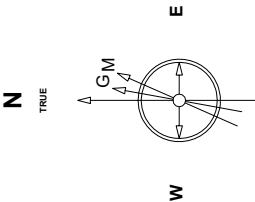


Great Western Operating Company, LLC

Location	Colorado	Slot	E-17 - B-Farm LD 18-390HN
Field	Wattenburg	Well	B-Farm LD 18-390HN
Installation	B-Farm	Wellbore	B-Farm LD 18-390HN (AWB)

Created by	admin
Date plotted	4-Jun-2019
Plot reference is	B-Farm LD 18-390HN (AWB).
Ref wellpath is	B-Farm LD 18-390HN (AWP#1).
Coordinates are in	Feet reference E-17 - B-Farm LD 18-390HN.
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: 5226.6 m/T
Lat: 43.92 deg / 33000 Long: 91.04 deg / 25000 UTM North
To convert azimuth from Magnetic to TRUE add 0.35 deg

Scale 1 cm = 800 ft

True Vertical Depth (Feet)

9.625" Csg: 1769 MD/TVD

460 Setback: 8303 / 7824 MD/TVD, 460 FNL, 2402 FWL Sec 07
Top Perf: 8432 / 7829 MD/TVD, 589 FNL, 2407 FWL Sec 07

Btm Perf: 18,134 / 7837 MD/TVD, 279 FSL, 2426 FWL Sec 18
Btm Toe Sub: 18,185 / 7837 MD/TVD, 228 FSL, 2426 FWL Sec 18
150 Setback: 18,263 / 7837 MD/TVD, 150 FSL, 2426 FWL Sec 18
PBTD: 18,398 / 7837 MD/TVD, 15 FSL, 2425 FWL Sec 18
5.5" Csg: 18,408 / 7837 MD/TVD, 5 FSL, 2425 FWL Sec 18
BHL: 18,408 / 7837 MD/TVD, 5 FSL, 2425 FWL Sec 18

Scale 1 cm = 800 ft

Vertical Section (Feet) ->

Azimuth 176.56 with reference 0.00 N, 0.00 E from E-17 - B-Farm LD 18-390HN

Scale 1 cm = 400 ft

East (Feet) ->

460 Setback: 8303 / 7824 MD/TVD, 460 FNL, 2402 FWL Sec 07
Top Perf: 8432 / 7829 MD/TVD, 589 FNL, 2407 FWL Sec 07

460 Setback: 8303 / 7824 MD/TVD, 460 FNL, 2402 FWL Sec 07
Top Perf: 8432 / 7829 MD/TVD, 589 FNL, 2407 FWL Sec 07

Sec 07, T1S, R67W

Sec 18, T1S, R67W

Btm Perf: 18,134 / 7837 MD/TVD, 279 FSL, 2426 FWL Sec 18
Btm Toe Sub: 18,185 / 7837 MD/TVD, 228 FSL, 2426 FWL Sec 18
150 Setback: 18,263 / 7837 MD/TVD, 150 FSL, 2426 FWL Sec 18
PBTD: 18,398 / 7837 MD/TVD, 15 FSL, 2425 FWL Sec 18
5.5" Csg: 18,408 / 7837 MD/TVD, 5 FSL, 2425 FWL Sec 18
BHL: 18,408 / 7837 MD/TVD, 5 FSL, 2425 FWL Sec 18

North(Feet)

Scale 1 cm = 400 ft

Great Western Operating Co, LLC
Directional Survey Report
Wellpath: B-Farm LD 18-390HN
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
Feb-24-2019	Jun-4-2019	05-001-10271	20.00	B-Farm LD 18-390HN (AWB)

