39.97767541	-104.93129271
10855.00	88.98	178.490	7556.14	-2267.48	669.73	0.79	2308.37	39.97742852	-104.93128230
10945.00	89.05	177.410	7557.69	-2357.41	672.95	1.20	2398.30	39.97718166	-104.93127082
11034.00	89.57	176.850	7558.76	-2446.29	677.40	0.86	2487.28	39.97693767	-104.93125493
11124.00	89.85	175.020	7559.22	-2536.06	683.78	2.06	2577.27	39.97669125	-104.93123218
11214.00	90.00	175.410	7559.34	-2625.74	691.29	0.46	2667.27	39.97644505	-104.93120540
11304.00	89.85	176.940	7559.45	-2715.54	697.29	1.71	2757.26	39.97619855	-104.93118399
11393.00	89.91	177.530	7559.64	-2804.44	701.59	0.67	2846.24	39.97595452	-104.93116868
11483.00	90.00	179.300	7559.71	-2894.40	704.08	1.97	2936.16	39.97570756	-104.93115980
11573.00	89.88	181.200	7559.80	-2984.39	703.68	2.12	3025.91	39.97546052	-104.93116121
11662.00	90.00	183.190	7559.90	-3073.32	700.27	2.24	3114.39	39.97521640	-104.93117338
11752.00	89.97	184.820	7559.92	-3163.10	693.99	1.81	3203.52	39.97496995	-104.93119582
11842.00	90.06	184.950	7559.90	-3252.77	686.33	0.18	3292.45	39.97472379	-104.93122317
11931.00	89.97	184.620	7559.87	-3341.46	678.90	0.38	3380.41	39.97448033	-104.93124967
12021.00	89.85	183.350	7560.02	-3431.24	672.65	1.42	3469.55	39.97423387	-104.93127200
12111.00	90.06	183.310	7560.09	-3521.09	667.42	0.24	3558.82	39.97398723	-104.93129066
12201.00	89.97	180.900	7560.06	-3611.02	664.11	2.68	3648.31	39.97374036	-104.93130246
12290.00	89.91	178.410	7560.16	-3700.02	664.65	2.80	3737.12	39.97349607	-104.93130056
12380.00	89.94	176.300	7560.27	-3789.91	668.80	2.34	3827.09	39.97324929	-104.93128575
12470.00	90.00	175.980	7560.32	-3879.71	674.86	0.36	3917.09	39.97300279	-104.93126414
12560.00	90.09	175.890	7560.25	-3969.48	681.24	0.14	4007.09	39.97275635	-104.93124139
12649.00	89.26	175.860	7560.76	-4058.25	687.64	0.93	4096.09	39.97251267	-104.93121855
12739.00	89.20	175.970	7561.96	-4148.01	694.05	0.14	4186.08	39.97226626	-104.93119569
12829.00	89.26	177.330	7563.17	-4237.85	699.31	1.51	4276.07	39.97201966	-104.93117694
12918.00	89.78	179.450	7563.92	-4326.81	701.81	2.45	4364.98	39.97177546	-104.93116802
13008.00	89.75	180.560	7564.29	-4416.80	701.80	1.23	4454.76	39.97152841	-104.93116806
13098.00	89.88	181.870	7564.58	-4506.78	699.90	1.46	4544.39	39.97128141	-104.93117488
13188.00	89.94	183.530	7564.72	-4596.68	695.66	1.85	4633.78	39.97103464	-104.93119001
13277.00	89.88	184.350	7564.86	-4685.47	689.54	0.92	4721.94	39.97079090	-104.93121184
13367.00	89.85	183.640	7565.07	-4775.25	683.27	0.79	4811.07	39.97054445	-104.93123422
13457.00	88.86	181.860	7566.09	-4865.13	678.95	2.26	4900.44	39.97029770	-104.93124963
13546.00	88.83	179.940	7567.88	-4954.10	677.56	2.16	4989.10	39.97005348	-104.93125463
13636.00	88.89	179.680	7569.67	-5044.08	677.85	0.30	5078.88	39.96980647	-104.93125357
13726.00	88.92	178.780	7571.39	-5134.06	679.06	1.00	5168.73	39.96955948	-104.93124927
13816.00	88.77	179.220	7573.21	-5224.02	680.63	0.52	5258.59	39.96931251	-104.93124367
13905.00	88.86	178.410	7575.05	-5312.99	682.47	0.92	5347.46	39.96906830	-104.93123712
13995.00	89.78	176.650	7576.11	-5402.89	686.35	2.21	5437.42	39.96882150	-104.93122329
