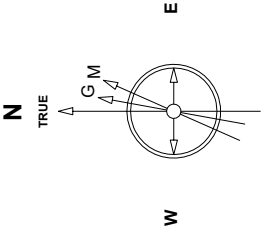


Great Western Operating Company, LLC

Location	Colorado	Slot	Slot 02 - Schneider HD 11-019HN
Field	Wattenburg	Well	Schneider HD 11-019HN
Installation	Schneider North	Wellbore	Schneider HD 11-019HN (AWB)

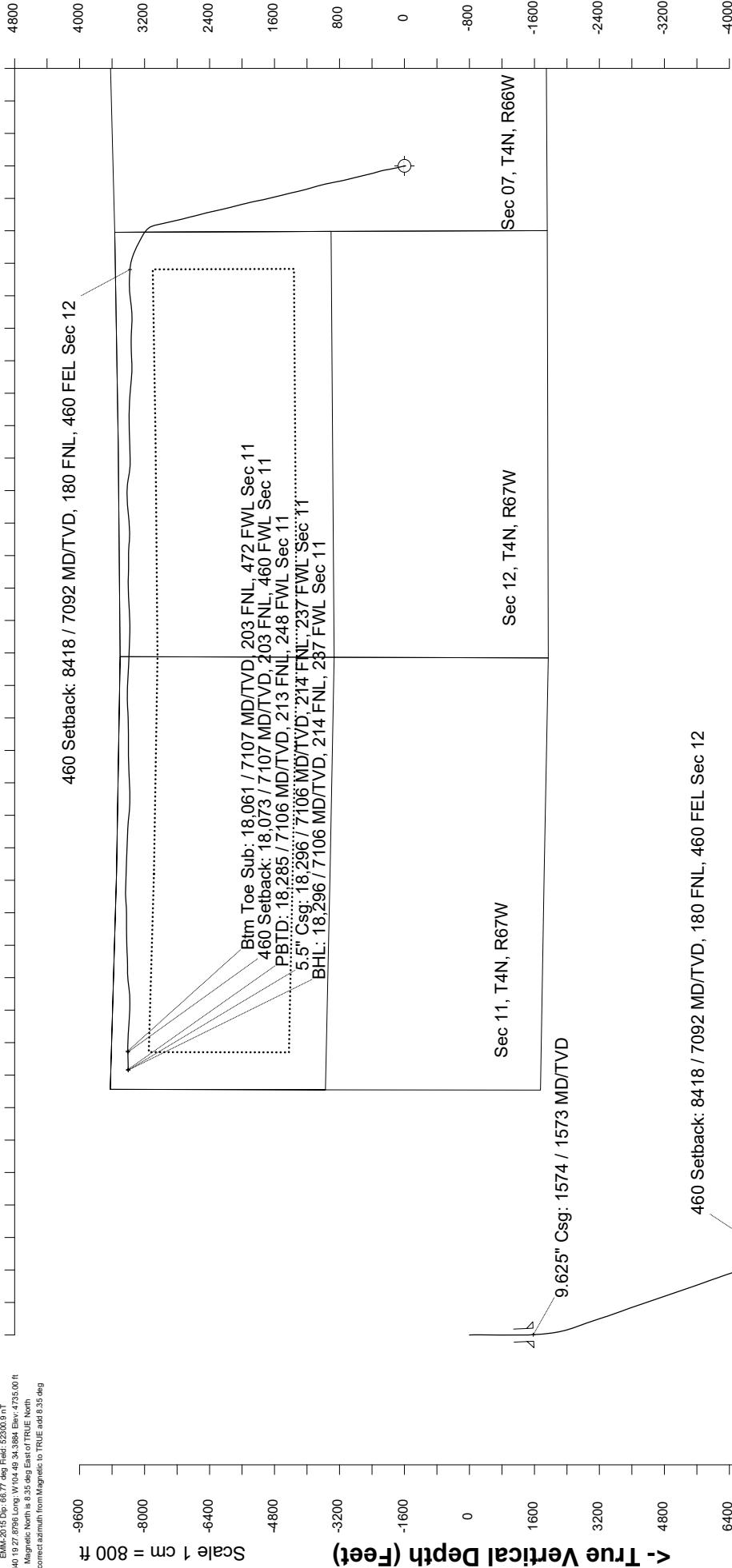
Created by	mmount
Date plotted	23-Sep-2019
Plot reference is	Schneider HD 11-019HN (AWB).
Ref wellpath is	Schneider HD 11-019HN (AWP#1).
Coordinates are in	Feet reference Slot 02 - Schneider HD 11-019HN.
True Vertical Depths are	reference Rig Datum.
Measured Depths are	reference Rig Datum.
Rig Datum	Actual Datum #1
Rig Datum to Mean Sea Level:	4755.00 ft.
Plot North is aligned to	TRUE North.



