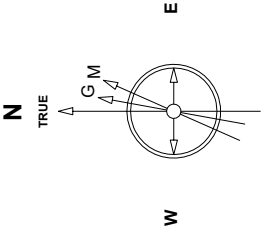


Great Western Operating Company, LLC

Location	Colorado	Slot	Slot 14 - Schneider HD 11-179HN
Field	Wattenburg	Well	Schneider HD 11-179HN
Installation	Schneider North	Wellbore	Schneider HD 11-179HN (AWB)

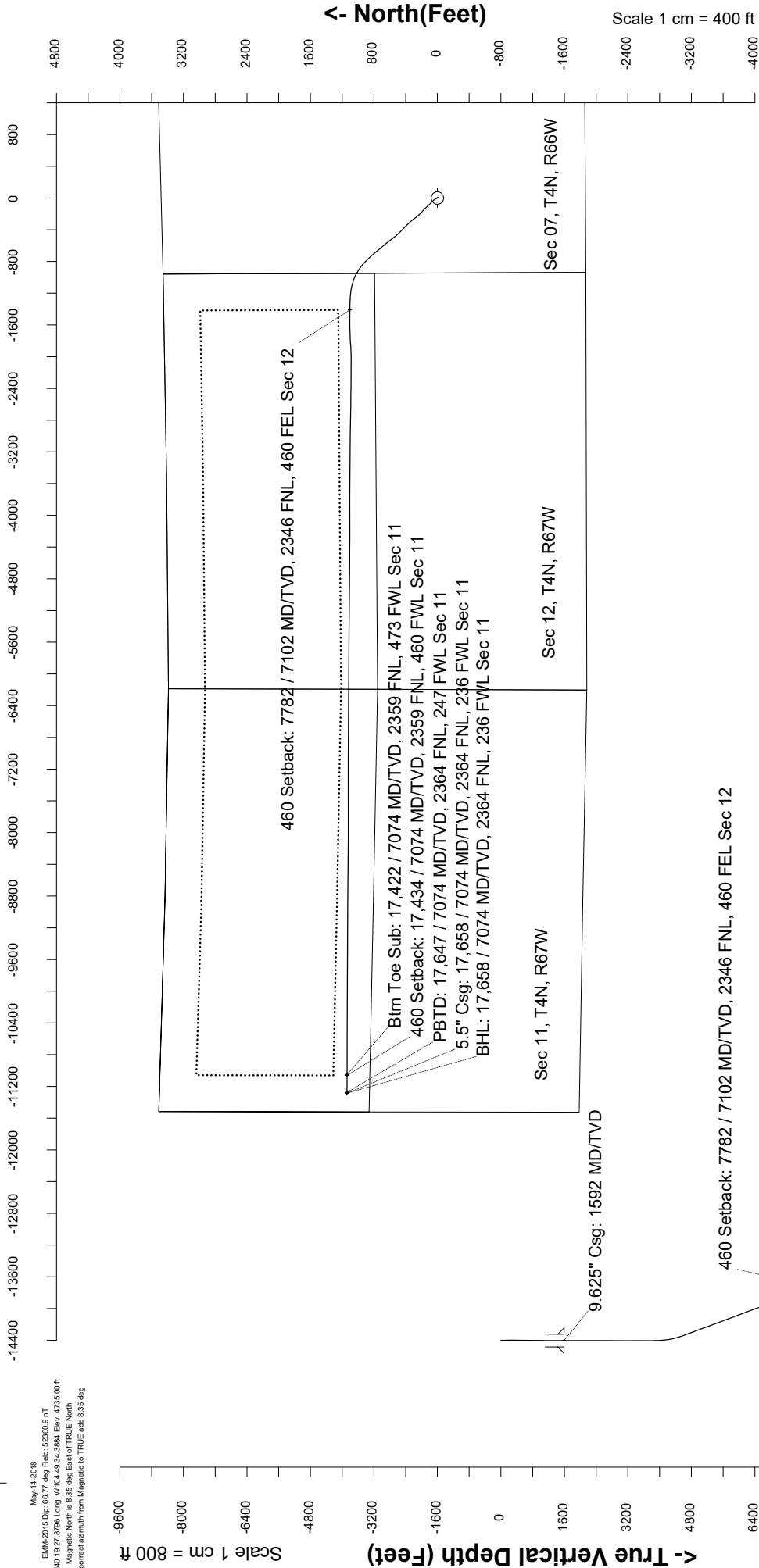
Created by	mmount
Date plotted	29-Sep-2019
Plot reference is	Schneider HD 11-179HN (AWB).
Ref wellpath is	Schneider HD 11-179HN (AWP#1).
Coordinates are in	Feet reference Slot 14 - Schneider HD 11-179HN.
True Vertical Depths are	reference Rig Datum.
Measured Depths are	reference Rig Datum.
Rig Datum	Actual Datum #1
Rig Datum to Mean Sea Level:	4755.00 ft.
Plot North is	aligned to TRUE North.