14085.00	89.75	177.600	7576.48	-5492.78	690.87	1.06	5527.40	39.96857476	-104.93120719
14174.00	89.85	177.040	7576.79	-5581.68	695.03	0.64	5616.38	39.96833071	-104.93119236
14264.00	89.97	178.530	7576.94	-5671.61	698.51	1.66	5706.34	39.96808385	-104.93117996
14354.00	89.94	181.220	7577.01	-5761.60	698.70	2.99	5796.13	39.96783681	-104.93117926

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
14444.00	90.18	181.930	7576.91	-5851.57	696.23	0.83	5885.70	39.96758985	-104.93118810
14533.00	89.91	182.380	7576.84	-5940.50	692.88	0.59	5974.20	39.96734571	-104.93120005
14623.00	89.85	184.400	7577.03	-6030.34	687.56	2.25	6063.45	39.96709909	-104.93121904
14713.00	89.82	183.720	7577.29	-6120.11	681.19	0.76	6152.57	39.96685266	-104.93124178
14802.00	89.78	181.770	7577.60	-6209.01	676.93	2.19	6240.95	39.96660864	-104.93125700
14892.00	89.82	179.560	7577.91	-6298.99	675.88	2.46	6330.65	39.96636161	-104.93126073
14982.00	89.85	177.780	7578.17	-6388.97	677.97	1.98	6420.56	39.96611463	-104.93125329
15072.00	89.66	174.520	7578.56	-6478.75	684.01	3.63	6510.54	39.96586816	-104.93123174
15161.00	89.85	174.360	7578.94	-6567.33	692.64	0.28	6599.51	39.96562500	-104.93120099
15251.00	89.72	176.350	7579.28	-6657.03	699.92	2.22	6689.50	39.96537877	-104.93117500
15341.00	89.91	178.930	7579.57	-6746.94	703.63	2.87	6779.45	39.96513194	-104.93116179
15430.00	90.00	180.200	7579.64	-6835.94	704.31	1.43	6868.28	39.96488764	-104.93115938
15520.00	89.85	181.340	7579.76	-6925.93	703.10	1.28	6957.97	39.96464060	-104.93116371
15610.00	89.78	181.740	7580.05	-7015.90	700.68	0.45	7047.56	39.96439364	-104.93117235
15700.00	89.23	180.930	7580.82	-7105.87	698.58	1.09	7137.17	39.96414666	-104.93117983
15789.00	89.42	180.280	7581.87	-7194.86	697.64	0.76	7225.88	39.96390237	-104.93118320
15879.00	89.38	179.860	7582.81	-7284.85	697.53	0.47	7315.65	39.96365533	-104.93118360
15969.00	89.39	179.960	7583.78	-7374.85	697.67	0.11	7405.44	39.96340829	-104.93118310
16059.00	89.32	179.620	7584.79	-7464.84	698.00	0.39	7495.24	39.96316124	-104.93118193
16148.00	89.32	179.180	7585.85	-7553.83	698.93	0.49	7584.08	39.96291696	-104.93117862
16238.00	89.42	176.660	7586.84	-7643.76	702.20	2.80	7674.02	39.96267010	-104.93116698
16328.00	89.54	176.580	7587.66	-7733.60	707.51	0.16	7764.01	39.96242348	-104.93114806
16418.00	89.48	177.320	7588.43	-7823.46	712.29	0.82	7853.99	39.96217678	-104.93113098
16507.00	89.57	181.130	7589.16	-7912.44	713.50	4.28	7942.84	39.96193254	-104.93112670
16597.00	89.66	180.040	7589.77	-8002.43	712.58	1.22	8032.55	39.96168550	-104.93112999
16687.00	89.60	180.610	7590.35	-8092.43	712.07	0.64	8122.29	39.96143846	-104.93113182
16777.00	89.51	180.190	7591.05	-8182.42	711.44	0.48	8212.03	39.96119141	-104.93113407
16866.00	89.48	178.110	7591.83	-8271.40	712.76	2.34	8300.89	39.96094715	-104.93112937
16956.00	89.60	178.430	7592.56	-8361.36	715.48	0.38	8390.82	39.96070021	-104.93111968
17046.00	89.54	180.100	7593.23	-8451.34	716.63	1.86	8480.67	39.96045318	-104.93111557
17135.00	89.51	180.420	7593.97	-8540.34	716.23	0.36	8569.43	39.96020888	-104.93111702
17225.00	89.42	182.060	7594.81	-8630.31	714.28	1.82	8659.05	39.95996190	-104.93112398
