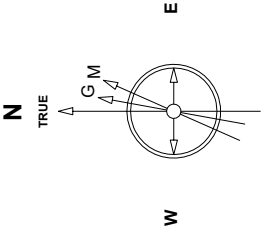


Great Western Operating Company, LLC

Location	Colorado	Slot	Slot 08 - Schneider HD 11-099HC
Field	Wattenburg	Well	Schneider HD 11-099HC
Installation	Schneider North	Wellbore	Schneider HD 11-099HC (AWB)

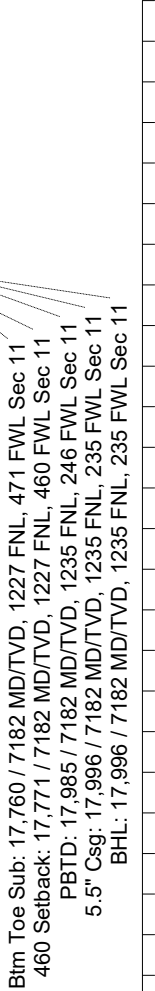
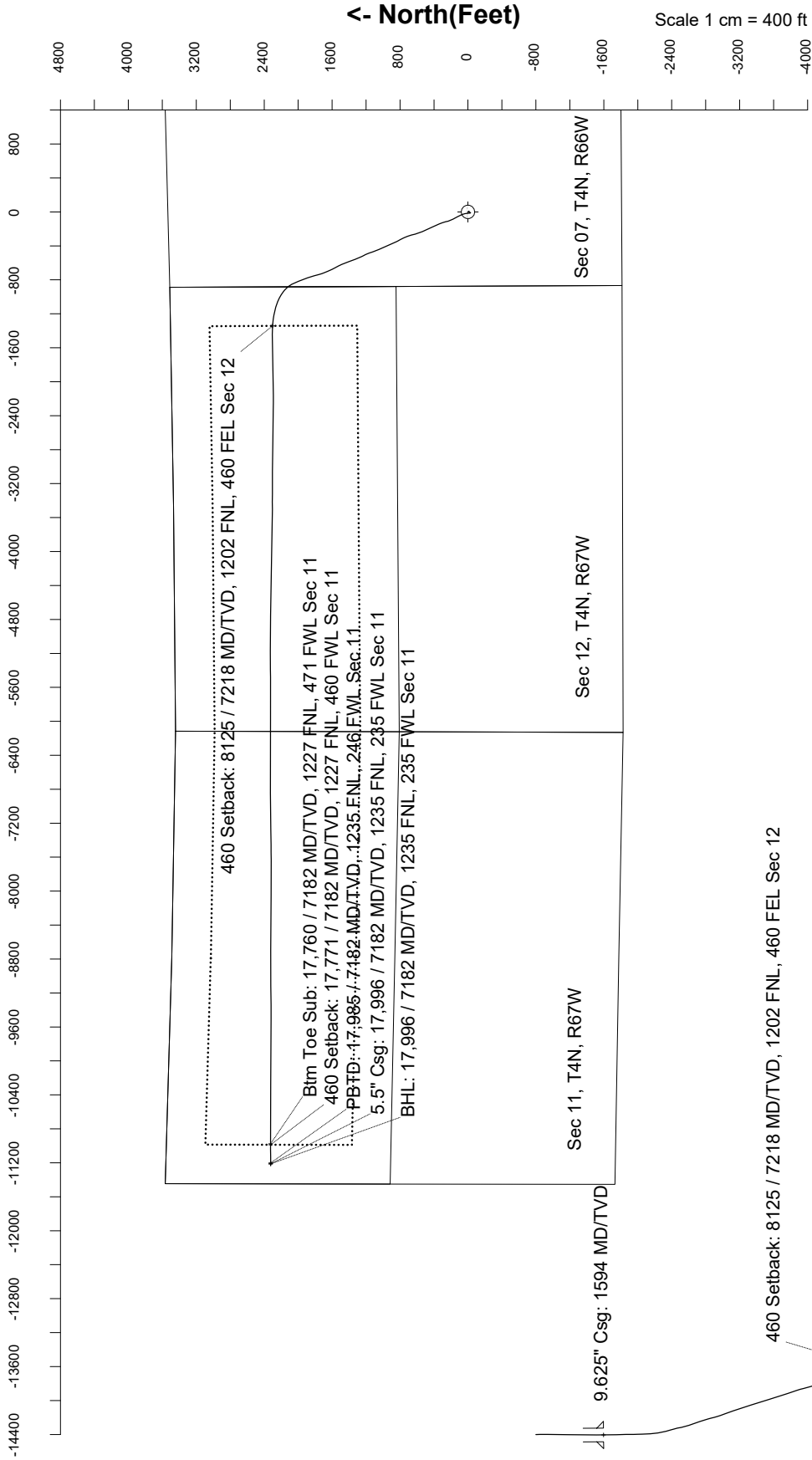
Created by	mmount
Date plotted	16-Sep-2019
Plot reference is Schneider HD 11-099HC (AWB).	
Ref wellpath is Schneider HD 11-099HC (AWP#1).	
Coordinates are in Feet reference Slot 08 - Schneider HD 11-099HC.	
True Vertical Depths are reference Rig Datum.	
Measured Depths are reference Rig Datum.	
Rig Datum: Actual Datum #1	
Rig Datum to Mean Sea Level: 4755.00 ft.	
Plot North is aligned to TRUE North.	



