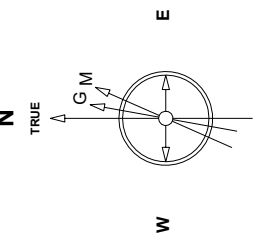


Great Western Operating Company, LLC

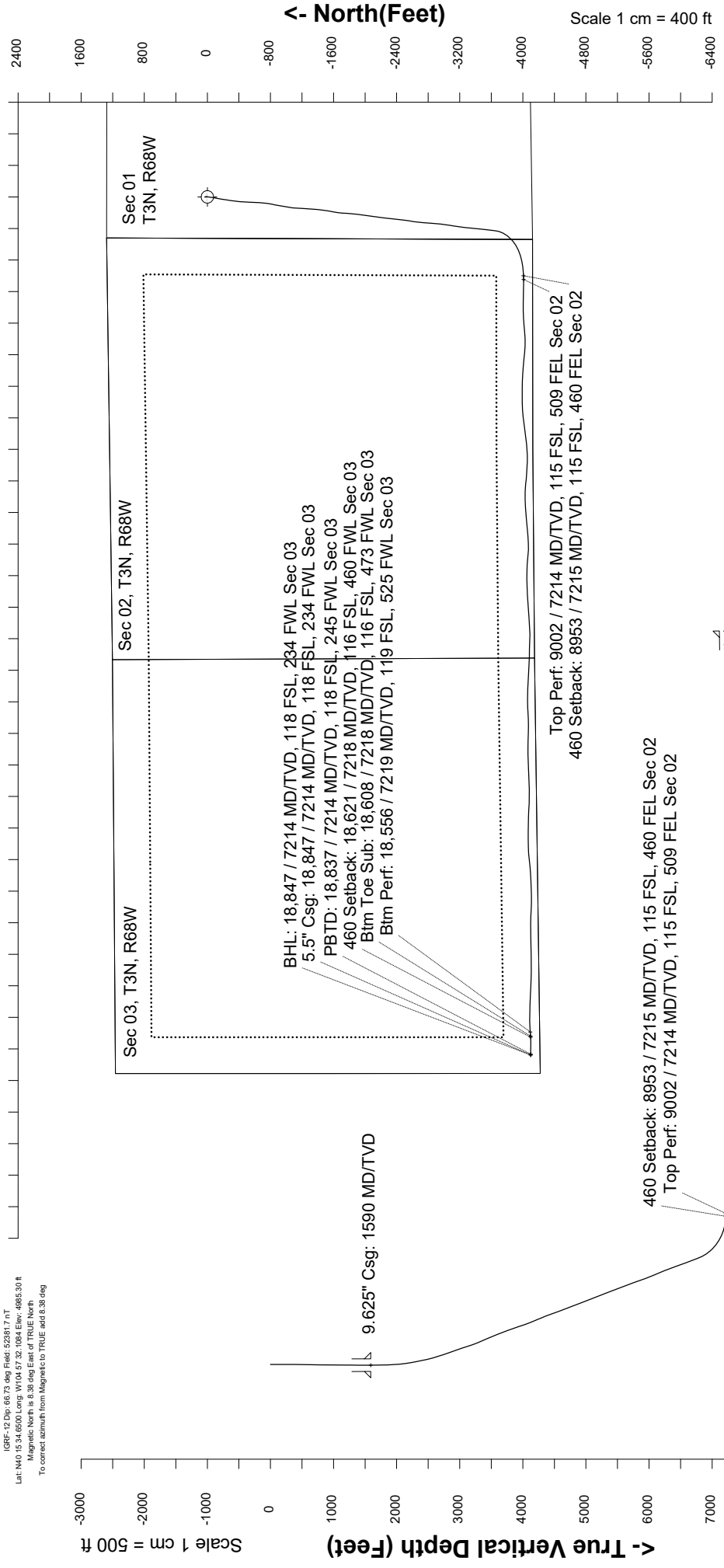
Location Colorado	Slot Slot S02 - Wilson IC 03-382HN
Field Wattenburg	Well Wilson IC 03-382HN
Installation Wilson	Wellbore Wilson IC 03-382HN (AWB)

Scale 1 cm = 400 ft **East (Feet) ->**



Sec-25-2018
IGRF-12 Dec 86 73 460 Fwd, 52381.7 0 T
Lat: N40.15346500 Long: W104.57321084 Elev: 4865.30 ft
Magnetic North is 8.38 deg East of TRUE North
To correct azimuth from Magnetic to TRUE add 8.38 deg

Created by: mmcount
Date plotted: 27-Aug-2019
Plot reference is Wilson IC 03-382HN (AWB)
Ref wellpath is Wilson IC 03-382HN (AWPH1)
Coordinates are in Feet reference Slot S02 - Wilson IC 03-382HN.
True Vertical Depths are reference Rig Datum.
Measured Depths are reference Rig Datum.
Rig Datum: Actual Datum #1
Rig Datum to Mean Sea Level: 5005.30 ft.
Plot North is aligned to TRUE North.