17315.00	89.48	183.270	7595.67	-8720.21	710.10	1.35	8748.44	39.95971512	-104.93113892
17405.00	89.35	185.010	7596.59	-8809.97	703.60	1.94	8837.53	39.95946873	-104.93116210
17494.00	89.54	184.790	7597.45	-8898.64	696.00	0.33	8925.46	39.95922532	-104.93118923
17584.00	90.12	184.310	7597.72	-8988.35	688.86	0.84	9014.47	39.95897905	-104.93121470
17674.00	89.72	190.650	7597.85	-9077.54	677.15	7.06	9102.64	39.95873422	-104.93125649
17764.00	89.45	191.520	7598.50	-9165.86	659.84	1.01	9189.55	39.95849178	-104.93131822
17853.00	89.48	183.290	7599.33	-9254.04	648.38	9.25	9276.72	39.95824972	-104.93135911
17920.00	89.32	179.810	7600.04	-9321.00	646.57	5.19	9343.40	39.95806590	-104.93136558
17929.92	89.29	179.300	7600.16	-9330.92	646.65	5.19	9353.30	39.95803867	-104.93136531
17943.00	89.26	178.620	7600.32	-9343.99	646.88	5.19	9366.36	39.95800278	-104.93136446
18013.56	89.35	175.720	7601.18	-9414.45	650.37	4.11	9436.89	39.95780935	-104.93135204
18033.00	89.38	174.920	7601.39	-9433.83	651.95	4.11	9456.33	39.95775617	-104.93134639
18122.00	89.29	175.140	7602.42	-9522.49	659.66	0.27	9545.31	39.95751279	-104.93131889
18135.00	89.32	175.350	7602.58	-9535.44	660.74	1.63	9558.31	39.95747723	-104.93131505
18149.60	89.32	175.350	7602.75	-9549.99	661.93	==>	9572.90	39.95743729	-104.93131083
18159.00	89.32	175.350	7602.87	-9559.36	662.69	==>	9582.30	39.95741157	-104.93130811

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1758.00	1757.93	0.23	-0.10	39.98365363	-104.93367236	9.625" Csg: 1758 MD/TVD
8059.48	7542.56	522.36	711.69	39.98508691	-104.93113230	460 Setback: 8059 / 7543 MD/TVD, 460 FNL, 2547 FEL Sec 07
8176.00	7552.22	406.45	713.02	39.98476873	-104.93112756	Top Perf: 8176 / 7552 MD/TVD, 576 FNL, 2546 FEL Sec 07
17920.00	7600.04	-9321.00	646.57	39.95806590	-104.93136558	Btm Perf: 17,920 / 7600 MD/TVD, 243 FSL, 2497 FWL Sec 18
17929.92	7600.16	-9330.92	646.65	39.95803867	-104.93136531	Btm Toe Sub: 17,930 / 7600 MD/TVD, 234 FSL, 2497 FWL Sec 18
18013.56	7601.18	-9414.45	650.37	39.95780935	-104.93135204	150 Setback: 18,014 / 7601 MD/TVD, 150 FSL, 2501 FWL Sec 18
18149.60	7602.75	-9549.99	661.93	39.95743729	-104.93131083	PBTD: 18,150 / 7603 MD/TVD, 14 FSL, 2512 FWL Sec 18
18159.00	7602.87	-9559.36	662.69	39.95741157	-104.93130811	5.5" Csg: 18,159 / 7603 MD/TVD, 5 FSL, 2513 FWL Sec 18
18159.00	7602.87	-9559.36	662.69	39.95741157	-104.93130811	BHL: 18,159 / 7603 MD/TVD, 5 FSL, 2513 FWL 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	1758.00	1757.93	0.23	-0.10
8.500	1758.00	1757.93	0.23	-0.10	18159.00	7602.87	-9559.36	662.69

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	1758.00	1757.93	0.23	-0.10
5 1/2in Casing	0.00	0.00	0.00	0.00	18159.00	7602.87	-9559.36	662.69

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
535951	As Drilled - 20190318	18159.00	7602.87	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 176.030 degrees Bottom hole distance is 9582.30 Feet on azimuth 176.03 degrees from Wellhead Calculation method uses Minimum Curvature method Prepared by Great Western Operating Co. Date Printed:
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