Slot Coordinates

Latitude	Longitude
39.98362500	-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	39.98362500	-104.93367200
20.00	0.00	278.120	20.00	0.00	0.00	==>	0.00	39.98362500	-104.93367200
161.00	0.04	278.120	161.00	0.01	-0.05	0.03	-0.01	39.98362502	-104.93367217
246.00	0.35	125.100	246.00	-0.14	0.13	0.45	0.15	39.98362462	-104.93367152
306.00	0.83	106.730	306.00	-0.37	0.70	0.85	0.41	39.98362399	-104.93366950
396.00	1.23	107.350	395.98	-0.84	2.25	0.44	0.98	39.98362268	-104.93366398
486.00	2.29	86.340	485.94	-1.02	4.96	1.36	1.31	39.98362221	-104.93365429
576.00	1.63	75.800	575.89	-0.59	8.00	0.83	1.07	39.98362338	-104.93364346
666.00	1.54	90.390	665.85	-0.28	10.45	0.46	0.91	39.98362422	-104.93363471
756.00	1.63	99.790	755.82	-0.51	12.92	0.31	1.28	39.98362360	-104.93362590
846.00	1.58	102.950	845.78	-1.00	15.39	0.11	1.93	39.98362224	-104.93361708
936.00	1.19	77.110	935.76	-1.07	17.51	0.81	2.12	39.98362205	-104.93360951
1026.00	1.32	57.690	1025.74	-0.31	19.30	0.49	1.47	39.98362414	-104.93360314
1116.00	1.23	90.740	1115.71	0.23	21.14	0.81	1.04	39.98362563	-104.93359656
1206.00	1.01	103.920	1205.70	0.03	22.88	0.37	1.35	39.98362507	-104.93359037
1296.00	1.58	112.620	1295.67	-0.64	24.79	0.67	2.13	39.98362324	-104.93358353
1386.00	0.92	108.230	1385.65	-1.34	26.62	0.74	2.94	39.98362131	-104.93357700
1476.00	1.23	67.890	1475.64	-1.21	28.20	0.88	2.90	39.98362169	-104.93357136
1566.00	1.05	51.270	1565.62	-0.33	29.74	0.42	2.11	39.98362410	-104.93356587
1656.00	0.79	94.600	1655.61	0.14	31.00	0.80	1.72	39.98362538	-104.93356136
1718.00	0.31	159.730	1717.61	-0.05	31.49	1.16	1.94	39.98362485	-104.93355964
1769.00	0.02	285.920	1768.61	-0.18	31.53	0.63	2.07	39.98362450	-104.93355949
1796.00	0.18	333.300	1795.61	-0.14	31.51	0.63	2.03	39.98362461	-104.93355957
1886.00	0.06	299.080	1885.61	0.01	31.40	0.15	1.88	39.98362502	-104.93355995
1975.00	0.12	240.320	1974.61	-0.02	31.28	0.12	1.89	39.98362496	-104.93356038
2065.00	0.16	50.190	2064.61	0.02	31.29	0.31	1.86	39.98362505	-104.93356033
2155.00	0.04	53.910	2154.61	0.12	31.42	0.13	1.77	39.98362532	-104.93355989
2244.00	0.11	80.860	2243.61	0.15	31.53	0.09	1.74	39.98362541	-104.93355950
2334.00	0.03	20.950	2333.61	0.18	31.62	0.11	1.71	39.98362551	-104.93355917
2424.00	0.09	249.660	2423.61	0.18	31.56	0.12	1.71	39.98362550	-104.93355937
2513.00	0.07	342.250	2512.61	0.21	31.48	0.13	1.68	39.98362557	-104.93355967
2603.00	0.04	311.190	2602.61	0.28	31.44	0.05	1.61	39.98362578	-104.93355981
2693.00	0.09	272.800	2692.61	0.31	31.34	0.07	1.58	39.98362584	-104.93356015
2782.00	0.03	344.830	2781.61	0.33	31.27	0.10	1.55	39.98362591	-104.93356042
2872.00	0.07	298.240	2871.61	0.38	31.21	0.06	1.49	39.98362605	-104.93356061
2962.00	0.03	324.160	2961.61	0.43	31.15	0.05	1.44	39.98362617	-104.93356084