460 Setback: 8953 / 7215 MD/TVD, 115 FSL, 460 FEL Sec 02
Top Perf: 9002 / 7214 MD/TVD, 115 FSL, 509 FEL Sec 02

460 Setback: 8953 / 7215 MD/TVD, 115 FSL, 460 FEL Sec 02
Top Perf: 9002 / 7214 MD/TVD, 115 FSL, 509 FEL Sec 02

Btm Perf: 18,556 / 7219 MD/TVD, 119 FSL, 525 FWL Sec 03
Btm Toe Sub: 18,608 / 7218 MD/TVD, 116 FSL, 473 FWL Sec 03
460 Setback: 18,621 / 7218 MD/TVD, 116 FSL, 460 FWL Sec 03
PBTD: 18,837 / 7214 MD/TVD, 118 FSL, 245 FWL Sec 03
5.5\" Csg: 18,847 / 7214 MD/TVD, 118 FSL, 234 FWL Sec 03
BHL: 18,847 / 7214 MD/TVD, 118 FSL, 234 FWL Sec 03

Scale 1 cm = 500 ft **Vertical Section (Feet) ->**

Azimuth 249.35 with reference 0.00 N, 0.00 E from Slot S02 - Wilson IC 03-382HN

<- North(Feet)

Scale 1 cm = 400 ft

Great Western Operating Co, LLC
 Directional Survey Report
 Wellpath: Wilson IC 03-382HN
 MDs and TVDs are from Rig Floor 5005.3ft above Mean Sea Level

Wellbore Information

Date Created	Date Revised	API #	RKB above GL	Well Name
Apr-23-2019	Aug-27-2019	05-123-45429	20.00	Wilson IC 03-382HN