Scale 1 cm = 400 ft

East (Feet) ->

May-14-2018  
EOM-2018.Dwg: 08/7' deep Field: 52300.9 nT  
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



460 Setback: 8418 / 7092 MD/TVD, 180 FNL, 460 FEL Sec 12

Btm Toe Sub: 18,061 / 7107 MD/TVD, 203 FNL, 472 FWL Sec 11  
460 Setback: 18,073 / 7107 MD/TVD, 203 FNL, 460 FWL Sec 11  
PBD: 18,285 / 7106 MD/TVD, 213 FNL, 248 FWL Sec 11  
5.5" Csg: 18,296 / 7106 MD/TVD, 214 FNL, 237 FWL Sec 11  
BHL: 18,296 / 7106 MD/TVD, 214 FNL, 237 FWL Sec 11

Scale 1 cm = 800 ft  
Vertical Section (Feet) ->  
Azimuth 286.98 with reference 0.00 N, 0.00 E from Slot 02 - Schneider HD 11-019HN

Great Western Operating Co, LLC  
Directional Survey Report  
Wellpath: Schneider HD 11-019HN  
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
Aug-30-2019	Sep-23-2019	05-123-46404	20.00	Schneider HD 11-019HN

**Slot Coordinates**

Latitude	Longitude
40.32402700	-104.82685000

**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	40.32402700	-104.82685000
14.00	0.00	342.60	14.00	0.00	0.00	0.00	0.00	40.32402700	-104.82685000
96.00	1.19	342.60	95.99	0.81	-0.25	1.45	0.48	40.32402923	-104.82685091
185.00	0.04	278.00	184.99	1.70	-0.56	1.32	1.03	40.32403166	-104.82685201
273.00	1.23	168.49	272.98	0.78	-0.40	1.41	0.61	40.32402913	-104.82685145
365.00	1.32	182.99	364.96	-1.25	-0.26	0.36	-0.11	40.32402357	-104.82685094
455.00	1.54	171.48	454.93	-3.48	-0.14	0.40	-0.89	40.32401745	-104.82685049
545.00	1.19	176.48	544.90	-5.61	0.10	0.41	-1.73	40.32401161	-104.82684964
635.00	1.27	172.00	634.88	-7.53	0.30	0.14	-2.48	40.32400633	-104.82684894
725.00	0.88	180.97	724.87	-9.21	0.42	0.47	-3.09	40.32400173	-104.82684848
815.00	0.48	203.73	814.86	-10.24	0.26	0.53	-3.24	40.32399888	-104.82684907
905.00	0.79	180.88	904.86	-11.21	0.10	0.44	-3.37	40.32399623	-104.82684965
995.00	0.13	163.65	994.85	-11.93	0.12	0.74	-3.60	40.32399426	-104.82684958
1085.00	0.22	170.95	1084.85	-12.20	0.17	0.10	-3.73	40.32399352	-104.82684938
1175.00	0.13	353.67	1174.85	-12.27	0.19	0.39	-3.76	40.32399333	-104.82684932
1265.00	0.57	343.48	1264.85	-11.73	0.05	0.49	-3.48	40.32399479	-104.82684982
1355.00	1.71	345.94	1354.83	-10.00	-0.40	1.27	-2.54	40.32399954	-104.82685144
1445.00	3.69	350.25	1444.73	-5.85	-1.22	2.21	-0.54	40.32401095	-104.82685437
1525.00	5.36	348.84	1524.47	0.36	-2.38	2.09	2.38	40.32402798	-104.82685853
1574.00	5.70	349.41	1573.25	5.00	-3.27	0.70	4.59	40.32404071	-104.82686172
1622.00	6.04	349.92	1620.99	9.82	-4.15	0.72	6.84	40.32405397	-104.82686488
1711.00	7.55	349.98	1709.37	20.19	-5.99	1.70	11.62	40.32408243	-104.82687147
1801.00	10.16	346.07	1798.29	33.72	-8.93	2.97	18.39	40.32411957	-104.82688201
1890.00	12.85	346.95	1885.49	50.99	-13.05	3.03	27.38	40.32416695	-104.82689681
1980.00	15.15	346.55	1972.81	72.18	-18.05	2.56	38.35	40.32422512	-104.82691472
2069.00	17.84	347.39	2058.14	96.80	-23.73	3.03	50.98	40.32429270	-104.82693510
2159.00	20.19	346.93	2143.22	125.38	-30.25	2.62	65.57	40.32437117	-104.82695850
2248.00	24.98	348.93	2225.38	158.81	-37.34	5.45	82.11	40.32446291	-104.82698391
2337.00	26.23	351.76	2305.64	196.72	-43.77	1.96	99.33	40.32456697	-104.82700696
2427.00	28.97	349.82	2385.39	237.86	-50.47	3.20	117.77	40.32467991	-104.82703100