EMM-2015.Dwg: 08/7.dwg Filed: 5/20/09 nT
Lat: N40 19 27.876 Long: W 104 40 34.384 Elev: 4735.00 ft
Magnetic North is 8.35 deg East of TRUE North
To correct azimuth from Magnetic to TRUE add 8.35 deg

Scale 1 cm = 400 ft

East (Feet) ->



Scale 1 cm = 800 ft
Azimuth 281.71 with reference 0.00 N, 0.00 E from Slot 08 - Schneider HD 11-099HC

Great Western Operating Co, LLC
Directional Survey Report
Wellpath: Schneider HD 11-099HC
MDs and TVDs are from Rig Floor 4755.0ft above Mean Sea Level

Wellbore Information

Date Created	Date Revised	API #	RKB above GL	Well Name
Sep-12-2019	Sep-16-2019	05-123-46408	20.00	Schneider HD 11-099HC

Slot Coordinates

Latitude	Longitude
40.32418100	-104.82660000

Pad Information

Pad Name	Ground Elev.
Schneider North	4735.00

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
0.00	0.00	0.00	0.00	0.00	0.00		0.00	40.32418100	-104.82660000
14.00	0.00	0.00	14.00	0.00	0.00	0.00	0.00	40.32418100	-104.82660000
96.00	0.92	299.62	96.00	0.33	-0.57	1.12	0.63	40.32418189	-104.82660205
185.00	0.04	186.07	184.99	0.65	-1.20	1.05	1.30	40.32418278	-104.82660429
273.00	0.53	141.59	272.99	0.30	-0.95	0.57	0.99	40.32418182	-104.82660340
365.00	0.44	174.46	364.99	-0.39	-0.65	0.31	0.56	40.32417994	-104.82660233
455.00	0.70	168.31	454.98	-1.27	-0.50	0.30	0.24	40.32417752	-104.82660181
545.00	1.23	138.52	544.97	-2.53	0.25	0.79	-0.76	40.32417405	-104.82659911
635.00	1.36	130.08	634.95	-3.94	1.70	0.26	-2.47	40.32417018	-104.82659389
725.00	1.67	133.60	724.92	-5.53	3.47	0.36	-4.52	40.32416581	-104.82658755
815.00	0.62	172.18	814.90	-6.92	4.49	1.39	-5.80	40.32416200	-104.82658391
905.00	0.75	159.00	904.89	-7.95	4.76	0.23	-6.28	40.32415917	-104.82658291
995.00	0.62	137.11	994.89	-8.86	5.31	0.32	-6.99	40.32415668	-104.82658097
1085.00	0.70	119.88	1084.88	-9.49	6.12	0.24	-7.91	40.32415495	-104.82657807
1175.00	0.92	114.96	1174.87	-10.07	7.25	0.26	-9.14	40.32415336	-104.82657401
1265.00	0.83	134.74	1264.86	-10.83	8.36	0.35	-10.39	40.32415126	-104.82657000
1355.00	0.53	181.14	1354.85	-11.71	8.82	0.67	-11.01	40.32414886	-104.82656837
1445.00	0.44	204.79	1444.85	-12.44	8.67	0.24	-11.01	40.32414686	-104.82656892
1545.00	0.18	32.17	1544.85	-12.65	8.59	0.62	-10.98	40.32414627	-104.82656920
1594.00	0.68	334.30	1593.85	-12.33	8.50	1.23	-10.83	40.32414716	-104.82656950
1629.00	1.10	328.62	1628.85	-11.85	8.24	1.23	-10.47	40.32414846	-104.82657045
1676.00	1.01	315.57	1675.84	-11.17	7.71	0.54	-9.82	40.32415033	-104.82657233
1766.00	3.51	253.99	1765.77	-11.37	4.51	3.51	-6.72	40.32414980	-104.82658382
1856.00	4.58	222.26	1855.55	-14.79	-0.55	2.71	-2.46	40.32414041	-104.82660199
1945.00	4.15	216.85	1944.30	-19.99	-4.88	0.67	0.72	40.32412612	-104.82661749
2035.00	1.52	200.08	2034.18	-23.72	-7.24	3.03	2.27	40.32411589	-104.82662596
2125.00	1.66	195.01	2124.14	-26.10	-7.99	0.22	2.52	40.32410935	-104.82662864
2214.00	2.10	194.46	2213.10	-28.93	-8.73	0.49	2.68	40.32410160	-104.82663130
2304.00	0.84	204.76	2303.07	-31.12	-9.42	1.42	2.90	40.32409557	-104.82663377
2394.00	2.00	318.25	2393.05	-30.55	-10.74	2.73	4.31	40.32409715	-104.82663851
