

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 401H
Area	Marshall County, WV	Well	Arthur Waryck MSH 401H
Field	Marshall	Wellbore	Arthur Waryck MSH 401H AWB
Facility	Arthur Waryck MSH Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999610	Report Generated	9/19/2019 at 9:47:44 AM
Convergence at slot	0.21° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Arthur_Waryck_MSH_401H_AWP_Proj_17517_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	42.38	-23.47	1732628.26	14426453.63	39°43'26.913"N	80°40'19.376"W
Facility Reference Pt			1732651.72	14426411.27	39°43'26.493"N	80°40'19.078"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM

Calculation method	Minimum curvature	SDC 46 (KB) to Facility Vertical Datum	1352.00ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1352.00ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 401H)	26.00ft
MD Reference Pt	SDC 46 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	299.63°

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WELLPATH DATA (208 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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
0.00H	0.000	68.210	0.00	0.00	0.00	0.00	1732628.26	14426453.63	39°43'26.913"N	80°40'19.376"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	68.210	26.00	0.00	0.00	0.00	1732628.26	14426453.63	39°43'26.913"N	80°40'19.376"W	0.00	0.000	0.00	0.00	0.00
50.00	0.120	68.210	50.00	-0.02	0.01	0.02	1732628.28	14426453.64	39°43'26.913"N	80°40'19.376"W	0.03	68.210	0.50	0.50	284.21
100.00	0.190	49.630	100.00	-0.08	0.08	0.14	1732628.40	14426453.71	39°43'26.913"N	80°40'19.375"W	0.16	58.604	0.17	0.14	-37.16
150.00	0.230	123.200	150.00	-0.21	0.08	0.28	1732628.54	14426453.71	39°43'26.913"N	80°40'19.373"W	0.29	73.948	0.51	0.08	147.14
200.00	0.110	53.020	200.00	-0.32	0.06	0.40	1732628.66	14426453.69	39°43'26.913"N	80°40'19.371"W	0.41	82.240	0.44	-0.24	-140.36
250.00	0.110	130.630	250.00	-0.39	0.05	0.48	1732628.74	14426453.68	39°43'26.913"N	80°40'19.370"W	0.48	83.720	0.28	0.00	155.22
300.00	0.180	84.930	300.00	-0.50	0.03	0.59	1732628.85	14426453.66	39°43'26.913"N	80°40'19.369"W	0.59	87.259	0.26	0.14	-91.40
350.00	0.130	113.690	350.00	-0.62	0.01	0.72	1732628.98	14426453.64	39°43'26.913"N	80°40'19.367"W	0.72	89.004	0.18	-0.10	57.52
400.00	0.190	109.350	400.00	-0.76	-0.04	0.85	1732629.11	14426453.59	39°43'26.912"N	80°40'19.365"W	0.86	92.525	0.12	0.12	-8.68
450.00	0.140	83.820	450.00	-0.89	-0.06	0.99	1732629.25	14426453.57	39°43'26.912"N	80°40'19.364"W	1.00	93.374	0.18	-0.10	-51.06
500.00	0.120	140.710	500.00	-0.99	-0.09	1.09	1732629.35	14426453.54	39°43'26.912"N	80°40'19.362"W	1.09	94.864	0.25	-0.04	113.78
550.00	0.180	101.490	550.00	-1.11	-0.15	1.20	1732629.46	14426453.48	39°43'26.911"N	80°40'19.361"W	1.21	97.079	0.23	0.12	-78.44
600.00	0.230	96.680	600.00	-1.28	-0.18	1.37	1732629.63	14426453.45	39°43'26.911"N	80°40'19.359"W	1.39	97.300	0.11	0.10	-9.62
642.00	0.280	55.780	642.00	-1.40	-0.13	1.54	1732629.80	14426453.50	39°43'26.911"N	80°40'19.357"W	1.55	94.747	0.44	0.12	-97.38
736.00	0.540	153.000	736.00	-1.88	-0.39	1.93	1732630.19	14426453.24	39°43'26.909"N	80°40'19.352"W	1.97	101.506	0.68	0.28	103.43
782.00	1.340	169.510	781.99	-2.40	-1.12	2.13	1732630.39	14426452.51	39°43'26.902"N	80°40'19.349"W	2.40	117.646	1.82	1.74	35.89
872.00	3.080	188.730	871.92	-3.94	-4.54	1.95	1732630.21	14426449.09	39°43'26.868"N	80°40'19.352"W	4.94	156.710	2.07	1.93	21.36
963.00	5.030	204.870	962.69	-5.15	-10.58	-0.09	1732628.17	14426444.06	39°43'26.808"N	80°40'19.378"W	10.58	180.512	2.46	2.14	17.74
1054.00	7.280	217.980	1053.16	-4.64	-18.74	-5.32	1732622.94	14426434.89	39°43'26.728"N	80°40'19.445"W	19.48	195.850	2.90	2.47	14.41
1144.00	9.530	232.200	1142.20	-0.95	-27.81	-14.72	1732613.55	14426425.84	39°43'26.638"N	80°40'19.566"W	31.46	207.896	3.39	2.50	15.80
1234.00	11.450	239.770	1230.70	6.39	-36.87	-28.33	1732599.94	14426416.77	39°43'26.549"N	80°40'19.741"W	46.50	217.534	2.62	2.13	8.41
1324.00	13.120	240.460	1318.63	16.12	-46.41	-44.93	1732583.34	14426407.24	39°43'26.456"N	80°40'19.954"W	64.59	224.077	1.86	1.86	0.77
1414.00	13.920	238.140	1406.14	26.52	-57.16	-63.01	1732565.27	14426396.50	39°43'26.350"N	80°40'20.186"W	85.07	227.791	1.07	0.89	-2.58
1505.00	14.660	236.070	1494.32	36.87	-69.36	-81.87	1732546.43	14426384.30	39°43'26.230"N	80°40'20.427"W	107.30	229.727	0.99	0.81	-2.27
1595.00	14.130	234.290	1581.50	46.52	-82.13	-100.24	1732528.06	14426371.53	39°43'26.105"N	80°40'20.663"W	129.59	230.670	0.77	-0.59	-1.98
1686.00	12.480	231.460	1670.05	54.82	-94.74	-116.95	1732511.36	14426358.93	39°43'25.981"N	80°40'20.878"W	150.51	230.988	1.95	-1.81	-3.11
1776.00	11.540	229.070	1758.08	61.43	-106.70	-131.36	1732496.96	14426346.97	39°43'25.863"N	80°40'21.062"W	169.23	230.914	1.18	-1.04	-2.66
1867.00	9.670	224.290	1847.53	66.39	-118.13	-143.57	1732484.75	14426335.54	39°43'25.750"N	80°40'21.219"W	185.92	230.552	2.27	-2.05	-5.25
1957.00	9.570	224.010	1936.26	70.16	-128.92	-154.05	1732474.27	14426324.76	39°43'25.644"N	80°40'21.354"W	200.88	230.073	0.12	-0.11	-0.31