2516.00	30.89	345.20	2462.53	281.17	-60.12	3.37	139.65	40.32479880	-104.82706560
2606.00	33.87	343.66	2538.53	327.59	-73.08	3.44	165.61	40.32492620	-104.82711209
2695.00	34.32	342.60	2612.23	375.33	-87.56	0.84	193.40	40.32505725	-104.82716402
2785.00	34.68	346.59	2686.41	424.45	-101.08	2.54	220.69	40.32519209	-104.82721253
2875.00	34.53	347.61	2760.49	474.27	-112.50	0.66	246.16	40.32532884	-104.82725346
2964.00	34.90	346.29	2833.65	523.64	-123.94	0.94	271.54	40.32546437	-104.82729451
3054.00	34.75	345.88	2907.53	573.53	-136.30	0.31	297.94	40.32560131	-104.82733884
3143.00	34.83	346.95	2980.62	622.89	-148.23	0.69	323.76	40.32573679	-104.82738162
3233.00	33.59	346.12	3055.05	672.10	-160.01	1.47	349.40	40.32587187	-104.82742385
3322.00	34.24	347.28	3128.91	720.43	-171.43	1.03	374.45	40.32600452	-104.82746481
3412.00	34.13	347.32	3203.36	769.76	-182.54	0.12	399.49	40.32613993	-104.82750468
3501.00	34.07	349.50	3277.06	818.63	-192.57	1.37	423.36	40.32627408	-104.82754063
3591.00	34.17	348.67	3351.56	868.20	-202.13	0.53	446.98	40.32641014	-104.82757492
3680.00	34.17	347.72	3425.20	917.13	-212.35	0.60	471.06	40.32654445	-104.82761160
3770.00	34.26	347.34	3499.63	966.54	-223.28	0.26	495.95	40.32668008	-104.82765079
3859.00	34.39	347.46	3573.13	1015.52	-234.23	0.16	520.73	40.32681452	-104.82769005
3949.00	34.72	343.72	3647.26	1064.94	-246.93	2.39	547.32	40.32695017	-104.82773562
4038.00	34.67	343.37	3720.43	1113.52	-261.28	0.23	575.24	40.32708354	-104.82778709
4127.00	34.55	343.70	3793.68	1162.00	-275.61	0.25	603.11	40.32721660	-104.82783848
4217.00	34.52	345.82	3867.83	1211.22	-289.02	1.34	630.31	40.32735171	-104.82788658
4307.00	34.62	345.81	3941.93	1260.73	-301.53	0.11	656.75	40.32748761	-104.82793146
4396.00	33.43	347.12	4015.70	1309.14	-313.20	1.57	682.05	40.32762050	-104.82797329
4485.00	34.08	347.17	4089.69	1357.35	-324.20	0.73	706.66	40.32775284	-104.82801276
4575.00	34.47	346.26	4164.06	1406.68	-335.85	0.72	732.21	40.32788824	-104.82805454
4664.00	34.27	346.00	4237.53	1455.46	-347.89	0.28	757.98	40.32802213	-104.82809774
4754.00	34.01	347.12	4312.02	1504.58	-359.63	0.76	783.56	40.32815697	-104.82813985
4843.00	34.40	344.51	4385.63	1553.08	-371.90	1.71	809.46	40.32829009	-104.82818384
4933.00	33.91	345.26	4460.10	1601.86	-385.07	0.72	836.32	40.32842398	-104.82823110
5023.00	34.32	346.92	4534.62	1650.85	-397.20	1.13	862.23	40.32855847	-104.82827461
5112.00	33.72	348.62	4608.39	1699.51	-407.76	1.26	886.54	40.32869203	-104.82831246
5202.00	33.70	348.54	4683.25	1748.47	-417.65	0.05	910.31	40.32882642	-104.82834793
5292.00	34.82	347.62	4757.64	1798.04	-428.12	1.37	934.80	40.32896249	-104.82838549
5381.00	34.81	347.99	4830.70	1847.70	-438.85	0.24	959.58	40.32909881	-104.82842399
5471.00	34.79	346.76	4904.61	1897.82	-450.08	0.78	984.96	40.32923639	-104.82846426
5560.00	33.69	347.38	4978.18	1946.63	-461.28	1.30	1009.94	40.32937036	-104.82850446
5650.00	34.45	344.68	5052.74	1995.54	-473.46	1.88	1035.88	40.32950462	-104.82854815
5739.00	33.98	345.99	5126.34	2043.95	-486.14	0.98	1062.15	40.32963750	-104.82859360
5829.00	34.62	345.35	5200.69	2093.09	-498.69	0.82	1088.51	40.32977238	-104.82863864