2484.00	4.98	346.52	2482.88	-25.58	-12.69	3.73	7.24	40.32411079	-104.82664553
2573.00	8.47	354.60	2571.25	-15.29	-14.21	4.05	10.81	40.32413903	-104.82665097
2663.00	11.45	353.91	2659.88	0.19	-15.78	3.31	15.50	40.32418153	-104.82665661
2753.00	14.14	353.36	2747.64	20.00	-18.00	2.99	21.69	40.32423590	-104.82666457
2842.00	16.36	345.58	2833.51	42.94	-22.38	3.39	30.63	40.32429887	-104.82668027
2932.00	18.50	338.60	2919.38	68.52	-30.75	3.32	44.02	40.32436908	-104.82671029
3022.00	20.99	332.95	3004.09	96.18	-43.30	3.48	61.91	40.32444499	-104.82675527
3111.00	22.54	332.77	3086.75	125.54	-58.35	1.74	82.62	40.32452560	-104.82680927
3201.00	23.71	332.59	3169.51	156.94	-74.57	1.30	104.87	40.32461180	-104.82686745
3291.00	25.95	333.25	3251.19	190.60	-91.77	2.51	128.54	40.32470417	-104.82692912
3381.00	25.20	345.09	3332.42	226.72	-105.57	5.73	149.39	40.32480333	-104.82697862
3470.00	24.37	346.04	3413.22	262.85	-114.88	1.03	165.83	40.32490250	-104.82701199
3560.00	25.28	339.52	3494.92	298.88	-126.08	3.20	184.12	40.32500140	-104.82705218
3650.00	27.33	337.07	3575.60	335.91	-140.86	2.58	206.10	40.32510306	-104.82710517
3739.00	29.83	336.28	3653.75	375.00	-157.72	2.84	230.55	40.32521035	-104.82716566
3829.00	31.40	335.40	3731.20	416.81	-176.49	1.81	257.41	40.32532513	-104.82723297
3919.00	30.71	333.67	3808.31	458.73	-196.44	1.25	285.46	40.32544018	-104.82730453
4008.00	30.31	334.77	3884.98	499.42	-216.10	0.77	312.96	40.32555186	-104.82737501
4098.00	29.53	338.52	3962.99	540.60	-233.90	2.25	338.75	40.32566492	-104.82743887
4188.00	29.44	342.69	4041.35	582.36	-248.60	2.28	361.62	40.32577954	-104.82749161
4277.00	29.97	344.98	4118.65	624.72	-260.87	1.41	382.23	40.32589580	-104.82753561
4367.00	30.53	343.60	4196.40	668.36	-273.15	0.99	403.11	40.32601559	-104.82757966
4457.00	30.32	340.59	4274.01	711.72	-287.16	1.71	425.63	40.32613461	-104.82762988
4547.00	31.04	336.92	4351.42	754.49	-303.81	2.23	450.61	40.32625203	-104.82768959
4636.00	30.84	329.72	4427.78	795.32	-324.31	4.16	478.97	40.32636409	-104.82776313
4726.00	29.29	331.68	4505.67	834.62	-346.39	2.04	508.57	40.32647198	-104.82784232
4816.00	29.83	337.76	4583.97	874.73	-365.31	3.39	535.24	40.32658207	-104.82791018
4906.00	30.14	336.09	4661.93	916.11	-382.94	0.99	560.90	40.32669565	-104.82797341
4995.00	30.62	335.35	4738.71	957.13	-401.45	0.68	587.35	40.32680826	-104.82803980
5085.00	29.37	335.25	4816.65	998.01	-420.25	1.39	614.05	40.32692046	-104.82810723
5175.00	29.49	337.19	4895.04	1038.47	-438.08	1.07	639.72	40.32703153	-104.82817117
5264.00	29.22	338.59	4972.62	1078.89	-454.50	0.83	664.01	40.32714248	-104.82823007
5354.00	29.26	341.27	5051.15	1120.18	-469.58	1.46	687.15	40.32725579	-104.82828417
5444.00	30.62	340.11	5129.14	1162.56	-484.44	1.64	710.31	40.32737214	-104.82833747
5534.00	29.38	335.79	5207.09	1204.26	-501.30	2.77	735.27	40.32748659	-104.82839792
5623.00	29.68	333.05	5284.53	1243.81	-520.24	1.55	761.85	40.32759516	-104.82846585
5713.00	28.57	334.74	5363.15	1283.14	-539.52	1.53	788.71	40.32770311	-104.82853502

