

Location: Marshall County, WV
Field: Marshall WV
Facility: Betty Schafer MSH Pad

Slot: Slot 1H
Well: Betty Schafer MSH 1H
Wellbore: Betty Schafer MSH 1H PWB

Plot reference wellpath is Betty Schafer MSH 1H AWB_ awp 100' - 23297' Proj: 23322'
True vertical depths are referenced to SDC 40 (KB)
Reference wellpath measured depths are referenced to SDC 40 (KB)
SDC 40 (KB) to Mean Sea Level: 874.5 feet
Mean Sea Level to Ground level (At Slot: Slot 1H): -848.5 feet
Offset wellpath MDs are referenced to each path's default MD datum

Grid System: NAD83 / UTM Zone 17 North, US feet
North Reference: Grid north
Scale: True distance
Coordinates are in feet referenced to Slot
Depths are in feet
Created by: tranlam on 2022-02-22; Database: WA_MPL_EASTERNUS_Defn

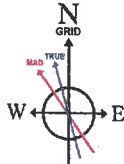
Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Betty Schafer MSH Pad			1742490.560	14523655.400	39°59'27.5067"N	80°38'8.0344"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Slot 1H	1.30	1.28	1742491.840	14523656.700	39°59'27.5195"N	80°38'8.0179"W
SDC 40 (KB) to Ground level (At Slot: Slot 1H)					26ft	
Mean Sea Level to Ground level (At Slot: Slot 1H)					-848.5ft	
SDC 40 (KB) to Mean Sea Level					874.5ft	

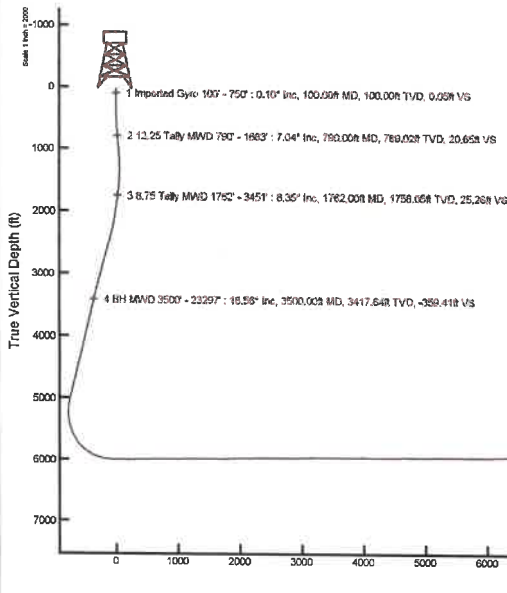
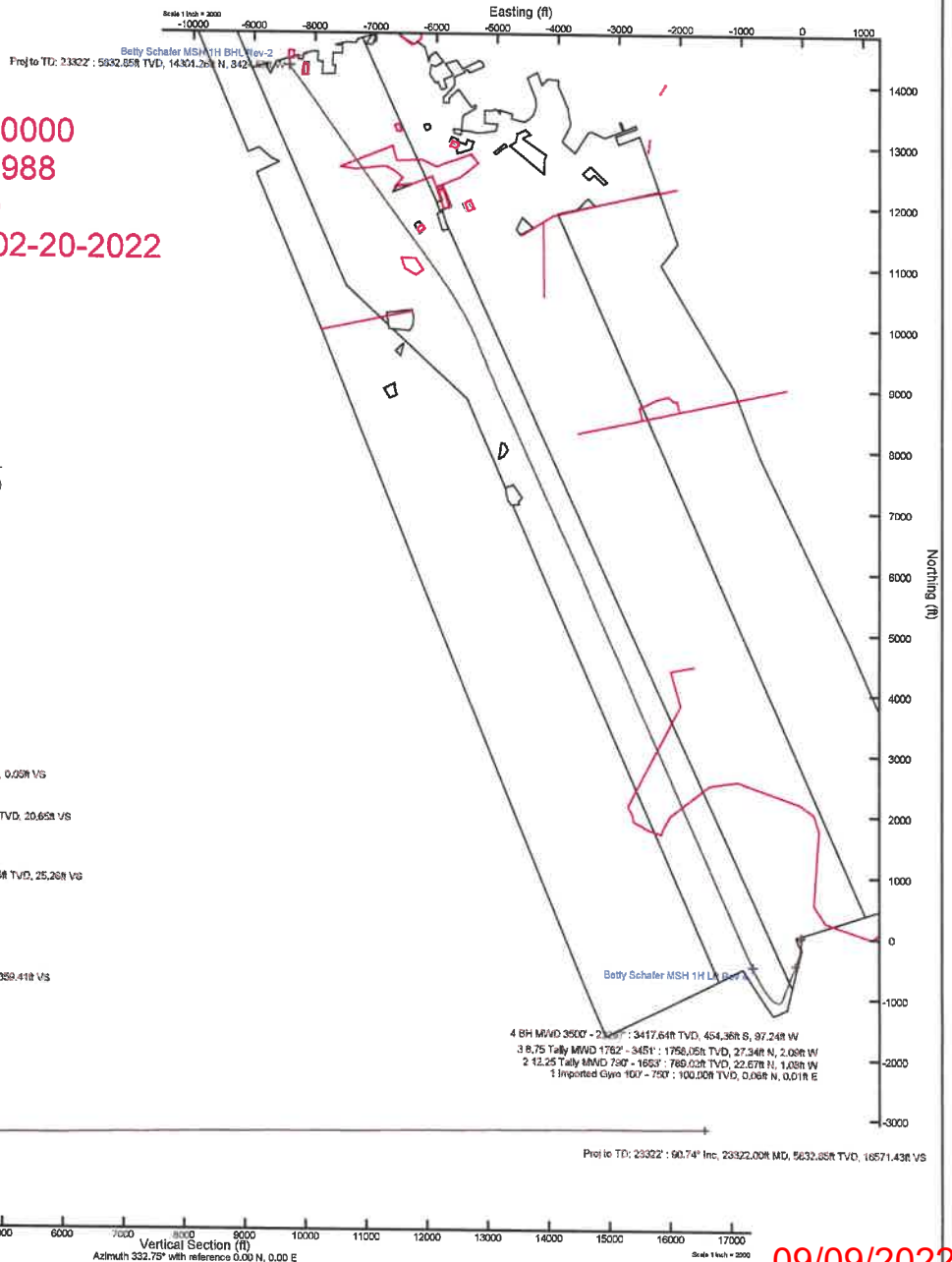
Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
23322.00	90.740	324.080	5832.85	14301.26	-8424.52	1734070.61	14537952.38	40°01'49.1744"N	80°39'55.5652"W

API: 47051023820000
BH Job: 111177988
Rig: SDC 40
Duration 2-14-2022 to 02-20-2022



HCGM2022v1.0 (1900.0 to 2023.0) Dip: 66.90° Field: 52222.4 nT
Magnetic North is 8.21 degrees West of True North (at 1/31/2022)
Grid North is 0.23 degrees East of True North
To correct azimuth from True to Grid subtract 0.23 degrees
To correct azimuth from Magnetic to Grid subtract 8.44 degrees



4 BH MWD 3500' - 23297' : 3417.64ft TVD, 454.36ft S, 97.24ft W
3 8.75 Tally MWD 1762' - 3451' : 1758.05ft TVD, 27.34ft N, 2.08ft W
2 12.25 Tally MWD 790' - 1663' : 789.02ft TVD, 22.67ft N, 1.08ft W
1 Imported Gyro 100' - 750' : 100.00ft TVD, 0.00ft N, 0.01ft E

Proj ID: 23322 : 90.74° Inc, 23322.00ft MD, 5832.85ft TVD, 16871.43ft VS



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Tranlam
Scale	0.999612	Report Generated	2/22/2022 at 6:03:55 PM
Convergence at slot	0.23° East	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	1.30	1.28	1742491.84	14523656.70	39°59'27.5195"N	80°38'8.0179"W
Facility Reference Pt			1742490.56	14523655.40	39°59'27.5067"N	80°38'8.0344"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 40 (KB) to Facility Vertical Datum	874.50ft
Horizontal Reference Pt	Slot	SDC 40 (KB) to Mean Sea Level	874.50ft
Vertical Reference Pt	SDC 40 (KB)	SDC 40 (KB) to Ground Level at Slot (Slot 1H)	26.00ft
MD Reference Pt	SDC 40 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	332.75°