EMM-2015.Dwg: 08/7 deg Field: 52300.9 mT  
Lat: N40 19 27.8766 Long: W 104 40 34.3884 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) ->



Btm Toe Sub: 17,422 / 7074 MD/TV, 2359 FNL, 473 FWL Sec 11  
460 Setback: 17,434 / 7074 MD/TV, 2359 FNL, 460 FWL Sec 11  
PBTD: 17,647 / 7074 MD/TV, 2364 FNL, 247 FWL Sec 11  
5.5" Csg: 17,658 / 7074 MD/TV, 2364 FNL, 236 FWL Sec 11  
BHL: 17,658 / 7074 MD/TV, 2364 FNL, 236 FWL Sec 11

Scale 1 cm = 800 ft  
Vertical Section (Feet) ->  
Azimuth 275.77 with reference 0.00 N, 0.00 E from Slot 14 - Schneider HD 11-179HN

Great Western Operating Co, LLC  
Directional Survey Report  
Wellpath: Schneider HD 11-179HN  
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-27-2019	Sep-29-2019	05-123-46403	20.00	Schneider HD 11-179HN

**Slot Coordinates**

Latitude	Longitude
40.32433500	-104.82634700

**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	40.32433500	-104.82634700
14.00	0.00	0.00	14.00	0.00	0.00	0.00	0.00	40.32433300	-104.82634400
96.00	0.18	325.64	96.00	0.11	-0.07	0.00	0.08	40.32433329	-104.82634426
185.00	0.13	305.86	185.00	0.28	-0.23	0.00	0.26	40.32433377	-104.82634484
273.00	0.26	168.31	273.00	0.14	-0.27	0.00	0.29	40.32433339	-104.82634498
365.00	0.75	164.45	365.00	-0.64	-0.07	0.00	0.01	40.32433124	-104.82634425
455.00	1.14	156.27	454.98	-2.03	0.45	0.00	-0.65	40.32432743	-104.82634239
545.00	0.92	146.78	544.97	-3.45	1.20	0.00	-1.54	40.32432353	-104.82633968
635.00	0.92	142.12	634.96	-4.63	2.04	0.00	-2.50	40.32432030	-104.82633667
725.00	0.75	136.94	724.95	-5.63	2.89	0.00	-3.44	40.32431755	-104.82633364
815.00	0.53	156.45	814.94	-6.44	3.46	0.00	-4.09	40.32431532	-104.82633160
905.00	0.48	137.46	904.94	-7.10	3.88	0.00	-4.57	40.32431352	-104.82633009
995.00	0.40	153.11	994.94	-7.66	4.28	0.00	-5.02	40.32431198	-104.82632866
1085.00	0.48	159.26	1084.93	-8.29	4.55	0.00	-5.36	40.32431025	-104.82632768
1175.00	0.57	149.33	1174.93	-9.03	4.91	0.00	-5.80	40.32430822	-104.82632638
1265.00	0.66	136.67	1264.92	-9.79	5.50	0.00	-6.45	40.32430613	-104.82632428
1355.00	0.70	137.20	1354.92	-10.57	6.23	0.00	-7.26	40.32430399	-104.82632167
1445.00	0.44	128.76	1444.91	-11.19	6.87	0.00	-7.96	40.32430229	-104.82631936
1543.00	0.31	135.35	1542.91	-11.61	7.35	0.00	-8.48	40.32430112	-104.82631764
1592.00	0.23	125.80	1591.91	-11.77	7.52	0.00	-8.67	40.32430070	-104.82631702
1627.00	0.17	108.18	1626.91	-11.82	7.63	0.00	-8.78	40.32430054	-104.82631663
1717.00	0.25	194.55	1716.91	-12.06	7.71	0.00	-8.88	40.32429991	-104.82631635
1806.00	0.11	109.99	1805.91	-12.27	7.74	0.00	-8.93	40.32429931	-104.82631624
1896.00	0.07	263.76	1895.91	-12.31	7.77	0.00	-8.96	40.32429921	-104.82631615
1986.00	0.08	179.65	1985.91	-12.38	7.71	0.00	-8.92	40.32429903	-104.82631634
2075.00	0.15	67.02	2074.91	-12.39	7.82	0.00	-9.03	40.32429898	-104.82631595
2165.00	0.21	325.18	2164.91	-12.21	7.83	0.00	-9.02	40.32429948	-104.82631590
2255.00	0.09	72.32	2254.91	-12.06	7.81	0.00	-8.98	40.32429991	-104.82631600
2345.00	0.05	140.27	2344.91	-12.06	7.90	0.00	-9.07	40.32429988	-104.82631567