Slot Coordinates

Latitude	Longitude
40.259349	-104.958866

Pad Information

Pad Name	Ground Elev.
Wilson	4985.30

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	40.25934900	-104.95886600
14.00	0.00	237.25	14.00	0.00	0.00	0.00	0.00	40.25934900	-104.95886600
156.00	0.40	237.25	156.00	-0.27	-0.42	0.28	0.48	40.25934826	-104.95886749
244.00	0.53	336.83	244.00	-0.06	-0.84	0.81	0.80	40.25934883	-104.95886899
300.00	1.19	1.53	299.99	0.76	-0.92	1.33	0.59	40.25935108	-104.95886930
390.00	1.63	356.34	389.96	2.97	-0.98	0.51	-0.13	40.25935716	-104.95886951
480.00	1.49	6.36	479.93	5.41	-0.93	0.34	-1.04	40.25936385	-104.95886933
570.00	1.80	359.86	569.89	7.99	-0.80	0.40	-2.06	40.25937093	-104.95886888
660.00	1.67	18.49	659.85	10.64	-0.39	0.64	-3.39	40.25937822	-104.95886740
750.00	1.49	28.60	749.82	12.92	0.58	0.37	-5.10	40.25938445	-104.95886391
840.00	1.32	354.94	839.79	14.98	1.05	0.92	-6.27	40.25939011	-104.95886223
930.00	1.76	348.08	929.76	17.36	0.68	0.53	-6.76	40.25939665	-104.95886358
1020.00	2.29	358.80	1019.70	20.51	0.35	0.72	-7.56	40.25940530	-104.95886474
1110.00	2.33	354.15	1109.63	24.13	0.13	0.21	-8.63	40.25941523	-104.95886554
1200.00	1.80	342.81	1199.57	27.30	-0.48	0.74	-9.18	40.25942393	-104.95886770
1290.00	1.01	25.43	1289.55	29.37	-0.55	1.40	-9.84	40.25942961	-104.95886798
1380.00	0.22	115.43	1379.54	30.01	-0.06	1.15	-10.53	40.25943137	-104.95886620
1470.00	0.09	195.68	1469.54	29.87	0.08	0.25	-10.61	40.25943098	-104.95886571
1539.00	0.09	323.30	1538.54	29.86	0.03	0.23	-10.56	40.25943096	-104.95886588
1590.00	0.26	282.93	1589.54	29.91	-0.10	0.39	-10.46	40.25943111	-104.95886636
1615.00	0.35	278.25	1614.54	29.94	-0.23	0.39	-10.34	40.25943118	-104.95886683
1705.00	2.14	175.57	1704.52	28.30	-0.37	2.49	-9.63	40.25942669	-104.95886734
1794.00	4.62	168.74	1793.36	23.13	0.45	2.82	-8.58	40.25941249	-104.95886437
1883.00	7.60	177.78	1881.85	13.73	1.38	3.51	-6.14	40.25938669	-104.95886105
1973.00	10.63	181.28	1970.70	-0.52	1.43	3.42	-1.15	40.25934758	-104.95886088
2062.00	12.66	184.48	2057.86	-18.45	0.48	2.39	6.06	40.25929835	-104.95886427
2152.00	14.57	190.98	2145.34	-39.40	-2.44	2.72	16.18	40.25924085	-104.95887476
2242.00	17.62	194.92	2231.80	-63.68	-8.11	3.60	30.05	40.25917420	-104.95889505
2331.00	20.81	193.21	2315.83	-92.10	-15.19	3.64	46.70	40.25909620	-104.95892043
2421.00	24.04	185.05	2399.04	-125.94	-20.46	4.98	63.57	40.25900330	-104.95893931
2511.00	25.85	186.18	2480.64	-163.71	-24.19	2.08	80.37	40.25889962	-104.95895266
2600.00	28.93	190.33	2559.66	-204.19	-30.14	4.07	100.22	40.25878851	-104.95897398
2690.00	31.23	190.03	2637.53	-248.59	-38.11	2.56	123.33	40.25866664	-104.95900253
2779.00	33.53	187.92	2712.69	-295.66	-45.51	2.88	146.87	40.25853742	-104.95902907
2869.00	36.81	186.41	2786.25	-347.09	-51.95	3.77	171.03	40.25839625	-104.95905213
2958.00	39.93	186.79	2856.02	-401.96	-58.31	3.52	196.33	40.25824563	-104.95907490
3047.00	39.83	184.14	2924.32	-458.75	-63.74	1.91	221.45	40.25808973	-104.95909437