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WELLPATH DATA (208 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
2047.00	8.940	224.120	2025.09	73.77	-139.33	-164.11	1732464.21	14426314.36	39°43'25.542"N	80°40'21.483"W	215.28	229.670	0.70	-0.70	0.12
2137.00	7.180	226.370	2114.20	77.14	-148.23	-173.05	1732455.27	14426305.46	39°43'25.454"N	80°40'21.598"W	227.86	229.418	1.99	-1.96	2.50
2227.00	6.350	232.370	2203.57	80.69	-155.15	-181.07	1732447.27	14426298.54	39°43'25.386"N	80°40'21.701"W	238.44	229.408	1.21	-0.92	6.67
2318.00	5.940	231.110	2294.05	84.35	-161.18	-188.72	1732439.62	14426292.52	39°43'25.327"N	80°40'21.799"W	248.18	229.500	0.47	-0.45	-1.38
2408.00	5.500	230.580	2383.60	87.60	-166.84	-195.67	1732432.66	14426286.86	39°43'25.271"N	80°40'21.888"W	257.14	229.548	0.49	-0.49	-0.59
2499.00	4.460	225.920	2474.25	90.15	-172.07	-201.58	1732426.76	14426281.63	39°43'25.219"N	80°40'21.964"W	265.04	229.516	1.23	-1.14	-5.12
2589.00	3.890	218.080	2564.02	91.58	-176.91	-205.98	1732422.36	14426276.79	39°43'25.172"N	80°40'22.021"W	271.52	229.342	0.89	-0.63	-8.71
2680.00	3.140	212.430	2654.84	92.16	-181.44	-209.22	1732419.12	14426272.26	39°43'25.127"N	80°40'22.062"W	276.94	229.068	0.91	-0.82	-6.21
2694.00	2.930	208.020	2668.83	92.17	-182.08	-209.59	1732418.75	14426271.62	39°43'25.121"N	80°40'22.067"W	277.64	229.018	2.24	-1.50	-31.50
2788.00	2.580	204.960	2762.72	91.93	-186.12	-211.62	1732416.73	14426267.58	39°43'25.081"N	80°40'22.093"W	281.82	228.668	0.40	-0.37	-3.26
2879.00	3.710	216.640	2853.58	92.12	-190.34	-214.24	1732414.11	14426263.37	39°43'25.039"N	80°40'22.127"W	286.58	228.381	1.42	1.24	12.84
2969.00	5.280	233.890	2943.30	94.18	-195.12	-219.32	1732409.02	14426258.59	39°43'24.992"N	80°40'22.192"W	293.55	228.343	2.28	1.74	19.17
3060.00	9.000	234.350	3033.58	98.88	-201.73	-228.49	1732399.86	14426251.97	39°43'24.927"N	80°40'22.310"W	304.80	228.559	4.09	4.09	0.51
3150.00	11.580	234.040	3122.13	105.55	-211.14	-241.53	1732386.83	14426242.57	39°43'24.835"N	80°40'22.477"W	320.81	228.840	2.87	2.87	-0.34
3241.00	13.660	229.580	3210.93	113.00	-223.48	-257.10	1732371.26	14426230.24	39°43'24.713"N	80°40'22.677"W	340.65	229.002	2.52	2.29	-4.90
3331.00	15.840	226.980	3297.96	120.29	-238.75	-274.17	1732354.19	14426214.98	39°43'24.563"N	80°40'22.896"W	363.55	228.951	2.53	2.42	-2.89
3421.00	18.400	227.480	3383.96	128.30	-256.73	-293.63	1732334.75	14426197.00	39°43'24.386"N	80°40'23.146"W	390.03	228.835	2.85	2.84	0.56
3512.00	20.610	229.800	3469.73	138.23	-276.78	-316.45	1732311.94	14426176.96	39°43'24.189"N	80°40'23.439"W	420.41	228.826	2.57	2.43	2.55
3602.00	22.900	232.520	3553.32	150.51	-297.66	-342.45	1732285.95	14426156.09	39°43'23.983"N	80°40'23.773"W	453.73	229.002	2.78	2.54	3.02
3692.00	25.610	233.500	3635.37	165.19	-319.89	-371.98	1732256.42	14426133.87	39°43'23.765"N	80°40'24.152"W	490.61	229.306	3.04	3.01	1.09
3783.00	27.920	233.360	3716.61	181.73	-344.31	-404.89	1732223.53	14426109.46	39°43'23.525"N	80°40'24.574"W	531.49	229.623	2.54	2.54	-0.15
3873.00	30.400	233.190	3795.20	199.31	-370.53	-440.04	1732188.40	14426083.25	39°43'23.267"N	80°40'25.025"W	575.26	229.901	2.76	2.76	-0.19
3964.00	33.620	233.420	3872.35	218.68	-399.34	-478.71	1732149.74	14426054.44	39°43'22.983"N	80°40'25.522"W	623.41	230.165	3.54	3.54	0.25
4054.00	34.380	235.130	3946.97	239.67	-428.72	-519.57	1732108.89	14426025.08	39°43'22.694"N	80°40'26.046"W	673.61	230.472	1.36	0.84	1.90
4144.00	34.200	233.190	4021.33	260.72	-458.41	-560.67	1732067.81	14425995.40	39°43'22.403"N	80°40'26.573"W	724.21	230.730	1.23	-0.20	-2.16
4234.00	34.310	233.070	4095.72	280.92	-488.80	-601.20	1732027.30	14425965.02	39°43'22.104"N	80°40'27.093"W	774.83	230.887	0.14	0.12	-0.13
4325.00	33.370	236.020	4171.31	302.25	-518.20	-642.45	1731986.06	14425935.63	39°43'21.815"N	80°40'27.623"W	825.40	231.111	2.08	-1.03	3.24
4415.00	32.190	234.000	4246.98	323.15	-546.13	-682.38	1731946.15	14425907.72	39°43'21.540"N	80°40'28.135"W	874.01	231.329	1.79	-1.31	-2.24
4505.00	31.470	234.300	4323.44	342.84	-573.93	-720.85	1731907.69	14425879.93	39°43'21.267"N	80°40'28.629"W	921.42	231.474	0.82	-0.80	0.33
4596.00	31.080	237.030	4401.22	363.57	-600.57	-759.85	1731868.71	14425853.29	39°43'21.005"N	80°40'29.129"W	968.53	231.678	1.62	-0.43	3.00