3052.00	0.15	205.190	3051.60	0.34	31.09	0.19	1.53	39.98362593	-104.93356106
3141.00	0.03	305.960	3140.60	0.25	31.02	0.18	1.62	39.98362568	-104.93356131
3231.00	0.10	124.650	3230.60	0.22	31.06	0.14	1.65	39.98362559	-104.93356115
3321.00	0.09	254.040	3320.60	0.15	31.06	0.19	1.71	39.98362542	-104.93356116
3411.00	0.11	221.880	3410.60	0.07	30.94	0.07	1.79	39.98362519	-104.93356161
3500.00	0.18	181.990	3499.60	-0.13	30.87	0.13	1.99	39.98362463	-104.93356183
3590.00	0.31	229.430	3589.60	-0.43	30.68	0.26	2.28	39.98362381	-104.93356250
3680.00	0.48	138.890	3679.60	-0.88	30.75	0.64	2.72	39.98362259	-104.93356228
3769.00	0.13	255.130	3768.60	-1.18	30.89	0.62	3.04	39.98362175	-104.93356175
3859.00	0.18	171.820	3858.60	-1.35	30.82	0.23	3.20	39.98362129	-104.93356203
3949.00	0.04	276.510	3948.60	-1.49	30.80	0.22	3.33	39.98362092	-104.93356207
4039.00	0.07	248.370	4038.60	-1.50	30.72	0.04	3.34	39.98362087	-104.93356237
4128.00	0.06	221.920	4127.60	-1.56	30.64	0.04	3.39	39.98362072	-104.93356266
4218.00	0.06	165.830	4217.60	-1.64	30.62	0.06	3.47	39.98362050	-104.93356273
4308.00	0.21	257.660	4307.60	-1.72	30.47	0.24	3.55	39.98362028	-104.93356326
4398.00	0.28	230.700	4397.60	-1.89	30.14	0.15	3.70	39.98361980	-104.93356445
4487.00	0.11	203.060	4486.60	-2.11	29.94	0.21	3.90	39.98361921	-104.93356517
4577.00	0.28	268.410	4576.60	-2.20	29.68	0.28	3.97	39.98361897	-104.93356607
4667.00	0.06	222.350	4666.60	-2.24	29.43	0.27	4.00	39.98361886	-104.93356697
4756.00	0.09	316.940	4755.60	-2.22	29.35	0.13	3.98	39.98361891	-104.93356725
4846.00	2.85	9.940	4845.56	0.04	29.69	3.11	1.75	39.98362510	-104.93356604
4936.00	6.95	13.910	4935.21	7.53	31.39	4.57	-5.63	39.98364567	-104.93355999
5026.00	8.72	13.630	5024.37	19.45	34.30	1.97	-17.35	39.98367838	-104.93354958
5115.00	9.63	22.220	5112.23	32.89	38.71	1.84	-30.51	39.98371530	-104.93353386
5205.00	11.22	23.120	5200.74	47.92	45.00	1.78	-45.13	39.98375653	-104.93351143
5295.00	13.52	24.160	5288.65	65.57	52.74	2.57	-62.29	39.98380500	-104.93348380
5385.00	15.49	28.200	5375.78	85.76	62.73	2.46	-81.84	39.98386043	-104.93344816
5474.00	19.13	30.240	5460.73	108.84	75.69	4.15	-104.10	39.98392379	-104.93340189
5564.00	22.33	30.550	5544.90	136.32	91.81	3.56	-130.56	39.98399920	-104.93334436
5654.00	26.52	25.760	5626.83	169.15	109.25	5.15	-162.29	39.98408934	-104.93328216
5744.00	29.85	22.070	5706.16	208.02	126.40	4.17	-200.06	39.98419603	-104.93322094
5833.00	29.74	21.570	5783.39	249.08	142.84	0.31	-240.05	39.98430873	-104.93316228
5923.00	30.08	21.580	5861.40	290.81	159.34	0.38	-280.72	39.98442330	-104.93310339
6013.00	30.02	23.400	5939.31	332.44	176.58	1.01	-321.24	39.98453759	-104.93304188
6103.00	30.08	23.220	6017.21	373.83	194.41	0.12	-361.49	39.98465121	-104.93297824