3137.00	39.64	182.04	2993.54	-516.20	-68.84	1.51	244.61	40.25793206	-104.95910549
3227.00	39.96	181.25	3062.68	-573.78	-68.50	0.66	266.47	40.25777399	-104.95911141
3316.00	39.91	183.02	3130.93	-630.87	-70.62	1.28	288.59	40.25761729	-104.95911903
3405.00	39.63	185.24	3199.34	-687.65	-74.72	1.63	312.45	40.25746144	-104.95913371
3495.00	40.04	186.68	3268.45	-744.98	-80.71	1.12	338.28	40.25730405	-104.95915517
3584.00	39.89	190.54	3336.67	-801.48	-89.26	2.79	366.21	40.25714896	-104.95918581
3673.00	39.78	192.10	3405.02	-857.38	-100.45	1.13	396.39	40.25699552	-104.95922589
3763.00	39.65	189.27	3474.26	-913.88	-111.11	2.01	426.29	40.25684044	-104.95926409
3852.00	39.54	189.29	3542.84	-969.86	-120.26	0.12	454.60	40.25668677	-104.95929687
3942.00	39.72	189.67	3612.15	-1026.48	-129.71	0.34	483.42	40.25653135	-104.95933074
4031.00	40.05	187.55	3680.45	-1082.90	-138.25	1.57	511.31	40.25637647	-104.95936133
4120.00	39.93	184.06	3748.64	-1139.78	-144.04	2.52	536.78	40.25622033	-104.95938206
4210.00	40.13	181.68	3817.56	-1197.59	-146.93	1.72	559.88	40.25606165	-104.95939243
4299.00	39.95	182.36	3885.70	-1254.81	-148.95	0.53	581.95	40.25590459	-104.95939966
4388.00	39.86	183.14	3953.97	-1311.84	-151.69	0.57	604.63	40.25574805	-104.95940947
4477.00	39.77	184.85	4022.34	-1368.68	-155.66	1.23	628.39	40.25559201	-104.95942369
4567.00	39.69	188.19	4091.56	-1425.82	-162.19	2.37	654.65	40.25543517	-104.95944708
4657.00	39.79	188.86	4160.77	-1482.72	-170.72	0.49	682.70	40.25527898	-104.95947764
4746.00	39.59	189.69	4229.25	-1538.81	-179.88	0.64	711.06	40.25512501	-104.95951045
4835.00	39.85	190.21	4297.71	-1594.83	-189.71	0.47	740.01	40.25497124	-104.95954566
4925.00	39.74	187.78	4366.87	-1651.72	-198.71	1.73	768.50	40.25481509	-104.95957793
5014.00	39.77	184.51	4435.30	-1708.29	-204.80	2.35	794.15	40.25465980	-104.95959974
5103.00	39.78	183.09	4503.70	-1765.10	-208.58	1.02	817.72	40.25450385	-104.95961326
5193.00	39.77	184.78	4572.87	-1822.54	-212.53	1.20	841.68	40.25434618	-104.95962741
5282.00	40.03	186.47	4641.15	-1879.35	-218.12	1.25	866.95	40.25419024	-104.95964747
5371.00	39.91	186.86	4709.36	-1936.14	-224.76	0.31	893.19	40.25403437	-104.95967124
5461.00	39.63	187.48	4778.54	-1993.26	-231.94	0.54	920.06	40.25387757	-104.95969698
5550.00	39.63	188.54	4847.08	-2049.47	-239.85	0.76	947.28	40.25372327	-104.95972531
5639.00	39.84	188.74	4915.52	-2105.72	-248.40	0.28	975.12	40.25356887	-104.95975593
5728.00	39.75	187.52	4983.91	-2162.11	-256.46	0.88	1002.55	40.25341409	-104.95978479
5818.00	39.57	187.07	5053.19	-2219.08	-263.75	0.38	1029.47	40.25325769	-104.95981092
5907.00	39.57	186.39	5121.80	-2275.38	-270.40	0.49	1055.54	40.25310314	-104.95983472
5997.00	39.22	185.17	5191.35	-2332.21	-276.15	0.94	1080.97	40.25294715	-104.95985533
6086.00	39.59	186.06	5260.12	-2388.44	-281.68	0.76	1105.97	40.25279282	-104.95987514
6176.00	39.50	186.66	5329.52	-2445.38	-288.03	0.44	1132.00	40.25263650	-104.95989788
6265.00	39.68	187.74	5398.11	-2501.65	-295.14	0.80	1158.50	40.25248204	-104.95992335

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
6354.00	40.08	188.70	5466.41	-2558.13	-303.30	0.82	1186.05	40.25232701	-104.95995258
6444.00	40.19	187.75	5535.21	-2615.55	-311.60	0.69	1214.07	40.25216941	-104.95998231
6533.00	40.13	186.86	5603.23	-2672.48	-318.89	0.65	1240.98	40.25201313	-104.96000845
6623.00	40.26	187.22	5671.98	-2730.12	-326.01	0.30	1267.97	40.25185489	-104.96003396
6712.00	39.76	183.75	5740.16	-2787.06	-331.49	2.57	1293.18	40.25169860	-104.96005357
6802.00	39.80	181.34	5809.33	-2844.58	-334.05	1.71	1315.86	40.25154071	-104.96006273
6891.00	39.73	184.38	5877.74	-2901.42	-336.88	2.19	1338.56	40.25138468	-104.96007289
6981.00	39.87	188.12	5946.90	-2958.67	-343.16	2.66	1364.62	40.25122754	-104.96009536
7070.00	39.88	187.70	6015.20	-3015.18	-351.01	0.30	1391.90	40.25107241	-104.96012349
7160.00	39.79	188.78	6084.31	-3072.24	-359.27	0.78	1419.76	40.25091579	-104.96015308
7249.00	39.73	190.52	6152.73	-3128.35	-368.81	1.25	1448.47	40.25076177	-104.96018726
7338.00	39.92	188.81	6221.09	-3184.54	-378.38	1.25	1477.24	40.25060754	-104.96022153
7428.00	39.60	184.67	6290.29	-3241.67	-385.14	2.96	1503.72	40.25045070	-104.96024574
7517.00	39.65	184.98	6358.84	-3298.23	-389.91	0.23	1528.14	40.25029545	-104.96026284
7607.00	39.73	187.32	6428.10	-3355.37	-396.07	1.66	1554.05	40.25013860	-104.96028490
7696.00	39.70	188.04	6496.56	-3411.73	-403.67	0.52	1581.04	40.24998391	-104.96031212
7786.00	39.74	184.25	6565.79	-3468.89	-409.82	2.69	1606.96	40.24982700	-104.96033416
7875.00	39.53	183.89	6634.34	-3525.52	-413.85	0.35	1630.70	40.24967156	-104.96034860
7965.00	39.74	187.30	6703.66	-3582.64	-419.45	2.43	1656.08	40.24951477	-104.96036865
8054.00	39.75	187.77	6772.09	-3639.05	-426.91	0.34	1682.96	40.24935992	-104.96039538
8143.00	40.19	193.46	6840.32	-3695.19	-437.45	4.14	1712.62	40.24920581	-104.96043312
8233.00	42.30	207.92	6908.14	-3750.32	-458.44	10.83	1751.71	40.24905447	-104.96050831
8322.00	46.33	217.69	6971.88	-3802.34	-492.20	8.90	1801.64	40.24891168	-104.96062924
8412.00	51.18	226.94	7031.27	-3852.13	-537.80	9.41	1861.87	40.24877501	-104.96079259
8501.00	56.27	234.67	7083.97	-3897.28	-593.41	9.03	1929.84	40.24865108	-104.96099182
8590.00	62.52	244.69	7129.34	-3935.67	-659.49	11.96	2005.21	40.24854570	-104.96122852
8680.00	69.14	252.76	7166.22	-3965.27	-735.93	10.99	2087.18	40.24846443	-104.96150236
8769.00	76.01	257.05	7192.87	-3987.31	-817.86	8.98	2171.61	40.24840393	-104.96179586
8858.00	82.75	262.78	7209.27	-4002.56	-903.90	9.87	2257.51	40.24836205	-104.96210410
8948.00	90.46	269.15	7214.61	-4008.86	-993.41	11.10	2343.48	40.24834476	-104.96242474
8953.26	90.44	269.23	7214.56	-4008.93	-998.67	1.63	2348.43	40.24834456	-104.96244358
9002.00	90.24	270.00	7214.28	-4009.26	-1047.41	1.63	2394.15	40.24834366	-104.96261818
9037.00	90.09	270.55	7214.18	-4009.09	-1082.40	1.63	2426.84	40.24834411	-104.96274356
9127.00	90.43	270.69	7213.77	-4008.11	-1172.40	0.41	2510.71	40.24834678	-104.96306595
9217.00	89.97	271.71	7213.46	-4006.23	-1262.38	1.24	2594.24	40.24835194	-104.96338828
9306.00	90.37	270.16	7213.19	-4004.78	-1351.36	1.80	2677.00	40.24835591	-104.96370706
9396.00	90.92	268.66	7212.18	-4005.70	-1441.35	1.78	2761.53	40.24835335	-104.96402942
9485.00	89.66	267.13	7211.73	-4008.97	-1530.28	2.23	2845.90	40.24834437	-104.96434801
9575.00	89.60	265.91	7212.31	-4014.44	-1620.11	1.36	2931.88	40.24832935	-104.96466982
9664.00	89.69	263.78	7212.86	-4022.43	-1708.75	2.40	3017.64	40.24830739	-104.96498733
9754.00	89.48	268.22	7213.51	-4028.71	-1798.50	4.94	3103.84	40.24829014	-104.96530887
9843.00	90.55	270.96	7213.49	-4029.34	-1887.49	3.31	3187.34	40.24828838	-104.96562765
9933.00	90.18	277.77	7212.92	-4022.50	-1977.17	7.58	3268.84	40.24830715	-104.96594893
10022.00	89.57	274.43	7213.11	-4013.04	-2065.66	3.81	3348.30	40.24833309	-104.96626591
10112.00	89.42	274.96	7213.90	-4005.68	-2155.35	0.61	3429.64	40.24835329	-104.96658723
10202.00	90.18	273.33	7214.22	-3999.17	-2245.11	2.00	3511.33	40.24837112	-104.96690879
10291.00	90.31	272.51	7213.84	-3994.64	-2333.99	0.93	3592.91	40.24838354	-104.96722720
10381.00	90.31	270.66	7213.35	-3992.15	-2423.95	2.06	3676.21	40.24839035	-104.96754947