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
5803.00	28.78	336.66	5442.12	1322.49	-557.29	1.05	814.09	40.32781114	-104.82859874
5892.00	28.98	340.70	5520.05	1362.52	-572.90	2.20	837.51	40.32792100	-104.82865475
5982.00	29.68	343.19	5598.52	1404.43	-586.55	1.56	859.38	40.32803604	-104.82870371
6072.00	29.26	339.23	5676.88	1446.33	-600.80	2.21	881.83	40.32815105	-104.82875481
6162.00	29.09	335.38	5755.47	1486.78	-617.71	2.09	906.61	40.32826210	-104.82881548
6251.00	29.20	332.84	5833.21	1525.77	-636.64	1.40	933.05	40.32836912	-104.82888336
6341.00	28.98	331.67	5911.85	1564.49	-657.01	0.68	960.85	40.32847541	-104.82895641
6431.00	28.82	332.90	5990.65	1603.00	-677.24	0.68	988.47	40.32858110	-104.82902897
6520.00	29.66	335.72	6068.31	1642.17	-696.06	1.81	1014.86	40.32868862	-104.82909650
6610.00	29.62	339.25	6146.54	1683.27	-713.10	1.94	1039.89	40.32880144	-104.82915761
6700.00	29.80	342.76	6224.71	1725.43	-727.61	1.94	1062.65	40.32891716	-104.82920966
6790.00	30.58	344.11	6302.51	1768.81	-740.51	1.15	1084.08	40.32903623	-104.82925592
6879.00	31.06	343.30	6378.94	1812.57	-753.30	0.71	1105.49	40.32915637	-104.82930181
6969.00	30.43	342.82	6456.29	1856.59	-766.71	0.75	1127.55	40.32927718	-104.82934989
7059.00	32.01	342.53	6533.25	1901.12	-780.60	1.76	1150.19	40.32939941	-104.82939973
7148.00	32.00	338.50	6608.73	1945.56	-796.33	2.40	1174.61	40.32952141	-104.82945614
7238.00	31.71	335.29	6685.18	1989.24	-814.96	1.91	1201.72	40.32964130	-104.82952296
7328.00	31.35	337.43	6761.90	2032.35	-833.83	1.31	1228.95	40.32975963	-104.82959066
7417.00	33.53	335.52	6837.01	2076.11	-852.90	2.71	1256.51	40.32987973	-104.82965908
7507.00	33.24	319.76	6912.30	2117.64	-879.19	9.62	1290.67	40.32999373	-104.82975336
7597.00	39.08	311.23	6984.98	2155.22	-916.51	8.55	1334.85	40.33009688	-104.82988723
7686.00	48.30	304.37	7049.30	2192.57	-965.17	11.64	1390.07	40.33019940	-104.83006175
7776.00	55.80	295.40	7104.68	2227.59	-1026.69	11.44	1457.42	40.33029554	-104.83028240
7866.00	64.32	287.60	7149.61	2255.90	-1099.18	12.07	1534.15	40.33037324	-104.83054243
7955.00	71.66	282.35	7182.96	2277.11	-1178.83	9.89	1616.44	40.33043143	-104.83082810
8045.00	78.63	278.70	7206.03	2292.94	-1264.30	8.68	1703.34	40.33047488	-104.83113464
8124.70	84.71	273.72	7217.58	2301.44	-1342.63	9.81	1781.78	40.33049820	-104.83141562
8135.00	85.50	273.09	7218.45	2302.05	-1352.88	9.81	1791.93	40.33049987	-104.83145236
8224.00	88.06	269.74	7223.45	2304.24	-1441.69	4.73	1879.34	40.33050587	-104.83177090
8314.00	87.59	268.61	7226.87	2302.95	-1531.61	1.36	1967.13	40.33050230	-104.83209343