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
6192.00	29.98	21.030	6094.27	415.09	211.18	1.24	-401.66	39.98476445	-104.93291838
6282.00	30.05	19.580	6172.20	457.31	226.81	0.81	-442.87	39.98488035	-104.93286263
6372.00	29.89	22.850	6250.17	499.21	243.07	1.82	-483.71	39.98499537	-104.93280460
6461.00	29.85	25.380	6327.35	539.66	261.17	1.42	-523.00	39.98510640	-104.93273999
6551.00	29.89	26.680	6405.39	579.93	280.84	0.72	-562.02	39.98521696	-104.93266980
6641.00	29.88	27.520	6483.43	619.85	301.27	0.47	-600.64	39.98532654	-104.93259690
6730.00	29.81	25.510	6560.63	659.48	321.04	1.13	-639.01	39.98543532	-104.93252634
6820.00	29.94	21.530	6638.67	700.56	338.92	2.21	-678.95	39.98554811	-104.93246254
6910.00	29.92	21.540	6716.67	742.33	355.40	0.02	-719.66	39.98566277	-104.93240371
7000.00	29.76	23.780	6794.74	783.65	372.65	1.25	-759.87	39.98577619	-104.93234216
7089.00	29.92	25.070	6871.94	823.97	390.96	0.74	-799.01	39.98588687	-104.93227681
7179.00	29.93	26.750	6949.94	864.35	410.58	0.93	-838.14	39.98599772	-104.93220680
7269.00	29.93	28.340	7027.94	904.16	431.34	0.88	-876.64	39.98610701	-104.93213270
7359.00	25.68	34.060	7107.55	940.10	452.94	5.57	-911.21	39.98620566	-104.93205564
7448.00	17.26	58.190	7190.45	963.12	475.04	13.53	-932.87	39.98626885	-104.93197676
7538.00	15.13	89.420	7277.04	970.29	498.18	9.84	-938.63	39.98628854	-104.93189419
7628.00	16.89	124.790	7363.75	962.94	520.71	10.84	-929.94	39.98626834	-104.93181377
7717.00	19.88	151.350	7448.34	942.24	538.62	9.89	-908.20	39.98621152	-104.93174986
7807.00	26.25	169.540	7531.21	909.16	549.60	10.55	-874.52	39.98612072	-104.93171070
7897.00	34.63	180.540	7608.80	863.90	552.98	11.15	-829.14	39.98599648	-104.93169864
7986.00	44.63	182.920	7677.26	807.25	551.14	11.36	-772.70	39.98584095	-104.93170519
8076.00	53.13	176.930	7736.42	739.57	551.46	10.69	-705.12	39.98565517	-104.93170406
8166.00	63.64	175.800	7783.54	663.19	556.35	11.73	-628.59	39.98544550	-104.93168660
8255.00	75.73	178.110	7814.38	580.00	560.71	13.80	-545.29	39.98521714	-104.93167105
8303.15	82.18	178.470	7823.60	532.79	562.12	13.41	-498.08	39.98508754	-104.93166604
8345.00	87.78	178.780	7827.26	491.13	563.12	13.41	-456.43	39.98497318	-104.93166248
8432.00	89.81	176.970	7829.09	404.22	566.34	3.12	-369.48	39.98473459	-104.93165098
8435.00	89.88	176.910	7829.10	401.22	566.50	3.12	-366.48	39.98472637	-104.93165041
8524.00	89.94	176.380	7829.24	312.37	571.71	0.60	-277.49	39.98448248	-104.93163183
8614.00	90.28	177.480	7829.07	222.50	576.53	1.28	-187.49	39.98423578	-104.93161464
8704.00	89.94	176.180	7828.90	132.64	581.51	1.49	-97.49	39.98398910	-104.93159688
8794.00	89.85	176.030	7829.06	42.85	587.62	0.19	-7.49	39.98374261	-104.93157508