10471.00	90.12	269.52	7213.01	-3992.01	-2513.95	1.28	3760.37	40.24839071	-104.96787188
10560.00	90.09	269.50	7212.85	-3992.77	-2602.95	0.04	3843.92	40.24838860	-104.96819069
10650.00	89.94	266.05	7212.82	-3996.26	-2692.87	3.84	3929.29	40.24837898	-104.96851281
10739.00	90.71	263.36	7212.32	-4004.47	-2781.48	3.14	4015.10	40.24835641	-104.96883024
10828.00	90.03	264.09	7211.75	-4014.20	-2869.94	1.12	4101.31	40.24832969	-104.96914715
10918.00	90.18	263.29	7211.58	-4024.09	-2959.40	0.90	4188.51	40.24830250	-104.96946760
11007.00	90.28	260.89	7211.22	-4036.34	-3047.54	2.70	4275.31	40.24826886	-104.96978336
11097.00	89.88	263.90	7211.10	-4048.25	-3136.74	3.37	4362.97	40.24823614	-104.97010289
11186.00	89.88	267.74	7211.28	-4054.74	-3225.49	4.31	4448.30	40.24821830	-104.97042081
11275.00	90.25	269.69	7211.18	-4056.73	-3314.46	2.23	4532.26	40.24821279	-104.97073954
11365.00	90.28	273.69	7210.77	-4054.08	-3404.40	4.44	4615.49	40.24822004	-104.97106175
11454.00	90.22	273.46	7210.38	-4048.53	-3493.23	0.27	4696.65	40.24823524	-104.97137996
11544.00	90.22	274.41	7210.03	-4042.35	-3583.01	1.06	4778.49	40.24825216	-104.97170160
11633.00	90.55	276.24	7209.43	-4034.09	-3671.62	2.09	4858.49	40.24827479	-104.97201904
11722.00	90.68	271.27	7208.48	-4028.27	-3760.40	5.59	4939.51	40.24829075	-104.97233707
11812.00	90.80	268.05	7207.32	-4028.80	-3850.38	3.58	5023.89	40.24828925	-104.97265941
11901.00	90.59	266.00	7206.24	-4033.42	-3939.25	2.32	5108.68	40.24827653	-104.97297776
11990.00	90.40	263.97	7205.47	-4041.20	-4027.90	2.29	5194.38	40.24825514	-104.97329534
12080.00	90.65	264.03	7204.64	-4050.61	-4117.40	0.29	5281.44	40.24822927	-104.97361596
12169.00	90.46	269.09	7203.78	-4055.94	-4206.21	5.69	5366.43	40.24821458	-104.97393410
12259.00	90.00	263.19	7203.42	-4062.00	-4295.96	6.58	5452.55	40.24819791	-104.97425563
12348.00	90.18	266.49	7203.28	-4070.00	-4384.59	3.71	5538.30	40.24817590	-104.97457312
12438.00	90.22	272.69	7202.96	-4070.65	-4474.54	6.89	5622.70	40.24817409	-104.97489536
12527.00	89.63	276.73	7203.08	-4063.34	-4563.22	4.59	5703.11	40.24819410	-104.97521305
12616.00	89.69	272.50	7203.61	-4056.18	-4651.91	4.75	5783.57	40.24821371	-104.97553077
12706.00	89.72	271.69	7204.07	-4052.89	-4741.85	0.90	5866.57	40.24822269	-104.97585296
12795.00	90.03	271.05	7204.27	-4050.76	-4830.82	0.80	5949.08	40.24822849	-104.97617170
12885.00	89.66	268.27	7204.51	-4051.30	-4920.81	3.12	6033.47	40.24822697	-104.97649407
12974.00	89.97	265.01	7204.80	-4056.51	-5009.65	3.68	6118.44	40.24821261	-104.97681230
13063.00	90.12	266.94	7204.73	-4062.76	-5098.42	2.18	6203.71	40.24819541	-104.97713032
13153.00	90.09	266.28	7204.56	-4068.08	-5188.27	0.73	6289.66	40.24818075	-104.97745217
13242.00	89.91	268.90	7204.56	-4071.82	-5277.18	2.95	6374.18	40.24817043	-104.97777068
13332.00	89.42	262.71	7205.09	-4078.40	-5366.89	6.90	6460.45	40.24815231	-104.97809206
13421.00	90.58	265.71	7205.09	-4087.38	-5455.43	3.61	6546.46	40.24812762	-104.97840921
13511.00	90.74	271.07	7204.05	-4089.91	-5545.35	5.96	6631.50	40.24812062	-104.97873136
13600.00	89.32	272.54	7204.01	-4087.11	-5634.30	2.30	6713.74	40.24812826	-104.97905001
13690.00	89.45	271.86	7204.97	-4083.65	-5724.23	0.77	6796.67	40.24813769	-104.97937217
13779.00	89.48	271.21	7205.80	-4081.27	-5813.20	0.73	6879.08	40.24814418	-104.97969087
13869.00	89.57	270.81	7206.55	-4079.68	-5903.18	0.46	6962.72	40.24814847	-104.98001322
13958.00	89.48	272.30	7207.29	-4077.27	-5992.14	1.68	7045.11	40.24815504	-104.98033191
14047.00	89.60	275.07	7208.00	-4071.55	-6080.94	3.12	7126.19	40.24817068	-104.98065005
14137.00	89.63	274.10	7208.61	-4064.35	-6170.65	1.08	7207.60	40.24819037	-104.98097142
14226.00	89.51	271.18	7209.27	-4060.25	-6259.55	3.28	7289.33	40.24820156	-104.98128987
14316.00	89.66	269.10	7209.93	-4060.03	-6349.54	2.32	7373.47	40.24820210	-104.98161226
14405.00	89.54	269.47	7210.55	-4061.14	-6438.53	0.44	7457.13	40.24819899	-104.98193105
14495.00	89.42	266.62	7211.36	-4064.21	-6528.46	3.17	7542.37	40.24819050	-104.98225322
14584.00	89.88	267.02	7211.91	-4069.15	-6617.33	0.68	7627.26	40.24817688	-104.98257155
14673.00</									

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	DLS [deg/100ft]	Vertical Section[ft]	Lat - NAD 83	Long - NAD 83
14763.00	89.91	271.89	7212.21	-4070.43	-6796.27	2.42	7795.15	40.24817323	-104.98321258
14852.00	90.15	272.44	7212.17	-4067.07	-6885.20	0.67	7877.19	40.24818239	-104.98353118
14941.00	90.06	270.56	7212.00	-4064.74	-6974.17	2.11	7959.61	40.24818871	-104.98384989
15031.00	89.94	269.46	7212.00	-4064.73	-7064.17	1.23	8043.82	40.24818869	-104.98417229
15121.00	89.60	267.10	7212.36	-4067.43	-7154.12	2.65	8128.95	40.24818120	-104.98449453
15210.00	89.51	267.50	7213.06	-4071.62	-7243.02	0.46	8213.61	40.24816962	-104.98481299
15300.00	89.60	267.38	7213.75	-4075.64	-7332.92	0.17	8299.16	40.24815852	-104.98513507
15390.00	89.54	267.90	7214.43	-4079.34	-7422.85	0.58	8384.61	40.24814827	-104.98545719
15479.00	88.99	269.10	7215.57	-4081.67	-7511.81	1.48	8468.67	40.24814180	-104.98577587
15569.00	89.82	270.48	7216.51	-4082.00	-7601.80	1.79	8553.00	40.24814082	-104.98609825
15659.00	89.20	272.79	7217.28	-4079.44	-7691.75	2.66	8636.27	40.24814779	-104.98642050
15748.00	89.94	272.91	7217.94	-4075.01	-7780.64	0.84	8717.88	40.24815986	-104.98673893
15838.00	89.97	271.78	7218.01	-4071.33	-7870.56	1.26	8800.73	40.24816989	-104.98706107
15927.00	89.97	270.81	7218.06	-4069.32	-7959.54	1.09	8883.27	40.24817534	-104.98737982
16017.00	89.85	270.94	7218.20	-4067.94	-8049.53	0.20	8967.00	40.24817903	-104.98770219
16107.00	89.72	269.18	7218.54	-4067.85	-8139.52	1.96	9051.18	40.24817921	-104.98802459
16196.00	89.88	269.09	7218.85	-4069.19	-8228.51	0.21	9134.92	40.24817544	-104.98834337
16286.00	89.94	265.35	7218.99	-4073.56	-8318.39	4.16	9220.56	40.24816338	-104.98866534
16375.00	89.97	263.86	7219.06	-4081.92	-8406.99	1.67	9306.42	40.24814033	-104.98898274
16465.00	89.29	264.33	7219.64	-4091.18	-8496.51	0.92	9393.45	40.24811483	-104.98930342
16555.00	89.26	266.87	7220.78	-4098.09	-8586.23	2.82	9479.84	40.24809579	-104.98962482
16644.00	89.14	267.27	7222.02	-4102.64	-8675.11	0.47	9564.61	40.24808322	-104.98994319
16734.00	89.32	268.19	7223.23	-4106.20	-8765.03	1.04	9650.01	40.24807335	-104.99026531
16823.00	89.23	268.71	7224.36	-4108.61	-8853.99	0.59	9734.10	40.24806665	-104.99058400
16913.00	89.35	271.16	7225.48	-4108.71	-8943.97	2.73	9818.34	40.24806628	-104.99090636
17002.00	90.00	272.55	7225.98	-4105.83	-9032.92	1.72	9900.56	40.24807410	-104.99122501
17091.00	89.94	272.79	7226.03	-4101.68	-9121.83	0.28	9982.29	40.24808539	-104.99154350
17177.00	90.03	270.49	7226.05	-4099.22	-9207.79	2.68	10061.85	40.24809206	-104.99185143
17266.00	90.00	269.24	7226.03	-4099.43	-9296.78	1.40	10145.21	40.24809140	-104.99217025
17356.00	90.00	268.82	7226.03	-4100.96	-9386.77	0.47	10229.95	40.24808712	-104.99249262
17446.00	89.91	268.75	7226.10	-4102.86	-9476.75	0.13	10314.82	40.24808179	-104.99281495
17535.00	89.94	269.26	7226.21	-4104.41	-9565.74	0.57	10398.63	40.24807745	-104.99313373
17624.00	89.97	269.00	7226.28	-4105.76	-9654.73	0.29	10482.38	40.24807365	-104.99345252
17714.00	89.88	269.67	7226.40	-4106.80	-9744.72	0.75	10566.96	40.24807068	-104.99377490
17804.00	89.88	270.79	7226.59	-4106.44	-9834.72	1.24	10651.04	40.24807158	-104.99409731
17893.00	89.97	271.87	7226.71	-4104.38	-9923.69	1.22	10733.57	40.24807715	-104.99441605
17982.00	89.94	272.88	7226.78	-4100.69	-10012.61	1.14	10815.48	40.24808718	-104.99473460
18072.00	90.86	272.16	7226.15	-4096.73	-10102.52	1.30	10898.22	40.24809794	-104.99505669
18161.00	90.68	272.12	7224.95	-4093.41	-10191.45	0.21	10980.26	40.24810696	-104.99537527
18251.00	90.80	272.26	7223.79	-4089.97	-10281.38	0.20	11063.19	40.24811630	-104.99569743
18340.00	90.58	272.40	7222.72	-4086.35	-10370.30	0.29	11145.12	40.24812613	-104.99601597
18429.00	90.71	268.20	7221.72	-4085.89	-10459.27	4.72	11228.21	40.24812730	-104.99633471
18519.00	91.38	264.35	7220.07	-4091.73	-10549.05	4.34	11314.28	40.24811115	-104.99665631
18556.00	91.37	265.50	7219.19	-4095.00	-10585.89	3.10	11349.91	40.24810213	-104.99678829
18608.18	91.35	267.11	7217.95	-4098.37	-10637.95	3.10	11399.81	40.24809284	-104.99697477
18609.00	91.35	267.14	7217.93	-4098.41	-10638.77	3.10	11400.59	40.24809273	-104.99697770
18621.21	91.27	267.55	7217.65	-4098.97	-10650.96	3.41	11412.20	40.24809116	-104.99702138
18698.00	90.77	270.12	7216.28	-4100.53	-10727.72	3.41	11484.57	40.24808678	-104.99729634
18788.00	90.77	270.53	7215.07	-4100.02	-10817.71	0.46	11568.60	40.24808808	-104.99761872
18823.00	90.74	270.30	7214.61	-4099.77	-10852.70	0.66	11601.26	40.24808873	-104.99774409
18836.73	90.74	270.30	7214.43	-4099.70	-10866.43	0.00	11614.08	40.24808891	-104.99779327
18847.00	90.74	270.30	7214.30	-4099.64	-10876.70	0.00	11623.67	40.24808905	-104.99783006

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Lat - NAD 83	Long - NAD 83	Comment
1590.00	1589.54	29.91	-0.10	40.25943111	-104.95886636	9.625" Csg: 1590 MD/TVD
8953.26	7214.56	-4008.93	-998.67	40.24834456	-104.96244358	460 Setback: 8953 / 7215 MD/TVD, 115 FSL, 460 FEL Sec 02
9002.00	7214.28	-4009.26	-1047.41	40.24834366	-104.96261818	Top Perf: 9002 / 7214 MD/TVD, 115 FSL, 509 FEL Sec 02
18556.00	7219.19	-4095.00	-10585.89	40.24810213	-104.99678829	Btm Perf: 18,556 / 7219 MD/TVD, 119 FSL, 525 FWL Sec 03
18608.18	7217.95	-4098.37	-10637.95	40.24809284	-104.99697477	Btm Toe Sub: 18,608 / 7218 MD/TVD, 116 FSL, 473 FWL Sec 03
18621.21	7217.65	-4098.97	-10650.96	40.24809116	-104.99702138	460 Setback: 18,621 / 7218 MD/TVD, 116 FSL, 460 FWL Sec 03
18836.73	7214.43	-4099.70	-10866.43	40.24808891	-104.99779327	PBTD: 18,837 / 7214 MD/TVD, 118 FSL, 245 FWL Sec 03
18847.00	7214.30	-4099.64	-10876.70	40.24808905	-104.99783006	5.5" Csg: 18,847 / 7214 MD/TVD, 118 FSL, 234 FWL Sec 03
18847.00	7214.30	-4099.64	-10876.70	40.24808905	-104.99783006	BHL: 18,847 / 7214 MD/TVD, 118 FSL, 234 FWL Sec 03

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	1590.00	1589.54	29.91	-0.10
8.500	1590.00	1589.54	29.91	-0.10	18847.00	7214.30	-4099.64	-10876.70

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	1590.00	1589.54	29.91	-0.10
5 1/2in Casing	0.00	0.00	0.00	0.00	18847.00	7214.30	-4099.64	-10876.70

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool
545084	As Drilled - 20190429	18847.00	7214.30	MWD

Coordinates are from Slot
MD's and TVD's are from Rig Floor 5005.3ft above Mean Sea Level
Vertical Section is from Wellhead on azimuth 249.35 degrees
Bottom hole distance is 11623.67 Feet on azimuth 249.35 degrees from Wellhead
Survey calculation uses Minimum Curvature method