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
5918.00	34.18	346.34	5274.12	2141.84	-510.99	0.80	1114.52	40.32990621	-104.82868275
6008.00	34.64	346.33	5348.37	2191.26	-523.01	0.51	1140.45	40.33004186	-104.82872585
6097.00	34.63	347.46	5421.60	2240.53	-534.47	0.72	1165.81	40.33017708	-104.82876699
6187.00	34.77	346.48	5495.59	2290.44	-546.03	0.64	1191.44	40.33031410	-104.82880842
6276.00	35.05	349.04	5568.58	2340.21	-556.82	1.68	1216.31	40.33045070	-104.82884714
6365.00	35.57	348.06	5641.21	2390.63	-567.03	0.86	1240.81	40.33058909	-104.82888378
6455.00	34.53	343.97	5714.90	2440.76	-579.49	2.85	1267.37	40.33072670	-104.82892848
6544.00	33.91	345.18	5788.49	2489.00	-592.81	1.03	1294.20	40.33085913	-104.82897624
6634.00	34.01	346.03	5863.14	2537.70	-605.31	0.54	1320.38	40.33099280	-104.82902107
6723.00	34.14	345.55	5936.86	2586.04	-617.55	0.34	1346.22	40.33112548	-104.82906498
6813.00	34.13	346.31	6011.36	2635.03	-629.83	0.47	1372.27	40.33125995	-104.82910902
6902.00	34.52	345.48	6084.86	2683.70	-642.06	0.68	1398.19	40.33139355	-104.82915290
6991.00	34.23	345.13	6158.31	2732.30	-654.80	0.39	1424.58	40.33152697	-104.82919862
7081.00	34.57	346.65	6232.57	2781.61	-667.20	1.03	1450.84	40.33166232	-104.82924307
7171.00	34.09	347.67	6306.90	2831.10	-678.48	0.83	1476.09	40.33179815	-104.82928354
7260.00	34.74	347.60	6380.32	2880.23	-689.25	0.73	1500.75	40.33193302	-104.82932218
7349.00	34.46	347.08	6453.58	2929.54	-700.33	0.46	1525.75	40.33206837	-104.82936191
7439.00	34.02	347.34	6527.98	2978.92	-711.54	0.52	1550.90	40.33220392	-104.82940213
7529.00	34.92	348.96	6602.18	3028.77	-721.99	1.43	1575.46	40.33234075	-104.82943962
7618.00	35.99	346.25	6674.68	3079.18	-733.08	2.14	1600.80	40.33247912	-104.82947942
7707.00	37.20	330.86	6746.29	3128.19	-752.44	10.38	1633.63	40.33261363	-104.82954886
7797.00	40.85	313.67	6816.40	3172.42	-787.09	12.66	1679.70	40.33273505	-104.82967316
7886.00	46.40	302.96	6880.89	3210.13	-835.29	10.37	1736.81	40.33283856	-104.82984603
7976.00	52.40	297.16	6939.46	3244.18	-894.44	8.26	1803.33	40.33293203	-104.83005819
8066.00	59.33	296.65	6989.93	3277.86	-960.83	7.71	1876.66	40.33302446	-104.83029635
8155.00	67.09	295.05	7030.02	3312.44	-1032.29	8.87	1955.11	40.33311937	-104.83055265
8244.00	76.49	290.50	7057.81	3345.04	-1110.16	11.62	2039.11	40.33320883	-104.83083198
8334.00	78.85	280.83	7077.07	3368.71	-1194.72	10.82	2126.89	40.33327381	-104.83113526
8418.29	80.16	277.47	7092.43	3381.88	-1276.53	4.22	2208.98	40.33330995	-104.83142871
8423.00	81.51	274.13	7093.18	3382.35	-1281.15	75.55	2213.54	40.33331124	-104.83144530