8883.00	89.85	173.140	7829.29	-45.74	596.02	3.25	81.44	39.98349942	-104.93154512
8973.00	89.88	175.190	7829.51	-135.27	605.17	2.28	171.36	39.98325365	-104.93151247
9063.00	90.03	178.040	7829.58	-225.10	610.48	3.17	261.35	39.98300705	-104.93149352
9152.00	90.06	176.080	7829.51	-313.98	615.05	2.20	350.34	39.98276307	-104.93147724
9242.00	90.18	173.690	7829.32	-403.62	623.07	2.66	440.30	39.98251701	-104.93144862
9332.00	90.22	174.550	7829.00	-493.14	632.29	0.96	530.21	39.98227126	-104.93141572
9422.00	90.12	177.490	7828.74	-582.91	638.54	3.27	620.20	39.98202482	-104.93139344
9511.00	90.34	182.480	7828.38	-671.89	638.56	5.61	709.01	39.98178059	-104.93139337
9601.00	89.91	187.700	7828.18	-761.50	630.58	5.82	797.98	39.98153459	-104.93142186
9691.00	90.12	184.560	7828.16	-850.97	620.97	3.50	886.72	39.98128897	-104.93145616
9780.00	90.09	182.020	7828.00	-939.82	615.86	2.85	975.10	39.98104508	-104.93147439
9870.00	90.15	180.710	7827.81	-1029.79	613.72	1.46	1064.78	39.98079810	-104.93148205
9960.00	90.12	179.140	7827.60	-1119.79	613.83	1.74	1154.62	39.98055105	-104.93148164
10049.00	90.31	182.860	7827.26	-1208.76	612.28	4.19	1243.34	39.98030682	-104.93148719
10139.00	90.15	182.420	7826.90	-1298.66	608.14	0.52	1332.83	39.98006003	-104.93150199
10229.00	90.03	180.200	7826.76	-1388.63	606.08	2.47	1422.52	39.97981305	-104.93150934
10319.00	89.91	179.000	7826.81	-1478.63	606.71	1.34	1512.39	39.97956600	-104.93150710
10408.00	90.15	177.370	7826.76	-1567.58	609.53	1.85	1601.35	39.97932182	-104.93149705
10498.00	90.03	177.360	7826.62	-1657.49	613.66	0.13	1691.34	39.97907502	-104.93148229
10588.00	89.94	176.000	7826.64	-1747.33	618.88	1.51	1781.34	39.97882838	-104.93146370
10677.00	89.97	175.360	7826.71	-1836.08	625.58	0.72	1870.33	39.97858476	-104.93143979
10767.00	90.00	176.680	7826.74	-1925.86	631.83	1.47	1960.32	39.97833830	-104.93141751
10857.00	90.12	175.450	7826.64	-2015.65	638.00	1.37	2050.32	39.97809183	-104.93139548
10947.00	90.00	179.410	7826.55	-2105.54	642.04	4.40	2140.29	39.97784507	-104.93138109
11036.00	90.15	184.480	7826.43	-2194.46	639.02	5.70	2228.86	39.97760098	-104.93139187
11126.00	90.00	185.080	7826.31	-2284.14	631.52	0.69	2317.94	39.97735478	-104.93141864
11216.00	90.09	180.990	7826.24	-2374.00	626.75	4.55	2407.35	39.97710812	-104.93143565
11305.00	90.03	177.100	7826.15	-2462.97	628.24	4.37	2496.24	39.97686389	-104.93143037
11395.00	90.06	177.570	7826.08	-2552.87	632.42	0.52	2586.24	39.97661709	-104.93141544
11485.00	90.22	182.150	7825.86	-2642.85	632.64	5.09	2676.06	39.97637010	-104.93141467
11574.00	90.22	186.120	7825.52	-2731.60	626.22	4.46	2764.27	39.97612648	-104.93143757