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
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Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations) † = interpolated, ‡ = extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]
0.00†	0.000	7.770	0.00	0.00	0.00	0.00	1742491.84	14523656.70	39°59'27.5195"N	80°38'8.0179"W	0.00	0.000	0.00
26.00	0.000	7.770	26.00	0.00	0.00	0.00	1742491.84	14523656.70	39°59'27.5195"N	80°38'8.0179"W	0.00	0.000	0.00
100.00	0.100	7.770	100.00	0.05	0.06	0.01	1742491.85	14523656.76	39°59'27.5201"N	80°38'8.0178"W	0.06	7.770	0.14
150.00	0.140	346.200	150.00	0.15	0.17	0.00	1742491.84	14523656.87	39°59'27.5211"N	80°38'8.0179"W	0.17	0.020	0.12
200.00	0.130	344.650	200.00	0.26	0.28	-0.03	1742491.81	14523656.98	39°59'27.5222"N	80°38'8.0182"W	0.28	353.992	0.02
250.00	0.100	340.610	250.00	0.36	0.38	-0.06	1742491.78	14523657.08	39°59'27.5232"N	80°38'8.0186"W	0.38	351.088	0.06
300.00	0.110	342.520	300.00	0.45	0.46	-0.09	1742491.75	14523657.16	39°59'27.5240"N	80°38'8.0190"W	0.47	349.255	0.02
350.00	0.260	22.400	350.00	0.57	0.61	-0.06	1742491.78	14523657.31	39°59'27.5255"N	80°38'8.0186"W	0.62	354.501	0.38
400.00	0.180	317.960	400.00	0.72	0.78	-0.07	1742491.77	14523657.48	39°59'27.5271"N	80°38'8.0187"W	0.78	354.965	0.49
450.00	0.300	333.660	450.00	0.93	0.95	-0.18	1742491.66	14523657.65	39°59'27.5289"N	80°38'8.0201"W	0.97	349.352	0.27
500.00	0.500	357.140	500.00	1.26	1.29	-0.25	1742491.59	14523657.99	39°59'27.5322"N	80°38'8.0210"W	1.31	349.097	0.51
550.00	1.960	359.820	549.98	2.22	2.36	-0.26	1742491.58	14523659.06	39°59'27.5428"N	80°38'8.0211"W	2.38	353.675	2.92
600.00	2.980	357.630	599.94	4.16	4.51	-0.32	1742491.52	14523661.21	39°59'27.5641"N	80°38'8.0217"W	4.53	355.969	2.05
650.00	4.600	0.940	649.83	7.11	7.82	-0.34	1742491.50	14523664.52	39°59'27.5967"N	80°38'8.0218"W	7.83	357.517	3.27
700.00	5.590	357.720	699.63	11.08	12.26	-0.40	1742491.44	14523668.95	39°59'27.6406"N	80°38'8.0224"W	12.26	358.117	2.06
750.00	7.090	356.290	749.32	16.12	17.77	-0.70	1742491.14	14523674.46	39°59'27.6951"N	80°38'8.0259"W	17.78	357.746	3.02
790.00	7.040	354.920	789.02	20.65	22.67	-1.08	1742490.76	14523679.37	39°59'27.7436"N	80°38'8.0305"W	22.70	357.282	0.44
902.00	5.200	350.530	900.37	31.84	34.52	-2.52	1742489.32	14523691.20	39°59'27.8607"N	80°38'8.0484"W	34.61	355.826	1.69
993.00	3.200	337.120	991.13	38.30	40.93	-4.19	1742487.66	14523697.61	39°59'27.9241"N	80°38'8.0695"W	41.14	354.161	2.43
1083.00	3.150	350.160	1080.99	43.17	45.68	-5.58	1742486.26	14523702.36	39°59'27.9711"N	80°38'8.0872"W	46.02	353.029	0.80
1174.00	4.260	355.070	1171.80	48.68	51.51	-6.30	1742485.54	14523708.19	39°59'28.0287"N	80°38'8.0962"W	51.89	353.024	1.27
1265.00	2.280	350.890	1262.65	53.52	56.66	-6.88	1742484.96	14523713.34	39°59'28.0797"N	80°38'8.1033"W	57.08	353.078	2.19
1355.00	0.540	205.060	1352.63	54.97	58.05	-7.34	1742484.50	14523714.72	39°59'28.0934"N	80°38'8.1092"W	58.51	352.791	3.05
1446.00	1.930	180.210	1443.60	53.35	56.13	-7.53	1742484.31	14523712.80	39°59'28.0744"N	80°38'8.1117"W	56.63	352.359	1.60
1538.00	3.850	171.570	1535.48	49.05	51.52	-7.08	1742484.76	14523708.20	39°59'28.0289"N	80°38'8.1062"W	52.01	352.172	2.13
1628.00	5.960	170.540	1625.15	41.74	43.92	-5.87	1742485.97	14523700.61	39°59'27.9538"N	80°38'8.0910"W	44.31	352.386	2.35
1663.00	6.870	168.260	1659.93	37.99	40.08	-5.15	1742486.69	14523696.77	39°59'27.9158"N	80°38'8.0819"W	40.41	352.682	2.70
1762.00	8.350	165.090	1758.05	25.26	27.34	-2.09	1742489.75	14523684.03	39°59'27.7897"N	80°38'8.0433"W	27.42	355.622	1.55
1808.00	8.440	165.870	1803.56	18.71	20.84	-0.41	1742491.43	14523677.53	39°59'27.7254"N	80°38'8.0220"W	20.84	358.875	0.32
1899.00	8.980	173.400	1893.51	5.56	7.30	2.04	1742493.88	14523664.00	39°59'27.5916"N	80°38'7.9913"W	7.58	15.588	1.39