8404.00	90.23	270.06	7228.58	2301.90	-1621.58	3.35	2055.01	40.33049942	-104.83241612
8494.00	90.52	268.80	7227.99	2301.01	-1711.57	1.44	2142.95	40.33049695	-104.83273889
8583.00	90.91	267.94	7226.88	2298.48	-1800.53	1.06	2229.54	40.33048998	-104.83305795
8673.00	91.14	268.67	7225.27	2295.81	-1890.47	0.85	2317.07	40.33048266	-104.83338055
8763.00	91.04	269.56	7223.56	2294.42	-1980.45	0.99	2404.89	40.33047882	-104.83370326
8853.00	90.96	269.27	7221.99	2293.51	-2070.43	0.33	2492.81	40.33047628	-104.83402599
8942.00	90.80	269.35	7220.62	2292.43	-2159.41	0.20	2579.73	40.33047332	-104.83434515
9032.00	91.22	270.05	7219.04	2291.96	-2249.40	0.91	2667.74	40.33047200	-104.83466789
9122.00	90.85	271.20	7217.41	2292.94	-2339.37	1.34	2756.05	40.33047468	-104.83499062
9212.00	90.67	270.51	7216.22	2294.29	-2429.36	0.79	2844.43	40.33047834	-104.83531335
9301.00	90.99	270.90	7214.93	2295.38	-2518.34	0.57	2931.78	40.33048132	-104.83563251
9391.00	91.04	271.06	7213.33	2296.92	-2608.31	0.19	3020.20	40.33048552	-104.83595521
9481.00	90.91	270.94	7211.80	2298.49	-2698.28	0.20	3108.62	40.33048980	-104.83627792
9571.00	90.52	270.28	7210.68	2299.45	-2788.27	0.85	3196.92	40.33049240	-104.83660068
9660.00	90.48	270.54	7209.90	2300.09	-2877.27	0.30	3284.20	40.33049412	-104.83691987
9750.00	90.32	271.07	7209.27	2301.35	-2967.25	0.62	3372.57	40.33049757	-104.83724264
9840.00	90.73	270.16	7208.45	2302.32	-3057.24	1.11	3460.88	40.33050019	-104.83756540
9929.00	90.45	270.83	7207.53	2303.09	-3146.24	0.82	3548.18	40.33050227	-104.83788459
10019.00	90.58	269.43	7206.72	2303.29	-3236.23	1.56	3636.34	40.33050280	-104.83820737
10109.00	90.59	270.93	7205.80	2303.57	-3326.22	1.67	3724.52	40.33050354	-104.83853014
10198.00	90.91	269.99	7204.64	2304.29	-3415.21	1.12	3811.80	40.33050547	-104.83884932
10288.00	90.67	269.47	7203.40	2303.86	-3505.20	0.64	3899.83	40.33050427	-104.83917208
10378.00	90.42	271.21	7202.54	2304.40	-3595.19	1.95	3988.05	40.33050570	-104.83949485
10468.00	90.00	270.69	7202.21	2305.89	-3685.18	0.74	4076.47	40.33050976	-104.83981761
10557.00	90.23	271.69	7202.03	2307.74	-3774.16	1.15	4163.97	40.33051479	-104.84013675
10647.00	89.99	270.94	7201.86	2309.80	-3864.13	0.87	4252.50	40.33052043	-104.84045947
10737.00	89.97	271.11	7201.89	2311.41	-3954.12	0.19	4340.94	40.33052481	-104.84078222
10827.00	90.02	271.17	7201.90	2313.20	-4044.10	0.09	4429.41	40.33052968	-104.84110496
10916.00	89.72	270.16	7202.10	2314.24	-4133.09	1.18	4516.76	40.33053248	-104.84142415
11006.00	90.13	270.72	7202.22	2314.93	-4223.09	0.77	4605.02	40.33053433	-104.84174694
11096.00	90.13	271.60	7202.02	2316.75	-4313.07	0.98	4693.50	40.33053929	-104.84206967
11185.00	89.98	271.10	7201.93	2318.85	-4402.05	0.59	4781.05	40.33054500	-104.84238880
11275.00	90.45	270.87	7201.59	2320.39	-4492.03	0.58	4869.48	40.33054921	-104.84271155
11365.00	90.35	271.84	7200.96	2322.52	-4582.00	1.08	4958.01	40.33055500	-104.84303426
11455.00	90.05	270.31	7200.65	2324.21	-4671.98	1.73	5046.46	40.33055959	-104.84335699
11544.00	90.15	270.51	7200.50	2324.85	-4760.98	0.25	5133.73	40.33056129	-104.84367620
11634.00	89.98	271.28	7200.39	2326.25	-4850.97	0.88	5222.13	40.33056510	-104.84399896
11724.00	90.27	269.83	7200.20	2327.12	-4940.96	1.64	5310.43	40.33056745	-104.84432174
11814.00	90.18	269.84	7199.84	2326.87	-5030.96	0.10	5398.50	40.33056669	-104.84464454
11903.00	90.44	270.16	7199.36	2326.87	-5119.96	0.46	5485.65	40.33056663	-104.84496375
11993.00	89.90	269.87	7199.09	2326.89	-5209.96	0.68	5573.78	40.33056665	-104.84528655
12083.00	90.34	269.98	7198.91	2326.77	-5299.96	0.50	5661.88	40.33056627	-104.84560935
12173.00	90.45	269.28	7198.29	2326.19	-5389.95	0.79	5749.89	40.33056462	-104.84593214
12262.00	90.09	269.37	7197.87	2325.14	-5478.95	0.42	5836.82	40.33056169	-104.84625133
12352.00	90.30	269.74	7197.56	2324.44	-5568.94	0.47	5924.80	40.33055972	-104.84657411
12442.00	90.22	269.61	7197.15	2323.93	-5658.94	0.17	6012.82	40.33055826	-104.84689691
12531.00	90.18	271.06	7196.84	2324.45	-5747.94	1.63	6100.07	40.33055963	-104.84721611
12621.00	90.42	271.15	7196.37	2326.19	-5837.92	0.28	6188.53	40.33056434	-104.84753885
12711.00	90.18	269.48	7195.90	2326.68	-5927.91	1.87	6276.75	40.33056564	-104.84786163
12800.00	89.64	269.91	7196.04	2326.21	-6016.91	0.78	6363.80	40.33056428	-104.84818084
12890.00	90.36	269.61	7196.04	2325.83	-6106.91	0.87	6451.85	40.33056318	-104.84850364
12980.00	89.98	269.14	7195.77	2324.85	-6196.90	0.67	6539.77	40.33056043	-104.84882642
13069.00	90.36	270.60	7195.51	2324.65	-6285.90	1.70	6626.87	40.33055981	-104.84914562
13159.00	90.03	270.80	7195.20	2325.75	-6375.89	0.43	6715.22	40.33056277	-104.84946840
13249.00	90.18	271.24	7195.04	2327.35	-6465.88	0.52	6803.66	40.33056710	-104.84979115
13339.00	90.12	268.88	7194.80	2327.44	-6555.87	2.62	6891.79	40.33056729	-104.85011393
13428.00	90.17	270.14	7194.57	2326.68	-6644.87	1.42	6978.78	40.33056514	-104.85043313
13518.00	90.24	270.36	7194.25	2327.08	-6734.86	0.26	7066.99	40.33056615	-104.85075592
13608.00	90.46	269.87	7193.70	2327.26	-6824.86	0.60	7155.15	40.33056658	-104.85107872
13697.00	90.20	269.77	7193.19	2326.98	-6913.86	0.31	7242.24	40.33056574	-104.85139793