2434.00	0.10	349.31	2433.91	-12.02	7.91	0.00	-9.08	40.32430001	-104.82631563
2524.00	0.08	274.02	2523.91	-11.94	7.83	0.00	-8.99	40.32430024	-104.82631591
2614.00	0.18	135.85	2613.91	-12.03	7.87	0.00	-9.04	40.32429997	-104.82631578
2704.00	0.11	121.47	2703.91	-12.18	8.04	0.00	-9.22	40.32429957	-104.82631516
2793.00	0.13	88.72	2792.91	-12.22	8.21	0.00	-9.40	40.32429945	-104.82631454
2883.00	0.13	155.38	2882.91	-12.31	8.36	0.00	-9.55	40.32429920	-104.82631402
2973.00	0.10	13.32	2972.91	-12.33	8.42	0.00	-9.62	40.32429916	-104.82631380
3062.00	0.10	163.82	3061.91	-12.33	8.46	0.00	-9.66	40.32429916	-104.82631366
3152.00	0.13	101.80	3151.91	-12.42	8.58	0.00	-9.79	40.32429890	-104.82631322
3242.00	0.07	257.73	3241.91	-12.46	8.63	0.00	-9.84	40.32429881	-104.82631306
3331.00	0.15	354.56	3330.91	-12.35	8.56	0.00	-9.76	40.32429909	-104.82631329
3421.00	0.07	19.37	3420.91	-12.18	8.57	0.00	-9.75	40.32429956	-104.82631326
3511.00	0.03	196.94	3510.91	-12.15	8.58	0.00	-9.76	40.32429964	-104.82631322
3600.00	0.05	209.98	3599.91	-12.21	8.56	0.00	-9.74	40.32429948	-104.82631332
3690.00	0.19	253.36	3689.91	-12.29	8.39	0.00	-9.59	40.32429927	-104.82631390
3780.00	0.10	160.38	3779.91	-12.40	8.28	0.00	-9.48	40.32429895	-104.82631432
3869.00	1.80	343.86	3868.89	-11.13	7.91	0.00	-8.99	40.32430244	-104.82631562
3959.00	5.06	334.88	3958.72	-6.18	5.84	0.00	-6.43	40.32431603	-104.82632307
4049.00	7.06	328.99	4048.21	2.15	1.30	0.00	-1.08	40.32433891	-104.82633933
4139.00	11.07	329.08	4137.07	14.31	-5.99	0.00	7.40	40.32437228	-104.82636549
4228.00	13.57	332.11	4224.02	30.87	-15.27	0.00	18.29	40.32441774	-104.82639875
4318.00	16.13	315.18	4311.04	49.08	-29.03	0.00	33.81	40.32446773	-104.82644810
4408.00	18.90	314.06	4396.86	68.09	-48.32	0.00	54.92	40.32451991	-104.82651729
4497.00	21.99	314.95	4480.25	89.89	-70.47	0.00	79.15	40.32457975	-104.82659675
4587.00	24.03	317.09	4563.08	115.22	-94.88	0.00	105.98	40.32464928	-104.82668427
4677.00	26.07	317.43	4644.61	143.21	-120.74	0.00	134.52	40.32472610	-104.82677701
4767.00	27.61	314.82	4724.92	172.48	-148.91	0.00	165.49	40.32480644	-104.82687805
4856.00	26.44	309.41	4804.21	199.60	-178.85	0.00	198.00	40.32488089	-104.82698544
4946.00	25.53	317.20	4885.14	226.56	-207.52	0.00	229.24	40.32495489	-104.82708825
5036.00	25.25	320.35	4966.45	255.57	-232.95	0.00	257.45	40.32503452	-104.82717945
5125.00	26.18	324.79	5046.64	286.23	-256.38	0.00	283.85	40.32511868	-104.82726350
5215.00	26.69	322.41	5127.23	318.47	-280.16	0.00	310.74	40.32520717	-104.82734877
5305.00	26.39	315.98	5207.76	348.88	-306.40	0.00	339.90	40.32529063	-104.82744286
5395.00	27.36	315.73	5288.04	378.07	-334.73	0.00	371.03	40.32537077	-104.82754449
5484.00	26.31	313.58	5367.46	406.31	-363.30	0.00	402.28	40.32544829	-104.82764694
5574.00	26.15	314.38	5448.19	433.93	-391.92	0.00	433.54	40.32552410	-104.82774960
5664.00	26.56	315.02	5528.84	462.04	-420.32	0.00	464.61	40.32560125	-104.82785144
5753.00	27.76	317.71	5608.02	491.44	-448.33	0.00	495.44	40.32568197	-104.82795191