8512.00	87.32	272.63	7101.84	3387.57	-1369.54	6.74	2299.59	40.33332554	-104.83176232
8601.00	90.28	270.02	7103.70	3389.62	-1458.48	4.43	2385.25	40.33333117	-104.83208133
8691.00	90.37	265.57	7103.19	3386.16	-1548.39	4.95	2470.22	40.33332165	-104.83240382
8781.00	90.09	262.61	7102.83	3376.89	-1637.90	3.30	2553.12	40.33329620	-104.83272488
8870.00	90.00	263.53	7102.76	3366.16	-1726.25	1.04	2634.47	40.33326671	-104.83304177
8960.00	90.12	266.51	7102.66	3358.34	-1815.90	3.31	2717.93	40.33324525	-104.83336333
9049.00	89.85	271.09	7102.69	3356.48	-1904.85	5.15	2802.46	40.33324011	-104.83368240
9139.00	89.91	273.95	7102.88	3360.44	-1994.76	3.18	2889.59	40.33325095	-104.83400487
9228.00	89.85	272.37	7103.06	3365.34	-2083.62	1.78	2976.01	40.33326440	-104.83432360
9318.00	89.97	270.03	7103.20	3367.23	-2173.59	2.60	3062.61	40.33326955	-104.83464633
9407.00	89.91	268.76	7103.30	3366.29	-2262.58	1.43	3147.44	40.33326695	-104.83496553
9497.00	89.78	266.61	7103.54	3362.65	-2352.51	2.39	3232.38	40.33325695	-104.83528806
9586.00	90.22	267.16	7103.54	3357.82	-2441.37	0.79	3315.96	40.33324365	-104.83560682
9676.00	89.97	272.24	7103.39	3357.35	-2531.34	5.65	3401.86	40.33324233	-104.83592952
9765.00	90.09	275.87	7103.35	3363.64	-2620.11	4.08	3488.59	40.33325958	-104.83624790
9855.00	90.25	275.67	7103.08	3372.69	-2709.65	0.28	3576.87	40.33328439	-104.83656908
9944.00	90.37	274.29	7102.60	3380.41	-2798.31	1.56	3663.92	40.33330557	-104.83688710
10034.00	90.12	273.09	7102.21	3386.20	-2888.12	1.36	3751.50	40.33332144	-104.83720924
10123.00	90.25	271.70	7101.92	3389.92	-2977.04	1.57	3837.63	40.33333162	-104.83752818
10213.00	89.72	270.41	7101.95	3391.58	-3067.02	1.55	3924.17	40.33333614	-104.83785093
10302.00	89.82	269.97	7102.31	3391.88	-3156.02	0.51	4009.37	40.33333692	-104.83817016
10392.00	89.88	269.00	7102.54	3391.07	-3246.02	1.08	4095.20	40.33333467	-104.83849295
10481.00	89.82	268.21	7102.77	3388.90	-3334.99	0.89	4179.65	40.33332869	-104.83881208
10571.00	90.06	267.42	7102.87	3385.47	-3424.92	0.92	4264.66	40.33331923	-104.83913466
10660.00	89.91	267.16	7102.89	3381.26	-3513.82	0.34	4348.45	40.33330765	-104.83945353
10749.00	89.85	269.01	7103.08	3378.29	-3602.77	2.08	4432.65	40.33329945	-104.83977256
10839.00	89.51	272.53	7103.58	3379.50	-3692.74	3.93	4519.05	40.33330273	-104.84009529
10928.00	89.54	279.73	7104.32	3388.99	-3781.17	8.09	4606.40	40.33332876	-104.84041248
11018.00	89.57	280.52	7105.02	3404.81	-3869.77	0.88	4695.75	40.33337215	-104.84073027
11107.00	89.57	273.00	7105.69	3415.28	-3958.09	8.45	4783.27	40.33340085	-104.84104705
11196.00	89.57	270.51	7106.36	3418.01	-4047.03	2.80	4869.13	40.33340829	-104.84136610