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
13787.00	89.90	268.25	7193.11	2325.42	-7003.84	1.72	7330.03	40.33056140	-104.85172067
13877.00	90.22	269.58	7193.02	2323.72	-7093.82	1.52	7417.80	40.33055666	-104.85204341
13967.00	89.97	269.90	7192.87	2323.31	-7183.82	0.45	7505.84	40.33055546	-104.85236620
14056.00	89.83	268.60	7193.02	2322.14	-7272.81	1.47	7592.74	40.33055219	-104.85268538
14146.00	89.75	268.73	7193.35	2320.05	-7362.79	0.17	7680.42	40.33054637	-104.85300809
14236.00	90.07	269.68	7193.50	2318.80	-7452.78	1.11	7768.28	40.33054286	-104.85333086
14326.00	89.99	269.72	7193.45	2318.33	-7542.78	0.10	7856.31	40.33054150	-104.85365366
14415.00	90.02	268.85	7193.44	2317.22	-7631.77	0.98	7943.23	40.33053837	-104.85397284
14505.00	90.02	270.38	7193.41	2316.61	-7721.77	1.70	8031.23	40.33053664	-104.85429563
14594.00	90.00	270.19	7193.39	2317.05	-7810.76	0.21	8118.46	40.33053777	-104.85461484
14684.00	90.00	269.27	7193.39	2316.63	-7900.76	1.02	8206.50	40.33053653	-104.85493764
14774.00	90.35	271.10	7193.12	2316.92	-7990.76	2.07	8294.68	40.33053725	-104.85526042
14863.00	90.28	271.25	7192.63	2318.75	-8079.74	0.19	8382.18	40.33054218	-104.85557957
14953.00	89.91	269.85	7192.48	2319.61	-8169.73	1.61	8470.48	40.33054447	-104.85590235
15043.00	90.84	271.88	7191.89	2320.97	-8259.71	2.48	8558.86	40.33054812	-104.85622509
15132.00	90.08	269.72	7191.18	2322.21	-8348.70	2.57	8646.25	40.33055145	-104.85654424
15222.00	89.98	269.95	7191.13	2321.95	-8438.69	0.28	8734.32	40.33055065	-104.85686704
15312.00	90.74	271.45	7190.56	2323.05	-8528.68	1.87	8822.66	40.33055358	-104.85718981
15401.00	89.65	270.22	7190.26	2324.35	-8617.67	1.85	8910.06	40.33055706	-104.85750898
15491.00	89.93	268.97	7190.59	2323.71	-8707.67	1.42	8998.05	40.33055523	-104.85783176
15581.00	90.26	269.15	7190.44	2322.24	-8797.65	0.42	9085.87	40.33055109	-104.85815452
15670.00	90.27	269.80	7190.03	2321.42	-8886.65	0.73	9172.84	40.33054876	-104.85847372
15760.00	89.99	270.28	7189.83	2321.48	-8976.65	0.62	9260.98	40.33054884	-104.85879652
15850.00	90.23	270.55	7189.65	2322.13	-9066.64	0.40	9349.24	40.33055054	-104.85911931
15939.00	89.84	268.60	7189.60	2321.47	-9155.64	2.23	9436.25	40.33054864	-104.85943850
16029.00	90.11	269.88	7189.64	2320.28	-9245.63	1.45	9524.12	40.33054527	-104.85976127
16119.00	89.89	268.88	7189.64	2319.31	-9335.62	1.14	9612.04	40.33054251	-104.86008404
16208.00	90.06	270.23	7189.68	2318.62	-9424.62	1.53	9699.05	40.33054052	-104.86040324
16298.00	89.99	269.37	7189.64	2318.30	-9514.62	0.96	9787.11	40.33053956	-104.86072604
16388.00	90.19	270.88	7189.50	2318.50	-9604.61	1.69	9875.27	40.33054000	-104.86104883
16478.00	90.36	270.86	7189.06	2319.86	-9694.60	0.19	9963.66	40.33054366	-104.86137159
16567.00	90.24	270.59	7188.60	2320.99	-9783.59	0.33	10051.03	40.33054665	-104.86169078
16657.00	90.51	271.16	7188.01	2322.36	-9873.58	0.70	10139.43	40.33055033	-104.86201354
16747.00	90.65	270.16	7187.10	2323.40	-9963.57	1.12	10227.75	40.33055307	-104.86233630
16837.00	90.05	268.87	7186.55	2322.64	-10053.56	1.58	10315.72	40.33055088	-104.86265908
16926.00	90.13	270.16	7186.41	2321.89	-10142.56	1.45	10402.71	40.33054871	-104.86297827
17016.00	90.37	270.53	7186.02	2322.43	-10232.55	0.49	10490.94	40.33055010	-104.86330107
17106.00	90.16	268.93	7185.60	2322.00	-10322.55	1.79	10578.98	40.33054883	-104.86362385
17195.00	90.20	270.74	7185.32	2321.75	-10411.54	2.03	10666.07	40.33054803	-104.86394305
17285.00	90.34	270.88	7184.90	2323.02	-10501.53	0.22	10754.44	40.33055141	-104.86426582
17375.00	90.18	270.45	7184.49	2324.06	-10591.53	0.51	10842.78	40.33055418	-104.86458860
17465.00	90.28	270.61	7184.13	2324.90	-10681.52	0.21	10931.07	40.33055635	-104.86491139
17554.00	90.44	270.67	7183.57	2325.89	-10770.51	0.19	11018.41	40.33055898	-104.86523058
17644.00	90.15	268.87	7183.10	2325.53	-10860.51	2.03	11106.46	40.33055788	-104.86555336
17734.00	90.42	270.46	7182.66	2325.00	-10950.50	1.79	11194.47	40.33055632	-104.86587614
17760.25	90.32	270.07	7182.49	2325.13	-10976.75	1.53	11220.20	40.33055663	-104.86597029
17771.23	90.28	269.91	7182.43	2325.12	-10987.73	1.53	11230.95	40.33055661	-104.86600967
17824.00	90.08	269.13	7182.26	2324.68	-11040.50	1.53	11282.53	40.33055533	-104.86619893
17913.00	90.00	270.05	7182.20	2324.04	-11129.50	1.04	11369.55	40.33055347	-104.86651813
17973.00	90.26	269.90	7182.06	2324.02	-11189.50	0.50	11428.29	40.33055333	-104.86673334
17985.21	90.26	269.90	7182.01	2324.00	-11201.71	0.00	11440.24	40.33055325	-104.86677713
17996.00	90.26	269.90	7181.96	2323.98	-11212.50	0.00	11450.80	40.33055319	-104.86681583