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4686.00	29.360	235.510	4478.99	383.89	-625.71	-797.53	1731831.05	14425828.17	39°43'20.758"N	80°40'29.612"W	1013.69	231.884	2.09	-1.91	-1.69
4776.00	29.700	232.980	4557.30	402.36	-651.63	-833.51	1731795.07	14425802.26	39°43'20.503"N	80°40'30.074"W	1058.00	231.982	1.44	0.38	-2.81
4866.00	31.200	234.020	4634.88	420.82	-678.75	-870.18	1731758.42	14425775.15	39°43'20.236"N	80°40'30.545"W	1103.59	232.045	1.77	1.67	1.16
4957.00	30.890	236.740	4712.85	441.20	-705.41	-908.79	1731719.83	14425748.50	39°43'19.974"N	80°40'31.040"W	1150.44	232.181	1.58	-0.34	2.99
5047.00	31.530	234.980	4789.83	461.81	-731.59	-947.38	1731681.25	14425722.33	39°43'19.717"N	80°40'31.535"W	1196.97	232.324	1.24	0.71	-1.96
5137.00	31.360	232.190	4866.62	480.87	-759.45	-985.16	1731643.49	14425694.48	39°43'19.443"N	80°40'32.020"W	1243.90	232.372	1.63	-0.19	-3.10
5228.00	31.870	230.830	4944.11	498.64	-789.14	-1022.49	1731606.17	14425664.80	39°43'19.151"N	80°40'32.499"W	1291.60	232.340	0.96	0.56	-1.49
5318.00	31.720	234.080	5020.61	517.03	-818.03	-1060.07	1731568.60	14425635.92	39°43'18.866"N	80°40'32.981"W	1339.00	232.344	1.91	-0.17	3.61
5409.00	32.360	236.240	5097.75	537.84	-845.60	-1099.70	1731529.00	14425608.36	39°43'18.595"N	80°40'33.490"W	1387.21	232.442	1.44	0.70	2.37
5499.00	30.630	232.610	5174.50	557.58	-872.91	-1137.94	1731490.76	14425581.06	39°43'18.327"N	80°40'33.980"W	1434.18	232.508	2.85	-1.92	-4.03
5589.00	30.180	231.370	5252.12	574.91	-900.95	-1173.83	1731454.89	14425553.03	39°43'18.051"N	80°40'34.441"W	1479.73	232.493	0.86	-0.50	-1.38
5680.00	29.820	232.910	5330.93	592.33	-928.88	-1209.75	1731418.99	14425525.11	39°43'17.776"N	80°40'34.902"W	1525.22	232.482	0.93	-0.40	1.69
5770.00	30.450	234.070	5408.77	610.61	-955.76	-1246.07	1731382.68	14425498.25	39°43'17.512"N	80°40'35.368"W	1570.40	232.511	0.95	0.70	1.29
5860.00	32.760	234.590	5485.41	630.32	-983.25	-1284.38	1731344.38	14425470.76	39°43'17.242"N	80°40'35.860"W	1617.54	232.564	2.58	2.57	0.58
5951.00	33.770	235.050	5561.50	651.57	-1012.01	-1325.18	1731303.60	14425442.02	39°43'16.959"N	80°40'36.383"W	1667.41	232.632	1.14	1.11	0.51
6041.00	33.200	233.270	5636.57	672.19	-1041.07	-1365.43	1731263.36	14425412.96	39°43'16.673"N	80°40'36.899"W	1717.05	232.676	1.26	-0.63	-1.98
6132.00	32.810	233.940	5712.88	692.33	-1070.49	-1405.33	1731223.48	14425383.56	39°43'16.384"N	80°40'37.411"W	1766.61	232.702	0.59	-0.43	0.74
6222.00	34.320	235.470	5787.87	713.42	-1099.22	-1445.95	1731182.88	14425354.84	39°43'16.101"N	80°40'37.933"W	1816.33	232.758	1.92	1.68	1.70
6313.00	33.350	234.020	5863.46	734.94	-1128.46	-1487.33	1731141.52	14425325.61	39°43'15.814"N	80°40'38.463"W	1866.97	232.812	1.39	-1.07	-1.59
6403.00	31.360	231.010	5939.49	753.69	-1157.74	-1525.55	1731103.30	14425296.35	39°43'15.526"N	80°40'38.954"W	1915.12	232.805	2.84	-2.21	-3.34
6494.00	29.190	230.910	6018.07	770.38	-1186.63	-1561.19	1731067.69	14425267.47	39°43'15.241"N	80°40'39.411"W	1960.97	232.762	2.39	-2.38	-0.11
6584.00	29.330	232.820	6096.59	787.02	-1213.79	-1595.78	1731033.10	14425240.32	39°43'14.974"N	80°40'39.855"W	2004.95	232.743	1.05	0.16	2.12
6674.00	30.120	237.280	6174.76	806.19	-1239.32	-1632.35	1730995.55	14425214.80	39°43'14.723"N	80°40'40.325"W	2049.51	232.793	2.61	0.88	4.96
6764.00	31.140	238.360	6252.20	827.85	-1263.73	-1671.16	1730957.75	14425190.39	39°43'14.483"N	80°40'40.822"W	2095.19	232.903	1.29	1.13	1.20
6855.00	31.460	239.570	6329.96	851.02	-1288.11	-1711.67	1730917.26	14425166.03	39°43'14.244"N	80°40'41.342"W	2142.20	233.037	0.78	0.35	1.33
6945.00	30.910	249.300	6407.00	877.51	-1308.18	-1753.57	1730875.38	14425145.96	39°43'14.047"N	80°40'41.879"W	2187.78	233.277	5.63	-0.61	10.81
7036.00	33.640	258.680	6483.98	911.50	-1321.40	-1800.19	1730828.78	14425132.74	39°43'13.918"N	80°40'42.476"W	2233.11	233.720	6.26	3.00	10.31
7126.00	35.550	267.960	6558.12	952.63	-1327.23	-1850.82	1730778.17	14425126.92	39°43'13.862"N	80°40'43.124"W	2277.52	234.355	6.22	2.12	10.31
7217.00	37.190	277.880	6631.46	1000.73	-1324.40	-1904.55	1730724.45	14425129.75	39°43'13.892"N	80°40'43.812"W	2319.78	235.186	6.70	1.80	10.90
7307.00	38.170	284.480	6702.71	1052.86	-1313.71	-1958.45	1730670.58	14425140.43	39°43'14.000"N	80°40'44.501"W	2358.25	236.147	4.61	1.09	7.33