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
5843.00	26.93	319.05	5687.97	522.34	-475.79	0.00	525.87	40.32576679	-104.82805041
5933.00	26.70	320.98	5768.29	553.45	-501.88	0.00	554.95	40.32585216	-104.82814397
6023.00	28.44	324.73	5848.07	586.66	-526.99	0.00	583.27	40.32594332	-104.82823402
6112.00	28.66	324.17	5926.25	621.26	-551.72	0.00	611.35	40.32603831	-104.82832272
6202.00	27.98	319.59	6005.49	654.84	-578.04	0.00	640.92	40.32613048	-104.82841713
6292.00	28.53	318.39	6084.77	686.99	-606.00	0.00	671.96	40.32621871	-104.82851741
6382.00	27.05	318.09	6164.38	718.29	-633.95	0.00	702.91	40.32630463	-104.82861763
6471.00	27.56	321.10	6243.47	749.37	-660.40	0.00	732.35	40.32638996	-104.82871249
6561.00	28.03	321.58	6323.09	782.15	-686.61	0.00	761.72	40.32647991	-104.82880652
6651.00	27.44	319.57	6402.75	814.50	-713.20	0.00	791.43	40.32656872	-104.82890189
6740.00	28.21	319.21	6481.46	846.04	-740.24	0.00	821.50	40.32665528	-104.82899887
6830.00	26.88	312.05	6561.28	875.78	-769.26	0.00	853.36	40.32673692	-104.82910294
6920.00	27.96	316.33	6641.17	904.67	-798.94	0.00	885.79	40.32681622	-104.82920939
7010.00	28.28	315.74	6720.55	935.20	-828.39	0.00	918.16	40.32690002	-104.82931501
7099.00	31.48	302.16	6797.80	962.71	-862.82	0.00	955.18	40.32697553	-104.82943851
7189.00	38.63	303.62	6871.42	990.81	-906.16	0.00	1001.13	40.32705265	-104.82959397
7278.00	48.77	300.63	6935.69	1023.33	-958.24	0.00	1056.21	40.32714192	-104.82978074
7368.00	56.14	290.09	6990.59	1053.50	-1022.66	0.00	1123.33	40.32722474	-104.83001178
7458.00	64.22	283.42	7035.35	1075.80	-1097.35	0.00	1199.89	40.32728593	-104.83027968
7547.00	73.81	278.91	7067.20	1091.76	-1178.78	0.00	1282.51	40.32732974	-104.83057171
7637.00	80.68	272.82	7087.08	1100.66	-1266.00	0.00	1370.19	40.32735415	-104.83088456
7727.00	85.00	269.38	7098.29	1102.36	-1355.25	0.00	1459.15	40.32735880	-104.83120465
7781.81	87.15	270.64	7102.04	1102.37	-1409.93	0.00	1513.56	40.32735882	-104.83140075
7816.00	89.31	271.90	7103.10	1103.13	-1444.09	0.00	1547.62	40.32736090	-104.83152327
7906.00	90.97	270.23	7102.88	1104.80	-1534.07	0.00	1637.31	40.32736548	-104.83184598
7996.00	91.10	268.79	7101.25	1104.03	-1624.05	0.00	1726.76	40.32736335	-104.83216870
8086.00	90.97	267.84	7099.63	1101.39	-1713.99	0.00	1815.98	40.32735607	-104.83249129
8175.00	89.93	266.21	7098.93	1096.77	-1802.87	0.00	1903.94	40.32734337	-104.83281003
8265.00	89.56	266.35	7099.33	1090.93	-1892.68	0.00	1992.71	40.32732733	-104.83313213
8355.00	89.86	269.02	7099.79	1087.29	-1982.59	0.00	2081.81	40.32731733	-104.83345462
8444.00	89.66	270.32	7100.16	1086.78	-2071.59	0.00	2170.30	40.32731590	-104.83377381
8534.00	89.78	270.56	7100.60	1087.47	-2161.59	0.00	2259.91	40.32731778	-104.83409658
8624.00	89.62	270.24	7101.07	1088.10	-2251.58	0.00	2349.52	40.32731948	-104.83441936
8713.00	90.08	270.35	7101.30	1088.56	-2340.58	0.00	2438.11	40.32732072	-104.83473855
8803.00	90.29	270.76	7101.01	1089.43	-2430.58	0.00	2527.74	40.32732309	-104.83506132
8893.00	90.21	270.54	7100.62	1090.45	-2520.57	0.00	2617.38	40.32732586	-104.83538409
8982.00	90.08	270.79	7100.39	1091.48	-2609.56	0.00	2706.02	40.32732867	-104.83570326
9072.00	89.91	270.45	7100.40	1092.46	-2699.56	0.00	2795.66	40.32733132	-104.83602603
9162.00	90.44	271.32	7100.13	1093.85	-2789.54	0.00	2885.33	40.32733511	-104.83634878
9252.00	89.83	270.54	7099.91	1095.31	-2879.53	0.00	2975.01	40.32733909	-104.83667152
9341.00	90.38	270.89	7099.75	1096.42	-2968.52	0.00	3063.67	40.32734211	-104.83699069
9431.00	90.80	271.87	7098.82	1098.59	-3058.49	0.00	3153.40	40.32734803	-104.83731336
9521.00	90.33	270.79	7097.94	1100.68	-3148.46	0.00	3243.12	40.32735373	-104.83763605
9610.00	90.24	270.86	7097.49	1101.96	-3237.45	0.00	3331.79	40.32735722	-104.83795521
9700.00	89.87	270.51	7097.41	1103.03	-3327.44	0.00	3421.43	40.32736014	-104.83827797
9790.00	89.66	270.24	7097.78	1103.62	-3417.44	0.00	3511.04	40.32736172	-104.83860075
9879.00	90.55	269.75	7097.61	1103.61	-3506.44	0.00	3599.58	40.32736166	-104.83891995
9969.00	90.10	270.27	7097.10	1103.63	-3596.44	0.00	3689.13	40.32736167	-104.83924273
10059.00	90.07	269.86	7096.97	1103.73	-3686.44	0.00	3778.68	40.32736192	-104.83956551
10149.00	91.04	269.61	7096.10	1103.32	-3776.43	0.00	3868.18	40.32736074	-104.83988828
10238.00	91.00	270.17	7094.51	1103.14	-3865.42	0.00	3956.70	40.32736023	-104.84020743
10328.00	90.81	269.88	7093.09	1103.18	-3955.41	0.00	4046.23	40.32736030	-104.84053017
10418.00	90.92	270.50	7091.73	1103.48	-4045.39	0.00	4135.80	40.32736108	-104.84085292
10508.00	90.95	270.45	7090.26	1104.23	-4135.38	0.00	4225.40	40.32736308	-104.84117566
10598.00	90.93	270.02	7088.79	1104.60	-4225.37	0.00	4314.97	40.32736406	-104.84149840
10687.00	90.31	269.80	7087.83	1104.46	-4314.36	0.00	4403.50	40.32736363	-104.84181758
10777.00	90.41	270.42	7087.26	1104.63	-4404.36	0.00	4493.06	40.32736406	-104.84214036
10866.00	90.77	270.02	7086.34	1104.97	-4493.35	0.00	4581.64	40.32736495	-104.84245954
10956.00	90.69	270.81	7085.20	1105.62	-4583.34	0.00	4671.24	40.32736670	-104.84278229
11046.00	89.98	269.80	7084.67	1106.10	-4673.34	0.00	4760.82	40.32736797	-104.84310506
11136.00	89.80	270.41	7084.84	1106.27	-4763.34	0.00	4850.39	40.32736837	-104.84342784
11225.00	90.34	270.61	7084.73	1107.06	-4852.33	0.00	4939.01	40.32737050	-104.84374703
11315.00	89.95	270.52	7084.51	1107.95	-4942.33	0.00	5028.64	40.32737289	-104.84406980
11405.00	90.32	271.02	7084.29	1109.16	-5032.32	0.00	5118.30	40.32737616	-104.84439256
11495.00	89.92	270.28	7084.11	1110.18	-5122.31	0.00	5207.94	40.32737891	-104.84471532
11584.00	90.30	270.58	7083.94	1110.85	-5211.31	0.00	5296.55	40.32738069	-104.84503451
11674.00	90.56	270.21	7083.26	1111.47	-5301.30	0.00	5386.15	40.32738234	-104.84535728
11764.00	90.43	270.45	7082.48	1111.98	-5391.30	0.00	5475.74	40.32738371	-104.84568006
11854.00	90.08	270.62	7082.08	1112.83	-5481.29	0.00	5565.37	40.32738596	-104.84600283
11943.00	89.85	270.79	7082.14	1113.92	-5570.29	0.00	5654.02	40.32738892	-104.84632200
12033.00	90.51	270.42	7081.85	1114.87	-5660.28	0.00	5743.66	40.32739147	-104.84664477
12123.00	89.59	270.75	7081.77	1115.79	-5750.28	0.00	5833.29	40.32739393	-104.84696754
12212.00	88.83	270.50	7083.00	1116.76	-5839.26	0.00	5921.92	40.32739654	-104.84728669
12302.00	88.79	269.88	7084.87	1117.06	-5929.24	0.00	6011.47	40.32739730	-104.84760940
12392.00	89.79	270.45	7085.99	1117.32	-6019.23	0.00	6101.04	40.32739795	-104.84793216
12481.00	90.01	271.01	7086.14	1118.45	-6108.22	0.00	6189.69	40.32740100	-104.84825133
12571.00	90.23	269.67	7085.95	1118.99	-6198.22	0.00	6279.29	40.32740241	-104.84857411
12661.00	89.76	271.11	7085.96	1119.60	-6288.22	0.00	6368.89	40.32740403	-104.84889688
12750.00	90.23	271.00	7085.97	1121.24	-6377.20	0.00	6457.59	40.32740846	-104.84921603
12840.00	90.17	270.87	7085.65	1122.71	-6467.19	0.00	6547.27	40.32741243	-104.84953877
12930.00	90.13	269.75	7085.42	1123.19	-6557.18	0.00	6636.86	40.32741370	-104.84986155
13020.00	90.45	269.47	7084.96	1122.58	-6647.18	0.00	6726.34	40.32741196	-104.85018432
13109.00	89.90	269.87	7084.69	1122.07	-6736.18	0.00	6814.83	40.32741048	-104.85050352
13199.00	90.07	269.65	7084.72	1121.69	-6826.18	0.00	6904.34	40.32740938	-104.85082630
13289.00	89.96	270.76	7084.69	1122.01	-6916.18	0.00	6993.91	40.32741019	-104.85114908
13378.00	89.96	269.64	7084.75	1122.32	-7005.17	0.00	7082.49	40.32741098	-104.85146828
13468.00	89.61	270.03	7085.09	1122.06	-7095.17	0.00	7172.01	40.32741020	-104.85179106
13558.00	90.25	269.88	7085.20	1121.99	-7185.17	0.00	7261.54	40.32740993	-104.85211384
13648.00	90.05	269.68	7084.97	1121.65	-7275.17	0.00	7351.05	40.32740891	-104.85243663
13737.00	90.55	270.21	7084.50	1121.56	-7364.17	0.00	7439.59	40.32740860	-104.85275582