11285.00	89.69	266.96	7106.93	3416.04	-4136.00	3.99	4953.64	40.33340286	-104.84168519
11375.00	89.35	263.49	7107.68	3408.55	-4225.67	3.87	5037.21	40.33338226	-104.84200682
11464.00	89.35	263.41	7108.69	3398.40	-4314.08	0.09	5118.80	40.33335435	-104.84232394
11553.00	89.23	265.76	7109.80	3390.00	-4402.67	2.64	5201.07	40.33333126	-104.84264169
11643.00	89.20	270.16	7111.03	3386.80	-4492.58	4.89	5286.12	40.33332242	-104.84296419
11732.00	89.69	273.28	7111.89	3389.47	-4581.53	3.55	5371.96	40.33332971	-104.84328322
11822.00	90.18	273.70	7112.00	3394.95	-4671.36	0.72	5459.47	40.33334470	-104.84360544
11911.00	90.06	270.85	7111.81	3398.48	-4760.28	3.21	5545.55	40.33335435	-104.84392439
12001.00	90.09	269.76	7111.69	3398.96	-4850.28	1.21	5631.76	40.33335562	-104.84424719
12091.00	90.12	270.13	7111.53	3398.88	-4940.28	0.41	5717.80	40.33335533	-104.84457001
12180.00	90.18	271.17	7111.29	3399.89	-5029.27	1.17	5803.21	40.33335805	-104.84488921
12270.00	90.09	270.72	7111.08	3401.37	-5119.26	0.51	5889.70	40.33336208	-104.84521198
12359.00	89.94	269.81	7111.06	3401.78	-5208.25	1.04	5974.94	40.33336316	-104.84553121
12448.00	89.94	268.17	7111.15	3400.21	-5297.24	1.84	6059.58	40.33335880	-104.84585037
12538.00	89.85	266.76	7111.32	3396.23	-5387.15	1.57	6144.40	40.33334782	-104.84617286
12627.00	89.94	265.60	7111.48	3390.30	-5475.95	1.31	6227.59	40.33333149	-104.84649137
12717.00	89.97	267.53	7111.55	3384.91	-5565.78	2.14	6311.93	40.33331663	-104.84681359
12806.00	89.94	269.63	7111.62	3382.71	-5654.75	2.36	6396.37	40.33331052	-104.84713270
12895.00	89.91	271.40	7111.74	3383.51	-5743.74	1.99	6481.71	40.33331266	-104.84745190
12985.00	89.88	272.45	7111.90	3386.53	-5833.69	1.17	6568.62	40.33332090	-104.84777453
13075.00	89.82	271.81	7112.14	3389.87	-5923.63	0.71	6655.61	40.33333003	-104.84809713
13164.00	89.85	271.42	7112.39	3392.38	-6012.59	0.44	6741.42	40.33333685	-104.84841623
13254.00	90.00	272.72	7112.51	3395.63	-6102.53	1.45	6828.39	40.33334572	-104.84873883
13344.00	90.06	273.74	7112.46	3400.70	-6192.39	1.14	6915.81	40.33335957	-104.84906113
13433.00	90.15	273.71	7112.30	3406.49	-6281.20	0.11	7002.43	40.33337538	-104.84937969
13523.00	90.06	272.06	7112.14	3411.02	-6371.08	1.84	7089.71	40.33338775	-104.84970209
13613.00	90.09	271.18	7112.02	3413.56	-6461.04	0.98	7176.49	40.33339467	-104.85002478
13702.00	90.18	269.46	7111.81	3414.06	-6550.04	1.94	7261.75	40.33339597	-104.85034399
13791.00	90.03	267.51	7111.65	3411.70	-6639.00	2.20	7346.15	40.33338945	-104.85066309
13881.00	89.91	266.82	7111.69	3407.25	-6728.89	0.78	7430.81	40.33337717	-104.85098551