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 401H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 401H
Area	Wellbore	Arthur Waryck MSH 401H AWB
Field		
Facility		

WELLPATH DATA (208 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7397.00	39.080	292.980	6773.08	1107.92	-1295.67	-2011.53	1730617.52	14425158.47	39°43'14.180"N	80°40'45.180"W	2392.70	237.213	5.98	1.01	9.44
7487.00	41.190	298.800	6841.90	1165.76	-1270.31	-2063.64	1730565.43	14425183.82	39°43'14.432"N	80°40'45.845"W	2423.28	238.385	4.78	2.34	6.47
7578.00	44.680	303.040	6908.53	1227.69	-1238.41	-2116.74	1730512.35	14425215.70	39°43'14.749"N	80°40'46.524"W	2452.40	239.670	4.98	3.84	4.66
7668.00	50.450	303.850	6969.23	1293.94	-1201.80	-2172.13	1730456.98	14425252.30	39°43'15.113"N	80°40'47.231"W	2482.44	241.045	6.45	6.41	0.90
7708.00	52.830	305.370	6994.06	1325.18	-1183.98	-2197.94	1730431.18	14425270.11	39°43'15.290"N	80°40'47.560"W	2496.55	241.690	6.65	5.95	3.80
7758.00	55.690	305.670	7023.26	1365.54	-1160.41	-2230.97	1730398.17	14425293.68	39°43'15.524"N	80°40'47.982"W	2514.71	242.519	5.74	5.72	0.60
7827.00	63.610	307.930	7058.10	1424.56	-1124.73	-2278.58	1730350.58	14425329.34	39°43'15.879"N	80°40'48.589"W	2541.05	243.729	11.82	11.48	3.28
7872.00	70.160	309.860	7075.76	1465.38	-1098.75	-2310.76	1730318.41	14425355.31	39°43'16.136"N	80°40'49.000"W	2558.68	244.569	15.08	14.56	4.29
7917.00	74.870	312.210	7089.28	1507.44	-1070.57	-2343.11	1730286.07	14425383.48	39°43'16.416"N	80°40'49.413"W	2576.10	245.444	11.59	10.47	5.22
7963.00	79.850	314.400	7099.34	1551.03	-1039.79	-2375.76	1730253.43	14425414.25	39°43'16.721"N	80°40'49.829"W	2593.34	246.363	11.78	10.83	4.76
8008.00	85.290	315.670	7105.16	1594.03	-1008.23	-2407.28	1730221.93	14425445.80	39°43'17.034"N	80°40'50.231"W	2609.89	247.275	12.41	12.09	2.82
8053.00	89.780	316.370	7107.09	1637.15	-975.89	-2438.49	1730190.73	14425478.13	39°43'17.355"N	80°40'50.629"W	2626.51	248.189	10.10	9.98	1.56
8098.00	90.310	314.880	7107.06	1680.41	-943.72	-2469.96	1730159.27	14425510.28	39°43'17.674"N	80°40'51.030"W	2644.11	249.089	3.51	1.18	-3.31
8189.00	90.180	312.160	7106.67	1768.74	-881.07	-2535.94	1730093.32	14425572.91	39°43'18.296"N	80°40'51.872"W	2684.63	250.841	2.99	-0.14	-2.99
8279.00	90.370	312.370	7106.23	1856.56	-820.54	-2602.54	1730026.74	14425633.42	39°43'18.896"N	80°40'52.722"W	2728.83	252.501	0.31	0.21	0.23
8370.00	90.580	313.510	7105.48	1945.11	-758.55	-2669.16	1729960.15	14425695.38	39°43'19.511"N	80°40'53.571"W	2774.85	254.135	1.27	0.23	1.25
8460.00	90.460	314.120	7104.66	2032.36	-696.24	-2734.10	1729895.24	14425757.66	39°43'20.129"N	80°40'54.400"W	2821.35	255.713	0.69	-0.13	0.68
8551.00	89.880	311.590	7104.39	2120.94	-634.35	-2800.80	1729828.56	14425819.53	39°43'20.743"N	80°40'55.250"W	2871.74	257.238	2.85	-0.64	-2.78
8641.00	89.720	311.230	7104.71	2209.04	-574.82	-2868.30	1729761.09	14425879.03	39°43'21.334"N	80°40'56.112"W	2925.33	258.668	0.44	-0.18	-0.40
8731.00	89.820	313.710	7105.07	2296.79	-514.06	-2934.68	1729694.73	14425939.77	39°43'21.937"N	80°40'56.958"W	2979.36	260.064	2.76	0.11	2.76
8822.00	89.940	315.340	7105.26	2384.72	-450.25	-2999.56	1729629.88	14426003.56	39°43'22.570"N	80°40'57.786"W	3033.16	261.463	1.80	0.13	1.79
8912.00	90.250	312.690	7105.11	2471.89	-387.72	-3064.27	1729565.19	14426066.06	39°43'23.190"N	80°40'58.611"W	3088.70	262.789	2.96	0.34	-2.94
9002.00	89.690	311.900	7105.16	2559.70	-327.16	-3130.84	1729498.64	14426126.60	39°43'23.791"N	80°40'59.460"W	3147.89	264.035	1.08	-0.62	-0.88
9093.00	89.850	311.320	7105.52	2648.72	-266.73	-3198.88	1729430.63	14426187.01	39°43'24.390"N	80°41'00.328"W	3209.98	265.234	0.66	0.18	-0.64
9183.00	89.910	312.150	7105.71	2736.72	-206.82	-3266.04	1729363.50	14426246.89	39°43'24.985"N	80°41'01.185"W	3272.58	266.377	0.92	0.07	0.92
9273.00	89.970	313.990	7105.81	2824.25	-145.36	-3331.79	1729297.78	14426308.33	39°43'25.594"N	80°41'02.024"W	3334.96	267.502	2.05	0.07	2.04
9364.00	90.000	313.350	7105.83	2912.53	-82.52	-3397.61	1729231.98	14426371.14	39°43'26.218"N	80°41'02.863"W	3398.61	268.609	0.70	0.03	-0.70
9454.00	89.940	309.180	7105.88	3000.66	-23.18	-3465.24	1729164.37	14426430.46	39°43'26.807"N	80°41'03.726"W	3465.32	269.617	4.63	-0.07	-4.63
9545.00	89.820	307.410	7106.07	3090.62	33.21	-3536.66	1729092.99	14426486.83	39°43'27.366"N	80°41'04.638"W	3536.82	270.538	1.95	-0.13	-1.95
9635.00	89.780	306.250	7106.38	3179.91	87.16	-3608.70	1729020.98	14426540.76	39°43'27.902"N	80°41'05.557"W	3609.75	271.384	1.29	-0.04	-1.29