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
13827.00	90.51	269.50	7083.67	1121.33	-7454.16	0.00	7529.11	40.32740790	-104.85307859
13917.00	90.43	270.07	7082.93	1121.00	-7544.16	0.00	7618.62	40.32740690	-104.85340137
14006.00	90.37	270.73	7082.31	1121.62	-7633.16	0.00	7707.22	40.32740853	-104.85372055
14096.00	90.33	270.48	7081.76	1122.57	-7723.15	0.00	7796.86	40.32741106	-104.85404331
14186.00	90.33	269.89	7081.24	1122.86	-7813.15	0.00	7886.43	40.32741178	-104.85436609
14275.00	90.20	269.71	7080.83	1122.55	-7902.14	0.00	7974.94	40.32741085	-104.85468529
14365.00	90.38	270.82	7080.37	1122.96	-7992.14	0.00	8064.53	40.32741192	-104.85500806
14455.00	90.31	269.42	7079.83	1123.15	-8082.14	0.00	8154.09	40.32741235	-104.85533084
14544.00	90.14	270.40	7079.48	1123.01	-8171.13	0.00	8242.62	40.32741189	-104.85565003
14634.00	90.60	271.09	7078.90	1124.18	-8261.12	0.00	8332.27	40.32741502	-104.85597278
14724.00	89.69	269.43	7078.67	1124.59	-8351.12	0.00	8421.85	40.32741606	-104.85629555
14813.00	89.67	270.92	7079.17	1124.86	-8440.12	0.00	8510.43	40.32741672	-104.85661474
14903.00	90.49	270.81	7079.04	1126.22	-8530.10	0.00	8600.10	40.32742037	-104.85693749
14993.00	90.25	269.73	7078.46	1126.65	-8620.10	0.00	8689.68	40.32742144	-104.85726026
15082.00	90.21	270.24	7078.10	1126.62	-8709.10	0.00	8778.22	40.32742130	-104.85757946
15172.00	90.19	270.70	7077.79	1127.36	-8799.09	0.00	8867.84	40.32742323	-104.85790224
15262.00	90.47	270.88	7077.27	1128.60	-8889.08	0.00	8957.50	40.32742655	-104.85822499
15351.00	90.00	270.85	7076.91	1129.95	-8978.07	0.00	9046.17	40.32743015	-104.85854415
15441.00	90.20	270.62	7076.75	1131.10	-9068.07	0.00	9135.83	40.32743323	-104.85886691
15531.00	89.97	271.08	7076.62	1132.44	-9158.06	0.00	9225.49	40.32743680	-104.85918967
15621.00	89.91	271.01	7076.71	1134.08	-9248.04	0.00	9315.19	40.32744122	-104.85951240
15710.00	89.96	269.81	7076.81	1134.71	-9337.04	0.00	9403.80	40.32744287	-104.85983159
15800.00	90.15	269.72	7076.73	1134.34	-9427.04	0.00	9493.30	40.32744177	-104.86015438
15890.00	90.30	270.01	7076.37	1134.13	-9517.03	0.00	9582.83	40.32744109	-104.86047716
15979.00	90.40	270.62	7075.83	1134.62	-9606.03	0.00	9671.42	40.32744234	-104.86079635
16069.00	89.94	270.87	7075.56	1135.79	-9696.02	0.00	9761.08	40.32744545	-104.86111911
16159.00	89.93	269.49	7075.66	1136.07	-9786.02	0.00	9850.65	40.32744613	-104.86144189
16248.00	89.91	270.47	7075.79	1136.04	-9875.02	0.00	9939.19	40.32744595	-104.86176108
16338.00	89.80	269.80	7076.02	1136.26	-9965.02	0.00	10028.76	40.32744643	-104.86208387
16428.00	90.40	269.67	7075.86	1135.84	-10055.02	0.00	10118.26	40.32744519	-104.86240665
16518.00	90.20	270.43	7075.39	1135.92	-10145.01	0.00	10207.81	40.32744531	-104.86272943
16607.00	89.89	269.81	7075.32	1136.10	-10234.01	0.00	10296.38	40.32744572	-104.86304863
16697.00	90.26	269.98	7075.20	1135.94	-10324.01	0.00	10385.90	40.32744516	-104.86337142
16787.00	90.10	270.19	7074.92	1136.07	-10414.01	0.00	10475.46	40.32744542	-104.86369420
16877.00	89.95	269.84	7074.88	1136.10	-10504.01	0.00	10565.01	40.32744538	-104.86401699
16966.00	90.00	270.47	7074.92	1136.34	-10593.01	0.00	10653.58	40.32744594	-104.86433619
17056.00	89.93	269.62	7074.97	1136.41	-10683.01	0.00	10743.13	40.32744603	-104.86465897
17146.00	90.37	270.40	7074.74	1136.42	-10773.01	0.00	10832.68	40.32744597	-104.86498176
17235.00	90.07	270.62	7074.39	1137.22	-10862.01	0.00	10921.30	40.32744803	-104.86530095
17325.00	90.13	269.71	7074.24	1137.47	-10952.00	0.00	11010.87	40.32744864	-104.86562373
17415.00	90.02	270.79	7074.12	1137.87	-11042.00	0.00	11100.45	40.32744960	-104.86594651
17421.56	90.09	270.61	7074.11	1137.95	-11048.56	0.00	11106.99	40.32744981	-104.86597003
17434.30	90.10	270.59	7074.09	1138.08	-11061.30	0.00	11119.67	40.32745016	-104.86601572
17505.00	90.16	270.42	7073.93	1138.70	-11132.00	0.00	11190.08	40.32745179	-104.86626928
17594.00	90.16	270.30	7073.69	1139.26	-11221.00	0.00	11278.68	40.32745321	-104.86658848
17635.00	90.13	270.38	7073.58	1139.51	-11261.99	0.00	11319.50	40.32745383	-104.86673552
17647.18	90.13	270.38	7073.55	1139.59	-11274.17	0.00	11331.62	40.32745404	-104.86677921
17658.00	90.13	270.38	7073.53	1139.66	-11284.99	0.00	11342.39	40.32745422	-104.86681801

#### Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1592.00	1591.91	-11.77	7.52	40.32430070	-104.82631702	9.625" Csg: 1592 MD/TVD
7781.81	7102.04	1102.37	-1409.93	40.32735882	-104.83140075	460 Setback: 7782 / 7102 MD/TVD, 2346 FNL, 460 FEL Sec 12
17421.56	7074.11	1137.95	-11048.56	40.32744981	-104.86597003	Btm Toe Sub: 17,422 / 7074 MD/TVD, 2359 FNL, 473 FWL Sec 11
17434.30	7074.09	1138.08	-11061.30	40.32745016	-104.86601572	460 Setback: 17,434 / 7074 MD/TVD, 2359 FNL, 460 FWL Sec 11
17647.18	7073.55	1139.59	-11274.17	40.32745404	-104.86677921	PBTD: 17,647 / 7074 MD/TVD, 2364 FNL, 247 FWL Sec 11
17658.00	7073.53	1139.66	-11284.99	40.32745422	-104.86681801	5.5" Csg: 17,658 / 7074 MD/TVD, 2364 FNL, 236 FWL Sec 11
17658.00	7073.53	1139.66	-11284.99	40.32745422	-104.86681801	BHL: 17,658 / 7074 MD/TVD, 2364 FNL, 236 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	1592.00	1591.91	-11.77	7.52
8.500	1592.00	1591.91	-11.77	7.52	17658.00	7073.53	1139.66	-11284.99

#### 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	1592.00	1591.91	-11.77	7.52
5 1/2in Casing	0.00	0.00	0.00	0.00	17658.00	7073.53	1139.66	-11284.99

#### Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
629555	As Drilled - 20190929	17658.00	7073.53	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 275.77 degrees  
Bottom hole distance is 11342.39 Feet on azimuth 275.77 degrees from Wellhead  
Survey calculation uses Minimum Curvature method