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
13970.00	89.69	268.07	7112.00	3403.29	-6817.80	1.43	7514.68	40.33336621	-104.85130441
14059.00	89.78	269.50	7112.41	3401.40	-6906.78	1.61	7599.22	40.33336096	-104.85162355
14149.00	89.94	270.00	7112.63	3401.01	-6996.78	0.58	7685.18	40.33335981	-104.85194636
14239.00	90.25	270.03	7112.49	3401.03	-7086.78	0.35	7771.26	40.33335981	-104.85226918
14328.00	90.22	270.03	7112.12	3401.08	-7175.78	0.03	7856.39	40.33335987	-104.85258840
14418.00	90.18	268.60	7111.81	3400.00	-7265.77	1.59	7942.14	40.33335684	-104.85291118
14507.00	90.12	268.00	7111.57	3397.36	-7354.73	0.68	8026.44	40.33334952	-104.85323027
14597.00	90.09	268.56	7111.41	3394.66	-7444.69	0.62	8111.69	40.33334203	-104.85355293
14686.00	89.91	267.80	7111.41	3391.83	-7533.64	0.88	8195.93	40.33333420	-104.85387200
14776.00	89.94	266.65	7111.53	3387.47	-7623.53	1.28	8280.63	40.33332216	-104.85419442
14865.00	89.85	267.81	7111.69	3383.17	-7712.43	1.31	8364.39	40.33331028	-104.85451327
14955.00	89.82	270.46	7111.95	3381.81	-7802.41	2.94	8450.05	40.33330647	-104.85483602
15045.00	90.15	274.43	7111.97	3385.65	-7892.31	4.43	8537.15	40.33331693	-104.85515848
15134.00	89.72	275.58	7112.07	3393.42	-7980.97	1.38	8624.20	40.33333817	-104.85547649
15224.00	89.88	275.30	7112.39	3401.95	-8070.56	0.36	8712.38	40.33336151	-104.85579786
15313.00	90.06	273.75	7112.43	3408.97	-8159.28	1.75	8799.28	40.33338070	-104.85611609
15403.00	89.72	271.68	7112.61	3413.23	-8249.18	2.33	8886.50	40.33339232	-104.85643853
15492.00	90.62	271.61	7112.34	3415.79	-8338.14	1.01	8972.32	40.33339925	-104.85675763
15582.00	90.06	272.31	7111.81	3418.87	-8428.08	1.00	9059.24	40.33340762	-104.85708025
15671.00	90.18	271.01	7111.62	3421.45	-8517.04	1.47	9145.07	40.33341461	-104.85739934
15761.00	90.28	272.26	7111.26	3424.01	-8607.00	1.39	9231.86	40.33342157	-104.85772202
15850.00	90.34	272.96	7110.78	3428.07	-8695.91	0.79	9318.07	40.33343261	-104.85804092
15940.00	90.12	273.25	7110.42	3432.94	-8785.78	0.40	9405.44	40.33344591	-104.85836326
16029.00	90.00	271.37	7110.32	3436.53	-8874.70	2.12	9491.53	40.33345567	-104.85868223
16119.00	89.54	268.55	7110.69	3436.47	-8964.69	3.17	9577.57	40.33345540	-104.85900501
16209.00	89.45	265.97	7111.48	3432.16	-9054.58	2.87	9662.28	40.33344351	-104.85932741
16298.00	89.85	266.54	7112.02	3426.35	-9143.38	0.78	9745.51	40.33342746	-104.85964594
16388.00	89.78	270.24	7112.31	3423.82	-9233.33	4.11	9830.80	40.33342043	-104.85996857
16478.00	89.69	270.76	7112.73	3424.61	-9323.33	0.59	9917.10	40.33342249	-104.86029137
16568.00	89.82	269.12	7113.11	3424.51	-9413.32	1.83	10003.14	40.33342214	-104.86061417
16657.00	89.88	268.61	7113.35	3422.75	-9502.31	0.58	10087.72	40.33341721	-104.86093333
16747.00	89.69	268.60	7113.69	3420.56	-9592.28	0.21	10173.13	40.33341110	-104.86125605
16836.00	89.85	267.17	7114.04	3417.27	-9681.21	1.62	10257.22	40.33340199	-104.86157504
16926.00	90.22	268.20	7113.99	3413.64	-9771.14	1.22	10342.16	40.33339191	-104.86189759
17015.00	90.15	270.07	7113.70	3412.30	-9860.12	2.10	10426.87	40.33338813	-104.86221676
17105.00	90.25	268.76	7113.39	3411.38	-9950.12	1.46	10512.67	40.33338550	-104.86253955
17194.00	90.18	264.09	7113.05	3405.83	-10038.92	5.25	10595.97	40.33337018	-104.86285806
17283.00	90.28	260.70	7112.69	3394.05	-10127.12	3.81	10676.89	40.33333775	-104.86317442
17373.00	90.34	267.51	7112.21	3384.81	-10216.59	7.57	10759.75	40.33331229	-104.86349532
17462.00	90.37	271.12	7111.66	3383.75	-10305.57	4.06	10844.54	40.33330927	-104.86381446
17552.00	90.25	271.31	7111.17	3385.66	-10395.55	0.25	10931.15	40.33331441	-104.86413720
17641.00	90.37	272.48	7110.69	3388.60	-10484.50	1.32	11017.07	40.33332238	-104.86445625
17731.00	90.62	274.32	7109.91	3393.94	-10574.33	2.06	11104.55	40.33333693	-104.86477848
17821.00	90.37	274.86	7109.13	3401.14	-10664.04	0.66	11192.44	40.33335659	-104.86510026
17910.00	90.40	272.23	7108.53	3406.64	-10752.86	2.96	11278.99	40.33337159	-104.86541885
18000.00	90.28	269.86	7108.00	3408.28	-10842.84	2.64	11365.52	40.33337599	-104.86574159
18061.11	90.30	269.19	7107.69	3407.78	-10903.94	1.10	11423.82	40.33337452	-104.86596077
18072.77	90.30	268.86	7107.63	3407.58	-10915.60	2.87	11434.91	40.33337396	-104.86600258
18089.00	90.31	268.52	7107.55	3407.21	-10931.83	2.06	11450.32	40.33337292	-104.86606078
18134.00	90.31	268.83	7107.30	3406.17	-10976.81	0.69	11493.04	40.33337001	-104.86622214
18179.00	90.28	269.09	7107.07	3405.35	-11021.81	0.58	11535.83	40.33336771	-104.86638352
18268.00	90.31	268.83	7106.61	3403.73	-11110.79	0.29	11620.45	40.33336317	-104.86670269
18285.20	90.31	268.83	7106.52	3403.38	-11127.99	0.00	11636.80	40.33336218	-104.86676437
18296.00	90.31	268.83	7106.46	3403.16	-11138.78	0.00	11647.06	40.33336157	-104.86680310