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 401H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 401H
Area	Wellbore	Arthur Waryck MSH 401H AWB
Field		
Facility		

WELLPATH DATA (208 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
9725.00	89.750	311.480	7106.75	3268.71	143.62	-3678.75	1728950.95	14426597.19	39°43'28.462"N	80°41'06.451"W	3681.55	272.236	5.81	-0.03	5.81
9816.00	89.910	313.870	7107.02	3357.35	205.29	-3745.65	1728884.08	14426658.84	39°43'29.074"N	80°41'07.305"W	3751.27	273.137	2.63	0.18	2.63
9906.00	89.910	309.740	7107.16	3445.31	265.28	-3812.72	1728817.04	14426718.80	39°43'29.669"N	80°41'08.160"W	3821.94	273.980	4.59	0.00	-4.59
9997.00	89.540	310.440	7107.60	3534.80	323.88	-3882.34	1728747.45	14426777.38	39°43'30.251"N	80°41'09.049"W	3895.82	274.769	0.87	-0.41	0.77
10087.00	89.630	314.640	7108.25	3622.50	384.71	-3948.63	1728681.18	14426838.19	39°43'30.854"N	80°41'09.895"W	3967.33	275.565	4.67	0.10	4.67
10178.00	90.000	318.410	7108.55	3709.56	450.74	-4011.23	1728618.60	14426904.19	39°43'31.509"N	80°41'10.693"W	4036.48	276.411	4.16	0.41	4.14
10269.00	90.090	312.930	7108.47	3796.98	515.81	-4074.80	1728555.06	14426969.23	39°43'32.154"N	80°41'11.503"W	4107.32	277.214	6.02	0.10	-6.02
10360.00	90.180	311.900	7108.26	3885.72	577.18	-4141.98	1728487.90	14427030.59	39°43'32.763"N	80°41'12.361"W	4182.00	277.933	1.14	0.10	-1.13
10450.00	90.060	311.170	7108.07	3973.79	636.86	-4209.35	1728420.56	14427090.24	39°43'33.355"N	80°41'13.220"W	4257.25	278.603	0.82	-0.13	-0.81
10541.00	90.280	313.910	7107.80	4062.48	698.38	-4276.39	1728353.55	14427151.74	39°43'33.966"N	80°41'14.075"W	4333.04	279.275	3.02	0.24	3.01
10631.00	90.740	313.390	7107.00	4149.79	760.50	-4341.51	1728288.45	14427213.83	39°43'34.582"N	80°41'14.906"W	4407.62	279.936	0.77	0.51	-0.58
10721.00	90.430	312.460	7106.08	4237.37	821.79	-4407.41	1728222.58	14427275.10	39°43'35.190"N	80°41'15.747"W	4483.37	280.562	1.09	-0.34	-1.03
10812.00	90.460	317.600	7105.37	4325.07	886.15	-4471.70	1728158.32	14427339.43	39°43'35.828"N	80°41'16.567"W	4558.66	281.209	5.65	0.03	5.65
10902.00	90.770	313.730	7104.41	4411.55	950.50	-4534.58	1728095.46	14427403.76	39°43'36.466"N	80°41'17.369"W	4633.13	281.839	4.31	0.34	-4.30
10992.00	90.280	308.810	7103.58	4499.67	1009.85	-4602.20	1728027.87	14427463.08	39°43'37.055"N	80°41'18.231"W	4711.69	282.376	5.49	-0.54	-5.47
11083.00	90.430	310.390	7103.02	4589.29	1067.85	-4672.31	1727957.78	14427521.06	39°43'37.631"N	80°41'19.126"W	4792.79	282.874	1.74	0.16	1.74
11173.00	90.400	313.360	7102.37	4677.23	1127.92	-4739.32	1727890.80	14427581.11	39°43'38.226"N	80°41'19.981"W	4871.69	283.387	3.30	-0.03	3.30
11263.00	90.400	312.930	7101.74	4764.74	1189.46	-4804.98	1727825.16	14427642.63	39°43'38.837"N	80°41'20.819"W	4950.02	283.904	0.48	0.00	-0.48
11354.00	90.950	315.650	7100.67	4852.76	1253.00	-4870.11	1727760.06	14427706.13	39°43'39.467"N	80°41'21.650"W	5028.72	284.428	3.05	0.60	2.99
11444.00	90.770	319.220	7099.31	4938.42	1319.26	-4930.97	1727699.22	14427772.38	39°43'40.124"N	80°41'22.426"W	5104.40	284.978	3.97	-0.20	3.97
11534.00	92.830	320.310	7096.49	5022.88	1387.93	-4989.07	1727641.14	14427841.02	39°43'40.805"N	80°41'23.166"W	5178.53	285.546	2.59	2.29	1.21
11625.00	91.170	315.450	7093.31	5109.22	1455.36	-5050.05	1727580.19	14427908.42	39°43'41.473"N	80°41'23.944"W	5255.58	286.076	5.64	-1.82	-5.34
11715.00	90.890	312.810	7091.69	5196.33	1518.01	-5114.63	1727515.63	14427971.05	39°43'42.095"N	80°41'24.767"W	5335.15	286.531	2.95	-0.31	-2.93
11805.00	90.650	307.300	7090.48	5284.80	1575.90	-5183.49	1727446.81	14428028.92	39°43'42.669"N	80°41'25.646"W	5417.75	286.911	6.13	-0.27	-6.12
11896.00	90.220	310.610	7089.79	5374.58	1633.11	-5254.24	1727376.08	14428086.10	39°43'43.237"N	80°41'26.549"W	5502.19	287.266	3.67	-0.47	3.64
11986.00	90.460	312.380	7089.26	5462.65	1692.73	-5321.65	1727308.70	14428145.70	39°43'43.828"N	80°41'27.409"W	5584.38	287.645	1.98	0.27	1.97
12076.00	90.920	315.960	7088.17	5549.75	1755.43	-5386.19	1727244.19	14428208.37	39°43'44.450"N	80°41'28.233"W	5665.03	288.051	4.01	0.51	3.98
12167.00	90.830	315.970	7086.78	5637.07	1820.84	-5449.43	1727180.96	14428273.76	39°43'45.099"N	80°41'29.039"W	5745.59	288.476	0.10	-0.10	0.01
12257.00	91.600	311.330	7084.87	5724.34	1882.93	-5514.52	1727115.90	14428335.83	39°43'45.715"N	80°41'29.870"W	5827.13	288.852	5.22	0.86	-5.16
12348.00	90.740	306.110	7083.01	5814.15	1939.82	-5585.48	1727044.97	14428392.69	39°43'46.279"N	80°41'30.775"W	5912.74	289.152	5.81	-0.95	-5.74

