

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

Slot: Slot 3H
Well: Betty Schafer MSH 3H
Wellbore: Betty Schafer MSH 3H PWB

Plot reference wellpath is Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 40 (KB)	North Reference: Grid north
Reference wellpath measured depths are referenced to SDC 40 (KB)	Scale: True distance
SDC 40 (KB) to Mean Sea Level: 874.4 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: Slot 3H): -848.4 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: tranlam on 2022-02-11; Database: WA_MPL_EASTERNUS_Defn

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
22755.00	90.060	336.350	5831.04	14771.21	-6682.03	1735825.41	14538437.93	40°01'53.9088"N	80°39'32.9740"W

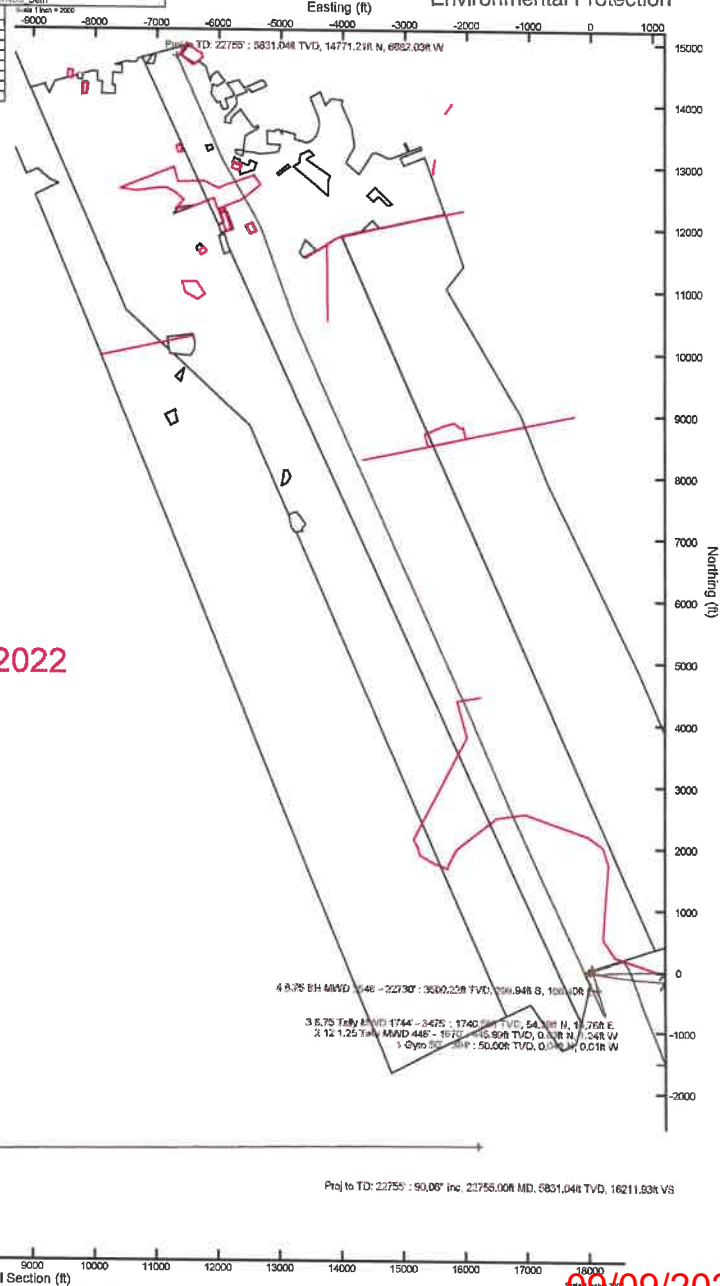
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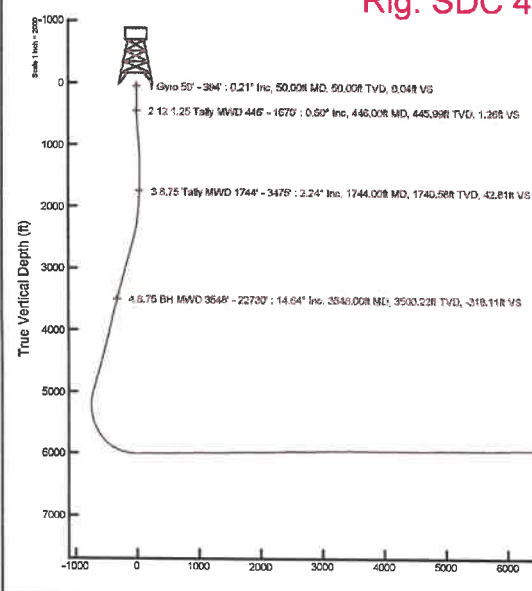
Hole and Casing Sections									
Name	MD (ft)	Interval (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (ft)	Grid North (ft)	Wellbore	
13.375in Casing	28.00	400.00	374.00	28.00	490.00	0.00	0.00	Betty Schafer MSH 3H PWB	
6.625in Casing	28.00	1731.78	1705.78	28.00	1739.00	0.00	45.00	Betty Schafer MSH 3H PWB	
5.6in Casing	28.00	22755.39	22728.39	28.00	5772.32	0.00	14769.97	Betty Schafer MSH 3H PWB	

Location Information					
Field Area	Grid East (ft)	Grid North (ft)	Local N (ft)	Local E (ft)	Wellbore
Betty Schafer MSH Pad	1742880.000	14538437.930	14771.210	-6682.030	Betty Schafer MSH 3H PWB
Slot	1742880.000	14538437.930	14771.210	-6682.030	Betty Schafer MSH 3H PWB
MD (ft)	1742880.000	14538437.930	14771.210	-6682.030	Betty Schafer MSH 3H PWB



HDCM2021v11.0 (1900.0 to 2022.0) Dip: 66.92° Field: 52235.2 nT
Magnetic North is 8.22 degrees West of True North (at 12/15/2021)
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 8.45 degrees

API: 47051024170000
BH JOB: 111177977
Duration: 01-29-2022 to 02-09-2022
Rig: SDC 40



09/09/2022



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

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	2/11/2022 at 12:34:03 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	17.08	14.28	1742504.83	14523672.48	39°59'27.6749"N	80°38'7.8500"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	874.40ft
Horizontal Reference Pt	Slot	SDC 40 (KB) to Mean Sea Level	874.40ft
Vertical Reference Pt	SDC 40 (KB)	SDC 40 (KB) to Ground Level at Slot (Slot 3H)	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	336.04°



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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REFERENCE WELLPATH IDENTIFICATION

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Slot	Slot 3H		

WELLPATH DATA (259 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	344.960	0.00	0.00	0.00	0.00	1742504.83	14523672.48	39°59'27.6749"N	80°38'7.8500"W	0.00	0.000	0.00
26.00	0.000	344.960	26.00	0.00	0.00	0.00	1742504.83	14523672.48	39°59'27.6749"N	80°38'7.8500"W	0.00	0.000	0.00
50.00	0.210	344.960	50.00	0.04	0.04	-0.01	1742504.82	14523672.52	39°59'27.6753"N	80°38'7.8502"W	0.04	344.960	0.88
100.00	0.140	328.540	100.00	0.19	0.18	-0.07	1742504.77	14523672.66	39°59'27.6767"N	80°38'7.8509"W	0.19	339.879	0.17
150.00	0.130	357.760	150.00	0.31	0.29	-0.10	1742504.73	14523672.77	39°59'27.6778"N	80°38'7.8513"W	0.31	340.882	0.14
200.00	0.140	338.470	200.00	0.42	0.41	-0.13	1742504.71	14523672.88	39°59'27.6789"N	80°38'7.8516"W	0.42	342.758	0.09
250.00	0.210	348.810	250.00	0.57	0.55	-0.17	1742504.67	14523673.03	39°59'27.6804"N	80°38'7.8521"W	0.58	343.264	0.15
300.00	0.110	316.160	300.00	0.71	0.68	-0.22	1742504.62	14523673.15	39°59'27.6816"N	80°38'7.8528"W	0.71	342.215	0.26
333.00	0.250	255.770	333.00	0.75	0.68	-0.31	1742504.53	14523673.16	39°59'27.6817"N	80°38'7.8540"W	0.75	335.634	0.66
350.00	0.300	293.010	350.00	0.79	0.69	-0.39	1742504.45	14523673.17	39°59'27.6817"N	80°38'7.8550"W	0.79	330.798	1.07
394.00	0.580	270.930	394.00	0.97	0.74	-0.71	1742504.12	14523673.22	39°59'27.6822"N	80°38'7.8592"W	1.03	315.957	0.73
445.00	0.600	287.590	444.99	1.25	0.82	-1.23	1742503.61	14523673.30	39°59'27.6831"N	80°38'7.8658"W	1.48	303.869	0.34
537.00	1.340	344.670	536.98	2.63	2.01	-1.97	1742502.86	14523674.48	39°59'27.6948"N	80°38'7.8753"W	2.81	315.518	1.23
628.00	3.060	358.130	627.91	5.94	5.46	-2.33	1742502.50	14523677.94	39°59'27.7290"N	80°38'7.8797"W	5.94	336.882	1.96
718.00	5.420	5.550	717.66	11.86	12.09	-2.00	1742502.84	14523684.57	39°59'27.7945"N	80°38'7.8751"W	12.26	350.616	2.69
809.00	7.110	14.370	808.12	20.02	21.83	-0.18	1742504.65	14523694.30	39°59'27.8906"N	80°38'7.8513"W	21.83	359.515	2.13
899.00	7.180	20.550	897.42	28.40	32.49	3.17	1742508.00	14523704.95	39°59'27.9959"N	80°38'7.8076"W	32.64	5.576	0.86
990.00	7.000	31.280	987.73	35.62	42.55	8.05	1742512.88	14523715.01	39°59'28.0951"N	80°38'7.7444"W	43.31	10.709	1.47
1081.00	5.940	43.120	1078.15	40.61	50.73	14.15	1742518.97	14523723.19	39°59'28.1757"N	80°38'7.6656"W	52.67	15.580	1.87
1172.00	3.710	50.910	1168.82	43.22	56.02	19.65	1742524.48	14523728.48	39°59'28.2278"N	80°38'7.5946"W	59.37	19.328	2.55
1264.00	1.170	29.470	1260.73	44.55	58.72	22.42	1742527.25	14523731.17	39°59'28.2543"N	80°38'7.5589"W	62.86	20.900	2.89
1355.00	0.760	296.160	1351.72	45.57	59.79	22.34	1742527.16	14523732.25	39°59'28.2649"N	80°38'7.5599"W	63.83	20.485	1.57
1445.00	1.460	273.890	1441.71	46.56	60.14	20.66	1742525.48	14523732.59	39°59'28.2684"N	80°38'7.5815"W	63.58	18.959	0.90
1537.00	1.640	243.480	1533.67	47.05	59.63	18.31	1742523.14	14523732.08	39°59'28.2634"N	80°38'7.6117"W	62.38	17.071	0.90
1628.00	1.560	205.260	1624.64	46.19	57.93	16.62	1742521.44	14523730.38	39°59'28.2467"N	80°38'7.6335"W	60.26	16.007	1.15
1670.00	1.700	179.910	1666.63	45.24	56.79	16.37	1742521.20	14523729.24	39°59'28.2354"N	80°38'7.6367"W	59.10	16.085	1.73
1744.00	2.240	164.780	1740.58	42.81	54.29	16.76	1742521.58	14523726.75	39°59'28.2108"N	80°38'7.6319"W	56.82	17.151	1.01
1836.00	2.240	153.910	1832.51	39.24	50.94	18.02	1742522.85	14523723.40	39°59'28.1776"N	80°38'7.6159"W	54.04	19.478	0.46
1927.00	2.790	184.540	1923.43	35.51	47.14	18.63	1742523.45	14523719.60	39°59'28.1400"N	80°38'7.6083"W	50.68	21.560	1.57
2018.00	4.480	181.830	2014.24	30.37	41.38	18.34	1742523.16	14523713.84	39°59'28.0831"N	80°38'7.6123"W	45.26	23.900	1.87



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
2110.00	6.450	178.110	2105.82	22.34	32.62	18.39	1742523.22	14523705.08	39°59'27.9965"N	80°38'7.6120"W	37.45	29.415	2.17
2202.00	8.090	172.720	2197.08	11.35	21.03	19.38	1742524.21	14523693.50	39°59'27.8820"N	80°38'7.5999"W	28.60	42.661	1.93
2293.00	9.770	167.820	2286.97	-2.34	7.13	21.82	1742526.65	14523679.61	39°59'27.7445"N	80°38'7.5693"W	22.96	71.899	2.02
2384.00	11.790	164.590	2376.36	-19.10	-9.38	25.92	1742530.75	14523663.10	39°59'27.5812"N	80°38'7.5175"W	27.57	109.889	2.32
2475.00	13.610	163.170	2465.13	-38.92	-28.59	31.49	1742536.32	14523643.90	39°59'27.3911"N	80°38'7.4469"W	42.54	132.233	2.03
2565.00	14.950	158.040	2552.35	-61.03	-49.49	38.90	1742543.72	14523623.00	39°59'27.1842"N	80°38'7.3528"W	62.95	141.833	2.05
2656.00	15.720	158.420	2640.11	-85.08	-71.84	47.83	1742552.64	14523600.66	39°59'26.9630"N	80°38'7.2394"W	86.31	146.349	0.85
2747.00	15.480	158.600	2727.76	-109.52	-94.61	56.79	1742561.60	14523577.90	39°59'26.7376"N	80°38'7.1254"W	110.35	149.027	0.27
2838.00	15.540	163.370	2815.45	-133.75	-117.60	64.71	1742569.52	14523554.92	39°59'26.5101"N	80°38'7.0248"W	134.23	151.178	1.40
2931.00	15.440	168.090	2905.08	-158.21	-141.65	70.83	1742575.64	14523530.88	39°59'26.2722"N	80°38'6.9475"W	158.38	153.434	1.36
3021.00	15.500	163.770	2991.82	-181.85	-164.92	76.66	1742581.47	14523507.62	39°59'26.0420"N	80°38'6.8737"W	181.87	155.069	1.28
3112.00	15.540	168.260	3079.50	-205.81	-188.53	82.54	1742587.35	14523484.02	39°59'25.8084"N	80°38'6.7994"W	205.81	156.355	1.32
3203.00	15.520	165.810	3167.18	-229.72	-212.27	88.01	1742592.81	14523460.29	39°59'25.5736"N	80°38'6.7305"W	229.79	157.481	0.72
3293.00	14.890	168.450	3254.03	-252.88	-235.28	93.28	1742598.07	14523437.29	39°59'25.3461"N	80°38'6.6640"W	253.09	158.374	1.04
3384.00	15.440	169.100	3341.86	-276.10	-258.63	97.91	1742602.70	14523413.95	39°59'25.1151"N	80°38'6.6057"W	276.54	159.265	0.63
3475.00	15.070	165.260	3429.66	-299.58	-281.96	103.21	1742608.00	14523390.63	39°59'24.8843"N	80°38'6.5389"W	300.26	159.896	1.18
3548.00	14.640	162.480	3500.22	-318.11	-299.94	108.40	1742613.19	14523372.66	39°59'24.7065"N	80°38'6.4731"W	318.92	160.130	1.14
3639.00	14.630	163.280	3588.27	-340.94	-321.91	115.17	1742619.96	14523350.69	39°59'24.4891"N	80°38'6.3873"W	341.89	160.315	0.22
3730.00	14.720	163.300	3676.30	-363.81	-343.99	121.80	1742626.58	14523328.62	39°59'24.2706"N	80°38'6.3033"W	364.92	160.502	0.10
3820.00	13.520	163.830	3763.58	-385.58	-365.05	128.01	1742632.80	14523307.57	39°59'24.0623"N	80°38'6.2246"W	386.84	160.676	1.34
3912.00	13.660	163.300	3853.00	-407.01	-385.78	134.13	1742638.91	14523286.85	39°59'23.8571"N	80°38'6.1471"W	408.43	160.828	0.20
4004.00	13.560	163.000	3942.42	-428.49	-406.50	140.40	1742645.18	14523266.14	39°59'23.6521"N	80°38'6.0675"W	430.06	160.945	0.13
4094.00	14.230	163.260	4029.78	-449.94	-427.18	146.67	1742651.45	14523245.46	39°59'23.4475"N	80°38'5.9881"W	451.66	161.050	0.75
4184.00	14.540	163.560	4116.96	-472.11	-448.61	153.06	1742657.83	14523224.04	39°59'23.2354"N	80°38'5.9072"W	474.00	161.161	0.35
4276.00	14.370	163.190	4206.05	-494.89	-470.62	159.63	1742664.40	14523202.04	39°59'23.0177"N	80°38'5.8239"W	496.95	161.264	0.21
4367.00	14.570	163.160	4294.16	-517.45	-492.38	166.21	1742670.98	14523180.29	39°59'22.8024"N	80°38'5.7405"W	519.68	161.347	0.22
4460.00	15.620	163.230	4383.95	-541.48	-515.57	173.21	1742677.98	14523157.11	39°59'22.5730"N	80°38'5.6518"W	543.88	161.430	1.13
4552.00	16.030	163.110	4472.47	-566.37	-539.58	180.48	1742685.24	14523133.11	39°59'22.3353"N	80°38'5.5597"W	568.96	161.506	0.45
4643.00	15.860	163.150	4559.97	-591.18	-563.50	187.73	1742692.49	14523109.19	39°59'22.0986"N	80°38'5.4678"W	593.95	161.575	0.19
4734.00	15.360	164.370	4647.61	-615.45	-587.01	194.58	1742699.34	14523085.70	39°59'21.8661"N	80°38'5.3810"W	618.42	161.661	0.66

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Slot	Slot 3H		

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4825.00	15.720	163.980	4735.28	-639.58	-610.47	201.23	1742705.99	14523062.25	39°59'21.6340"N	80°38'5.2968"W	642.78	161.756	0.41
4917.00	16.090	163.730	4823.76	-664.56	-634.68	208.24	1742713.00	14523038.04	39°59'21.3944"N	80°38'5.2080"W	667.97	161.835	0.41
5008.00	16.000	163.660	4911.22	-689.49	-658.82	215.30	1742720.05	14523013.91	39°59'21.1555"N	80°38'5.1185"W	693.11	161.903	0.10
5098.00	15.860	164.300	4997.76	-713.95	-682.57	222.12	1742726.87	14522990.18	39°59'20.9206"N	80°38'5.0322"W	717.80	161.974	0.25
5189.00	9.790	169.320	5086.45	-733.81	-702.16	226.92	1742731.67	14522970.59	39°59'20.7268"N	80°38'4.9715"W	737.92	162.090	6.78
5280.00	3.880	199.330	5176.79	-743.59	-712.68	227.34	1742732.09	14522960.08	39°59'20.6229"N	80°38'4.9667"W	748.06	162.308	7.38
5370.00	4.010	305.920	5266.66	-743.08	-713.71	223.78	1742728.53	14522959.05	39°59'20.6128"N	80°38'5.0125"W	747.97	162.591	7.03
5461.00	10.120	323.420	5356.94	-732.52	-705.41	216.43	1742721.18	14522967.34	39°59'20.6951"N	80°38'5.1065"W	737.87	162.943	7.04
5552.00	15.360	333.350	5445.68	-712.66	-688.20	206.25	1742711.01	14522984.54	39°59'20.8656"N	80°38'5.2364"W	718.45	163.317	6.22
5643.00	21.490	330.840	5531.97	-683.99	-662.85	192.71	1742697.47	14523009.88	39°59'21.1166"N	80°38'5.4090"W	690.30	163.789	6.79
5733.00	26.720	334.200	5614.10	-647.33	-630.22	175.86	1742680.63	14523042.51	39°59'21.4398"N	80°38'5.6238"W	654.29	164.408	6.01
5824.00	33.250	338.370	5692.89	-601.90	-588.56	157.74	1742662.51	14523084.15	39°59'21.8523"N	80°38'5.8544"W	609.33	164.997	7.53
5915.00	40.170	335.590	5765.80	-547.55	-538.58	136.39	1742641.17	14523134.11	39°59'22.3471"N	80°38'6.1261"W	555.58	165.789	7.82
6005.00	47.970	336.470	5830.41	-485.00	-481.41	111.01	1742615.80	14523191.26	39°59'22.9130"N	80°38'6.4492"W	494.04	167.015	8.69
6096.00	55.500	336.680	5886.73	-413.61	-415.89	82.63	1742587.43	14523256.75	39°59'23.5616"N	80°38'6.8103"W	424.02	168.763	8.28
6188.00	65.370	335.960	5932.07	-333.69	-342.71	50.51	1742555.32	14523329.90	39°59'24.2861"N	80°38'7.2191"W	346.41	171.616	10.75
6279.00	72.820	333.550	5964.52	-248.77	-265.90	14.24	1742519.07	14523406.68	39°59'25.0467"N	80°38'7.6811"W	266.28	176.934	8.55
6372.00	77.910	333.740	5988.01	-158.89	-185.29	-25.69	1742479.15	14523487.26	39°59'25.8448"N	80°38'8.1899"W	187.07	187.894	5.48
6463.00	87.600	337.260	5999.48	-68.75	-103.25	-63.05	1742441.81	14523569.27	39°59'26.6571"N	80°38'8.6655"W	120.98	211.411	11.32
6555.00	90.550	335.170	6000.96	23.23	-19.09	-100.14	1742404.73	14523653.40	39°59'27.4903"N	80°38'9.1377"W	101.95	259.209	3.93
6645.00	91.020	335.230	5999.73	113.21	62.61	-137.89	1742367.00	14523735.06	39°59'28.2992"N	80°38'9.6184"W	151.44	294.419	0.53
6736.00	90.980	335.510	5998.14	204.19	145.31	-175.81	1742329.09	14523817.73	39°59'29.1180"N	80°38'10.1012"W	228.09	309.575	0.31
6827.00	90.620	335.830	5996.87	295.18	228.22	-213.30	1742291.62	14523900.61	39°59'29.9389"N	80°38'10.5785"W	312.38	316.936	0.53
6917.00	90.740	335.790	5995.80	385.17	310.31	-250.17	1742254.76	14523982.67	39°59'30.7516"N	80°38'11.0480"W	398.60	321.125	0.14
7008.00	90.310	335.480	5994.97	476.16	393.21	-287.71	1742217.23	14524065.53	39°59'31.5723"N	80°38'11.5259"W	487.23	323.807	0.58
7098.00	90.650	335.300	5994.21	566.15	475.03	-325.19	1742179.77	14524147.32	39°59'32.3824"N	80°38'12.0032"W	575.67	325.606	0.43
7189.00	90.680	335.470	5993.16	657.14	557.75	-363.09	1742141.88	14524230.01	39°59'33.2014"N	80°38'12.4858"W	665.53	326.936	0.19
7281.00	90.460	335.390	5992.24	749.13	641.42	-401.34	1742103.65	14524313.64	39°59'34.0298"N	80°38'12.9729"W	756.63	327.965	0.25
7371.00	90.710	335.690	5991.32	839.12	723.34	-438.61	1742066.40	14524395.53	39°59'34.8408"N	80°38'13.4474"W	845.93	328.769	0.43
7462.00	91.020	336.390	5989.95	930.11	806.48	-475.56	1742029.46	14524478.65	39°59'35.6640"N	80°38'13.9178"W	936.25	329.474	0.84

REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
7554.00	91.140	334.300	5988.22	1022.08	890.08	-513.93	1741991.11	14524562.21	39°59'36.4916"N	80°38'14.4064"W	1027.79	329.998	2.28
7644.00	90.550	336.540	5986.89	1112.06	971.91	-551.36	1741953.69	14524644.01	39°59'37.3018"N	80°38'14.8830"W	1117.41	330.434	2.57
7736.00	90.490	335.860	5986.05	1204.06	1056.08	-588.48	1741916.58	14524728.15	39°59'38.1351"N	80°38'15.3556"W	1208.97	330.872	0.74
7829.00	90.800	334.790	5985.01	1297.04	1140.58	-627.30	1741877.78	14524812.61	39°59'38.9717"N	80°38'15.8500"W	1301.70	331.190	1.20
7920.00	89.690	333.920	5984.62	1388.00	1222.61	-666.69	1741838.41	14524894.61	39°59'39.7840"N	80°38'16.3517"W	1392.57	331.397	1.55
8011.00	91.850	336.430	5983.39	1478.97	1305.19	-704.88	1741800.23	14524977.15	39°59'40.6015"N	80°38'16.8382"W	1483.37	331.628	3.64
8102.00	88.980	334.350	5982.73	1569.95	1387.91	-742.77	1741762.35	14525059.84	39°59'41.4204"N	80°38'17.3207"W	1574.16	331.845	3.89
8194.00	92.650	336.380	5981.43	1661.91	1471.50	-781.11	1741724.03	14525143.41	39°59'42.2481"N	80°38'17.8089"W	1665.97	332.040	4.56
8285.00	89.510	336.100	5979.71	1752.88	1554.77	-817.76	1741687.39	14525226.64	39°59'43.0724"N	80°38'18.2755"W	1756.71	332.257	3.46
8377.00	89.940	335.580	5980.15	1844.88	1638.71	-855.42	1741649.75	14525310.54	39°59'43.9034"N	80°38'18.7549"W	1848.54	332.435	0.73
8467.00	91.690	335.670	5978.87	1934.87	1720.67	-892.56	1741612.63	14525392.48	39°59'44.7149"N	80°38'19.2279"W	1938.39	332.583	1.95
8559.00	90.430	334.320	5977.17	2026.83	1804.03	-931.44	1741573.76	14525475.80	39°59'45.5403"N	80°38'19.7231"W	2030.30	332.692	2.01
8650.00	91.690	336.040	5975.49	2117.80	1886.61	-969.63	1741535.59	14525558.35	39°59'46.3578"N	80°38'20.2095"W	2121.19	332.799	2.34
8742.00	91.390	334.170	5973.01	2209.75	1970.02	-1008.34	1741496.89	14525641.73	39°59'47.1837"N	80°38'20.7026"W	2213.08	332.895	2.06
8835.00	90.280	335.110	5971.66	2302.71	2054.05	-1048.17	1741457.08	14525725.73	39°59'48.0157"N	80°38'21.2099"W	2306.03	332.965	1.56
8925.00	92.250	337.680	5969.67	2392.67	2136.49	-1084.19	1741421.07	14525808.13	39°59'48.8318"N	80°38'21.6685"W	2395.84	333.094	3.60
9016.00	90.310	334.990	5967.64	2483.64	2219.80	-1120.70	1741384.57	14525891.41	39°59'49.6566"N	80°38'22.1333"W	2486.67	333.212	3.64
9106.00	92.060	336.130	5965.78	2573.61	2301.72	-1157.93	1741347.35	14525973.30	39°59'50.4676"N	80°38'22.6074"W	2576.57	333.294	2.32
9197.00	88.770	334.130	5965.12	2664.58	2384.26	-1196.19	1741309.11	14526055.81	39°59'51.2848"N	80°38'23.0948"W	2667.50	333.357	4.23
9287.00	90.520	335.900	5965.68	2754.56	2465.83	-1234.20	1741271.11	14526137.34	39°59'52.0924"N	80°38'23.5789"W	2757.46	333.411	2.77
9379.00	91.390	336.170	5964.14	2846.54	2549.89	-1271.57	1741233.76	14526221.37	39°59'52.9246"N	80°38'24.0547"W	2849.35	333.496	0.99
9471.00	91.050	336.480	5962.18	2938.52	2634.12	-1308.50	1741196.84	14526305.57	39°59'53.7585"N	80°38'24.5249"W	2941.22	333.584	0.50
9562.00	90.860	336.990	5960.67	3029.50	2717.71	-1344.44	1741160.92	14526389.13	39°59'54.5860"N	80°38'24.9823"W	3032.08	333.679	0.60
9653.00	90.770	336.630	5959.37	3120.48	2801.35	-1380.27	1741125.10	14526472.74	39°59'55.4140"N	80°38'25.4384"W	3122.93	333.770	0.41
9744.00	91.420	335.610	5957.63	3211.46	2884.54	-1417.10	1741088.29	14526555.90	39°59'56.2376"N	80°38'25.9073"W	3213.84	333.836	1.33
9834.00	91.230	336.590	5955.55	3301.44	2966.80	-1453.55	1741051.85	14526638.12	39°59'57.0519"N	80°38'26.3714"W	3303.75	333.898	1.11
9926.00	90.920	336.640	5953.83	3393.42	3051.23	-1490.06	1741015.35	14526722.52	39°59'57.8877"N	80°38'26.8362"W	3395.63	333.972	0.34
10016.00	89.110	336.690	5953.80	3483.41	3133.87	-1525.71	1740979.72	14526805.12	39°59'58.7058"N	80°38'27.2900"W	3485.53	334.041	2.01
10108.00	89.290	336.220	5955.09	3575.40	3218.20	-1562.46	1740942.98	14526889.42	39°59'59.5406"N	80°38'27.7578"W	3577.44	334.103	0.55
10199.00	89.280	336.970	5956.24	3666.39	3301.71	-1598.60	1740906.85	14526972.89	40°00'0.3673"N	80°38'28.2179"W	3668.35	334.165	0.82

REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
10291.00	89.450	336.900	5957.27	3758.37	3386.35	-1634.64	1740870.83	14527057.50	40°00'1.2051"N	80°38'28.6766"W	3760.24	334.233	0.22
10381.00	88.180	336.010	5959.14	3848.34	3468.83	-1670.59	1740834.90	14527139.96	40°00'2.0217"N	80°38'29.1342"W	3850.15	334.285	1.72
10473.00	90.620	338.380	5960.10	3940.31	3553.62	-1706.24	1740799.26	14527224.71	40°00'2.8611"N	80°38'29.5880"W	3942.02	334.352	3.70
10565.00	90.620	337.010	5959.10	4032.26	3638.73	-1741.15	1740764.36	14527309.79	40°00'3.7035"N	80°38'30.0322"W	4033.86	334.429	1.49
10654.00	90.000	336.790	5958.62	4121.25	3720.60	-1776.07	1740729.46	14527391.62	40°00'4.5139"N	80°38'30.4767"W	4122.77	334.482	0.74
10744.00	90.000	336.260	5958.62	4211.25	3803.15	-1811.92	1740693.62	14527474.14	40°00'5.3311"N	80°38'30.9331"W	4212.72	334.526	0.59
10835.00	91.290	336.240	5957.60	4302.24	3886.43	-1848.57	1740656.99	14527557.39	40°00'6.1556"N	80°38'31.3997"W	4303.67	334.562	1.42
10926.00	90.430	336.970	5956.23	4393.22	3969.94	-1884.70	1740620.87	14527640.87	40°00'6.9823"N	80°38'31.8596"W	4394.60	334.604	1.24
11017.00	89.780	335.780	5956.07	4484.22	4053.31	-1921.16	1740584.42	14527724.21	40°00'7.8077"N	80°38'32.3239"W	4485.56	334.640	1.49
11108.00	90.740	335.470	5955.65	4575.21	4136.20	-1958.72	1740546.88	14527807.06	40°00'8.6282"N	80°38'32.8022"W	4576.54	334.660	1.11
11198.00	90.310	337.190	5954.83	4665.20	4218.62	-1994.85	1740510.76	14527889.45	40°00'9.4442"N	80°38'33.2622"W	4666.50	334.692	1.97
11291.00	90.370	335.410	5954.28	4758.20	4303.77	-2032.23	1740473.40	14527974.57	40°00'10.2872"N	80°38'33.7382"W	4759.45	334.723	1.92
11381.00	90.990	336.910	5953.21	4848.19	4386.08	-2068.60	1740437.04	14528056.85	40°00'11.1020"N	80°38'34.2013"W	4849.42	334.750	1.80
11471.00	89.230	334.140	5953.04	4938.17	4467.99	-2105.88	1740399.77	14528138.72	40°00'11.9129"N	80°38'34.6762"W	4939.40	334.764	3.65
11562.00	90.180	335.950	5953.50	5029.15	4550.48	-2144.27	1740361.40	14528221.19	40°00'12.7297"N	80°38'35.1653"W	5030.39	334.769	2.25
11652.00	90.620	335.940	5952.88	5119.15	4632.67	-2180.96	1740324.73	14528303.34	40°00'13.5433"N	80°38'35.6324"W	5120.37	334.790	0.49
11742.00	89.880	336.240	5952.48	5209.15	4714.94	-2217.43	1740288.27	14528385.58	40°00'14.3578"N	80°38'36.0969"W	5210.34	334.812	0.89
11833.00	89.910	335.730	5952.65	5300.15	4798.06	-2254.47	1740251.24	14528468.67	40°00'15.1807"N	80°38'36.5686"W	5301.32	334.833	0.56
11925.00	91.050	336.730	5951.88	5392.14	4882.25	-2291.55	1740214.18	14528552.83	40°00'16.0141"N	80°38'37.0407"W	5393.29	334.856	1.65
12016.00	90.550	335.860	5950.61	5483.13	4965.57	-2328.13	1740177.61	14528636.11	40°00'16.8389"N	80°38'37.5065"W	5484.25	334.880	1.10
12106.00	90.950	336.080	5949.43	5573.12	5047.76	-2364.77	1740140.98	14528718.27	40°00'17.6526"N	80°38'37.9732"W	5574.23	334.898	0.51
12197.00	90.340	335.410	5948.41	5664.11	5130.72	-2402.15	1740103.62	14528801.20	40°00'18.4739"N	80°38'38.4493"W	5665.21	334.911	1.00
12289.00	90.950	336.150	5947.37	5756.11	5214.62	-2439.89	1740065.89	14528885.06	40°00'19.3045"N	80°38'38.9300"W	5757.20	334.925	1.04
12380.00	90.460	336.180	5946.25	5847.10	5297.85	-2476.66	1740029.14	14528968.26	40°00'20.1284"N	80°38'39.3982"W	5848.17	334.945	0.54
12470.00	90.890	336.050	5945.19	5937.09	5380.13	-2513.10	1739992.71	14529050.51	40°00'20.9430"N	80°38'39.8623"W	5938.14	334.962	0.50
12562.00	90.740	335.020	5943.88	6029.08	5463.86	-2551.20	1739954.63	14529134.21	40°00'21.7720"N	80°38'40.3476"W	6030.13	334.971	1.13
12653.00	91.380	336.330	5942.20	6120.06	5546.77	-2588.68	1739917.17	14529217.08	40°00'22.5928"N	80°38'40.8249"W	6121.10	334.982	1.60
12745.00	90.920	336.540	5940.35	6212.04	5631.08	-2625.45	1739880.41	14529301.36	40°00'23.4274"N	80°38'41.2931"W	6213.05	335.003	0.55
12835.00	90.430	334.580	5939.29	6302.02	5713.01	-2662.68	1739843.19	14529383.25	40°00'24.2385"N	80°38'41.7674"W	6303.04	335.011	2.24
12927.00	91.320	338.360	5937.89	6393.99	5797.33	-2699.40	1739806.49	14529467.55	40°00'25.0732"N	80°38'42.2350"W	6394.98	335.032	4.22



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
13018.00	88.890	333.750	5937.72	6484.96	5880.47	-2736.32	1739769.58	14529550.65	40°00'25.8963"N	80°38'42.7052"W	6485.94	335.046	5.73
13108.00	90.460	335.730	5938.23	6574.93	5961.86	-2774.72	1739731.19	14529632.01	40°00'26.7021"N	80°38'43.1945"W	6575.93	335.042	2.81
13200.00	89.720	335.910	5938.08	6666.93	6045.78	-2812.40	1739693.53	14529715.90	40°00'27.5329"N	80°38'43.6745"W	6667.92	335.053	0.83
13291.00	90.680	335.760	5937.77	6757.93	6128.81	-2849.66	1739656.29	14529798.89	40°00'28.3549"N	80°38'44.1489"W	6758.91	335.063	1.07
13381.00	90.830	335.980	5936.58	6847.92	6210.94	-2886.45	1739619.51	14529880.99	40°00'29.1679"N	80°38'44.6175"W	6848.89	335.074	0.30
13472.00	91.080	335.780	5935.06	6938.90	6293.98	-2923.63	1739582.35	14529964.00	40°00'29.9900"N	80°38'45.0911"W	6939.87	335.085	0.35
13565.00	90.890	335.450	5933.47	7031.89	6378.67	-2962.02	1739543.97	14530048.66	40°00'30.8285"N	80°38'45.5802"W	7032.85	335.092	0.41
13656.00	91.260	335.450	5931.76	7122.87	6461.43	-2999.82	1739506.18	14530131.39	40°00'31.6478"N	80°38'46.0617"W	7123.83	335.096	0.41
13748.00	91.350	335.690	5929.66	7214.84	6545.17	-3037.86	1739468.16	14530215.09	40°00'32.4768"N	80°38'46.5463"W	7215.81	335.102	0.28
13840.00	91.110	335.690	5927.69	7306.82	6628.99	-3075.73	1739430.31	14530298.88	40°00'33.3067"N	80°38'47.0287"W	7307.78	335.110	0.26
13933.00	91.260	336.480	5925.77	7399.80	6713.99	-3113.42	1739392.63	14530383.85	40°00'34.1481"N	80°38'47.5087"W	7400.75	335.122	0.86
14024.00	89.910	336.210	5924.84	7490.79	6797.34	-3149.93	1739356.14	14530467.16	40°00'34.9732"N	80°38'47.9737"W	7491.72	335.137	1.51
14115.00	92.280	336.300	5923.10	7581.76	6880.61	-3186.56	1739319.52	14530550.41	40°00'35.7976"N	80°38'48.4402"W	7582.68	335.150	2.61
14206.00	90.680	336.710	5920.75	7672.73	6964.04	-3222.83	1739283.27	14530633.80	40°00'36.6234"N	80°38'48.9020"W	7673.62	335.166	1.82
14298.00	89.850	336.360	5920.32	7764.72	7048.43	-3259.46	1739246.65	14530718.16	40°00'37.4588"N	80°38'49.3685"W	7765.59	335.182	0.98
14389.00	90.990	336.650	5919.65	7855.71	7131.88	-3295.74	1739210.38	14530801.58	40°00'38.2849"N	80°38'49.8305"W	7856.56	335.198	1.29
14480.00	90.340	336.810	5918.60	7946.70	7215.47	-3331.68	1739174.45	14530885.13	40°00'39.1124"N	80°38'50.2882"W	7947.52	335.215	0.74
14571.00	90.460	336.190	5917.96	8037.70	7298.92	-3367.97	1739138.18	14530968.55	40°00'39.9385"N	80°38'50.7503"W	8038.50	335.230	0.69
14664.00	90.400	335.540	5917.26	8130.69	7383.79	-3405.99	1739100.17	14531053.39	40°00'40.7787"N	80°38'51.2347"W	8131.49	335.237	0.70
14755.00	90.860	335.980	5916.26	8221.69	7466.76	-3443.35	1739062.82	14531136.33	40°00'41.6001"N	80°38'51.7106"W	8222.48	335.243	0.70
14846.00	91.140	335.740	5914.68	8312.67	7549.79	-3480.56	1739025.63	14531219.32	40°00'42.4221"N	80°38'52.1846"W	8313.46	335.250	0.41
14937.00	91.600	337.140	5912.50	8403.64	7633.18	-3516.93	1738989.28	14531302.68	40°00'43.2475"N	80°38'52.6477"W	8404.41	335.262	1.62
15027.00	91.140	335.210	5910.35	8493.61	7715.48	-3553.27	1738952.95	14531384.95	40°00'44.0623"N	80°38'53.1106"W	8494.37	335.272	2.20
15118.00	90.030	338.070	5909.42	8584.59	7799.01	-3589.34	1738916.89	14531468.44	40°00'44.8891"N	80°38'53.5700"W	8585.33	335.287	3.37
15209.00	92.030	335.870	5907.78	8675.55	7882.73	-3624.93	1738881.31	14531552.13	40°00'45.7179"N	80°38'54.0231"W	8676.27	335.304	3.27
15300.00	91.540	335.590	5904.95	8766.51	7965.65	-3662.32	1738843.94	14531635.02	40°00'46.5388"N	80°38'54.4994"W	8767.22	335.309	0.62
15391.00	90.550	335.380	5903.29	8857.49	8048.43	-3700.07	1738806.20	14531717.77	40°00'47.3583"N	80°38'54.9804"W	8858.20	335.311	1.11
15481.00	90.620	335.260	5902.37	8947.47	8130.21	-3737.65	1738768.64	14531799.51	40°00'48.1679"N	80°38'55.4592"W	8948.20	335.311	0.15
15572.00	90.950	336.060	5901.12	9038.46	8213.11	-3775.15	1738731.15	14531882.38	40°00'48.9886"N	80°38'55.9370"W	9039.19	335.314	0.95
15663.00	90.490	335.390	5899.98	9129.45	8296.05	-3812.56	1738693.76	14531965.30	40°00'49.8098"N	80°38'56.4135"W	9130.18	335.318	0.89

REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
15756.00	90.150	335.390	5899.46	9222.45	8380.61	-3851.29	1738655.05	14532049.81	40°00'50.6468"N	80°38'56.9070"W	9223.18	335.319	0.37
15848.00	89.170	336.310	5900.01	9314.44	8464.55	-3888.93	1738617.42	14532133.73	40°00'51.4778"N	80°38'57.3865"W	9315.17	335.324	1.46
15939.00	91.570	335.610	5899.42	9405.43	8547.65	-3925.99	1738580.37	14532216.79	40°00'52.3005"N	80°38'57.8587"W	9406.15	335.330	2.75
16032.00	89.970	336.690	5898.17	9498.42	8632.70	-3963.59	1738542.79	14532301.81	40°00'53.1424"N	80°38'58.3376"W	9499.13	335.338	2.08
16124.00	90.220	336.490	5898.02	9590.41	8717.12	-4000.14	1738506.25	14532386.20	40°00'53.9781"N	80°38'58.8031"W	9591.11	335.350	0.35
16215.00	91.200	336.140	5896.89	9681.41	8800.45	-4036.70	1738469.71	14532469.49	40°00'54.8030"N	80°38'59.2687"W	9682.09	335.359	1.14
16306.00	90.680	335.770	5895.40	9772.39	8883.54	-4073.77	1738432.65	14532552.55	40°00'55.6256"N	80°38'59.7410"W	9773.07	335.365	0.70
16397.00	90.370	335.880	5894.56	9863.39	8966.56	-4111.04	1738395.40	14532635.54	40°00'56.4474"N	80°39'0.2157"W	9864.06	335.369	0.36
16489.00	90.620	335.410	5893.77	9955.38	9050.37	-4148.97	1738357.48	14532719.31	40°00'57.2771"N	80°39'0.6991"W	9956.06	335.372	0.58
16580.00	90.740	336.450	5892.69	10046.37	9133.45	-4186.08	1738320.38	14532802.36	40°00'58.0996"N	80°39'1.1719"W	10047.05	335.377	1.15
16673.00	90.740	336.230	5891.49	10139.37	9218.62	-4223.40	1738283.08	14532887.50	40°00'58.9427"N	80°39'1.6473"W	10140.03	335.386	0.24
16763.00	90.250	336.050	5890.71	10229.36	9300.93	-4259.81	1738246.69	14532969.78	40°00'59.7575"N	80°39'2.1110"W	10230.01	335.392	0.58
16854.00	90.550	336.430	5890.07	10320.36	9384.21	-4296.47	1738210.04	14533053.03	40°01'0.5820"N	80°39'2.5780"W	10321.00	335.400	0.53
16945.00	90.250	336.290	5889.44	10411.35	9467.57	-4332.96	1738173.56	14533136.36	40°01'1.4072"N	80°39'3.0428"W	10411.99	335.408	0.36
17035.00	90.400	335.860	5888.93	10501.35	9549.84	-4369.46	1738137.08	14533218.59	40°01'2.2216"N	80°39'3.5078"W	10501.98	335.414	0.51
17126.00	90.430	336.140	5888.27	10592.35	9632.97	-4406.47	1738100.08	14533301.69	40°01'3.0445"N	80°39'3.9793"W	10592.97	335.419	0.31
17217.00	90.550	336.370	5887.49	10683.35	9716.26	-4443.11	1738063.46	14533384.95	40°01'3.8690"N	80°39'4.4460"W	10683.96	335.426	0.29
17308.00	90.620	336.310	5886.56	10774.34	9799.61	-4479.63	1738026.95	14533468.26	40°01'4.6941"N	80°39'4.9112"W	10774.94	335.434	0.10
17401.00	90.520	336.560	5885.64	10867.33	9884.85	-4516.81	1737989.79	14533553.47	40°01'5.5379"N	80°39'5.3848"W	10867.92	335.442	0.29
17492.00	90.400	336.020	5884.91	10958.33	9968.17	-4553.40	1737953.21	14533636.75	40°01'6.3627"N	80°39'5.8509"W	10958.91	335.449	0.61
17585.00	90.370	336.140	5884.28	11051.33	10053.18	-4591.10	1737915.52	14533721.73	40°01'7.2042"N	80°39'6.3312"W	11051.90	335.455	0.13
17677.00	90.460	336.330	5883.61	11143.32	10137.37	-4628.18	1737878.46	14533805.89	40°01'8.0377"N	80°39'6.8035"W	11143.89	335.461	0.23
17769.00	91.020	336.430	5882.43	11235.31	10221.66	-4665.04	1737841.62	14533890.15	40°01'8.8720"N	80°39'7.2730"W	11235.87	335.469	0.62
17860.00	91.380	336.290	5880.52	11326.29	10305.00	-4701.52	1737805.15	14533973.46	40°01'9.6971"N	80°39'7.7378"W	11326.84	335.476	0.42
17950.00	91.140	336.120	5878.54	11416.27	10387.33	-4737.82	1737768.86	14534055.76	40°01'10.5121"N	80°39'8.2002"W	11416.81	335.482	0.33
18041.00	90.340	337.200	5877.37	11507.26	10470.88	-4773.87	1737732.83	14534139.27	40°01'11.3391"N	80°39'8.6594"W	11507.78	335.491	1.48
18132.00	90.250	339.850	5876.90	11598.16	10555.55	-4807.18	1737699.53	14534223.91	40°01'12.1771"N	80°39'9.0833"W	11598.65	335.515	2.91
18223.00	91.290	340.470	5875.67	11688.92	10641.14	-4838.06	1737668.66	14534309.47	40°01'13.0241"N	80°39'9.4760"W	11689.34	335.551	1.33
18314.00	89.380	340.480	5875.14	11779.64	10726.90	-4868.48	1737638.26	14534395.19	40°01'13.8728"N	80°39'9.8626"W	11780.00	335.589	2.10
18404.00	90.490	339.900	5875.24	11869.40	10811.57	-4898.98	1737607.77	14534479.83	40°01'14.7107"N	80°39'10.2504"W	11869.71	335.624	1.39



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
18495.00	90.830	340.290	5874.20	11960.17	10897.13	-4929.96	1737576.80	14534565.36	40°01'15.5574"N	80°39'10.6443"W	11960.43	335.658	0.57
18587.00	90.710	340.660	5872.96	12051.88	10983.83	-4960.70	1737546.07	14534652.03	40°01'16.4154"N	80°39'11.0351"W	12052.10	335.694	0.42
18678.00	91.450	339.920	5871.24	12142.61	11069.48	-4991.39	1737515.40	14534737.64	40°01'17.2630"N	80°39'11.4252"W	12142.79	335.729	1.15
18769.00	89.750	340.070	5870.29	12233.39	11154.99	-5022.51	1737484.28	14534823.11	40°01'18.1092"N	80°39'11.8211"W	12233.53	335.760	1.88
18859.00	92.280	340.610	5868.70	12323.11	11239.72	-5052.79	1737454.02	14534907.81	40°01'18.9477"N	80°39'12.2059"W	12323.23	335.794	2.87
18950.00	91.110	339.960	5866.01	12413.82	11325.35	-5083.47	1737423.35	14534993.40	40°01'19.7951"N	80°39'12.5961"W	12413.91	335.827	1.47
19040.00	90.920	340.260	5864.41	12503.58	11409.96	-5114.08	1737392.74	14535077.99	40°01'20.6324"N	80°39'12.9853"W	12503.64	335.857	0.39
19132.00	90.890	340.230	5862.96	12595.32	11496.54	-5145.18	1737361.66	14535164.53	40°01'21.4892"N	80°39'13.3807"W	12595.37	335.890	0.05
19223.00	90.890	340.100	5861.54	12686.08	11582.13	-5176.05	1737330.80	14535250.09	40°01'22.3362"N	80°39'13.7732"W	12686.10	335.920	0.14
19314.00	90.830	339.660	5860.18	12776.86	11667.57	-5207.35	1737299.52	14535335.49	40°01'23.1817"N	80°39'14.1713"W	12776.88	335.948	0.49
19405.00	91.050	340.550	5858.69	12867.62	11753.12	-5238.31	1737268.56	14535421.01	40°01'24.0284"N	80°39'14.5650"W	12867.63	335.978	1.01
19497.00	90.950	339.650	5857.08	12959.37	11839.61	-5269.62	1737237.27	14535507.47	40°01'24.8843"N	80°39'14.9631"W	12959.37	336.007	0.98
19588.00	91.020	337.570	5855.52	13050.26	11924.33	-5302.80	1737204.10	14535592.16	40°01'25.7228"N	80°39'15.3854"W	13050.26	336.025	2.29
19680.00	91.020	335.790	5853.88	13142.24	12008.80	-5339.22	1737167.70	14535676.59	40°01'26.5589"N	80°39'15.8493"W	13142.24	336.030	1.93
19770.00	90.990	334.410	5852.30	13232.21	12090.42	-5377.10	1737129.83	14535758.18	40°01'27.3669"N	80°39'16.3322"W	13232.21	336.023	1.53
19861.00	90.920	331.800	5850.78	13323.07	12171.56	-5418.26	1737088.69	14535839.28	40°01'28.1703"N	80°39'16.8572"W	13323.07	336.003	2.87
19951.00	90.980	330.650	5849.29	13412.74	12250.43	-5461.58	1737045.39	14535918.13	40°01'28.9514"N	80°39'17.4101"W	13412.75	335.971	1.28
20042.00	90.860	330.120	5847.83	13503.28	12329.53	-5506.54	1737000.44	14535997.20	40°01'29.7349"N	80°39'17.9841"W	13503.31	335.934	0.60
20133.00	90.890	329.750	5846.44	13593.76	12408.28	-5552.12	1736954.88	14536075.92	40°01'30.5148"N	80°39'18.5661"W	13593.80	335.894	0.41
20225.00	90.370	330.090	5845.43	13685.23	12487.88	-5598.23	1736908.79	14536155.49	40°01'31.3032"N	80°39'19.1548"W	13685.30	335.854	0.68
20315.00	90.400	330.230	5844.82	13774.75	12565.95	-5643.01	1736864.02	14536233.52	40°01'32.0764"N	80°39'19.7266"W	13774.86	335.817	0.16
20406.00	90.460	330.170	5844.14	13865.28	12644.91	-5688.24	1736818.82	14536312.46	40°01'32.8585"N	80°39'20.3040"W	13865.42	335.780	0.09
20498.00	90.460	330.250	5843.40	13956.80	12724.75	-5733.94	1736773.13	14536392.27	40°01'33.6492"N	80°39'20.8875"W	13956.99	335.743	0.09
20590.00	90.430	330.430	5842.69	14048.34	12804.70	-5779.47	1736727.62	14536472.18	40°01'34.4410"N	80°39'21.4688"W	14048.58	335.708	0.20
20681.00	90.310	330.050	5842.10	14138.87	12883.69	-5824.64	1736682.47	14536551.15	40°01'35.2234"N	80°39'22.0455"W	14139.16	335.673	0.44
20772.00	90.490	330.400	5841.46	14229.40	12962.68	-5869.82	1736637.30	14536630.10	40°01'36.0056"N	80°39'22.6224"W	14229.75	335.638	0.43
20863.00	90.490	332.320	5840.69	14320.09	13042.54	-5913.44	1736593.70	14536709.93	40°01'36.7965"N	80°39'23.1791"W	14320.49	335.611	2.11
20955.00	90.490	334.410	5839.90	14411.98	13124.77	-5954.68	1736552.48	14536792.12	40°01'37.6107"N	80°39'23.7052"W	14412.41	335.596	2.27
21045.00	90.430	336.140	5839.18	14501.97	13206.51	-5992.32	1736514.85	14536873.84	40°01'38.4199"N	80°39'24.1850"W	14502.41	335.594	1.92
21136.00	90.460	336.100	5838.47	14592.97	13289.72	-6029.16	1736478.03	14536957.01	40°01'39.2436"N	80°39'24.6544"W	14593.40	335.598	0.05

REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH DATA (259 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]
21227.00	90.370	336.210	5837.81	14683.96	13372.95	-6065.94	1736441.26	14537040.21	40°01'40.0675"N	80°39'25.1232"W	14684.39	335.601	0.16
21317.00	90.340	336.250	5837.25	14773.96	13455.31	-6102.22	1736405.00	14537122.54	40°01'40.8828"N	80°39'25.5854"W	14774.39	335.605	0.06
21408.00	90.430	336.120	5836.64	14864.96	13538.56	-6138.96	1736368.27	14537205.76	40°01'41.7069"N	80°39'26.0536"W	14865.38	335.608	0.17
21499.00	90.460	336.330	5835.93	14955.95	13621.84	-6175.65	1736331.60	14537289.00	40°01'42.5312"N	80°39'26.5211"W	14956.37	335.612	0.23
21590.00	90.400	336.200	5835.25	15046.95	13705.14	-6212.27	1736294.98	14537372.27	40°01'43.3558"N	80°39'26.9878"W	15047.36	335.616	0.16
21681.00	90.400	336.150	5834.62	15137.95	13788.38	-6249.03	1736258.24	14537455.48	40°01'44.1798"N	80°39'27.4562"W	15138.36	335.619	0.05
21773.00	90.460	336.070	5833.93	15229.95	13872.50	-6286.29	1736221.00	14537539.56	40°01'45.0125"N	80°39'27.9310"W	15230.35	335.622	0.11
21865.00	90.580	336.240	5833.09	15321.94	13956.64	-6323.48	1736183.82	14537623.67	40°01'45.8454"N	80°39'28.4049"W	15322.34	335.626	0.23
21955.00	90.460	336.360	5832.27	15411.94	14039.05	-6359.65	1736147.66	14537706.05	40°01'46.6612"N	80°39'28.8659"W	15412.33	335.630	0.19
22046.00	90.120	336.230	5831.81	15502.94	14122.37	-6396.24	1736111.09	14537789.33	40°01'47.4859"N	80°39'29.3321"W	15503.33	335.633	0.40
22137.00	90.060	336.340	5831.67	15593.93	14205.68	-6432.84	1736074.51	14537872.62	40°01'48.3107"N	80°39'29.7984"W	15594.32	335.637	0.14
22228.00	90.120	336.350	5831.53	15684.93	14289.04	-6469.35	1736038.01	14537955.94	40°01'49.1358"N	80°39'30.2637"W	15685.31	335.641	0.07
22319.00	90.060	336.130	5831.38	15775.93	14372.32	-6506.01	1736001.36	14538039.19	40°01'49.9602"N	80°39'30.7309"W	15776.31	335.645	0.25
22410.00	90.030	336.070	5831.31	15866.93	14455.52	-6542.88	1735964.50	14538122.36	40°01'50.7838"N	80°39'31.2008"W	15867.30	335.647	0.07
22501.00	90.030	336.160	5831.27	15957.93	14538.73	-6579.73	1735927.67	14538205.53	40°01'51.6075"N	80°39'31.6703"W	15958.30	335.650	0.10
22589.00	90.000	336.110	5831.24	16045.93	14619.20	-6615.33	1735892.08	14538285.98	40°01'52.4041"N	80°39'32.1241"W	16046.30	335.653	0.07
22679.00	90.120	336.410	5831.15	16135.93	14701.59	-6651.56	1735855.87	14538368.33	40°01'53.2196"N	80°39'32.5858"W	16136.29	335.656	0.36
22730.00	90.060	336.350	5831.07	16186.93	14748.31	-6672.00	1735835.44	14538415.04	40°01'53.6821"N	80°39'32.8462"W	16187.29	335.658	0.17
22755.00‡	90.060	336.350	5831.04	16211.93	14771.21	-6682.03	1735825.41	14538437.93	40°01'53.9088"N	80°39'32.9740"W	16212.29	335.660	0.00



Actual Wellpath Report

Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'
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Environmental Protection



REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Betty Schafer MSH 3H BHL Rev-2	5772.32	14769.97	-6684.83	1735822.61	14538436.68	40°01'53.8966"N	80°39'33.0101"W	point
Betty Schafer MSH 3H Waypoint#4	5806.40	12537.19	-5692.89	1736814.16	14536204.78	40°01'31.7942"N	80°39'20.3692"W	point
Betty Schafer MSH 3H Waypoint#3	5812.40	12100.78	-5388.96	1737117.98	14535768.54	40°01'27.4698"N	80°39'16.4840"W	point
Betty Schafer MSH 3H Waypoint#2	5814.40	11965.49	-5323.56	1737183.35	14535633.30	40°01'26.1303"N	80°39'15.6502"W	point
Betty Schafer MSH 3H Waypoint#1	5825.40	11339.07	-5160.24	1737346.61	14535007.12	40°01'19.9336"N	80°39'13.5821"W	point
Betty Schafer MSH 3H_Hard Line Parcel 16-1-56 Rev-1	5999.30	12028.84	-5549.21	1736957.79	14535696.62	40°01'26.7650"N	80°39'18.5476"W	polygon
	2D Polygon: dimensions not calculated							
Betty Schafer MSH 3H LP Rev-2	6004.40	-77.96	-87.59	1742417.28	14523594.54	39°59'26.9080"N	80°38'8.9795"W	point
Betty Schafer MSH 3H LP Rev 3	6005.00	-77.96	-87.59	1742417.28	14523594.54	39°59'26.9080"N	80°38'8.9795"W	point

REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Betty Schafer MSH 3H
Field	Marshall WV	API/Legal	
Facility	Betty Schafer MSH Pad	Wellbore	Betty Schafer MSH 3H AWB
Slot	Slot 3H		

WELLPATH COMPOSITION - Ref Wellbore: Betty Schafer MSH 3H AWB Ref Wellpath: Betty Schafer MSH 3H awp 50' - 22730' Proj: 22755'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	394.00	BH Generic gyro - northseeking (Standard)	1 Gyro 50' - 394'	Betty Schafer MSH 3H AWB	1/27/2022
394.00	1670.00	OWSG MWD rev2 + HRGM	2 12 1.25 Tally MWD 446' - 1670'	Betty Schafer MSH 3H AWB	1/27/2022
1670.00	3475.00	OWSG MWD rev2 + HRGM	3 8.75 Tally MWD 1744' - 3475'	Betty Schafer MSH 3H AWB	1/31/2022
3475.00	22755.00	BH AutoTrak Curve/eXpress (2019) (HRGM, Short spacing)	4 8.75 BH MWD 3548' - 22730'	Betty Schafer MSH 3H AWB	1/31/2022



Southwestern Energy®

Well Name: **BETTY SCHAFER MSH 3H**

47051024170000

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)	1946.00	1942.00	1966.00	1962.00	?
Rhinestreet (shale)	5421.00	5317.00	5801.00	5673.00	?
Cashaqua (shale)	5801.00	5673.00	5992.00	5821.00	?
Burket (shale)	5992.00	5821.00	6024.00	5842.00	?
Tully (ls)	6024.00	5842.00	6078.00	5875.00	?
Mahantango (shale)	6078.00	5875.00	6310.00	5972.00	?
Marcellus (shale)	6310.00	5972.00	NA	NA	?