11664.00	90.15	188.250	7825.23	-2820.88	614.97	2.37	2852.72	39.97588137	-104.93147774
11754.00	90.31	188.430	7824.86	-2909.93	601.91	0.27	2940.82	39.97563693	-104.93152432
11844.00	90.12	187.090	7824.53	-2999.11	589.76	1.50	3029.10	39.97539214	-104.93156769
11933.00	90.12	186.350	7824.34	-3087.49	579.35	0.83	3116.71	39.97514951	-104.93160486
12023.00	89.91	185.780	7824.32	-3176.99	569.84	0.67	3205.47	39.97490384	-104.93163879
12113.00	89.82	183.790	7824.53	-3266.67	562.33	2.21	3294.54	39.97465765	-104.93166559
12202.00	89.75	179.170	7824.86	-3355.62	560.03	5.19	3383.19	39.97441349	-104.93167379
12292.00	90.31	176.690	7824.82	-3445.55	563.28	2.82	3473.15	39.97416661	-104.93166220
12382.00	90.06	175.410	7824.53	-3535.33	569.48	1.45	3563.15	39.97392014	-104.93164009
12472.00	89.75	175.500	7824.67	-3625.05	576.62	0.36	3653.13	39.97367386	-104.93161465
12561.00	90.40	175.240	7824.56	-3713.76	583.80	0.79	3742.11	39.97343035	-104.93158903
12651.00	90.15	176.170	7824.13	-3803.50	590.54	1.07	3832.10	39.97318399	-104.93156498
12741.00	90.03	178.190	7823.98	-3893.39	594.97	2.25	3922.09	39.97293724	-104.93154920
12831.00	90.15	180.710	7823.84	-3983.38	595.83	2.80	4011.97	39.97269021	-104.93154612
12920.00	90.18	182.600	7823.59	-4072.34	593.26	2.12	4100.61	39.97244601	-104.93155530
13010.00	89.82	183.420	7823.59	-4162.21	588.54	1.00	4190.04	39.97219930	-104.93157217
13100.00	90.00	182.120	7823.73	-4252.11	584.19	1.46	4279.51	39.97195253	-104.93158769
13189.00	89.75	179.460	7823.92	-4341.09	582.96	3.00	4368.26	39.97170826	-104.93159208
13279.00	89.75	176.440	7824.32	-4431.02	586.18	3.36	4458.22	39.97146139	-104.93158060
13369.00	89.82	171.680	7824.65	-4520.51	595.49	5.29	4548.11	39.97121573	-104.93154739
13459.00	89.69	171.210	7825.04	-4609.51	608.88	0.54	4637.75	39.97097143	-104.93149963
13548.00	90.25	179.160	7825.08	-4698.12	616.34	8.95	4726.65	39.97072817	-104.93147300
13638.00	89.91	182.660	7824.96	-4788.10	614.91	3.91	4816.38	39.97048118	-104.93147811
13728.00	90.06	187.490	7824.98	-4877.72	606.95	5.37	4905.36	39.97023516	-104.93150652
13818.00	90.12	186.790	7824.84	-4967.02	595.77	0.78	4993.83	39.96999002	-104.93154643
13907.00	90.28	183.110	7824.53	-5055.67	588.09	4.14	5081.86	39.96974666	-104.93157384
13997.00	89.82	182.930	7824.45	-5145.55	583.35	0.55	5171.29	39.96949995	-104.93159076
14087.00	89.78	184.300	7824.77	-5235.36	577.67	1.52	5260.60	39.96925339	-104.93161101
14176.00	90.15	181.490	7824.82	-5324.24	573.18	3.18	5349.05	39.96900941	-104.93162706
14266.00	90.18	178.380	7824.56	-5414.23	573.28	3.46	5438.88	39.96876239	-104.93162670
14356.00	90.25	173.120	7824.22	-5503.95	579.95	5.84	5528.84	39.96851609	-104.93160292