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
1991.00	9.030	172.910	1984.38	-7.94	-6.99	3.75	1742495.59	14523649.71	39°59'27.4502"N	80°38'7.9700"W	7.94	151.775	0.10
2082.00	9.380	181.040	2074.21	-21.17	-21.50	4.50	1742496.34	14523635.21	39°59'27.3069"N	80°38'7.9612"W	21.96	168.174	1.48
2173.00	11.820	183.500	2163.65	-35.71	-38.22	3.80	1742495.64	14523618.50	39°59'27.1417"N	80°38'7.9711"W	38.40	174.326	2.73
2265.00	14.110	184.480	2253.30	-53.35	-58.80	2.35	1742494.18	14523597.92	39°59'26.9383"N	80°38'7.9908"W	58.85	177.716	2.50
2355.00	16.050	184.400	2340.20	-73.27	-82.15	0.53	1742492.37	14523574.59	39°59'26.7076"N	80°38'8.0153"W	82.15	179.627	2.16
2447.00	17.920	185.500	2428.18	-96.01	-108.92	-1.80	1742490.04	14523547.82	39°59'26.4432"N	80°38'8.0467"W	108.93	180.946	2.06
2538.00	19.480	184.430	2514.38	-120.69	-137.98	-4.31	1742487.53	14523518.77	39°59'26.1561"N	80°38'8.0805"W	138.05	181.790	1.76
2630.00	19.400	189.380	2601.14	-146.01	-168.35	-7.99	1742483.86	14523488.41	39°59'25.8561"N	80°38'8.1293"W	168.54	182.716	1.79
2723.00	19.120	193.600	2688.94	-169.93	-198.40	-14.09	1742477.76	14523458.38	39°59'25.5594"N	80°38'8.2093"W	198.90	184.061	1.53
2813.00	19.690	194.730	2773.82	-192.35	-227.39	-21.41	1742470.44	14523429.40	39°59'25.2732"N	80°38'8.3049"W	228.39	185.378	0.76
2904.00	21.600	195.050	2858.98	-216.14	-258.39	-29.66	1742462.20	14523398.41	39°59'24.9671"N	80°38'8.4125"W	260.09	186.547	2.10
2994.00	21.590	201.410	2942.67	-239.33	-289.81	-40.00	1742451.85	14523367.00	39°59'24.6571"N	80°38'8.5471"W	292.56	187.859	2.60
3085.00	21.090	200.310	3027.43	-261.44	-320.75	-51.80	1742440.06	14523336.07	39°59'24.3518"N	80°38'8.7002"W	324.91	189.173	0.70
3176.00	20.740	196.410	3112.44	-284.14	-351.57	-62.03	1742429.83	14523305.27	39°59'24.0477"N	80°38'8.8333"W	357.00	190.007	1.58
3267.00	20.050	199.420	3197.74	-306.51	-381.74	-71.77	1742420.10	14523275.11	39°59'23.7500"N	80°38'8.9600"W	388.42	190.648	1.38
3359.00	19.460	201.530	3284.32	-327.43	-410.86	-82.64	1742409.23	14523246.00	39°59'23.4625"N	80°38'9.1012"W	419.09	191.373	1.01
3451.00	18.860	197.630	3371.23	-348.06	-439.29	-92.77	1742399.11	14523217.58	39°59'23.1820"N	80°38'9.2328"W	448.98	191.924	1.54
3500.00	18.560	195.410	3417.64	-359.41	-454.36	-97.24	1742394.64	14523202.52	39°59'23.0333"N	80°38'9.2910"W	464.65	192.080	1.58
3554.00	18.350	194.960	3468.86	-372.03	-470.86	-101.72	1742390.16	14523186.03	39°59'22.8704"N	80°38'9.3494"W	481.72	192.190	0.47
3644.00	20.620	201.880	3553.72	-392.89	-499.26	-111.28	1742380.60	14523157.64	39°59'22.5902"N	80°38'9.4738"W	511.51	192.566	3.59
3735.00	19.650	202.010	3639.15	-413.37	-528.31	-122.99	1742368.90	14523128.59	39°59'22.3035"N	80°38'9.6257"W	542.44	193.105	1.07
3827.00	20.980	201.150	3725.43	-434.40	-558.02	-134.73	1742357.16	14523098.90	39°59'22.0105"N	80°38'9.7781"W	574.05	193.574	1.48
3917.00	20.540	201.810	3809.59	-455.44	-587.70	-146.41	1742345.49	14523069.23	39°59'21.7176"N	80°38'9.9297"W	605.66	193.989	0.55
4009.00	19.920	201.470	3895.91	-476.36	-617.27	-158.14	1742333.76	14523039.67	39°59'21.4258"N	80°38'10.0820"W	637.21	194.370	0.69
4100.00	20.940	200.910	3981.18	-497.43	-646.89	-169.62	1742322.29	14523010.06	39°59'21.1336"N	80°38'10.2310"W	668.76	194.693	1.14
4192.00	20.780	201.690	4067.15	-519.12	-677.41	-181.52	1742310.39	14522979.55	39°59'20.8325"N	80°38'10.3855"W	701.31	195.001	0.35
4282.00	20.260	202.250	4151.44	-539.72	-706.67	-193.32	1742298.60	14522950.31	39°59'20.5438"N	80°38'10.5387"W	732.63	195.300	0.62
4374.00	20.440	201.620	4237.70	-560.63	-736.34	-205.27	1742286.65	14522920.64	39°59'20.2510"N	80°38'10.6937"W	764.42	195.577	0.31
4466.00	20.740	201.170	4323.82	-582.01	-766.47	-217.07	1742274.85	14522890.53	39°59'19.9538"N	80°38'10.8469"W	796.61	195.813	0.37
4555.00	20.340	201.430	4407.17	-602.68	-795.56	-228.41	1742263.52	14522861.45	39°59'19.6667"N	80°38'10.9942"W	827.70	196.019	0.46



Actual Wellpath Report

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Slot	Slot 1H		

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4645.00	20.650	201.680	4491.47	-623.44	-824.87	-239.99	1742251.94	14522832.15	39°59'19.3776"N	80°38'11.1445"W	859.07	196.222	0.36
4736.00	20.370	201.590	4576.70	-644.40	-854.51	-251.75	1742240.19	14522802.53	39°59'19.0852"N	80°38'11.2970"W	890.82	196.416	0.31
4827.00	20.830	201.630	4661.88	-665.47	-884.27	-263.54	1742228.40	14522772.77	39°59'18.7915"N	80°38'11.4501"W	922.71	196.596	0.51
4916.00	19.640	201.950	4745.39	-685.65	-912.86	-274.96	1742216.98	14522744.20	39°59'18.5095"N	80°38'11.5984"W	953.37	196.763	1.34
5009.00	21.020	201.630	4832.59	-706.83	-942.86	-286.95	1742205.00	14522714.21	39°59'18.2135"N	80°38'11.7540"W	985.56	196.927	1.49
5099.00	20.710	201.290	4916.69	-727.98	-972.69	-298.68	1742193.28	14522684.39	39°59'17.9191"N	80°38'11.9062"W	1017.52	197.070	0.37
5192.00	20.620	201.170	5003.71	-749.74	-1003.29	-310.57	1742181.40	14522653.81	39°59'17.6173"N	80°38'12.0605"W	1050.25	197.200	0.11
5282.00	18.210	208.100	5088.59	-768.26	-1030.48	-322.92	1742169.05	14522626.63	39°59'17.3491"N	80°38'12.2206"W	1079.89	197.399	3.70
5372.00	14.210	228.620	5175.07	-778.96	-1050.21	-337.85	1742154.13	14522606.90	39°59'17.1547"N	80°38'12.4135"W	1103.21	197.833	7.70
5463.00	15.170	252.630	5263.18	-779.65	-1061.16	-357.61	1742134.37	14522595.96	39°59'17.0473"N	80°38'12.6679"W	1119.79	198.624	6.72
5553.00	15.110	277.070	5350.14	-771.00	-1063.23	-380.51	1742111.48	14522593.89	39°59'17.0277"N	80°38'12.9623"W	1129.27	199.691	7.04
5643.00	18.070	293.860	5436.43	-753.51	-1056.13	-404.94	1742087.06	14522600.98	39°59'17.0988"N	80°38'13.2757"W	1131.10	200.978	6.23
5734.00	23.170	304.990	5521.61	-726.66	-1040.14	-432.54	1742059.47	14522616.96	39°59'17.2579"N	80°38'13.6295"W	1126.49	202.580	7.05
5826.00	28.020	305.210	5604.56	-691.46	-1017.29	-465.04	1742026.98	14522639.81	39°59'17.4851"N	80°38'14.0459"W	1118.55	204.567	5.27
5916.00	30.090	322.320	5683.36	-650.45	-987.19	-496.16	1741995.87	14522669.89	39°59'17.7838"N	80°38'14.4441"W	1104.86	206.684	9.48
6007.00	40.400	320.410	5757.58	-599.06	-946.30	-528.99	1741963.05	14522710.77	39°59'18.1892"N	80°38'14.8637"W	1084.12	209.206	11.39
6098.00	49.480	321.640	5821.93	-536.18	-896.35	-569.34	1741922.73	14522760.70	39°59'18.6845"N	80°38'15.3794"W	1061.88	212.423	10.02
6189.00	56.040	326.420	5876.99	-464.63	-837.70	-611.74	1741880.34	14522819.33	39°59'19.2657"N	80°38'15.9211"W	1037.29	216.139	8.33
6280.00	62.780	329.080	5923.28	-386.64	-771.46	-653.45	1741838.64	14522885.54	39°59'19.9220"N	80°38'16.4536"W	1011.02	220.266	7.82
6371.00	71.110	330.720	5958.89	-303.09	-699.07	-695.38	1741796.74	14522957.90	39°59'20.6391"N	80°38'16.9884"W	986.02	224.848	9.30
6463.00	78.600	332.690	5982.91	-214.37	-620.92	-737.41	1741754.71	14523036.02	39°59'21.4130"N	80°38'17.5244"W	964.01	229.902	8.40
6554.00	85.260	335.610	5995.68	-124.36	-539.89	-776.65	1741715.49	14523117.03	39°59'22.2154"N	80°38'18.0244"W	945.87	235.195	7.98
6645.00	90.150	336.120	5999.32	-33.59	-456.93	-813.82	1741678.34	14523199.95	39°59'23.0367"N	80°38'18.4975"W	933.32	240.687	5.40
6736.00	90.060	336.130	5999.15	57.25	-373.72	-850.65	1741641.52	14523283.13	39°59'23.8605"N	80°38'18.9664"W	929.13	246.283	0.10
6828.00	89.940	336.060	5999.15	149.09	-289.61	-887.93	1741604.25	14523367.20	39°59'24.6932"N	80°38'19.4410"W	933.97	251.936	0.15
6918.00	90.520	336.070	5998.79	238.94	-207.35	-924.45	1741567.75	14523449.43	39°59'25.5075"N	80°38'19.9058"W	947.42	257.358	0.64
7009.00	90.980	335.660	5997.60	329.80	-124.31	-961.65	1741530.56	14523532.43	39°59'26.3296"N	80°38'20.3795"W	969.65	262.634	0.68
7101.00	90.830	334.980	5996.15	421.69	-40.73	-1000.06	1741492.17	14523615.99	39°59'27.1572"N	80°38'20.8686"W	1000.89	267.668	0.76
7192.00	92.060	336.110	5993.85	512.55	42.08	-1037.72	1741454.52	14523698.76	39°59'27.9770"N	80°38'21.3482"W	1038.57	272.322	1.84
7282.00	91.420	337.150	5991.12	602.30	124.66	-1073.40	1741418.86	14523781.31	39°59'28.7945"N	80°38'21.8023"W	1080.62	276.624	1.36



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
7373.00	90.280	336.250	5989.77	693.08	208.22	-1109.39	1741382.88	14523864.84	39°59'29.6217"N	80°38'22.2604"W	1128.76	280.630	1.60
7466.00	90.250	336.650	5989.34	785.88	293.48	-1146.55	1741345.74	14523950.06	39°59'30.4657"N	80°38'22.7333"W	1183.51	284.357	0.43
7556.00	90.120	336.090	5989.05	875.70	375.93	-1182.62	1741309.68	14524032.48	39°59'31.2820"N	80°38'23.1925"W	1240.94	287.634	0.64
7649.00	90.370	335.560	5988.65	968.56	460.77	-1220.71	1741271.61	14524117.29	39°59'32.1219"N	80°38'23.6775"W	1304.78	290.680	0.63
7741.00	90.550	336.020	5987.91	1060.43	544.68	-1258.44	1741233.89	14524201.16	39°59'32.9526"N	80°38'24.1578"W	1371.25	293.404	0.54
7834.00	90.710	336.540	5986.89	1153.25	629.81	-1295.84	1741196.50	14524286.27	39°59'33.7955"N	80°38'24.6340"W	1440.79	295.921	0.58
7925.00	90.950	336.720	5985.57	1244.03	713.34	-1331.94	1741160.42	14524369.76	39°59'34.6223"N	80°38'25.0934"W	1510.93	298.172	0.33
8015.00	90.460	336.230	5984.47	1333.83	795.85	-1367.86	1741124.52	14524452.24	39°59'35.4392"N	80°38'25.5507"W	1582.54	300.192	0.77
8107.00	90.180	336.090	5983.95	1425.67	880.00	-1405.04	1741087.35	14524536.36	39°59'36.2722"N	80°38'26.0241"W	1657.87	302.060	0.34
8199.00	90.280	336.030	5983.58	1517.52	964.09	-1442.37	1741050.03	14524620.41	39°59'37.1047"N	80°38'26.4994"W	1734.91	303.759	0.13
8290.00	90.180	336.200	5983.22	1608.36	1047.29	-1479.22	1741013.20	14524703.58	39°59'37.9284"N	80°38'26.9685"W	1812.43	305.299	0.22
8381.00	90.710	336.490	5982.51	1699.18	1130.64	-1515.73	1740976.70	14524786.90	39°59'38.7536"N	80°38'27.4332"W	1890.98	306.721	0.66
8472.00	90.620	336.350	5981.45	1789.98	1214.04	-1552.13	1740940.32	14524870.27	39°59'39.5791"N	80°38'27.8966"W	1970.53	308.032	0.18
8565.00	92.090	336.120	5979.26	1882.78	1299.13	-1589.60	1740902.86	14524955.32	39°59'40.4215"N	80°38'28.3736"W	2052.94	309.258	1.60
8656.00	92.120	336.750	5975.91	1973.53	1382.48	-1625.95	1740866.52	14525038.64	39°59'41.2467"N	80°38'28.8364"W	2134.24	310.373	0.69
8747.00	90.950	336.370	5973.48	2064.30	1465.94	-1662.14	1740830.35	14525122.07	39°59'42.0729"N	80°38'29.2970"W	2216.23	311.411	1.35
8837.00	90.920	336.350	5972.01	2154.11	1548.38	-1698.22	1740794.28	14525204.47	39°59'42.8890"N	80°38'29.7564"W	2298.14	312.357	0.04
8928.00	90.550	336.180	5970.84	2244.93	1631.67	-1734.85	1740757.67	14525287.74	39°59'43.7136"N	80°38'30.2227"W	2381.61	313.245	0.45
9019.00	90.550	335.910	5969.97	2335.77	1714.83	-1771.79	1740720.74	14525370.86	39°59'44.5368"N	80°38'30.6931"W	2465.74	314.064	0.30
9110.00	89.970	335.130	5969.55	2426.66	1797.65	-1809.50	1740683.05	14525453.65	39°59'45.3568"N	80°38'31.1733"W	2550.65	314.812	1.07
9201.00	89.750	336.090	5969.78	2517.55	1880.53	-1847.08	1740645.48	14525536.49	39°59'46.1773"N	80°38'31.6519"W	2635.92	315.514	1.08
9291.00	89.750	336.780	5970.17	2607.36	1963.02	-1883.06	1740609.52	14525618.95	39°59'46.9939"N	80°38'32.1099"W	2720.18	316.191	0.77
9382.00	90.520	337.840	5969.95	2698.07	2046.98	-1918.16	1740574.43	14525702.88	39°59'47.8250"N	80°38'32.5566"W	2805.25	316.861	1.44
9473.00	90.460	336.610	5969.18	2788.79	2130.88	-1953.39	1740539.22	14525786.74	39°59'48.6555"N	80°38'33.0049"W	2890.73	317.488	1.35
9564.00	90.400	337.140	5968.49	2879.55	2214.56	-1989.12	1740503.49	14525870.40	39°59'49.4839"N	80°38'33.4598"W	2976.73	318.070	0.59
9657.00	91.350	336.910	5967.07	2972.28	2300.17	-2025.42	1740467.21	14525955.98	39°59'50.3314"N	80°38'33.9217"W	3064.82	318.634	1.05
9748.00	91.790	336.290	5964.58	3063.04	2383.66	-2061.55	1740431.10	14526039.43	39°59'51.1578"N	80°38'34.3816"W	3151.47	319.145	0.84
9840.00	92.120	336.940	5961.44	3154.78	2468.05	-2098.04	1740394.62	14526123.79	39°59'51.9933"N	80°38'34.8462"W	3239.30	319.633	0.79
9933.00	90.030	336.600	5959.70	3247.53	2553.49	-2134.71	1740357.96	14526209.19	39°59'52.8390"N	80°38'35.3130"W	3328.26	320.104	2.28
10024.00	90.030	336.680	5959.65	3338.32	2637.03	-2170.79	1740321.89	14526292.70	39°59'53.6660"N	80°38'35.7723"W	3415.59	320.539	0.09



Actual Wellpath Report

Betty Schafer MSH 1H AWB_ awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
10116.00	90.000	335.870	5959.62	3430.14	2721.26	-2207.81	1740284.89	14526376.89	39°59'54.4998"N	80°38'36.2436"W	3504.23	320.947	0.88
10207.00	90.490	336.270	5959.24	3520.99	2804.43	-2244.72	1740247.99	14526460.04	39°59'55.3233"N	80°38'36.7136"W	3592.16	321.326	0.70
10298.00	90.030	336.210	5958.82	3611.82	2887.72	-2281.39	1740211.34	14526543.29	39°59'56.1478"N	80°38'37.1805"W	3680.17	321.690	0.51
10389.00	89.630	336.400	5959.09	3702.64	2971.05	-2317.96	1740174.79	14526626.59	39°59'56.9727"N	80°38'37.6461"W	3768.29	322.039	0.49
10481.00	89.720	336.250	5959.61	3794.46	3055.30	-2354.90	1740137.86	14526710.81	39°59'57.8068"N	80°38'38.1164"W	3857.51	322.376	0.19
10574.00	90.950	335.980	5959.07	3887.30	3140.33	-2392.55	1740100.22	14526795.81	39°59'58.6486"N	80°38'38.5959"W	3947.91	322.697	1.35
10664.00	90.490	336.600	5957.94	3977.12	3222.73	-2428.74	1740064.05	14526878.17	39°59'59.4643"N	80°38'39.0567"W	4035.44	322.997	0.86
10755.00	87.660	335.000	5959.41	4067.97	3305.71	-2466.03	1740026.77	14526961.12	40°00'0.2858"N	80°38'39.5316"W	4124.20	323.277	3.57
10846.00	90.180	336.340	5961.12	4158.82	3388.61	-2503.51	1739989.31	14527043.98	40°00'1.1064"N	80°38'40.0090"W	4213.10	323.543	3.14
10936.00	90.180	336.440	5960.84	4248.64	3471.07	-2539.56	1739953.27	14527126.42	40°00'1.9228"N	80°38'40.4679"W	4300.89	323.810	0.11
11027.00	90.490	335.810	5960.31	4339.48	3554.28	-2576.39	1739916.46	14527209.60	40°00'2.7466"N	80°38'40.9369"W	4389.84	324.063	0.77
11117.00	90.000	335.940	5959.92	4429.34	3636.42	-2613.17	1739879.69	14527291.70	40°00'3.5597"N	80°38'41.4054"W	4477.97	324.299	0.56
11209.00	90.740	336.030	5959.33	4521.20	3720.46	-2650.61	1739842.26	14527375.70	40°00'4.3916"N	80°38'41.8822"W	4568.10	324.532	0.81
11302.00	91.080	336.020	5957.85	4614.03	3805.42	-2688.40	1739804.49	14527460.64	40°00'5.2328"N	80°38'42.3634"W	4659.26	324.760	0.37
11393.00	91.450	339.040	5955.84	4704.68	3889.48	-2723.17	1739769.74	14527544.66	40°00'6.0649"N	80°38'42.8058"W	4748.02	325.003	3.34
11486.00	90.620	336.620	5954.16	4797.29	3975.58	-2758.25	1739734.66	14527630.73	40°00'6.9171"N	80°38'43.2523"W	4838.72	325.247	2.75
11578.00	90.370	336.550	5953.37	4889.08	4060.01	-2794.81	1739698.12	14527715.12	40°00'7.7528"N	80°38'43.7177"W	4928.96	325.457	0.28
11670.00	90.250	336.800	5952.87	4980.87	4144.49	-2831.24	1739661.71	14527799.57	40°00'8.5891"N	80°38'44.1815"W	5019.23	325.662	0.30
11760.00	90.650	335.560	5952.16	5070.70	4226.81	-2867.58	1739625.38	14527881.87	40°00'9.4041"N	80°38'44.6443"W	5107.74	325.846	1.45
11851.00	92.430	337.260	5949.72	5161.48	4310.17	-2903.98	1739588.99	14527965.19	40°00'10.2293"N	80°38'45.1078"W	5197.18	326.030	2.70
11942.00	90.490	336.840	5947.40	5252.19	4393.94	-2939.45	1739553.53	14528048.92	40°00'11.0585"N	80°38'45.5593"W	5286.50	326.218	2.18
12033.00	90.430	336.520	5946.67	5342.97	4477.50	-2975.48	1739517.52	14528132.46	40°00'11.8857"N	80°38'46.0180"W	5376.01	326.394	0.36
12124.00	89.940	335.760	5946.38	5433.81	4560.72	-3012.29	1739480.73	14528215.64	40°00'12.7096"N	80°38'46.4867"W	5465.72	326.556	0.99
12214.00	89.850	335.930	5946.54	5523.68	4642.84	-3049.11	1739443.91	14528297.73	40°00'13.5226"N	80°38'46.9558"W	5554.56	326.706	0.21
12305.00	90.250	335.800	5946.46	5614.54	4725.89	-3086.32	1739406.72	14528380.74	40°00'14.3447"N	80°38'47.4297"W	5644.41	326.853	0.46
12396.00	90.310	335.820	5946.02	5705.41	4808.90	-3123.61	1739369.45	14528463.72	40°00'15.1665"N	80°38'47.9047"W	5734.32	326.994	0.07
12488.00	90.030	335.890	5945.74	5797.28	4892.85	-3161.24	1739331.83	14528547.64	40°00'15.9976"N	80°38'48.3840"W	5825.24	327.134	0.31
12579.00	89.970	336.560	5945.74	5888.11	4976.12	-3197.93	1739295.16	14528630.88	40°00'16.8220"N	80°38'48.8512"W	5915.11	327.273	0.74
12669.00	90.180	335.720	5945.63	5977.95	5058.43	-3234.33	1739258.77	14528713.16	40°00'17.6368"N	80°38'49.3148"W	6004.05	327.405	0.96
12760.00	90.520	335.390	5945.07	6068.84	5141.27	-3271.99	1739221.13	14528795.97	40°00'18.4569"N	80°38'49.7945"W	6094.15	327.527	0.52



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
12851.00	91.540	336.410	5943.43	6159.68	5224.32	-3309.14	1739183.99	14528878.99	40°00'19.2791"N	80°38'50.2677"W	6184.17	327.649	1.59
12941.00	90.460	336.780	5941.86	6249.47	5306.91	-3344.89	1739148.26	14528961.54	40°00'20.0966"N	80°38'50.7228"W	6273.08	327.777	1.27
13033.00	91.140	336.210	5940.58	6341.26	5391.26	-3381.58	1739111.58	14529045.86	40°00'20.9316"N	80°38'51.1900"W	6364.02	327.903	0.96
13124.00	90.550	336.700	5939.24	6432.06	5474.68	-3417.92	1739075.25	14529129.24	40°00'21.7574"N	80°38'51.6528"W	6454.01	328.023	0.84
13214.00	91.390	337.260	5937.71	6521.80	5557.50	-3453.11	1739040.08	14529212.03	40°00'22.5772"N	80°38'52.1008"W	6542.92	328.146	1.12
13306.00	91.630	337.690	5935.29	6613.46	5642.45	-3488.34	1739004.86	14529296.95	40°00'23.4181"N	80°38'52.5493"W	6633.68	328.274	0.54
13398.00	90.650	336.880	5933.46	6705.15	5727.29	-3523.86	1738969.35	14529381.76	40°00'24.2579"N	80°38'53.0014"W	6724.54	328.397	1.38
13489.00	91.080	336.610	5932.08	6795.92	5810.89	-3559.79	1738933.44	14529465.32	40°00'25.0855"N	80°38'53.4588"W	6814.58	328.508	0.56
13580.00	90.860	336.760	5930.54	6886.69	5894.45	-3595.80	1738897.45	14529548.85	40°00'25.9126"N	80°38'53.9174"W	6904.66	328.616	0.29
13671.00	90.770	336.590	5929.25	6977.47	5978.00	-3631.82	1738861.43	14529632.37	40°00'26.7397"N	80°38'54.3761"W	6994.76	328.720	0.21
13762.00	90.340	336.210	5928.37	7068.28	6061.39	-3668.25	1738825.02	14529715.72	40°00'27.5652"N	80°38'54.8400"W	7084.95	328.818	0.63
13852.00	90.120	335.660	5928.01	7158.14	6143.56	-3704.95	1738788.33	14529797.87	40°00'28.3787"N	80°38'55.3075"W	7174.26	328.907	0.66
13943.00	90.680	334.710	5927.37	7249.05	6226.16	-3743.14	1738750.16	14529880.43	40°00'29.1964"N	80°38'55.7941"W	7264.72	328.986	1.21
14034.00	90.860	335.520	5926.15	7339.96	6308.70	-3781.43	1738711.88	14529962.94	40°00'30.0136"N	80°38'56.2820"W	7355.20	329.062	0.91
14125.00	91.200	335.320	5924.51	7430.85	6391.44	-3819.28	1738674.05	14530045.65	40°00'30.8327"N	80°38'56.7642"W	7445.63	329.139	0.43
14216.00	91.390	335.670	5922.46	7521.72	6474.22	-3857.01	1738636.33	14530128.40	40°00'31.6523"N	80°38'57.2449"W	7536.06	329.216	0.44
14307.00	90.890	335.910	5920.65	7612.58	6557.20	-3894.32	1738599.04	14530211.35	40°00'32.4737"N	80°38'57.7202"W	7626.45	329.294	0.61
14399.00	90.950	333.610	5919.17	7704.50	6640.40	-3933.55	1738559.83	14530294.51	40°00'33.2975"N	80°38'58.2200"W	7718.01	329.359	2.50
14491.00	91.570	336.000	5917.14	7796.41	6723.62	-3972.70	1738520.69	14530377.70	40°00'34.1214"N	80°38'58.7190"W	7809.57	329.423	2.68
14581.00	90.460	335.620	5915.55	7886.27	6805.71	-4009.57	1738483.83	14530459.75	40°00'34.9340"N	80°38'59.1887"W	7899.01	329.496	1.30
14673.00	90.830	335.260	5914.51	7978.16	6889.38	-4047.81	1738445.61	14530543.39	40°00'35.7623"N	80°38'59.6759"W	7990.51	329.564	0.56
14764.00	90.620	335.440	5913.36	8069.06	6972.08	-4085.76	1738407.68	14530626.06	40°00'36.5811"N	80°39'0.1594"W	8081.05	329.629	0.30
14855.00	90.520	335.100	5912.46	8159.97	7054.73	-4123.83	1738369.62	14530708.68	40°00'37.3993"N	80°39'0.6445"W	8171.61	329.692	0.39
14946.00	90.650	335.750	5911.53	8250.86	7137.48	-4161.67	1738331.79	14530791.40	40°00'38.2186"N	80°39'1.1266"W	8262.15	329.755	0.73
15037.00	90.250	335.660	5910.81	8341.74	7220.42	-4199.11	1738294.37	14530874.30	40°00'39.0396"N	80°39'1.6036"W	8352.66	329.819	0.45
15128.00	90.400	336.070	5910.30	8432.60	7303.46	-4236.32	1738257.18	14530957.31	40°00'39.8617"N	80°39'2.0776"W	8443.16	329.884	0.48
15218.00	90.000	335.590	5909.98	8522.47	7385.57	-4273.17	1738220.34	14531039.39	40°00'40.6746"N	80°39'2.5470"W	8532.68	329.947	0.69
15309.00	90.340	335.380	5909.71	8613.37	7468.37	-4310.92	1738182.60	14531122.16	40°00'41.4943"N	80°39'3.0281"W	8623.26	330.005	0.44
15400.00	90.830	335.670	5908.78	8704.26	7551.19	-4348.62	1738144.91	14531204.94	40°00'42.3141"N	80°39'3.5085"W	8713.84	330.063	0.63
15490.00	90.550	335.770	5907.70	8794.13	7633.22	-4385.63	1738107.92	14531286.94	40°00'43.1262"N	80°39'3.9799"W	8803.40	330.121	0.33



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]
15582.00	90.550	335.820	5906.82	8885.99	7717.13	-4423.35	1738070.22	14531370.82	40°00'43.9569"N	80°39'4.4604"W	8894.95	330.179	0.05
15674.00	90.490	335.680	5905.98	8977.86	7801.01	-4461.13	1738032.45	14531454.66	40°00'44.7873"N	80°39'4.9418"W	8986.51	330.236	0.17
15765.00	91.020	335.820	5904.78	9068.73	7883.97	-4498.50	1737995.09	14531537.59	40°00'45.6086"N	80°39'5.4180"W	9077.09	330.291	0.60
15856.00	90.830	335.630	5903.31	9159.60	7966.91	-4535.91	1737957.70	14531620.50	40°00'46.4297"N	80°39'5.8945"W	9167.67	330.345	0.30
15947.00	90.520	336.660	5902.24	9250.43	8050.13	-4572.71	1737920.91	14531703.69	40°00'47.2535"N	80°39'6.3633"W	9258.20	330.402	1.18
16037.00	90.740	336.670	5901.25	9340.21	8132.76	-4608.36	1737885.28	14531786.29	40°00'48.0715"N	80°39'6.8173"W	9347.66	330.462	0.24
16129.00	90.430	335.610	5900.31	9432.05	8216.90	-4645.57	1737848.08	14531870.39	40°00'48.9043"N	80°39'7.2913"W	9439.21	330.518	1.20
16220.00	90.340	335.170	5899.70	9522.95	8299.63	-4683.46	1737810.20	14531953.09	40°00'49.7234"N	80°39'7.7742"W	9529.88	330.564	0.49
16311.00	90.430	335.180	5899.09	9613.86	8382.22	-4721.67	1737772.01	14532035.65	40°00'50.5410"N	80°39'8.2611"W	9620.59	330.608	0.10
16402.00	90.650	335.690	5898.23	9704.76	8464.98	-4759.50	1737734.20	14532118.38	40°00'51.3603"N	80°39'8.7431"W	9711.26	330.653	0.61
16489.00	90.000	333.500	5897.74	9791.71	8543.56	-4796.82	1737696.89	14532196.93	40°00'52.1383"N	80°39'9.2188"W	9798.05	330.688	2.63
16580.00	90.800	335.770	5897.10	9882.65	8625.78	-4835.80	1737657.93	14532279.11	40°00'52.9523"N	80°39'9.7157"W	9888.83	330.724	2.64
16671.00	90.580	333.490	5896.01	9973.59	8707.99	-4874.78	1737618.96	14532361.29	40°00'53.7662"N	80°39'10.2126"W	9979.61	330.760	2.52
16763.00	90.580	335.110	5895.08	10065.55	8790.88	-4914.68	1737579.08	14532444.15	40°00'54.5869"N	80°39'10.7212"W	10071.43	330.792	1.76
16853.00	90.580	335.540	5894.17	10155.45	8872.66	-4952.25	1737541.53	14532525.90	40°00'55.3965"N	80°39'11.2000"W	10161.14	330.832	0.48
16945.00	91.200	335.490	5892.74	10247.33	8956.38	-4990.37	1737503.42	14532609.58	40°00'56.2253"N	80°39'11.6858"W	10252.83	330.874	0.68
17036.00	90.860	338.310	5891.10	10338.07	9040.06	-5026.06	1737467.74	14532693.23	40°00'57.0536"N	80°39'12.1403"W	10343.30	330.927	3.12
17126.00	89.750	337.920	5890.62	10427.67	9123.57	-5059.61	1737434.20	14532776.71	40°00'57.8802"N	80°39'12.5673"W	10432.60	330.989	1.31
17217.00	90.180	335.500	5890.68	10518.45	9207.15	-5095.59	1737398.24	14532860.26	40°00'58.7075"N	80°39'13.0255"W	10523.14	331.038	2.70
17307.00	90.550	337.140	5890.10	10608.27	9289.56	-5131.73	1737362.11	14532942.64	40°00'59.5234"N	80°39'13.4860"W	10612.76	331.083	1.87
17398.00	89.780	337.820	5889.84	10698.96	9373.62	-5166.59	1737327.27	14533026.67	40°01'0.3554"N	80°39'13.9297"W	10703.20	331.137	1.13
17489.00	90.460	337.580	5889.65	10789.62	9457.82	-5201.12	1737292.75	14533110.83	40°01'1.1888"N	80°39'14.3693"W	10793.60	331.192	0.79
17580.00	90.430	337.570	5888.94	10880.29	9541.93	-5235.83	1737258.05	14533194.91	40°01'2.0213"N	80°39'14.8113"W	10884.04	331.246	0.03
17670.00	90.370	337.470	5888.32	10969.98	9625.09	-5270.24	1737223.66	14533278.04	40°01'2.8445"N	80°39'15.2494"W	10973.51	331.297	0.13
17762.00	90.620	337.720	5887.52	11061.65	9710.14	-5305.30	1737188.60	14533363.06	40°01'3.6863"N	80°39'15.6959"W	11064.95	331.349	0.38
17853.00	90.740	337.650	5886.44	11152.30	9794.32	-5339.86	1737154.07	14533447.20	40°01'4.5195"N	80°39'16.1357"W	11155.39	331.401	0.15
17944.00	91.230	336.250	5884.88	11243.04	9878.04	-5375.48	1737118.46	14533530.89	40°01'5.3482"N	80°39'16.5894"W	11245.96	331.446	1.63
18036.00	91.200	335.310	5882.93	11334.89	9961.93	-5413.21	1737080.74	14533614.74	40°01'6.1786"N	80°39'17.0702"W	11337.67	331.481	1.02
18127.00	91.320	333.770	5880.92	11425.82	10044.07	-5452.32	1737041.65	14533696.85	40°01'6.9918"N	80°39'17.5688"W	11428.52	331.505	1.70
18219.00	91.050	331.550	5879.02	11517.80	10125.77	-5494.56	1736999.42	14533778.52	40°01'7.8008"N	80°39'18.1077"W	11520.48	331.514	2.43



Actual Wellpath Report

Betty Schafer MSH 1H AWB_awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations)													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]
18311.00	91.020	329.600	5877.36	11609.71	10205.88	-5539.75	1736954.25	14533858.60	40°01'8.5943"N	80°39'18.6845"W	11612.44	331.507	2.12
18403.00	90.150	329.290	5876.42	11701.55	10285.10	-5586.52	1736907.50	14533937.79	40°01'9.3789"N	80°39'19.2817"W	11704.38	331.491	1.00
18495.00	90.370	329.470	5876.00	11793.39	10364.27	-5633.38	1736860.66	14534016.93	40°01'10.1631"N	80°39'19.8800"W	11796.32	331.474	0.31
18585.00	90.490	329.030	5875.33	11883.22	10441.62	-5679.39	1736814.67	14534094.24	40°01'10.9292"N	80°39'20.4676"W	11886.25	331.457	0.51
18677.00	90.310	326.950	5874.69	11974.90	10519.62	-5728.15	1736765.92	14534172.22	40°01'11.7019"N	80°39'21.0905"W	11978.07	331.431	2.27
18768.00	90.520	325.780	5874.03	12065.33	10595.38	-5778.56	1736715.54	14534247.95	40°01'12.4526"N	80°39'21.7346"W	12068.71	331.393	1.31
18859.00	90.650	325.890	5873.10	12155.66	10670.68	-5829.66	1736664.46	14534323.21	40°01'13.1985"N	80°39'22.3877"W	12159.28	331.351	0.19
18950.00	90.620	325.850	5872.09	12246.00	10746.00	-5880.71	1736613.42	14534398.51	40°01'13.9448"N	80°39'23.0402"W	12249.87	331.310	0.05
19042.00	90.520	325.900	5871.17	12337.33	10822.15	-5932.32	1736561.83	14534474.63	40°01'14.6994"N	80°39'23.6997"W	12341.45	331.270	0.12
19132.00	90.580	325.190	5870.31	12426.62	10896.36	-5983.24	1736510.94	14534548.81	40°01'15.4347"N	80°39'24.3505"W	12431.00	331.229	0.79
19223.00	90.520	325.030	5869.44	12516.81	10971.00	-6035.29	1736458.91	14534623.42	40°01'16.1743"N	80°39'25.0158"W	12521.48	331.184	0.19
19314.00	90.490	323.820	5868.63	12606.84	11045.01	-6088.22	1736405.99	14534697.40	40°01'16.9077"N	80°39'25.6926"W	12611.85	331.136	1.33
19405.00	90.770	324.000	5867.63	12696.76	11118.54	-6141.82	1736352.41	14534770.91	40°01'17.6364"N	80°39'26.3779"W	12702.13	331.084	0.37
19496.00	90.650	324.040	5866.51	12786.70	11192.18	-6195.28	1736298.97	14534844.51	40°01'18.3661"N	80°39'27.0614"W	12792.43	331.034	0.14
19587.00	90.400	323.890	5865.67	12876.62	11265.76	-6248.81	1736245.46	14534918.07	40°01'19.0953"N	80°39'27.7459"W	12882.74	330.984	0.32
19678.00	90.680	323.960	5864.81	12966.54	11339.31	-6302.40	1736191.90	14534991.58	40°01'19.8241"N	80°39'28.4310"W	12973.05	330.935	0.32
19769.00	90.650	323.630	5863.76	13056.43	11412.73	-6356.14	1736138.18	14535064.98	40°01'20.5517"N	80°39'29.1182"W	13063.35	330.885	0.36
19860.00	90.550	323.770	5862.80	13146.29	11486.07	-6410.01	1736084.33	14535138.29	40°01'21.2785"N	80°39'29.8070"W	13153.63	330.835	0.19
19951.00	90.770	323.700	5861.76	13236.16	11559.43	-6463.84	1736030.52	14535211.63	40°01'22.0056"N	80°39'30.4953"W	13243.93	330.787	0.25
20042.00	90.580	323.960	5860.68	13326.05	11632.89	-6517.54	1735976.84	14535285.05	40°01'22.7335"N	80°39'31.1819"W	13334.26	330.739	0.35
20132.00	90.770	324.300	5859.62	13415.03	11705.82	-6570.27	1735924.13	14535357.95	40°01'23.4562"N	80°39'31.8562"W	13423.66	330.695	0.43
20223.00	90.520	324.010	5858.60	13505.00	11779.58	-6623.56	1735870.86	14535431.68	40°01'24.1871"N	80°39'32.5375"W	13514.07	330.651	0.42
20313.00	90.620	323.740	5857.70	13593.92	11852.27	-6676.62	1735817.83	14535504.35	40°01'24.9075"N	80°39'33.2159"W	13603.44	330.607	0.32
20405.00	89.940	324.030	5857.26	13684.82	11926.59	-6730.84	1735763.63	14535578.64	40°01'25.6440"N	80°39'33.9092"W	13694.81	330.562	0.80
20497.00	90.580	324.100	5856.84	13775.76	12001.08	-6784.83	1735709.66	14535653.10	40°01'26.3821"N	80°39'34.5996"W	13786.22	330.518	0.70
20587.00	90.620	323.770	5855.90	13864.69	12073.83	-6837.81	1735656.70	14535725.82	40°01'27.1030"N	80°39'35.2770"W	13875.62	330.476	0.37
20679.00	90.520	324.380	5854.98	13955.64	12148.32	-6891.79	1735602.74	14535800.28	40°01'27.8413"N	80°39'35.9672"W	13967.05	330.434	0.67
20771.00	90.280	323.850	5854.34	14046.59	12222.86	-6945.71	1735548.84	14535874.79	40°01'28.5799"N	80°39'36.6567"W	14058.49	330.392	0.63
20862.00	90.490	324.030	5853.73	14136.52	12296.42	-6999.28	1735495.29	14535948.32	40°01'29.3089"N	80°39'37.3416"W	14148.92	330.351	0.30
20952.00	90.830	324.110	5852.69	14225.48	12369.29	-7052.09	1735442.51	14536021.17	40°01'30.0310"N	80°39'38.0168"W	14238.37	330.311	0.39

REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

WELLPATH DATA (267 stations) † = interpolated, ‡ = extrapolated station													
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS ["/100ft]
21045.00	90.430	324.140	5851.67	14317.42	12444.65	-7106.58	1735388.03	14536096.49	40°01'30.7777"N	80°39'38.7136"W	14330.83	330.271	0.43
21136.00	90.520	323.930	5850.91	14407.37	12518.30	-7160.02	1735334.61	14536170.11	40°01'31.5075"N	80°39'39.3970"W	14421.29	330.232	0.25
21228.00	90.890	325.050	5849.78	14498.40	12593.18	-7213.46	1735281.20	14536244.97	40°01'32.2495"N	80°39'40.0802"W	14512.82	330.196	1.28
21318.00	90.770	325.150	5848.48	14587.59	12666.98	-7264.94	1735229.73	14536318.74	40°01'32.9808"N	80°39'40.7384"W	14602.46	330.164	0.17
21409.00	90.280	324.930	5847.64	14677.77	12741.56	-7317.08	1735177.61	14536393.29	40°01'33.7198"N	80°39'41.4050"W	14693.10	330.133	0.59
21500.00	90.250	324.720	5847.22	14767.90	12815.94	-7369.51	1735125.21	14536467.64	40°01'34.4568"N	80°39'42.0752"W	14783.71	330.100	0.23
21592.00	90.370	324.650	5846.72	14858.99	12891.01	-7422.69	1735072.05	14536542.68	40°01'35.2007"N	80°39'42.7552"W	14875.30	330.067	0.15
21683.00	90.180	325.310	5846.29	14949.15	12965.53	-7474.91	1735019.85	14536617.18	40°01'35.9391"N	80°39'43.4228"W	14965.94	330.036	0.75
21774.00	90.220	324.810	5845.97	15039.33	13040.13	-7527.03	1734967.75	14536691.74	40°01'36.6782"N	80°39'44.0891"W	15056.60	330.006	0.55
21864.00	90.310	325.060	5845.55	15128.49	13113.80	-7578.73	1734916.07	14536765.38	40°01'37.4081"N	80°39'44.7502"W	15146.25	329.976	0.30
21955.00	90.310	325.130	5845.06	15218.68	13188.42	-7630.80	1734864.01	14536839.98	40°01'38.1475"N	80°39'45.4159"W	15236.92	329.946	0.08
22046.00	90.090	324.760	5844.74	15308.84	13262.92	-7683.07	1734811.77	14536914.44	40°01'38.8857"N	80°39'46.0842"W	15327.57	329.917	0.47
22136.00	90.220	325.080	5844.50	15398.00	13336.57	-7734.79	1734760.06	14536988.06	40°01'39.6154"N	80°39'46.7455"W	15417.23	329.888	0.38
22227.00	90.150	325.000	5844.21	15488.17	13411.15	-7786.94	1734707.94	14537062.61	40°01'40.3544"N	80°39'47.4121"W	15507.91	329.859	0.12
22318.00	90.400	324.860	5843.77	15578.33	13485.62	-7839.22	1734655.68	14537137.06	40°01'41.0923"N	80°39'48.0807"W	15598.57	329.830	0.31
22408.00	90.340	325.180	5843.19	15667.51	13559.36	-7890.82	1734604.10	14537210.78	40°01'41.8230"N	80°39'48.7403"W	15688.26	329.803	0.36
22500.00	90.580	325.050	5842.45	15758.69	13634.83	-7943.43	1734551.51	14537286.21	40°01'42.5707"N	80°39'49.4130"W	15779.95	329.776	0.30
22591.00	90.710	324.700	5841.43	15848.82	13709.25	-7995.79	1734499.17	14537360.61	40°01'43.3081"N	80°39'50.0824"W	15870.61	329.748	0.41
22681.00	90.580	323.750	5840.41	15937.82	13782.27	-8048.40	1734446.58	14537433.59	40°01'44.0316"N	80°39'50.7552"W	15960.19	329.716	1.07
22772.00	90.580	324.360	5839.49	16027.77	13855.93	-8101.81	1734393.19	14537507.23	40°01'44.7616"N	80°39'51.4383"W	16050.74	329.684	0.67
22863.00	90.580	324.190	5838.57	16117.77	13929.81	-8154.94	1734340.08	14537581.07	40°01'45.4936"N	80°39'52.1177"W	16141.33	329.654	0.19
22953.00	90.830	323.700	5837.46	16206.71	14002.56	-8207.91	1734287.13	14537653.80	40°01'46.2146"N	80°39'52.7951"W	16230.88	329.622	0.61
23044.00	90.680	324.060	5836.26	16296.61	14076.06	-8261.55	1734233.51	14537727.27	40°01'46.9429"N	80°39'53.4810"W	16321.42	329.590	0.43
23135.00	90.800	324.130	5835.09	16386.57	14149.77	-8314.91	1734180.17	14537800.95	40°01'47.6733"N	80°39'54.1634"W	16412.00	329.560	0.15
23226.00	90.580	324.130	5833.99	16476.53	14223.50	-8368.23	1734126.88	14537874.65	40°01'48.4039"N	80°39'54.8453"W	16502.58	329.530	0.24
23297.00	90.740	324.080	5833.17	16546.72	14281.02	-8409.85	1734085.27	14537932.15	40°01'48.9738"N	80°39'55.3776"W	16573.26	329.507	0.24
23322.00‡	90.740	324.080	5832.85	16571.43	14301.26	-8424.52	1734070.61	14537952.38	40°01'49.1744"N	80°39'55.5652"W	16598.15	329.499	0.00



Actual Wellpath Report

Betty Schafer MSH 1H AWB_ awp 100' - 23297' Proj: 23322'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 1H
Field	Marshall WV	API	47051023820000
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 1H AWB
Slot	Slot 1H		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Betty Schafer MSH 1H BHL Rev-2	5809.00	14305.11	-8417.67	1734077.46	14537956.23	40°01'49.2122"N	80°39'55.4769"W	point
Betty Schafer MSH 1H LP Rev 4	5998.00	-489.95	-797.85	1741694.31	14523166.95	39°59'22.7098"N	80°38'18.2940"W	point
Betty Schafer MSH 1H LP Rev 2	6000.00	-489.95	-797.85	1741694.31	14523166.95	39°59'22.7098"N	80°38'18.2940"W	point

WELLPATH COMPOSITION - Ref Wellbore: Betty Schafer MSH 1H AWB Ref Wellpath: Betty Schafer MSH 1H AWB_ awp 100' - 23297' Proj: 23322'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	750.00	BH Generic gyro - northseeking (Standard)	1 Imported Gyro 100' - 750'	Betty Schafer MSH 1H AWB	2/13/2022
750.00	1663.00	OWSG MWD rev2 + HRGM	2 12.25 Tally MWD 790' - 1663'	Betty Schafer MSH 1H AWB	2/13/2022
1663.00	3451.00	OWSG MWD rev2 + HRGM	3 8.75 Tally MWD 1762' - 3451'	Betty Schafer MSH 1H AWB	2/13/2022
3451.00	23322.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	4 BH MWD 3500' - 23297'	Betty Schafer MSH 1H AWB	2/22/2022



Well Name:

BETTY SCHAFFER MSH 1H

47051023820000

LITHOLOGY/FORMATION	TOP DEPTH, MD (FT)	TOP DEPTH, TVD (FT)	BOTTOM DEPTH, MD (FT)	BOTTOM DEPTH, TVD (FT)	QUANTITY AND TYPE OF FLUID
Base of Fresh Water	0.00	0.00	280.00	280.00	
Top of Salt Water	802.00	802.00	NA	NA	
Pittsburgh Coal	352.00	352.00	358.00	358.00	
Raven Cliff (ss)	1012.00	1010.00	1517.00	1511.00	
Big Injun (ss)	1517.00	1511.00	1951.00	1941.00	
Berea (siltstone)	1951.00	1941.00	1985.00	1919.00	
Rhinestreet (shale)	5600.00	5395.00	5903.00	5672.00	
Cashaqua (shale)	5903.00	5672.00	6095.00	5819.00	
Burket (shale)	6095.00	5819.00	6129.00	5840.00	
Tully (ls)	6129.00	5840.00	6187.00	5876.00	
Mahantango (shale)	6187.00	5876.00	6413.00	5970.00	
Marcellus (shale)	6413.00	5970.00	NA	NA	GAS