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1594.00	1593.85	-12.33	8.50	40.32414716	-104.82656950	9.625" Csg: 1594 MD/TVD
8124.70	7217.58	2301.44	-1342.63	40.33049820	-104.83141562	460 Setback: 8125 / 7218 MD/TVD, 1202 FNL, 460 FEL Sec 12
17760.25	7182.49	2325.13	-10976.75	40.33055663	-104.86597029	Btm Toe Sub: 17,760 / 7182 MD/TVD, 1227 FNL, 471 FWL Sec 11
17771.23	7182.43	2325.12	-10987.73	40.33055661	-104.86600967	460 Setback: 17,771 / 7182 MD/TVD, 1227 FNL, 460 FWL Sec 11
17985.21	7182.01	2324.00	-11201.71	40.33055325	-104.86677713	PBTD: 17,985 / 7182 MD/TVD, 1235 FNL, 246 FWL Sec 11
17996.00	7181.96	2323.98	-11212.50	40.33055319	-104.86681583	5.5" Csg: 17,996 / 7182 MD/TVD, 1235 FNL, 235 FWL Sec 11
17996.00	7181.96	2323.98	-11212.50	40.33055319	-104.86681583	BHL: 17,996 / 7182 MD/TVD, 1235 FNL, 235 FWL Sec 11

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	1594.00	1593.85	-12.33	8.50
8.500	1594.00	1593.85	-12.33	8.50	17996.00	7181.96	2323.98	-11212.50

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	1594.00	1593.85	-12.33	8.50
5 1/2in Casing	0.00	0.00	0.00	0.00	17996.00	7181.96	2323.98	-11212.50

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
616285	As Drilled - 20190915	17996.00	7181.96	MWD

Coordinates are from Slot
MD's and TVD's are from Rig Floor 4755.0ft above Mean Sea Level
Vertical Section is from Wellhead on azimuth 281.71 degrees
Bottom hole distance is 11450.80 Feet on azimuth 281.71 degrees from Wellhead
Survey calculation uses Minimum Curvature method