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
14445.00	90.25	169.120	7823.83	-5591.86	593.68	4.49	5617.42	39.96827476	-104.93155392
14535.00	90.00	169.950	7823.64	-5680.37	610.03	0.96	5706.74	39.96803181	-104.93149561
14625.00	89.94	173.220	7823.69	-5769.39	623.20	3.63	5796.39	39.96778744	-104.93144863
14715.00	89.94	173.290	7823.78	-5858.76	633.77	0.08	5886.24	39.96754209	-104.93141093
14804.00	89.69	177.400	7824.07	-5947.45	640.99	4.63	5975.20	39.96729864	-104.93138517
14894.00	89.66	182.570	7824.58	-6037.42	641.02	5.74	6065.01	39.96705167	-104.93138510
14984.00	89.78	182.730	7825.02	-6127.32	636.85	0.22	6154.50	39.96680488	-104.93139995
15073.00	89.91	182.620	7825.26	-6216.22	632.70	0.19	6243.00	39.96656083	-104.93141478
15163.00	89.54	181.350	7825.69	-6306.17	629.58	1.47	6332.59	39.96631393	-104.93142591
15253.00	89.60	181.880	7826.37	-6396.13	627.05	0.59	6422.24	39.96606697	-104.93143497
15342.00	89.42	183.520	7827.13	-6485.02	622.85	1.85	6510.72	39.96582295	-104.93144993
15432.00	89.66	184.360	7827.85	-6574.81	616.67	0.97	6599.97	39.96557648	-104.93147200
15522.00	89.63	183.400	7828.41	-6664.60	610.58	1.07	6689.23	39.96533000	-104.93149373
15612.00	89.91	181.880	7828.77	-6754.50	606.44	1.72	6778.72	39.96508321	-104.93150853
15701.00	89.48	181.390	7829.24	-6843.46	603.90	0.73	6867.37	39.96483900	-104.93151760
15791.00	89.45	181.830	7830.08	-6933.42	601.37	0.49	6957.02	39.96459205	-104.93152662
15881.00	89.54	180.420	7830.88	-7023.40	599.60	1.57	7046.73	39.96434506	-104.93153293
15971.00	89.29	179.470	7831.80	-7113.39	599.69	1.09	7136.56	39.96409801	-104.93153263
16060.00	89.60	179.330	7832.66	-7202.38	600.62	0.38	7225.45	39.96385372	-104.93152932
16150.00	89.66	177.650	7833.24	-7292.35	602.99	1.87	7315.39	39.96360677	-104.93152086
16240.00	89.38	176.610	7833.99	-7382.23	607.50	1.20	7405.38	39.96336003	-104.93150480
16330.00	89.32	178.530	7835.01	-7472.14	611.31	2.13	7495.36	39.96311322	-104.93149119
16419.00	89.54	180.810	7835.90	-7561.13	611.82	2.57	7584.22	39.96286894	-104.93148937
16509.00	89.32	182.560	7836.79	-7651.08	609.18	1.96	7673.85	39.96262201	-104.93149882
16599.00	89.51	182.330	7837.71	-7740.99	605.34	0.33	7763.37	39.96237519	-104.93151253
16689.00	89.32	181.400	7838.63	-7830.94	602.41	1.05	7852.98	39.96212827	-104.93152298
16778.00	89.29	180.800	7839.71	-7919.91	600.70	0.67	7941.69	39.96188402	-104.93152908
16868.00	89.75	179.020	7840.47	-8009.91	600.84	2.04	8031.53	39.96163698	-104.93152859
16958.00	90.86	178.850	7839.99	-8099.89	602.52	1.25	8121.45	39.96138997	-104.93152263
17048.00	91.11	180.370	7838.44	-8189.87	603.13	1.71	8211.31	39.96114296	-104.93152045
17137.00	90.25	178.250	7837.38	-8278.85	604.20	2.57	8300.19	39.96089870	-104.93151663
17227.00	89.85	181.850	7837.30	-8368.84	604.12	4.02	8390.01	39.96065168	-104.93151692
17317.00	89.69	180.530	7837.67	-8458.82	602.25	1.48	8479.71	39.96040469	-104.93152360
17406.00	91.08	180.290	7837.07	-8547.81	601.62	1.58	8568.51	39.96016039	-104.93152588
17496.00	89.60	180.450	7836.53	-8637.80	601.03	1.65	8658.31	39.95991335	-104.93152796
17586.00	89.94	182.720	7836.90	-8727.76	598.55	2.55	8747.95	39.95966640	-104.93153685
17676.00	89.85	183.470	7837.06	-8817.63	593.69	0.84	8837.37	39.95941970	-104.93155419
17765.00	90.09	181.830	7837.11	-8906.53	589.57	1.86	8925.86	39.95917566	-104.93156887
17855.00	89.91	181.970	7837.11	-8996.48	586.59	0.25	9015.47	39.95892874	-104.93157952
17945.00	90.18	182.710	7837.04	-9086.41	582.91	0.88	9105.01	39.95868189	-104.93159264
18035.00	89.75	182.280	7837.09	-9176.32	579.00	0.68	9194.53	39.95843506	-104.93160662
18124.00	90.28	181.140	7837.07	-9265.28	576.34	1.41	9283.17	39.95819086	-104.93161610
18134.00	90.23	181.030	7837.02	-9275.28	576.15	1.22	9293.14	39.95816342	-104.93161678
18185.36	89.97	180.460	7836.94	-9326.63	575.48	1.22	9344.36	39.95802244	-104.93161916
18214.00	89.82	180.140	7836.99	-9355.27	575.33	1.22	9372.94	39.95794382	-104.93161970
18263.26	90.00	179.940	7837.07	-9404.53	575.30	0.55	9422.11	39.95780860	-104.93161983
18303.00	90.15	179.780	7837.01	-9444.27	575.40	0.55	9461.78	39.95769951	-104.93161948
18384.00	89.78	181.060	7837.06	-9525.27	574.80	1.64	9542.59	39.95747717	-104.93162161
18398.13	89.78	181.060	7837.12	-9539.39	574.54	==>	9556.68	39.95743838	-104.93162254
18408.00	89.78	181.060	7837.15	-9549.26	574.36	==>	9566.52	39.95741130	-104.93162319

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1769.00	1768.61	-0.18	31.53	39.98362450	-104.93355949	9.625" Csg: 1769 MD/TVD
8303.15	7823.60	532.79	562.12	39.98508754	-104.93166604	460 Setback: 8303 / 7824 MD/TVD, 460 FNL, 2402 FWL Sec 07
8432.00	7829.09	404.22	566.34	39.98473459	-104.93165098	Top Perf: 8432 / 7829 MD/TVD, 589 FNL, 2407 FWL Sec 07
18134.00	7837.02	-9275.28	576.15	39.95816342	-104.93161678	Btm Perf: 18,134 / 7837 MD/TVD, 279 FSL, 2426 FWL Sec 18
18185.36	7836.94	-9326.63	575.48	39.95802244	-104.93161916	Btm Toe Sub: 18,185 / 7837 MD/TVD, 228 FSL, 2426 FWL Sec 18
18263.26	7837.07	-9404.53	575.30	39.95780860	-104.93161983	150 Setback: 18,263 / 7837 MD/TVD, 150 FSL, 2426 FWL Sec 18
18398.13	7837.12	-9539.39	574.54	39.95743838	-104.93162254	PBTD: 18,398 / 7837 MD/TVD, 15 FSL, 2425 FWL Sec 18
18408.00	7837.15	-9549.26	574.36	39.95741130	-104.93162319	5.5" Csg: 18,408 / 7837 MD/TVD, 5 FSL, 2425 FWL Sec 18
18408.00	7837.15	-9549.26	574.36	39.95741130	-104.93162319	BHL: 18,408 / 7837 MD/TVD, 5 FSL, 2425 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	1769.00	1768.61	-0.18	31.53
8.500	1769.00	1768.61	-0.18	31.53	18408.00	7837.15	-9549.26	574.36

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	1769.00	1768.61	-0.18	31.53
5 1/2in Casing	0.00	0.00	0.00	0.00	18408.00	7837.15	-9549.26	574.36

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
527850	As Drilled - 20190304	18408.00	7837.15	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 176.560 degrees
Bottom hole distance is 9566.52 Feet on azimuth 176.56 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Great Western Operating Co.
Date Printed: