

Great Western Operating Co, LLC
Wellbore Survey Report
Wellpath: Schneider HD 11-352HN (AWP#1)
MDs and TVDs are from Rig (Actual Datum #1 4751.3ft above Mean Sea Level)

Wellbore Information

Date Created	Date Revised	API #	Name
Mar-31-2016	Apr-25-2018	05-123-41748	Schneider HD 11-352HN (AWB)

Slot Coordinates

Latitude	Longitude
40.32240003	-104.82871832

Pad Information

Name	Ground Elev
Schneider - South	4735.10

Field

Name
Wattenburg

Wellpath Report

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
0.00	0.00	0.000	0.00	0.00	0.00		0.00
139.00	0.39	149.800	139.00	-0.41	0.24	0.28	-0.21
231.00	0.57	195.530	231.00	-1.12	0.27	0.44	-0.20
322.00	0.40	234.740	321.99	-1.74	-0.11	0.40	0.21
443.00	0.60	193.510	442.99	-2.60	-0.60	0.33	0.76
533.00	0.75	6.840	532.99	-2.47	-0.64	1.50	0.79
623.00	0.40	313.140	622.98	-1.67	-0.80	0.67	0.90
713.00	0.40	341.790	712.98	-1.16	-1.13	0.22	1.20
803.00	0.44	10.710	802.98	-0.52	-1.16	0.24	1.19
893.00	0.48	354.300	892.98	0.19	-1.13	0.15	1.12
984.00	1.19	350.490	983.96	1.50	-1.33	0.78	1.23
1075.00	0.79	1.480	1074.95	3.06	-1.47	0.48	1.28
1165.00	0.44	244.930	1164.95	3.54	-1.77	1.18	1.54
1255.00	0.62	218.130	1254.94	3.01	-2.38	0.34	2.19
1345.00	0.35	158.630	1344.94	2.37	-2.58	0.59	2.43
1390.00	0.13	168.380	1389.94	2.19	-2.52	0.50	2.38
1420.00	0.39	247.500	1419.94	2.12	-2.61	1.29	2.47
1470.00	0.39	247.380	1469.94	1.99	-2.92	==>	2.79
1481.20	0.27	250.740	1481.14	1.96	-2.98	1.08	2.85
1499.00	0.09	274.550	1498.94	1.95	-3.03	1.08	2.91
1588.00	0.03	160.100	1587.94	1.93	-3.10	0.12	2.97
1673.00	0.11	82.490	1672.94	1.92	-3.01	0.13	2.88
1759.00	0.07	268.930	1758.94	1.93	-2.98	0.21	2.85
1847.00	0.07	150.870	1846.94	1.89	-3.01	0.14	2.88
1934.00	0.03	352.850	1933.94	1.86	-2.98	0.11	2.86
2021.00	0.13	88.170	2020.94	1.89	-2.89	0.16	2.77
2109.00	0.07	110.190	2108.94	1.87	-2.74	0.08	2.62
2196.00	0.09	127.740	2195.94	1.81	-2.63	0.04	2.52
2284.00	0.06	50.600	2283.94	1.80	-2.54	0.11	2.43
2370.00	0.00	98.580	2369.94	1.83	-2.51	0.07	2.39
2457.00	0.14	11.610	2456.94	1.93	-2.49	0.16	2.36
2546.00	0.06	107.470	2545.94	2.02	-2.42	0.18	2.29
2633.00	0.07	329.460	2632.94	2.06	-2.40	0.14	2.27
2720.00	0.07	275.540	2719.94	2.11	-2.48	0.07	2.35
2809.00	0.15	14.770	2808.94	2.23	-2.51	0.20	2.37
2896.00	0.04	70.290	2895.94	2.35	-2.45	0.15	2.30
2984.00	0.06	6.470	2983.94	2.40	-2.42	0.06	2.26
3073.00	0.04	332.990	3072.94	2.48	-2.43	0.04	2.27
3161.00	0.00	98.580	3160.94	2.50	-2.44	0.05	2.28
3247.00	0.14	48.670	3246.94	2.57	-2.36	0.16	2.20
3335.00	0.03	154.490	3334.94	2.62	-2.27	0.17	2.10
3423.00	0.22	309.350	3422.94	2.71	-2.39	0.28	2.22
3511.00	0.26	75.360	3510.94	2.87	-2.33	0.49	2.15
3598.00	0.04	34.110	3597.94	2.94	-2.12	0.27	1.93
3686.00	0.07	356.140	3685.94	3.02	-2.11	0.05	1.92
3775.00	0.09	308.930	3774.94	3.12	-2.16	0.07	1.97
3863.00	0.00	90.580	3862.94	3.16	-2.22	0.10	2.02
3950.00	0.24	240.030	3949.94	3.07	-2.38	0.28	2.18
4037.00	0.30	191.060	4036.94	2.76	-2.58	0.26	2.40
4124.00	0.13	321.440	4123.94	2.61	-2.68	0.46	2.52
4212.00	0.11	277.650	4211.94	2.70	-2.83	0.10	2.66
4299.00	0.15	132.960	4298.94	2.63	-2.83	0.29	2.66
4387.00	0.10	135.820	4386.94	2.50	-2.69	0.06	2.53
4475.00	0.15	268.240	4474.93	2.44	-2.75	0.26	2.60
4563.00	0.34	144.020	4562.93	2.23	-2.71	0.50	2.57
4650.00	0.46	352.140	4649.93	2.36	-2.61	0.89	2.46
4738.00	0.35	234.250	4737.93	2.56	-2.88	0.79	2.71
4826.00	0.54	156.670	4825.93	2.02	-2.93	0.66	2.80
4914.00	0.13	258.190	4913.93	1.62	-2.86	0.66	2.76
5001.00	0.33	221.320	5000.93	1.41	-3.13	0.27	3.03
5088.00	0.37	157.050	5087.93	0.96	-3.18	0.43	3.12
5176.00	0.37	257.400	5175.93	0.64	-3.35	0.65	3.30
5264.00	0.25	160.230	5263.93	0.40	-3.56	0.54	3.53
5351.00	0.24	230.030	5350.92	0.10	-3.64	0.32	3.62
5438.00	0.07	178.710	5437.92	-0.07	-3.77	0.23	3.77
5525.00	0.18	145.980	5524.92	-0.24	-3.70	0.15	3.70
5613.00	1.19	224.190	5612.92	-1.01	-4.26	1.33	4.31
5700.00	3.29	215.160	5699.85	-3.70	-6.32	2.44	6.54
5787.00	5.76	212.310	5786.57	-9.43	-10.10	2.85	10.66

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
5875.00	8.67	206.870	5873.86	-19.08	-15.45	3.39	16.60
5963.00	10.37	206.510	5960.65	-32.08	-21.99	1.93	23.92
6050.00	14.28	211.910	6045.63	-48.20	-31.16	4.68	34.06
6138.00	17.01	208.710	6130.36	-68.71	-43.08	3.25	47.23
6225.00	18.70	207.640	6213.17	-92.23	-55.67	1.98	61.23
6312.00	21.04	209.360	6294.99	-118.20	-69.79	2.77	76.93
6400.00	25.52	211.970	6375.80	-148.06	-87.59	5.22	96.53
6488.00	26.39	211.050	6454.93	-180.90	-107.71	1.09	118.63
6575.00	27.72	209.400	6532.40	-215.10	-127.62	1.76	140.60
6663.00	27.64	207.380	6610.34	-251.05	-147.05	1.07	162.21
6750.00	27.65	204.650	6687.41	-287.32	-164.75	1.46	182.11
6837.00	30.68	215.900	6763.43	-323.68	-186.21	7.19	205.76
6925.00	36.74	228.490	6836.68	-359.39	-219.15	10.48	240.84
7014.00	43.87	237.710	6904.57	-393.58	-265.26	10.43	288.96
7102.00	52.39	243.430	6963.28	-425.54	-322.34	10.82	347.90
7190.00	60.10	251.890	7012.20	-453.06	-389.96	11.85	417.08
7278.00	64.94	259.250	7052.84	-472.38	-465.50	9.23	493.67
7365.00	73.68	263.630	7083.56	-484.39	-545.89	11.09	574.65
7452.00	79.86	264.720	7103.47	-492.97	-630.10	7.21	659.23
7540.00	84.51	266.320	7115.43	-499.78	-716.99	5.58	746.37
7542.00	84.62	266.340	7115.62	-499.90	-718.98	5.72	748.36
7561.81	85.73	266.570	7117.28	-501.12	-738.68	5.73	768.10
7628.00	89.45	267.330	7120.06	-504.64	-804.71	5.73	834.22
7629.00	89.46	267.340	7120.07	-504.69	-805.71	1.09	835.22
7714.00	90.22	267.860	7120.31	-508.25	-890.63	1.09	920.20
7802.00	90.52	267.250	7119.74	-512.00	-978.55	0.77	1008.18
7889.00	90.18	270.030	7119.21	-514.07	-1065.51	3.22	1095.11
7977.00	90.25	270.670	7118.88	-513.53	-1153.51	0.73	1182.91
8064.00	90.89	270.450	7118.02	-512.68	-1240.50	0.78	1269.68
8152.00	90.37	271.900	7117.05	-510.87	-1328.47	1.75	1357.38
8237.00	90.25	273.500	7116.59	-506.87	-1413.38	1.89	1441.87
8325.00	90.28	270.170	7116.18	-504.05	-1501.32	3.78	1529.48
8412.00	90.25	267.040	7115.78	-506.17	-1588.28	3.60	1616.40
8500.00	90.31	270.750	7115.35	-507.87	-1676.25	4.22	1704.31
8586.00	90.22	271.230	7114.95	-506.38	-1762.23	0.57	1790.04
8676.00	90.31	271.110	7114.53	-504.54	-1852.21	0.17	1879.74
8762.00	89.88	271.470	7114.39	-502.61	-1938.19	0.65	1965.43
8849.00	89.94	270.330	7114.53	-501.24	-2025.18	1.31	2052.17
8937.00	89.88	270.270	7114.67	-500.78	-2113.18	0.10	2139.98
9024.00	89.85	270.990	7114.87	-499.82	-2200.17	0.83	2226.75
9111.00	90.25	273.270	7114.80	-496.59	-2287.11	2.66	2313.32
9198.00	90.03	273.340	7114.58	-491.58	-2373.96	0.27	2399.70
9286.00	89.91	268.370	7114.63	-490.26	-2461.92	5.65	2487.42
9371.00	89.94	268.830	7114.74	-492.34	-2546.90	0.54	2572.36
9459.00	89.94	268.160	7114.83	-494.65	-2634.87	0.76	2660.30
9546.00	89.94	267.650	7114.92	-497.83	-2721.81	0.59	2747.27
9635.00	89.78	269.230	7115.14	-500.25	-2810.77	1.78	2836.22
9722.00	89.94	269.910	7115.35	-500.91	-2897.77	0.80	2923.09
9809.00	89.82	270.980	7115.54	-500.23	-2984.77	1.24	3009.88
9897.00	89.91	270.330	7115.74	-499.22	-3072.76	0.75	3097.65
9983.00	89.88	269.530	7115.90	-499.33	-3158.76	0.93	3183.49
10070.00	89.94	268.960	7116.04	-500.48	-3245.75	0.66	3270.39
10159.00	90.40	270.950	7115.77	-500.55	-3334.74	2.29	3359.22
10247.00	90.65	271.350	7114.97	-498.78	-3422.72	0.54	3446.92
10334.00	90.65	272.760	7113.98	-495.66	-3509.66	1.62	3533.50
10421.00	90.58	274.930	7113.05	-489.83	-3596.45	2.50	3619.77
10508.00	90.28	272.880	7112.39	-483.90	-3683.24	2.38	3706.03
10596.00	90.37	270.760	7111.89	-481.11	-3771.19	2.41	3793.64
10685.00	90.22	269.010	7111.44	-481.29	-3860.19	1.97	3882.48
10772.00	90.40	267.310	7110.96	-484.08	-3947.14	1.96	3969.44
10859.00	90.59	269.390	7110.21	-486.58	-4034.09	2.40	4056.38
10949.00	90.62	269.910	7109.26	-487.13	-4124.09	0.58	4146.24
11036.00	90.52	268.030	7108.40	-488.70	-4211.07	2.16	4233.15
11122.00	90.74	266.630	7107.45	-492.70	-4296.96	1.65	4319.13
11209.00	90.77	268.450	7106.31	-496.44	-4383.87	2.09	4406.11
11298.00	90.80	269.920	7105.09	-497.70	-4472.85	1.65	4495.00
11386.00	90.77	267.830	7103.88	-499.43	-4560.82	2.38	4582.91
11473.00	90.74	270.590	7102.73	-500.63	-4647.80	3.17	4669.79
11561.00	90.74	272.710	7101.60	-498.10	-4735.75	2.41	4757.42
11648.00	90.62	269.860	7100.56	-496.15	-4822.71	3.28	4844.10
11734.00	90.68	269.930	7099.59	-496.30	-4908.71	0.11	4929.94
11823.00	90.74	270.550	7098.49	-495.93	-4997.70	0.70	5018.74
11911.00	90.68	271.790	7097.40	-494.13	-5085.67	1.41	5106.44
11999.00	90.74	269.810	7096.30	-492.91	-5173.65	2.25	5194.17
12086.00	90.71	269.600	7095.20	-493.35	-5260.65	0.24	5281.03
12173.00	90.74	271.710	7094.10	-492.36	-5347.63	2.43	5367.79
12262.00	90.74	273.580	7092.95	-488.25	-5436.52	2.10	5456.26
12351.00	90.65	270.150	7091.87	-485.36	-5525.45	3.85	5544.84
12440.00	90.68	269.850	7090.84	-485.36	-5614.45	0.34	5633.67
12528.00	90.80	269.950	7089.70	-485.51	-5702.44	0.18	5721.51
12615.00	90.09	271.080	7089.03	-484.73	-5789.43	1.53	5808.28
12702.00	89.91	271.100	7089.03	-483.07	-5876.42	0.21	5895.00
12790.00	89.82	270.110	7089.24	-482.14	-5964.41	1.13	5982.77
12878.00	89.82	271.620	7089.51	-480.82	-6052.40	1.72	6070.51
12965.00	89.94	271.230	7089.69	-478.65	-6139.37	0.47	6157.19
13053.00	89.88	270.360	7089.83	-477.43	-6227.36	0.99	6244.94
13142.00	90.03	269.780	7089.90	-477.32	-6316.36	0.67	6333.76
13229.00	90.83	269.290	7089.25	-478.03	-6403.35	1.08	6420.63
13316.00	90.80	269.750	7088.01	-478.76	-6490.34	0.53	6507.50
13404.00	90.77	269.770	7086.81	-479.13	-6578.33	0.04	6595.35
13491.00	90.68	269.290	7085.71	-479.84	-6665.32	0.56	6682.22
13580.00	91.32	270.320	7084.15	-480.14	-6754.31	1.36	6771.05

MD[ft]	Inc[deg]	Azi[deg]	TVD[ft]	North[ft]	East[ft]	Dogleg [deg/100ft]	Vertical Section[ft]
13667.00	92.09	270.860	7081.56	-479.25	-6841.26	1.08	6857.79
13754.00	91.97	270.370	7078.48	-478.31	-6928.20	0.58	6944.50
13841.00	91.94	270.770	7075.51	-477.45	-7015.15	0.46	7031.23
13929.00	92.09	270.070	7072.42	-476.80	-7103.09	0.81	7118.97
14018.00	91.60	269.730	7069.55	-476.96	-7192.04	0.67	7207.76
14105.00	91.54	270.940	7067.17	-476.45	-7279.01	1.39	7294.53
14193.00	91.57	270.450	7064.78	-475.38	-7366.97	0.56	7382.26
14280.00	91.57	269.970	7062.40	-475.07	-7453.94	0.55	7469.04
14368.00	91.60	269.970	7059.96	-475.11	-7541.90	0.03	7556.84
14405.00	91.50	269.990	7058.97	-475.13	-7578.89	0.28	7593.76
14445.11	91.38	270.000	7057.96	-475.13	-7618.99	0.28	7633.78
14457.00	91.35	270.010	7057.67	-475.13	-7630.87	0.28	7645.65
14490.36	91.31	270.040	7056.90	-475.11	-7664.22	0.14	7678.93
14512.00	91.29	270.060	7056.41	-475.09	-7685.86	0.14	7700.53
14536.00	91.29	270.060	7055.87	-475.07	-7709.85	==>	7724.47

Comments

MD[ft]	TVD[ft]	North[ft]	East[ft]	Comment
1481.20	1481.14	1.96	-2.98	9.625" Csg: 1481 MD/TVD
7561.81	7117.28	-501.12	-738.68	460 Setback: 7562 / 7117 MD/TVD, 666 FSL, 460 FEL Sec 12
7629.00	7120.07	-504.69	-805.71	Top Perf: 7629 / 7049 MD/TVD, 662 FSL, 527 FEL Sec 12
14405.00	7058.97	-475.13	-7578.89	Btm Perf: 14,405 / 7059 MD/TVD, 664 FSL, 2041 FEL Sec 11
14445.11	7057.96	-475.13	-7618.99	Btm Toe Sub: 14,445 / 7058 MD/TVD, 664 FSL, 2081 FEL Sec 11
14490.36	7056.90	-475.11	-7664.22	PBTD: 14490 / 7057 MD/TVD, 663 FSL, 2126 FEL Sec 11
14536.00	7055.87	-475.07	-7709.85	5.5" Csg: 14,536 / 7056 MD/TVD, 662 FSL, 2172 FEL Sec 11
14536.00	7055.87	-475.07	-7709.85	BHL: 14,536 / 7056 MD/TVD, 662 FSL, 2172 FEL 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	1481.20	1481.14	1.96	-2.98
8.500	1481.20	1481.14	1.96	-2.98	14536.00	7055.87	-475.07	-7709.85

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	1481.20	1481.14	1.96	-2.98
5 1/2in Casing	0.00	0.00	0.00	0.00	14533.00	7055.93	-475.07	-7706.85

Survey Tool Program

Reference	Survey Name	MD[ft]	TVD[ft]	Survey Tool	Error Model
84212	As Drilled - 20160331	14536.00	7055.87	MWD	

Coordinates are from Slot MD's are from Rig and TVD's are from Rig (Actual Datum #1 4751.3ft above Mean Sea Level)
Vertical Section is from 0.00 0.00 on azimuth 266.470 degrees
Bottom hole distance is 7724.47 Feet on azimuth 266.47 degrees from Wellhead
Calculation method uses Minimum Curvature method
Prepared by Great Western Operating Co.
Date Printed: