



SWN PRODUCTION COMPANY, LLC



Location: Marshall County, WV
 Field: Marshall
 Facility: Sonia R MSH Pad

Slot: 5H
 Well: Sonia R MSH 5H
 Wellbore: Sonia R MSH 5H AWB

Plot reference wellpath is Sonia R MSH 5H awp Proj: 20219'	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 501 (KB)	North Reference: Grid north
Reference wellpath measured depths are referenced to SDC 501 (KB)	Scale: True distance
SDC 501 (KB) to Mean Sea Level: 1559.19 feet	Coordinates are in feet referenced to Slot
Mean Sea Level to Ground level (At Slot: 5H): -1533.19 feet	Depths are in feet
Offset wellpath MDs are referenced to each path's default MD datum	Created by: tranlam on 2023-05-02; Database: WA_MPL_EASTERNUS_Defn

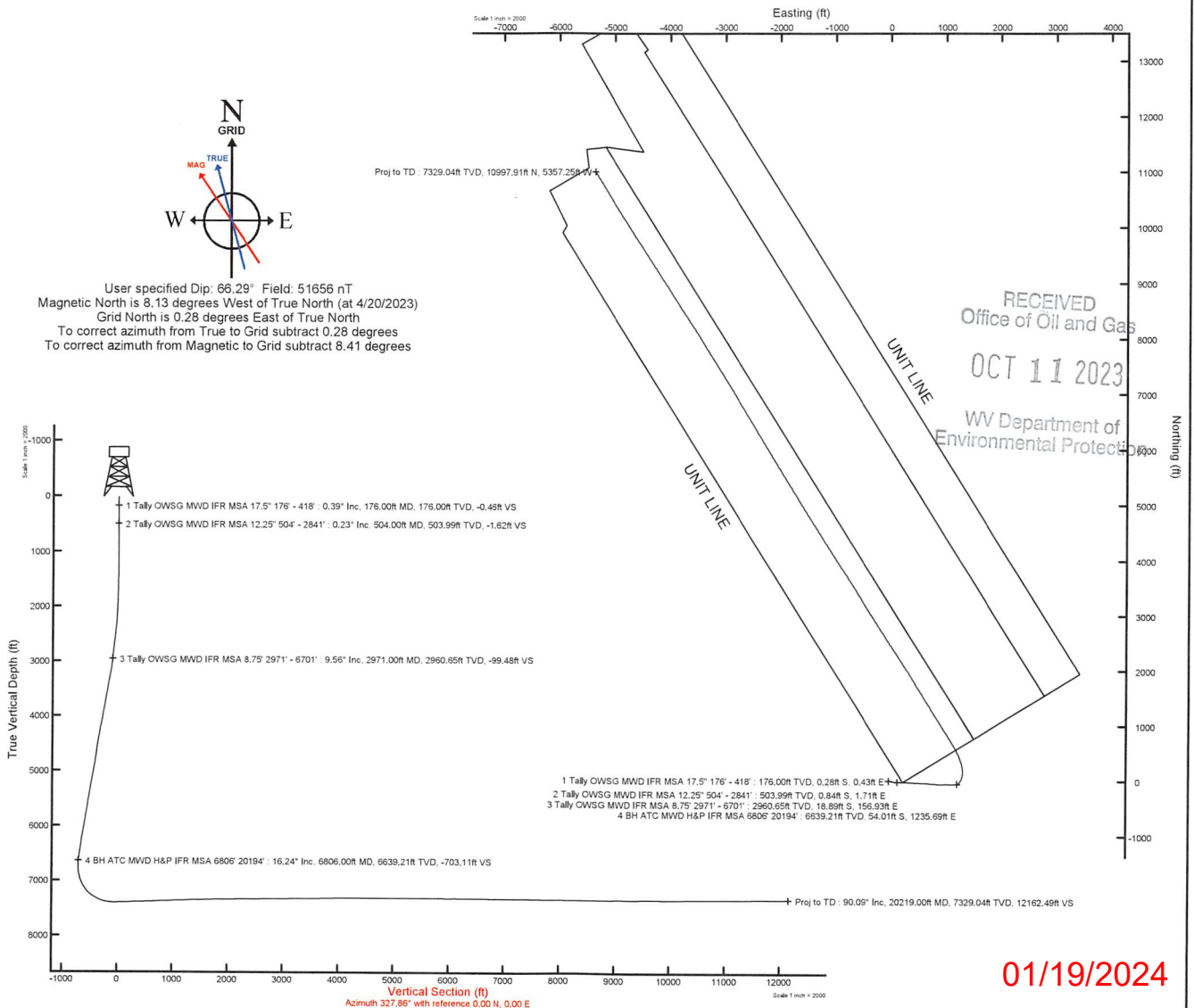
Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Sonia R MSH Pad			1761649.920	14449606.900	39°47'14.6011"N	80°34'6.3807"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
5H	-9.64	-2.17	1761647.750	14449597.260	39°47'14.5059"N	80°34'6.4091"W
SDC 501 (KB) to Ground level (At Slot: 5H)					26ft	
Mean Sea Level to Ground level (At Slot: 5H)					-1533.19ft	
SDC 501 (KB) to Mean Sea Level					1559.19ft	

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
20219.00	90.090	327.640	7329.04	10997.91	-5357.25	1756292.57	14460590.93	39°49'3.4431"N	80°35'14.3851"W

API: 47051024660000
 BH JOB: 111750381
 DURATION: 04.25.2023 to 04.29.2023
 RIG: SDC 501



01/19/2024



Actual Wellpath Report

Sonia R MSH 5H awp Proj: 20219'
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WV Department of
Environmental Protection



REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Sonia R MSH 5H
Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

REPORT SETUP INFORMATION			
Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Tranlam
Scale	0.999617	Report Generated	5/2/2023 at 4:43:31 PM
Convergence at slot	0.28° 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	-9.64	-2.17	1761647.75	14449597.26	39°47'14.5059"N	80°34'6.4091"W
Facility Reference Pt			1761649.92	14449606.90	39°47'14.6011"N	80°34'6.3807"W
Field Reference Pt			0.00	0.00	0°00'0.0000"	85°29'19.4780"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 501 (KB) to Facility Vertical Datum	1559.19ft
Horizontal Reference Pt	Slot	SDC 501 (KB) to Mean Sea Level	1559.19ft
Vertical Reference Pt	SDC 501 (KB)	SDC 501 (KB) to Ground Level at Slot (5H)	26.00ft
MD Reference Pt	SDC 501 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	327.86°

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Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

WELLPATH DATA (221 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]	Comments
0.00†	0.000	122.840	0.00	0.00	0.00	0.00	1761647.75	14449597.26	39°47'14.5059"N	80°34'6.4091"W	0.00	0.000	0.00	
26.00	0.000	122.840	26.00	0.00	0.00	0.00	1761647.75	14449597.26	39°47'14.5059"N	80°34'6.4091"W	0.00	0.000	0.00	
176.00	0.390	122.840	176.00	-0.46	-0.28	0.43	1761648.18	14449596.98	39°47'14.5032"N	80°34'6.4036"W	0.51	122.840	0.26	
236.00	0.440	117.040	236.00	-0.85	-0.49	0.81	1761648.56	14449596.77	39°47'14.5010"N	80°34'6.3988"W	0.94	121.427	0.11	
325.00	0.260	122.640	325.00	-1.32	-0.76	1.28	1761649.03	14449596.50	39°47'14.4984"N	80°34'6.3927"W	1.49	120.585	0.21	
418.00	0.080	120.110	418.00	-1.57	-0.90	1.51	1761649.26	14449596.36	39°47'14.4969"N	80°34'6.3898"W	1.76	120.813	0.19	
504.00	0.230	57.820	503.99	-1.62	-0.84	1.71	1761649.46	14449596.42	39°47'14.4975"N	80°34'6.3872"W	1.91	116.166	0.24	
597.00	0.200	79.700	596.99	-1.68	-0.71	2.03	1761649.78	14449596.55	39°47'14.4988"N	80°34'6.3831"W	2.15	109.349	0.09	
688.00	0.200	354.550	687.99	-1.60	-0.53	2.17	1761649.92	14449596.73	39°47'14.5006"N	80°34'6.3813"W	2.23	103.626	0.30	
779.00	0.330	23.560	778.99	-1.31	-0.13	2.26	1761650.01	14449597.13	39°47'14.5046"N	80°34'6.3801"W	2.26	93.238	0.20	
870.00	0.660	0.030	869.99	-0.72	0.64	2.37	1761650.11	14449597.90	39°47'14.5121"N	80°34'6.3788"W	2.45	74.942	0.42	
961.00	0.410	67.630	960.99	-0.33	1.28	2.67	1761650.42	14449598.54	39°47'14.5185"N	80°34'6.3749"W	2.96	64.283	0.69	
1052.00	0.950	138.340	1051.98	-1.13	0.84	3.47	1761651.22	14449598.10	39°47'14.5141"N	80°34'6.3646"W	3.57	76.316	0.99	
1126.00	1.050	151.690	1125.97	-2.41	-0.21	4.20	1761651.95	14449597.05	39°47'14.5037"N	80°34'6.3553"W	4.20	92.870	0.34	
1235.00	0.770	96.350	1234.96	-3.86	-1.17	5.40	1761653.15	14449596.09	39°47'14.4941"N	80°34'6.3400"W	5.53	102.232	0.81	
1326.00	1.250	46.960	1325.94	-4.06	-0.56	6.73	1761654.48	14449596.70	39°47'14.5001"N	80°34'6.3229"W	6.76	94.762	1.04	
1416.00	1.150	65.220	1415.93	-3.99	0.49	8.27	1761656.02	14449597.75	39°47'14.5104"N	80°34'6.3031"W	8.29	86.626	0.44	
1507.00	1.130	91.010	1506.91	-4.59	0.85	10.00	1761657.74	14449598.11	39°47'14.5139"N	80°34'6.2810"W	10.03	85.114	0.56	
1597.00	1.310	92.740	1596.89	-5.67	0.79	11.91	1761659.66	14449598.05	39°47'14.5132"N	80°34'6.2565"W	11.94	86.207	0.20	
1689.00	1.320	79.440	1688.86	-6.66	0.93	14.00	1761661.75	14449598.19	39°47'14.5145"N	80°34'6.2296"W	14.04	86.186	0.33	
1780.00	1.760	93.390	1779.83	-7.86	1.04	16.43	1761664.17	14449598.30	39°47'14.5155"N	80°34'6.1986"W	16.46	86.367	0.63	
1870.00	2.710	107.650	1869.76	-10.29	0.32	19.84	1761667.58	14449597.58	39°47'14.5081"N	80°34'6.1550"W	19.84	89.087	1.22	
1961.00	3.330	110.630	1960.63	-14.03	-1.27	24.36	1761672.10	14449595.99	39°47'14.4923"N	80°34'6.0971"W	24.39	92.978	0.70	
2052.00	3.420	110.990	2051.48	-18.31	-3.17	29.37	1761677.11	14449594.09	39°47'14.4732"N	80°34'6.0331"W	29.54	96.162	0.10	
2143.00	3.850	105.660	2142.29	-22.74	-4.97	34.84	1761682.58	14449592.29	39°47'14.4552"N	80°34'5.9631"W	35.20	98.114	0.60	
2233.00	5.280	98.320	2232.01	-27.67	-6.38	41.85	1761689.59	14449590.88	39°47'14.4409"N	80°34'5.8734"W	42.34	98.671	1.71	
2323.00	7.290	94.990	2321.46	-33.80	-7.48	51.64	1761699.37	14449589.78	39°47'14.4296"N	80°34'5.7481"W	52.18	98.241	2.27	
2414.00	8.570	94.690	2411.59	-41.35	-8.54	64.15	1761711.87	14449588.73	39°47'14.4185"N	80°34'5.5879"W	64.71	97.579	1.41	
2505.00	8.780	100.320	2501.55	-50.11	-10.33	77.74	1761725.46	14449586.93	39°47'14.4001"N	80°34'5.4139"W	78.42	97.572	0.96	
2596.00	10.090	100.850	2591.32	-60.23	-13.08	92.40	1761740.12	14449584.19	39°47'14.3723"N	80°34'5.2263"W	93.32	98.056	1.44	

REFERENCE WELLPATH IDENTIFICATION

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Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

WELLPATH DATA (221 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]	Comments
2687.00	10.120	100.410	2680.91	-71.07	-16.02	108.09	1761755.80	14449581.24	39°47'14.3424"N	80°34'5.0254"W	109.27	98.432	0.09	
2777.00	10.210	94.190	2769.50	-81.15	-18.04	123.83	1761771.53	14449579.23	39°47'14.3218"N	80°34'4.8240"W	125.13	98.287	1.22	
2841.00	9.890	91.920	2832.51	-87.58	-18.63	134.98	1761782.67	14449578.63	39°47'14.3154"N	80°34'4.6812"W	136.26	97.860	0.80	
2971.00	9.560	89.400	2960.65	-99.48	-18.89	156.93	1761804.62	14449578.37	39°47'14.3117"N	80°34'4.4000"W	158.06	96.866	0.41	
3063.00	14.500	92.690	3050.60	-110.06	-19.36	176.08	1761823.77	14449577.91	39°47'14.3063"N	80°34'4.1547"W	177.15	96.273	5.42	
3154.00	15.970	92.960	3138.40	-123.77	-20.54	199.97	1761847.64	14449576.73	39°47'14.2934"N	80°34'3.8488"W	201.02	95.864	1.62	
3245.00	17.850	91.300	3225.46	-138.66	-21.50	226.42	1761874.08	14449575.77	39°47'14.2827"N	80°34'3.5101"W	227.43	95.424	2.13	
3336.00	18.290	89.580	3311.97	-153.85	-21.71	254.64	1761902.29	14449575.56	39°47'14.2792"N	80°34'3.1486"W	255.56	94.874	0.76	
3427.00	17.610	90.470	3398.54	-168.78	-21.72	282.68	1761930.32	14449575.55	39°47'14.2778"N	80°34'2.7893"W	283.52	94.394	0.81	
3518.00	17.020	90.180	3485.42	-183.31	-21.87	309.77	1761957.40	14449575.39	39°47'14.2750"N	80°34'2.4424"W	310.54	94.039	0.66	
3608.00	17.850	93.600	3571.29	-198.41	-22.78	336.70	1761984.32	14449574.49	39°47'14.2647"N	80°34'2.0974"W	337.47	93.871	1.46	
3699.00	17.430	93.190	3658.01	-214.44	-24.42	364.23	1762011.84	14449572.85	39°47'14.2473"N	80°34'1.7449"W	365.05	93.835	0.48	
3789.00	17.090	91.260	3743.95	-229.52	-25.46	390.91	1762038.51	14449571.81	39°47'14.2357"N	80°34'1.4032"W	391.74	93.726	0.74	
3881.00	17.330	91.270	3831.83	-244.50	-26.06	418.13	1762065.71	14449571.21	39°47'14.2285"N	80°34'1.0546"W	418.94	93.566	0.26	
3973.00	17.990	93.300	3919.50	-260.29	-27.18	446.01	1762093.59	14449570.09	39°47'14.2160"N	80°34'0.6975"W	446.84	93.487	0.98	
4065.00	17.790	91.380	4007.05	-276.29	-28.34	474.24	1762121.81	14449568.93	39°47'14.2033"N	80°34'0.3359"W	475.09	93.419	0.68	
4157.00	17.410	93.700	4094.75	-292.11	-29.56	502.03	1762149.59	14449567.71	39°47'14.1898"N	80°33'59.9800"W	502.90	93.370	0.87	
4247.00	16.480	94.730	4180.84	-307.65	-31.48	528.19	1762175.73	14449565.79	39°47'14.1696"N	80°33'59.6451"W	529.13	93.411	1.09	
4339.00	17.220	94.110	4268.89	-323.53	-33.54	554.78	1762202.31	14449563.74	39°47'14.1480"N	80°33'59.3046"W	555.79	93.459	0.83	
4430.00	17.520	94.500	4355.74	-339.67	-35.58	581.87	1762229.39	14449561.70	39°47'14.1266"N	80°33'58.9577"W	582.95	93.499	0.35	
4521.00	16.310	88.880	4442.81	-354.43	-36.40	608.30	1762255.82	14449560.87	39°47'14.1171"N	80°33'58.6191"W	609.39	93.425	2.23	
4613.00	14.920	91.400	4531.41	-367.63	-36.44	633.06	1762280.56	14449560.84	39°47'14.1156"N	80°33'58.3020"W	634.10	93.294	1.68	
4703.00	13.900	89.720	4618.58	-379.74	-36.67	655.45	1762302.95	14449560.61	39°47'14.1123"N	80°33'58.0152"W	656.48	93.202	1.22	
4793.00	13.740	87.940	4705.97	-390.81	-36.23	676.94	1762324.43	14449561.04	39°47'14.1155"N	80°33'57.7398"W	677.91	93.064	0.50	
4884.00	13.970	95.880	4794.33	-402.99	-36.97	698.67	1762346.15	14449560.31	39°47'14.1072"N	80°33'57.4615"W	699.65	93.029	2.10	
4977.00	14.520	100.360	4884.47	-417.78	-40.22	721.31	1762368.78	14449557.06	39°47'14.0740"N	80°33'57.1718"W	722.43	93.191	1.32	
5068.00	15.950	97.700	4972.28	-433.50	-43.94	744.92	1762392.38	14449553.33	39°47'14.0361"N	80°33'56.8695"W	746.22	93.376	1.75	
5160.00	16.760	92.250	5060.56	-449.09	-46.16	770.70	1762418.16	14449551.12	39°47'14.0130"N	80°33'56.5394"W	772.08	93.427	1.89	
5250.00	15.950	92.830	5146.91	-463.51	-47.28	796.02	1762443.46	14449550.00	39°47'14.0007"N	80°33'56.2151"W	797.42	93.399	0.92	
5341.00	15.680	94.910	5234.47	-478.08	-48.95	820.76	1762468.20	14449548.33	39°47'13.9830"N	80°33'55.8983"W	822.22	93.413	0.69	

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Slot	5H			

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5433.00	17.220	96.500	5322.70	-494.08	-51.55	846.68	1762494.10	14449545.73	39°47'13.9560"N	80°33'55.5665"W	848.25	93.484	1.74	
5524.00	16.160	94.180	5409.87	-509.99	-54.00	872.69	1762520.11	14449543.28	39°47'13.9306"N	80°33'55.2334"W	874.36	93.541	1.38	
5615.00	15.390	92.310	5497.44	-524.32	-55.41	897.39	1762544.79	14449541.87	39°47'13.9154"N	80°33'54.9171"W	899.10	93.533	1.01	
5707.00	16.200	88.430	5585.97	-537.75	-55.55	922.42	1762569.81	14449541.73	39°47'13.9128"N	80°33'54.5965"W	924.09	93.446	1.45	
5797.00	17.780	88.620	5672.04	-551.17	-54.88	948.71	1762596.09	14449542.41	39°47'13.9183"N	80°33'54.2597"W	950.29	93.310	1.76	
5886.00	18.230	89.980	5756.68	-565.52	-54.54	976.21	1762623.59	14449542.74	39°47'13.9202"N	80°33'53.9074"W	977.74	93.198	0.69	
5974.00	16.610	89.080	5840.64	-579.36	-54.34	1002.56	1762649.92	14449542.94	39°47'13.9210"N	80°33'53.5699"W	1004.03	93.102	1.87	
6066.00	16.730	88.490	5928.78	-592.92	-53.78	1028.94	1762676.29	14449543.50	39°47'13.9253"N	80°33'53.2319"W	1030.34	92.992	0.23	
6156.00	17.440	90.780	6014.80	-606.85	-53.62	1055.38	1762702.72	14449543.66	39°47'13.9256"N	80°33'52.8933"W	1056.74	92.908	1.09	
6247.00	16.660	94.000	6101.81	-621.96	-54.71	1082.02	1762729.36	14449542.57	39°47'13.9134"N	80°33'52.5519"W	1083.41	92.895	1.35	
6338.00	16.420	93.060	6189.04	-637.06	-56.31	1107.88	1762755.20	14449540.97	39°47'13.8964"N	80°33'52.2208"W	1109.31	92.910	0.40	
6428.00	16.550	89.180	6275.34	-651.06	-56.81	1133.40	1762780.71	14449540.48	39°47'13.8903"N	80°33'51.8940"W	1134.82	92.869	1.23	
6518.00	15.600	87.250	6361.82	-663.66	-56.04	1158.31	1762805.61	14449541.24	39°47'13.8967"N	80°33'51.5749"W	1159.66	92.770	1.21	
6609.00	15.130	89.020	6449.57	-675.81	-55.25	1182.40	1762829.70	14449542.03	39°47'13.9033"N	80°33'51.2662"W	1183.69	92.675	0.73	
6701.00	15.730	91.390	6538.26	-688.91	-55.35	1206.87	1762854.16	14449541.93	39°47'13.9012"N	80°33'50.9527"W	1208.14	92.626	0.95	
6806.00	16.240	83.410	6639.21	-703.11	-54.01	1235.69	1762882.97	14449543.27	39°47'13.9130"N	80°33'50.5835"W	1236.87	92.503	2.15	
6898.00	17.440	49.500	6727.47	-706.66	-43.55	1259.01	1762906.28	14449553.72	39°47'14.0152"N	80°33'50.2841"W	1259.76	91.981	10.61	
6989.00	19.780	43.680	6813.72	-700.91	-23.56	1280.02	1762927.28	14449573.71	39°47'14.2118"N	80°33'50.0137"W	1280.24	91.054	3.28	
7080.00	23.730	31.630	6898.26	-689.03	3.19	1300.27	1762947.52	14449600.45	39°47'14.4752"N	80°33'49.7526"W	1300.28	89.859	6.53	
7170.00	28.440	20.460	6979.12	-667.98	38.73	1317.28	1762964.53	14449635.98	39°47'14.8256"N	80°33'49.5325"W	1317.85	88.316	7.54	
7262.00	33.180	13.530	7058.14	-637.06	83.77	1330.84	1762978.08	14449681.00	39°47'15.2701"N	80°33'49.3560"W	1333.48	86.398	6.43	
7352.00	39.570	4.060	7130.62	-596.64	136.41	1338.65	1762985.88	14449733.61	39°47'15.7899"N	80°33'49.2527"W	1345.58	84.182	9.44	
7443.00	45.930	354.910	7197.48	-544.03	198.00	1337.80	1762985.03	14449795.19	39°47'16.3986"N	80°33'49.2598"W	1352.37	81.581	9.76	
7533.00	52.470	345.960	7256.32	-481.18	264.98	1326.25	1762973.48	14449862.14	39°47'17.0611"N	80°33'49.4036"W	1352.46	78.701	10.45	
7625.00	60.420	343.250	7307.14	-407.81	338.80	1305.83	1762953.08	14449935.93	39°47'17.7917"N	80°33'49.6605"W	1349.07	75.455	8.98	
7716.00	67.050	339.910	7347.39	-328.57	416.15	1280.00	1762927.26	14450013.25	39°47'18.5573"N	80°33'49.9865"W	1345.95	71.990	7.99	
7808.00	74.220	334.100	7377.90	-242.97	495.92	1246.04	1762893.31	14450092.98	39°47'19.3472"N	80°33'50.4165"W	1341.10	68.298	9.81	
7898.00	82.070	332.330	7396.38	-155.34	574.47	1206.37	1762853.65	14450171.51	39°47'20.1254"N	80°33'50.9199"W	1336.17	64.536	8.93	
7989.00	90.030	328.420	7402.65	-64.73	653.30	1161.52	1762808.83	14450250.31	39°47'20.9066"N	80°33'51.4895"W	1332.64	60.644	9.74	
8079.00	91.790	327.780	7401.22	25.25	729.70	1113.97	1762761.29	14450326.68	39°47'21.6639"N	80°33'52.0938"W	1331.69	56.774	2.08	



Actual Wellpath Report

Sonia R MSH 5H awp Proj: 20219'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SWN PRODUCTION COMPANY, LLC	Well	Sonia R MSH 5H
Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

WELLPATH DATA (221 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]	Comments
8169.00	91.880	327.900	7398.33	115.20	805.85	1066.09	1762713.43	14450402.80	39°47'22.4188"N	80°33'52.7025"W	1336.39	52.915	0.17	
8260.00	92.000	327.030	7395.25	206.15	882.52	1017.18	1762664.54	14450479.44	39°47'23.1789"N	80°33'53.3243"W	1346.66	49.054	0.96	
8351.00	92.620	328.360	7391.59	297.07	959.37	968.59	1762615.96	14450556.26	39°47'23.9407"N	80°33'53.9420"W	1363.29	45.274	1.61	
8443.00	91.660	327.700	7388.15	389.00	1037.36	919.91	1762567.30	14450634.22	39°47'24.7137"N	80°33'54.5607"W	1386.49	41.566	1.27	
8534.00	91.750	326.600	7385.44	479.96	1113.78	870.57	1762517.98	14450710.61	39°47'25.4713"N	80°33'55.1880"W	1413.64	38.013	1.21	
8624.00	92.680	327.790	7381.96	569.88	1189.36	821.85	1762469.28	14450786.17	39°47'26.2206"N	80°33'55.8074"W	1445.69	34.644	1.68	
8716.00	91.790	328.350	7378.38	661.81	1267.38	773.23	1762420.68	14450864.15	39°47'26.9940"N	80°33'56.4254"W	1484.63	31.387	1.14	
8806.00	91.910	328.700	7375.47	751.76	1344.10	726.26	1762373.73	14450940.84	39°47'27.7544"N	80°33'57.0223"W	1527.76	28.384	0.41	
8897.00	91.780	327.880	7372.54	842.70	1421.48	678.45	1762325.94	14451018.19	39°47'28.5213"N	80°33'57.6299"W	1575.08	25.515	0.91	
8988.00	92.310	328.430	7369.29	933.64	1498.73	630.47	1762277.98	14451095.41	39°47'29.2871"N	80°33'58.2398"W	1625.94	22.815	0.84	
9081.00	91.970	328.810	7365.82	1026.57	1578.07	582.08	1762229.60	14451174.72	39°47'30.0735"N	80°33'58.8548"W	1682.00	20.247	0.55	
9171.00	91.720	327.150	7362.92	1116.52	1654.33	534.39	1762181.93	14451250.96	39°47'30.8295"N	80°33'59.4611"W	1738.50	17.902	1.86	
9262.00	92.160	329.200	7359.84	1207.46	1731.61	486.43	1762133.99	14451328.20	39°47'31.5954"N	80°34'0.0707"W	1798.63	15.691	2.30	
9354.00	92.310	330.380	7356.25	1299.34	1811.05	440.17	1762087.75	14451407.61	39°47'32.3827"N	80°34'0.6583"W	1863.77	13.661	1.29	
9445.00	92.190	328.760	7352.68	1390.23	1889.45	394.12	1762041.72	14451485.98	39°47'33.1597"N	80°34'1.2434"W	1930.12	11.782	1.78	
9536.00	91.020	326.610	7350.13	1481.18	1966.32	345.50	1761993.11	14451562.82	39°47'33.9217"N	80°34'1.8616"W	1996.44	9.966	2.69	
9626.00	91.510	327.750	7348.14	1571.15	2041.93	296.73	1761944.36	14451638.41	39°47'34.6713"N	80°34'2.4816"W	2063.38	8.268	1.38	
9716.00	91.230	327.480	7345.99	1661.13	2117.91	248.54	1761896.19	14451714.36	39°47'35.4245"N	80°34'3.0943"W	2132.45	6.693	0.43	
9807.00	90.550	325.910	7344.58	1752.09	2193.96	198.58	1761846.25	14451790.37	39°47'36.1784"N	80°34'3.7296"W	2202.92	5.172	1.88	
9898.00	91.480	327.730	7342.97	1843.06	2270.10	148.79	1761796.48	14451866.49	39°47'36.9333"N	80°34'4.3628"W	2274.97	3.750	2.25	
9989.00	90.400	326.370	7341.47	1934.03	2346.45	99.30	1761747.01	14451942.81	39°47'37.6902"N	80°34'4.9921"W	2348.55	2.423	1.91	
10079.00	91.170	328.020	7340.24	2024.02	2422.09	50.55	1761698.28	14452018.42	39°47'38.4400"N	80°34'5.6120"W	2422.62	1.196	2.02	
10177.00	90.460	326.970	7338.85	2122.00	2504.73	-2.11	1761645.64	14452101.02	39°47'39.2592"N	80°34'6.2815"W	2504.73	359.952	1.29	
10272.00	91.140	327.330	7337.52	2216.98	2584.53	-53.64	1761594.13	14452180.79	39°47'40.0502"N	80°34'6.9366"W	2585.08	358.811	0.81	
10367.00	90.520	327.870	7336.14	2311.97	2664.73	-104.53	1761543.26	14452260.96	39°47'40.8453"N	80°34'7.5837"W	2666.78	357.753	0.87	
10460.00	90.490	326.010	7335.33	2404.95	2742.67	-155.26	1761492.55	14452338.87	39°47'41.6179"N	80°34'8.2288"W	2747.06	356.760	2.00	
10554.00	91.570	327.900	7333.64	2498.92	2821.44	-206.51	1761441.32	14452417.62	39°47'42.3989"N	80°34'8.8805"W	2828.99	355.814	2.32	
10649.00	90.710	327.690	7331.75	2593.90	2901.81	-257.13	1761390.72	14452497.95	39°47'43.1955"N	80°34'9.5241"W	2913.18	354.936	0.93	
10743.00	90.280	326.490	7330.93	2687.89	2980.72	-308.20	1761339.67	14452576.83	39°47'43.9778"N	80°34'10.1735"W	2996.61	354.097	1.36	
10837.00	90.740	327.700	7330.10	2781.87	3059.64	-359.26	1761288.63	14452655.72	39°47'44.7601"N	80°34'10.8228"W	3080.66	353.303	1.38	



Actual Wellpath Report

Sonia R MSH 5H awp Proj: 20219'
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Sonia R MSH 5H
Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

WELLPATH DATA (221 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]	Comments	
10932.00	90.400	327.430	7329.15	2876.87	3139.81	-410.21	1761237.70	14452735.86	39°47'45.5548"N	80°34'11.4706"W	3166.49	352.557	0.46		
11025.00	90.250	327.260	7328.62	2969.86	3218.11	-460.39	1761187.54	14452814.13	39°47'46.3310"N	80°34'12.1086"W	3250.88	351.858	0.24		
11120.00	89.850	327.540	7328.54	3064.86	3298.14	-511.57	1761136.37	14452894.13	39°47'47.1244"N	80°34'12.7595"W	3337.58	351.183	0.51		
11214.00	90.710	326.390	7328.08	3158.84	3376.94	-562.82	1761085.15	14452972.90	39°47'47.9056"N	80°34'13.4111"W	3423.52	350.538	1.53		
11308.00	90.920	330.360	7326.74	3252.81	3456.96	-612.09	1761035.89	14453052.89	39°47'48.6987"N	80°34'14.0375"W	3510.73	349.959	4.23		
11403.00	90.460	326.950	7325.60	3347.78	3538.08	-661.50	1760986.51	14453133.97	39°47'49.5026"N	80°34'14.6655"W	3599.38	349.410	3.62		
11497.00	91.050	327.330	7324.36	3441.76	3617.03	-712.50	1760935.53	14453212.90	39°47'50.2853"N	80°34'15.3140"W	3686.54	348.856	0.75		
11591.00	90.620	327.980	7322.99	3535.75	3696.44	-762.78	1760885.26	14453292.27	39°47'51.0724"N	80°34'15.9534"W	3774.32	348.340	0.83		
11685.00	90.340	327.340	7322.20	3629.75	3775.85	-813.07	1760835.00	14453371.66	39°47'51.8596"N	80°34'16.5927"W	3862.40	347.848	0.74		
11779.00	91.080	326.380	7321.04	3723.72	3854.55	-864.45	1760783.63	14453450.33	39°47'52.6399"N	80°34'17.2462"W	3950.30	347.360	1.29		
11873.00	90.890	327.870	7319.42	3817.70	3933.49	-915.46	1760732.64	14453529.23	39°47'53.4223"N	80°34'17.8949"W	4038.61	346.898	1.60		
11968.00	90.280	327.260	7318.45	3912.69	4013.66	-966.41	1760681.71	14453609.38	39°47'54.2171"N	80°34'18.5428"W	4128.37	346.462	0.91		
12062.00	90.680	326.780	7317.67	4006.68	4092.51	-1017.58	1760630.56	14453688.20	39°47'54.9987"N	80°34'19.1935"W	4217.12	346.037	0.66		
12157.00	90.370	327.850	7316.79	4101.67	4172.46	-1068.88	1760579.28	14453768.12	39°47'55.7913"N	80°34'19.8458"W	4307.20	345.631	1.17		
12251.00	90.590	328.450	7316.01	4195.66	4252.31	-1118.48	1760529.70	14453847.93	39°47'56.5827"N	80°34'20.4764"W	4396.94	345.263	0.68		
12345.00	89.450	325.390	7315.97	4289.64	4331.06	-1169.78	1760478.42	14453926.65	39°47'57.3634"N	80°34'21.1289"W	4486.25	344.886	3.47		
12440.00	90.950	330.050	7315.64	4384.61	4411.35	-1220.50	1760427.72	14454006.91	39°47'58.1593"N	80°34'21.7738"W	4577.08	344.535	5.15		
12534.00	89.750	326.600	7315.07	4478.59	4491.34	-1269.85	1760378.39	14454086.87	39°47'58.9520"N	80°34'22.4012"W	4667.40	344.213	3.89		
12628.00	90.340	326.660	7314.99	4572.57	4569.84	-1321.55	1760326.71	14454165.34	39°47'59.7303"N	80°34'23.0588"W	4757.09	343.871	0.63		
12722.00	90.460	327.780	7314.34	4666.56	4648.87	-1372.44	1760275.83	14454244.33	39°48'0.5137"N	80°34'23.7060"W	4847.22	343.552	1.20		
12817.00	90.280	327.390	7313.72	4761.55	4729.06	-1423.37	1760224.93	14454324.50	39°48'1.3086"N	80°34'24.3536"W	4938.62	343.249	0.45		
12911.00	90.980	327.450	7312.69	4855.54	4808.26	-1473.98	1760174.34	14454403.67	39°48'2.0937"N	80°34'24.9972"W	5029.12	342.957	0.75		
13005.00	89.050	327.750	7312.67	4949.54	4887.63	-1524.35	1760123.99	14454483.00	39°48'2.8804"N	80°34'25.6377"W	5119.82	342.678	2.08		
13098.00	89.970	328.190	7313.46	5042.53	4966.47	-1573.67	1760074.69	14454561.81	39°48'3.6618"N	80°34'26.2648"W	5209.82	342.419	1.10		
13193.00	89.720	328.000	7313.72	5137.53	5047.11	-1623.88	1760024.50	14454642.43	39°48'4.4612"N	80°34'26.9031"W	5301.92	342.165	0.33		
13287.00	89.540	328.400	7314.33	5231.53	5127.00	-1673.41	1759974.99	14454722.29	39°48'5.2530"N	80°34'27.5329"W	5393.18	341.924	0.47		
13382.00	90.000	328.620	7314.71	5326.52	5208.01	-1723.03	1759925.38	14454803.26	39°48'6.0559"N	80°34'28.1638"W	5485.64	341.694	0.54		
13477.00	89.320	328.180	7315.27	5421.52	5288.92	-1772.81	1759875.62	14454884.15	39°48'6.8579"N	80°34'28.7966"W	5578.13	341.469	0.85		
13571.00	89.720	328.270	7316.06	5515.51	5368.83	-1822.31	1759826.15	14454964.02	39°48'7.6499"N	80°34'29.4259"W	5669.67	341.252	0.44		
13665.00	89.880	328.110	7316.39	5609.51	5448.71	-1871.85	1759776.62	14455043.87	39°48'8.4417"N	80°34'30.0559"W	5761.28	341.040	0.24		

REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Sonia R MSH 5H
Field	Marshall		API	47051024660000
Facility	Sonia R MSH Pad		Wellbore	Sonia R MSH 5H AWB
Slot	5H			

WELLPATH DATA (221 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]	Comments
13758.00	89.510	328.200	7316.88	5702.50	5527.71	-1920.92	1759727.57	14455122.84	39°48'9.2247"N	80°34'30.6798"W	5851.97	340.837	0.41	
13853.00	89.940	328.820	7317.34	5797.50	5608.72	-1970.54	1759677.97	14455203.82	39°48'10.0276"N	80°34'31.3107"W	5944.81	340.642	0.79	
13947.00	89.140	328.140	7318.09	5891.49	5688.85	-2019.68	1759628.84	14455283.92	39°48'10.8218"N	80°34'31.9354"W	6036.73	340.454	1.12	
14042.00	90.030	328.100	7318.78	5986.48	5769.51	-2069.86	1759578.69	14455364.55	39°48'11.6213"N	80°34'32.5733"W	6129.57	340.264	0.94	
14136.00	90.400	329.040	7318.43	6080.47	5849.72	-2118.87	1759529.69	14455444.73	39°48'12.4162"N	80°34'33.1965"W	6221.64	340.089	1.07	
14230.00	89.260	329.000	7318.71	6174.45	5930.31	-2167.26	1759481.33	14455525.29	39°48'13.2149"N	80°34'33.8116"W	6313.92	339.925	1.21	
14324.00	89.450	327.760	7319.76	6268.44	6010.35	-2216.54	1759432.07	14455605.29	39°48'14.0082"N	80°34'34.4381"W	6406.04	339.757	1.33	
14418.00	89.540	328.010	7320.59	6362.44	6089.96	-2266.51	1759382.12	14455684.88	39°48'14.7973"N	80°34'35.0735"W	6498.05	339.586	0.28	
14512.00	90.280	329.520	7320.74	6456.42	6170.33	-2315.25	1759333.39	14455765.22	39°48'15.5939"N	80°34'35.6932"W	6590.40	339.433	1.79	
14607.00	89.200	328.030	7321.17	6551.40	6251.57	-2364.49	1759284.17	14455846.42	39°48'16.3990"N	80°34'36.3193"W	6683.78	339.282	1.94	
14701.00	90.220	328.820	7321.65	6645.40	6331.65	-2413.71	1759234.97	14455926.47	39°48'17.1927"N	80°34'36.9450"W	6776.12	339.132	1.37	
14795.00	89.480	330.780	7321.89	6739.34	6412.88	-2460.99	1759187.71	14456007.67	39°48'17.9977"N	80°34'37.5459"W	6868.88	339.005	2.23	
14889.00	89.660	327.360	7322.60	6833.30	6493.50	-2509.30	1759139.42	14456088.26	39°48'18.7967"N	80°34'38.1600"W	6961.48	338.872	3.64	
14983.00	89.110	328.170	7323.61	6927.29	6573.01	-2559.43	1759089.30	14456167.74	39°48'19.5848"N	80°34'38.7976"W	7053.73	338.725	1.04	
15078.00	89.660	328.770	7324.63	7022.28	6653.98	-2609.11	1759039.64	14456248.68	39°48'20.3873"N	80°34'39.4292"W	7147.23	338.589	0.86	
15172.00	89.170	328.600	7325.59	7116.27	6734.28	-2657.96	1758990.81	14456328.95	39°48'21.1831"N	80°34'40.0503"W	7239.84	338.461	0.55	
15267.00	90.150	328.390	7326.15	7211.26	6815.27	-2707.61	1758941.19	14456409.91	39°48'21.9859"N	80°34'40.6815"W	7333.42	338.333	1.05	
15362.00	88.400	329.360	7327.35	7306.23	6896.59	-2756.71	1758892.11	14456491.19	39°48'22.7918"N	80°34'41.3058"W	7427.14	338.212	2.11	
15456.00	90.680	329.320	7328.11	7400.19	6977.44	-2804.64	1758844.19	14456572.01	39°48'23.5930"N	80°34'41.9150"W	7520.02	338.102	2.43	
15551.00	88.550	327.970	7328.75	7495.17	7058.56	-2854.06	1758794.79	14456653.10	39°48'24.3970"N	80°34'42.5434"W	7613.73	337.985	2.65	
15645.00	89.170	328.750	7330.62	7589.15	7138.57	-2903.36	1758745.51	14456733.08	39°48'25.1900"N	80°34'43.1703"W	7706.40	337.868	1.06	
15739.00	89.350	327.770	7331.83	7683.14	7218.50	-2952.81	1758696.08	14456812.98	39°48'25.9822"N	80°34'43.7991"W	7799.09	337.752	1.06	
15833.00	89.110	328.260	7333.09	7777.13	7298.22	-3002.60	1758646.31	14456892.67	39°48'26.7724"N	80°34'44.4322"W	7891.75	337.637	0.58	
15927.00	89.140	328.940	7334.53	7871.11	7378.45	-3051.56	1758597.36	14456972.87	39°48'27.5675"N	80°34'45.0548"W	7984.58	337.531	0.72	
16022.00	88.680	327.700	7336.34	7966.09	7459.28	-3101.45	1758547.50	14457053.66	39°48'28.3686"N	80°34'45.6891"W	8078.35	337.423	1.39	
16116.00	89.200	327.150	7338.08	8060.07	7538.47	-3152.05	1758496.92	14457132.83	39°48'29.1536"N	80°34'46.3328"W	8170.92	337.309	0.81	
16210.00	89.450	328.830	7339.18	8154.06	7618.17	-3201.87	1758447.12	14457212.50	39°48'29.9436"N	80°34'46.9664"W	8263.69	337.203	1.81	
16305.00	89.660	328.910	7339.92	8249.04	7699.49	-3250.98	1758398.02	14457293.79	39°48'30.7495"N	80°34'47.5908"W	8357.69	337.109	0.24	
16399.00	89.720	327.210	7340.43	8343.03	7779.26	-3300.71	1758348.32	14457373.52	39°48'31.5401"N	80°34'48.2232"W	8450.53	337.009	1.81	
16494.00	90.280	328.400	7340.43	8438.03	7859.65	-3351.32	1758297.72	14457453.88	39°48'32.3369"N	80°34'48.8669"W	8544.32	336.907	1.38	

REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Sonia R MSH 5H
Field	Marshall		API	47051024660000
Facility	Sonia R MSH Pad		Wellbore	Sonia R MSH 5H AWB
Slot	5H			

WELLPATH DATA (221 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]	Comments	
16587.00	90.520	328.240	7339.78	8531.03	7938.79	-3400.16	1758248.90	14457532.99	39°48'33.1212"N	80°34'49.4880"W	8636.29	336.815	0.31		
16682.00	89.290	328.310	7339.94	8626.02	8019.59	-3450.11	1758198.96	14457613.76	39°48'33.9221"N	80°34'50.1232"W	8730.24	336.722	1.30		
16776.00	91.170	328.400	7339.56	8720.01	8099.61	-3499.43	1758149.67	14457693.75	39°48'34.7152"N	80°34'50.7503"W	8823.25	336.633	2.00		
16870.00	89.660	325.860	7338.88	8813.99	8178.55	-3550.44	1758098.68	14457772.66	39°48'35.4977"N	80°34'51.3992"W	8915.96	336.534	3.14		
16965.00	90.430	327.060	7338.81	8908.96	8257.73	-3602.93	1758046.21	14457851.81	39°48'36.2826"N	80°34'52.0671"W	9009.51	336.428	1.50		
17059.00	90.340	327.150	7338.17	9002.95	8336.66	-3653.98	1757995.18	14457930.71	39°48'37.0650"N	80°34'52.7165"W	9102.28	336.332	0.14		
17153.00	90.120	327.130	7337.80	9096.94	8415.62	-3704.98	1757944.20	14458009.64	39°48'37.8476"N	80°34'53.3653"W	9195.08	336.238	0.24		
17248.00	89.010	324.970	7338.52	9191.89	8494.41	-3758.03	1757891.17	14458088.40	39°48'38.6288"N	80°34'54.0404"W	9288.59	336.135	2.56		
17342.00	89.880	329.080	7339.43	9285.85	8573.25	-3809.18	1757840.04	14458167.21	39°48'39.4103"N	80°34'54.6911"W	9381.39	336.044	4.47		
17436.00	90.460	326.440	7339.15	9379.84	8652.75	-3859.32	1757789.92	14458246.68	39°48'40.1982"N	80°34'55.3289"W	9474.41	335.962	2.88		
17531.00	90.490	327.530	7338.36	9474.82	8732.41	-3911.08	1757738.18	14458326.30	39°48'40.9878"N	80°34'55.9873"W	9568.25	335.873	1.15		
17625.00	90.120	327.330	7337.86	9568.82	8811.62	-3961.68	1757687.60	14458405.49	39°48'41.7730"N	80°34'56.6310"W	9661.24	335.791	0.45		
17719.00	90.280	327.070	7337.53	9662.81	8890.63	-4012.60	1757636.70	14458484.47	39°48'42.5562"N	80°34'57.2788"W	9754.20	335.709	0.32		
17813.00	89.750	327.500	7337.51	9756.81	8969.72	-4063.40	1757585.91	14458563.53	39°48'43.3401"N	80°34'57.9251"W	9847.19	335.629	0.73		
17907.00	88.710	326.230	7338.77	9850.78	9048.43	-4114.78	1757534.56	14458642.20	39°48'44.1203"N	80°34'58.5788"W	9940.09	335.546	1.75		
18002.00	90.980	329.080	7339.03	9945.77	9128.67	-4165.60	1757483.76	14458722.42	39°48'44.9157"N	80°34'59.2252"W	10034.18	335.472	3.84		
18095.00	88.770	326.040	7339.23	10038.75	9207.15	-4215.47	1757433.90	14458800.86	39°48'45.6935"N	80°34'59.8596"W	10126.29	335.399	4.04		
18189.00	90.800	327.040	7339.58	10132.72	9285.56	-4267.30	1757382.10	14458879.25	39°48'46.4708"N	80°35'0.5191"W	10219.17	335.318	2.41		
18283.00	90.400	326.880	7338.60	10226.70	9364.36	-4318.55	1757330.87	14458958.01	39°48'47.2519"N	80°35'1.1711"W	10312.18	335.242	0.46		
18377.00	90.090	326.810	7338.20	10320.68	9443.05	-4369.95	1757279.48	14459036.68	39°48'48.0320"N	80°35'1.8252"W	10405.18	335.167	0.34		
18470.00	90.090	327.120	7338.05	10413.67	9521.02	-4420.65	1757228.80	14459114.61	39°48'48.8048"N	80°35'2.4702"W	10497.24	335.094	0.33		
18564.00	89.910	326.850	7338.05	10507.66	9599.84	-4471.87	1757177.60	14459193.40	39°48'49.5861"N	80°35'3.1219"W	10590.30	335.023	0.35		
18658.00	89.970	326.810	7338.15	10601.64	9678.52	-4523.30	1757126.19	14459272.05	39°48'50.3660"N	80°35'3.7762"W	10683.35	334.951	0.08		
18752.00	90.340	326.430	7337.90	10695.62	9757.02	-4575.02	1757074.50	14459350.52	39°48'51.1441"N	80°35'4.4343"W	10776.37	334.878	0.56		
18846.00	90.030	327.150	7337.59	10789.60	9835.66	-4626.50	1757023.03	14459429.13	39°48'51.9237"N	80°35'5.0894"W	10869.44	334.809	0.83		
18941.00	90.120	327.050	7337.47	10884.60	9915.42	-4678.10	1756971.45	14459508.87	39°48'52.7143"N	80°35'5.7459"W	10963.59	334.742	0.14		
19036.00	90.310	327.290	7337.11	10979.59	9995.25	-4729.61	1756919.97	14459588.66	39°48'53.5056"N	80°35'6.4012"W	11057.77	334.677	0.32		
19131.00	90.520	327.490	7336.42	11074.58	10075.27	-4780.80	1756868.79	14459668.65	39°48'54.2988"N	80°35'7.0525"W	11152.00	334.615	0.31		
19225.00	90.710	327.290	7335.42	11168.57	10154.45	-4831.46	1756818.15	14459747.80	39°48'55.0836"N	80°35'7.6970"W	11245.26	334.555	0.29		
19320.00	90.710	328.320	7334.24	11263.57	10234.84	-4882.07	1756767.56	14459828.15	39°48'55.8803"N	80°35'8.3408"W	11339.60	334.499	1.08		

REFERENCE WELLPATH IDENTIFICATION				
Operator	SWN PRODUCTION COMPANY, LLC		Well	Sonia R MSH 5H
Field	Marshall		API	47051024660000
Facility	Sonia R MSH Pad		Wellbore	Sonia R MSH 5H AWB
Slot	5H			

WELLPATH DATA (221 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]	Comments
19414.00	90.490	328.050	7333.25	11357.56	10314.71	-4931.62	1756718.03	14459907.99	39°48'56.6719"N	80°35'8.9711"W	11433.03	334.447	0.37	
19507.00	90.550	326.660	7332.41	11450.55	10393.01	-4981.78	1756667.88	14459986.27	39°48'57.4480"N	80°35'9.6093"W	11525.31	334.390	1.50	
19601.00	91.290	328.670	7330.90	11544.53	10472.42	-5032.05	1756617.64	14460065.65	39°48'58.2351"N	80°35'10.2488"W	11618.66	334.335	2.28	
19696.00	90.090	328.390	7329.76	11639.52	10553.44	-5081.64	1756568.06	14460146.63	39°48'59.0380"N	80°35'10.8795"W	11713.16	334.288	1.30	
19790.00	90.250	328.320	7329.48	11733.51	10633.46	-5130.96	1756518.77	14460226.63	39°48'59.8311"N	80°35'11.5068"W	11806.66	334.241	0.19	
19885.00	90.310	328.380	7329.01	11828.51	10714.33	-5180.81	1756468.94	14460307.47	39°49'0.6326"N	80°35'12.1408"W	11901.16	334.194	0.09	
19979.00	89.910	329.080	7328.83	11922.50	10794.68	-5229.60	1756420.16	14460387.78	39°49'1.4288"N	80°35'12.7613"W	11994.74	334.152	0.86	
20073.00	89.940	327.740	7328.96	12016.49	10874.75	-5278.84	1756370.94	14460467.82	39°49'2.2223"N	80°35'13.3876"W	12088.27	334.107	1.43	
20167.00	89.910	327.270	7329.08	12110.49	10954.03	-5329.34	1756320.46	14460547.07	39°49'3.0082"N	80°35'14.0301"W	12181.65	334.056	0.50	
20194.00	90.090	327.640	7329.08	12137.49	10976.79	-5343.86	1756305.94	14460569.82	39°49'3.2338"N	80°35'14.2149"W	12208.47	334.042	1.52	
20219.00‡	90.090	327.640	7329.04	12162.49	10997.91	-5357.25	1756292.57	14460590.93	39°49'3.4431"N	80°35'14.3851"W	12233.32	334.029	0.00	

HOLE & CASING SECTIONS - Ref Wellbore: Sonia R MSH 5H AWB Ref Wellpath: Sonia R MSH 5H awp Proj: 20219'									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
13.375in Casing	26.00	26.40	0.40	26.00	26.40	0.00	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION			
Operator	SWN PRODUCTION COMPANY, LLC	Well	Sonia R MSH 5H
Field	Marshall	API	47051024660000
Facility	Sonia R MSH Pad	Wellbore	Sonia R MSH 5H AWB
Slot	5H		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Sonia R MSH 5H BHL rev 3	7241.00	11005.91	-5344.64	1756305.17	14460598.93	39°49'3.5215"N	80°35'14.2231"W	point
Sonia R MSH 5H LP rev 3	7404.00	662.96	1153.56	1762800.87	14450259.96	39°47'21.0024"N	80°33'51.5908"W	point

WELLPATH COMPOSITION - Ref Wellbore: Sonia R MSH 5H AWB Ref Wellpath: Sonia R MSH 5H awp Proj: 20219'					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	418.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	1 Tally OWSG MWD IFR MSA 17.5" 176' - 418'	Sonia R MSH 5H AWB	4/23/2023
418.00	2841.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	2 Tally OWSG MWD IFR MSA 12.25" 504' - 2841'	Sonia R MSH 5H AWB	4/23/2023
2841.00	6701.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	3 Tally OWSG MWD IFR MSA 8.75" 2971' - 6701'	Sonia R MSH 5H AWB	4/23/2023
6701.00	20219.00	OWSG MWD rev2 + IFR1 + Multi-Station Correction	4 BH ATC MWD H&P IFR MSA 6806' 20194'	Sonia R MSH 5H AWB	4/23/2023



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OCT 11 2023
WV Department of
Environmental Protection

Well Name: **Sonia R MSH 5H** **47051024660000**

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	339.00	339.00	
Top of Salt Water	1401.00	1401.00	NA	NA	
Pittsburgh Coal	1165.00	1165.00	1182.00	1182.00	
Pottsville (ss)	1215.00	1215.00	1232.00	1232.00	
Raven Cliff (ss)	1719.00	1719.00	1903.00	1903.00	
Maxton (ss)	2098.00	2098.00	2282.00	2280.00	
Big Injun (ss)	2383.00	2381.00	2652.00	2647.00	
Berea (siltstone)	2999.00	2988.00	3029.00	3017.00	
Rhinestreet (shale)	6858.00	6689.00	7214.00	7017.00	
Cashaqua (shale)	7214.00	7017.00	7350.00	7129.00	
Middlesex (shale)	7350.00	7129.00	7497.00	7232.00	
Burket (shale)	7497.00	7232.00	7538.00	7259.00	
Tully (ls)	7538.00	7259.00	7580.00	7282.00	
Mahantango (shale)	7580.00	7282.00	7844.00	7385.00	
Marcellus (shale)	7844.00	7385.00	NA	NA	GAS