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1574.00	1573.25	5.00	-3.27	40.32404071	-104.82686172	9.625" Csg: 1574 / 1573 MD/TVD
8418.29	7092.43	3381.88	-1276.53	40.33330995	-104.83142871	460 Setback: 8418 / 7092 MD/TVD, 180 FNL, 460 FEL Sec 12
18061.11	7107.69	3407.78	-10903.94	40.33337452	-104.86596077	Btm Toe Sub: 18,061 / 7107 MD/TVD, 203 FNL, 472 FWL Sec 11
18072.77	7107.63	3407.58	-10915.60	40.33337396	-104.86600258	460 Setback: 18,073 / 7107 MD/TVD, 203 FNL, 460 FWL Sec 11
18285.20	7106.52	3403.38	-11127.99	40.33336218	-104.86676437	PBTD: 18,285 / 7106 MD/TVD, 213 FNL, 248 FWL Sec 11
18296.00	7106.46	3403.16	-11138.78	40.33336157	-104.86680310	5.5" Csg: 18,296 / 7106 MD/TVD, 214 FNL, 237 FWL Sec 11
18296.00	7106.46	3403.16	-11138.78	40.33336157	-104.86680310	BHL: 18,296 / 7106 MD/TVD, 214 FNL, 237 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	1574.00	1573.25	5.00	-3.27
8.500	1574.00	1573.25	5.00	-3.27	18296.00	7106.46	3403.16	-11138.78

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	1574.00	1573.25	5.00	-3.27
5 1/2in Casing	0.00	0.00	0.00	0.00	18296.00	7106.46	3403.16	-11138.78

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
619473	As Drilled - 20190923	18296.00	7106.46	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 286.99 degrees  
Bottom hole distance is 11647.06 Feet on azimuth 286.99 degrees from Wellhead  
Survey calculation uses Minimum Curvature method