REFERENCE WELLPATH IDENTIFICATION

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Area	Wellbore	Arthur Waryck MSH 401H AWB
Field		
Facility		

WELLPATH DATA (208 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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
12438.00	90.770	307.510	7081.83	5903.43	1993.74	-5657.53	1726972.95	14428446.59	39°43'46.815"N	80°41'31.695"W	5998.55	289.413	1.56	0.03	1.56
12528.00	91.230	307.350	7080.26	5992.59	2048.44	-5728.99	1726901.52	14428501.26	39°43'47.357"N	80°41'32.607"W	6084.19	289.675	0.54	0.51	-0.18
12619.00	91.480	308.320	7078.10	6082.63	2104.24	-5800.84	1726829.70	14428557.04	39°43'47.911"N	80°41'33.524"W	6170.70	289.938	1.10	0.27	1.07
12709.00	90.890	309.500	7076.24	6171.43	2160.75	-5870.85	1726759.71	14428613.54	39°43'48.472"N	80°41'34.418"W	6255.86	290.206	1.47	-0.66	1.31
12799.00	91.230	310.520	7074.58	6259.94	2218.61	-5939.77	1726690.82	14428671.36	39°43'49.046"N	80°41'35.298"W	6340.59	290.482	1.19	0.38	1.13
12889.00	91.080	309.840	7072.76	6348.40	2276.66	-6008.52	1726622.10	14428729.40	39°43'49.622"N	80°41'36.175"W	6425.38	290.752	0.77	-0.17	-0.76
12980.00	90.890	311.140	7071.20	6437.76	2335.74	-6077.72	1726552.93	14428788.45	39°43'50.209"N	80°41'37.058"W	6511.09	291.022	1.44	-0.21	1.43
13070.00	91.020	312.730	7069.70	6525.67	2395.87	-6144.66	1726486.01	14428848.56	39°43'50.805"N	80°41'37.912"W	6595.23	291.301	1.77	0.14	1.77
13160.00	91.170	310.330	7067.98	6613.72	2455.53	-6212.01	1726418.68	14428908.20	39°43'51.397"N	80°41'38.772"W	6679.73	291.568	2.67	0.17	-2.67
13250.00	90.890	310.510	7066.36	6702.11	2513.87	-6280.52	1726350.20	14428966.52	39°43'51.976"N	80°41'39.646"W	6764.95	291.815	0.37	-0.31	0.20
13341.00	91.230	310.860	7064.68	6791.41	2573.19	-6349.51	1726281.24	14429025.81	39°43'52.564"N	80°41'40.527"W	6851.10	292.061	0.54	0.37	0.38
13431.00	91.320	309.830	7062.68	6879.81	2631.44	-6418.09	1726212.69	14429084.03	39°43'53.142"N	80°41'41.402"W	6936.60	292.294	1.15	0.10	-1.14
13522.00	92.090	310.670	7059.97	6969.21	2690.21	-6487.51	1726143.29	14429142.78	39°43'53.726"N	80°41'42.288"W	7023.18	292.523	1.25	0.85	0.92
13612.00	93.080	314.100	7055.91	7056.89	2750.80	-6553.91	1726076.92	14429203.36	39°43'54.327"N	80°41'43.135"W	7107.79	292.769	3.96	1.10	3.81
13702.00	92.920	314.570	7051.20	7143.82	2813.61	-6618.20	1726012.66	14429266.14	39°43'54.950"N	80°41'43.955"W	7191.45	293.032	0.55	-0.18	0.52
13792.00	93.110	314.810	7046.46	7230.61	2876.82	-6682.09	1725948.79	14429329.32	39°43'55.576"N	80°41'44.770"W	7275.06	293.293	0.34	0.21	0.27
13883.00	92.830	312.330	7041.75	7318.81	2939.45	-6747.93	1725882.98	14429391.93	39°43'56.198"N	80°41'45.610"W	7360.36	293.538	2.74	-0.31	-2.73
13973.00	91.750	311.030	7038.15	7406.75	2999.25	-6815.09	1725815.84	14429451.70	39°43'56.791"N	80°41'46.467"W	7445.87	293.754	1.88	-1.20	-1.44
14064.00	91.450	311.150	7035.61	7495.90	3059.04	-6883.65	1725747.31	14429511.47	39°43'57.384"N	80°41'47.342"W	7532.75	293.960	0.36	-0.33	0.13
14154.00	91.630	310.290	7033.19	7584.19	3117.73	-6951.84	1725679.15	14429570.13	39°43'57.966"N	80°41'48.213"W	7618.94	294.155	0.98	0.20	-0.96
14245.00	91.020	309.430	7031.09	7673.71	3176.03	-7021.67	1725609.34	14429628.42	39°43'58.545"N	80°41'49.104"W	7706.56	294.338	1.16	-0.67	-0.95
14335.00	91.540	310.800	7029.08	7762.19	3234.01	-7090.48	1725540.56	14429686.37	39°43'59.120"N	80°41'49.982"W	7793.18	294.518	1.63	0.58	1.52
14426.00	91.600	310.430	7026.58	7851.49	3293.22	-7159.53	1725471.54	14429745.56	39°43'59.707"N	80°41'50.863"W	7880.62	294.701	0.41	0.07	-0.41
14516.00	91.790	313.220	7023.92	7939.41	3353.21	-7226.56	1725404.53	14429805.52	39°44'00.303"N	80°41'51.719"W	7966.63	294.892	3.11	0.21	3.10
14606.00	91.510	313.150	7021.33	8026.86	3414.77	-7292.16	1725338.96	14429867.06	39°44'00.913"N	80°41'52.556"W	8052.10	295.093	0.32	-0.31	-0.08
14696.00	91.750	313.320	7018.77	8114.30	3476.40	-7357.70	1725273.44	14429928.66	39°44'01.524"N	80°41'53.392"W	8137.64	295.290	0.33	0.27	0.19
14787.00	92.090	311.030	7015.72	8203.07	3537.46	-7425.10	1725206.07	14429989.70	39°44'02.130"N	80°41'54.252"W	8224.70	295.474	2.54	0.37	-2.52
14877.00	92.370	310.060	7012.22	8291.38	3595.92	-7493.44	1725137.76	14430048.14	39°44'02.710"N	80°41'55.124"W	8311.57	295.635	1.12	0.31	-1.08
14967.00	91.820	310.700	7008.93	8379.74	3654.18	-7561.95	1725069.28	14430106.38	39°44'03.288"N	80°41'55.999"W	8398.58	295.791	0.94	-0.61	0.71
15058.00	91.970	312.060	7005.92	8468.78	3714.30	-7630.19	1725001.06	14430166.48	39°44'03.885"N	80°41'56.870"W	8486.22	295.956	1.50	0.16	1.49



REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 401H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 401H
Area	Wellbore	Arthur Waryck MSH 401H AWB
Field		
Facility		

WELLPATH DATA (208 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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
15148.00	91.820	311.430	7002.94	8556.73	3774.19	-7697.30	1724933.97	14430226.34	39°44'04.479"N	80°41'57.726"W	8572.81	296.120	0.72	-0.17	-0.70
15238.00	92.030	311.900	6999.92	8644.70	3833.99	-7764.50	1724866.81	14430286.12	39°44'05.072"N	80°41'58.584"W	8659.50	296.279	0.57	0.23	0.52
15328.00	91.940	311.350	6996.80	8732.68	3893.74	-7831.74	1724799.60	14430345.84	39°44'05.665"N	80°41'59.442"W	8746.27	296.435	0.62	-0.10	-0.61
15418.00	91.910	314.080	6993.78	8820.29	3954.75	-7897.82	1724733.54	14430406.83	39°44'06.270"N	80°42'00.285"W	8832.64	296.599	3.03	-0.03	3.03
15509.00	92.120	314.230	6990.58	8908.32	4018.10	-7963.07	1724668.32	14430470.15	39°44'06.898"N	80°42'01.118"W	8919.39	296.775	0.28	0.23	0.16
15599.00	92.120	313.310	6987.25	8995.54	4080.32	-8028.01	1724603.40	14430532.35	39°44'07.157"N	80°42'01.946"W	9005.44	296.942	1.02	0.00	-1.02
15690.00	92.310	312.210	6983.73	9084.09	4142.05	-8094.77	1724536.66	14430594.06	39°44'08.127"N	80°42'02.798"W	9092.96	297.099	1.23	0.21	-1.21
15780.00	92.000	312.190	6980.35	9171.87	4202.46	-8161.40	1724470.06	14430654.44	39°44'08.727"N	80°42'03.648"W	9179.82	297.245	0.35	-0.34	-0.02
15871.00	91.290	310.940	6977.74	9260.86	4262.81	-8229.46	1724402.03	14430714.77	39°44'09.325"N	80°42'04.517"W	9267.98	297.384	1.58	-0.78	-1.37
15961.00	90.920	310.620	6976.00	9349.15	4321.59	-8297.59	1724333.92	14430773.52	39°44'09.908"N	80°42'05.387"W	9355.54	297.512	0.54	-0.41	-0.36
16052.00	92.090	312.480	6973.61	9438.15	4381.92	-8365.67	1724265.87	14430833.83	39°44'10.507"N	80°42'06.255"W	9443.81	297.645	2.41	1.29	2.04
16142.00	92.960	312.000	6969.64	9525.89	4442.36	-8432.23	1724199.34	14430894.25	39°44'11.106"N	80°42'07.105"W	9530.85	297.782	1.10	0.97	-0.53
16232.00	92.490	311.850	6965.37	9613.73	4502.43	-8499.12	1724132.48	14430954.29	39°44'11.702"N	80°42'07.959"W	9618.05	297.913	0.55	-0.52	-0.17
16323.00	92.250	311.570	6961.60	9702.64	4562.92	-8566.99	1724064.63	14431014.76	39°44'12.302"N	80°42'08.825"W	9706.37	298.041	0.41	-0.26	-0.31
16413.00	91.750	312.550	6958.46	9790.47	4623.18	-8633.77	1723997.87	14431074.99	39°44'12.900"N	80°42'09.677"W	9793.66	298.168	1.22	-0.56	1.09
16504.00	91.850	312.720	6955.60	9879.09	4684.78	-8700.69	1723930.99	14431136.57	39°44'13.511"N	80°42'10.531"W	9881.76	298.300	0.22	0.11	0.19
16594.00	91.320	312.210	6953.11	9966.81	4745.52	-8767.05	1723864.65	14431197.29	39°44'14.113"N	80°42'11.378"W	9969.01	298.426	0.82	-0.59	-0.57
16684.00	91.290	312.690	6951.06	10054.54	4806.25	-8833.44	1723798.28	14431258.00	39°44'14.716"N	80°42'12.225"W	10056.33	298.550	0.53	-0.03	0.53
16775.00	90.950	310.840	6949.29	10143.49	4866.85	-8901.30	1723730.45	14431318.57	39°44'15.317"N	80°42'13.091"W	10144.92	298.668	2.07	-0.37	-2.03
16865.00	90.400	311.680	6948.23	10231.64	4926.20	-8968.96	1723662.83	14431377.89	39°44'15.905"N	80°42'13.955"W	10232.77	298.778	1.12	-0.61	0.93
16956.00	90.150	311.150	6947.79	10320.72	4986.39	-9037.20	1723594.61	14431438.07	39°44'16.503"N	80°42'14.826"W	10321.58	298.888	0.64	-0.27	-0.58
17046.00	90.650	312.810	6947.16	10408.63	5046.59	-9104.10	1723527.74	14431498.24	39°44'17.100"N	80°42'15.680"W	10409.26	299.001	1.93	0.56	1.84
17136.00	91.260	312.280	6945.66	10496.34	5107.43	-9170.39	1723461.46	14431559.06	39°44'17.703"N	80°42'16.526"W	10496.76	299.116	0.90	0.68	-0.59
17227.00	91.110	312.770	6943.78	10585.02	5168.93	-9237.44	1723394.44	14431620.53	39°44'18.313"N	80°42'17.381"W	10585.28	299.230	0.56	-0.16	0.54
17317.00	91.450	310.780	6941.77	10672.98	5228.87	-9304.54	1723327.37	14431680.45	39°44'18.908"N	80°42'18.238"W	10673.12	299.335	2.24	0.38	-2.21
17407.00	92.000	309.050	6939.06	10761.49	5286.59	-9373.54	1723258.40	14431738.15	39°44'19.480"N	80°42'19.119"W	10761.56	299.423	2.02	0.61	-1.92
17492.00	92.220	309.900	6935.93	10845.18	5340.59	-9439.10	1723192.86	14431792.13	39°44'20.016"N	80°42'19.956"W	10845.21	299.501	1.03	0.26	1.00
17517.00	92.220	309.900	6934.96	10869.76	5356.61	-9458.27	1723123.70	14431808.14	39°44'20.175"N	80°42'20.200"W	10869.78	299.525	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 401H
Area	Marshall County, WV	Well	Arthur Waryck MSH 401H
Field	Marshall	Wellbore	Arthur Waryck MSH 401H AWB
Facility	Arthur Waryck MSH Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Arthur Waryck MSH 401H AWB Ref Wellpath: Arthur Waryck MSH 401H AWP Proj: 17517'

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]
20in Conductor	26.00	100.00	74.00	26.00	100.00	0.00	0.00	0.08	0.14
17.5in Open Hole	26.00	658.00	632.00	26.00	658.00	0.00	0.00	-0.10	1.61
13.375in Casing Surface	26.00	658.00	632.00	26.00	658.00	0.00	0.00	-0.10	1.61
12.25in Open Hole	658.00	2733.00	2075.00	658.00	2707.78	-0.10	1.61	-183.81	-210.49
9.625in Casing Intermediate	26.00	2733.00	2707.00	26.00	2707.78	0.00	0.00	-183.81	-210.49
8.75in Open Hole	2733.00	7782.00	5049.00	2707.78	7036.31	-183.81	-210.49	-1148.54	-2247.24
8.5in Open Hole	7782.00	17517.00	9735.00	7036.31	6934.96	-1148.54	-2247.24	5356.61	-9458.27
5.5in Casing Production	26.00	17517.00	17491.00	26.00	6934.96	0.00	0.00	5356.61	-9458.27

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Arthur Waryck MSH 401H LP Rev-6	7107.00	-971.44	-2450.67	1730178.55	14425482.57	39°43'17.400"N	80°40'50.785"W	point
Arthur Waryck MSH 401H BHL Rev-6	7189.45	5374.34	-9449.09	1723182.88	14431825.86	39°44'20.350"N	80°42'20.082"W	point

WELLPATH COMPOSITION - Ref Wellbore: Arthur Waryck MSH 401H AWB Ref Wellpath: Arthur Waryck MSH 401H AWP Proj: 17517'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
26.00	642.00	VESI GyroFlex v4	01 VES GyroFlex <17 1/2"> (50'-642')
642.00	2680.00	OWSG MWD rev2 + HRGM	02 Premier MWD <12-1/4"> (642')(736'-2680')
2680.00	7708.00	OWSG MWD rev2 + HRGM	03 Premier MWD <8-3/4"> (2680')(2694'-7708')
7708.00	17492.00	BHI AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(7708')(7758'-17492')
17492.00	17517.00	Blind Drilling (std)	Projection to bit

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 401H
Area	Marshall County, WV	Well	Arthur Waryck MSH 401H
Field	Marshall	Wellbore	Arthur Waryck MSH 401H AWB
Facility	Arthur Waryck MSH Pad		

COMMENTS

Wellpath general comments
API: 47-051-02172-0000
BH Job #: 109995123A
Rig: SDC 46
Duration: 09/14/2019 - 09/16/2019