

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Arthur Waryck MSH 1H
Field	Marshall	Wellbore	Arthur Waryck MSH 1H 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	8/23/2019 at 2:53:18 PM
Convergence at slot	0.21° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Arthur_Waryck_MSH_1H_AWP_Proj_17639_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	61.30	-5.18	1732646.54	14426472.55	39°43'27.099"N	80°40'19.141"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	1352.10ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1352.10ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 1H)	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	308.20°

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Marshall County, WV	Wellbore	Arthur Waryck MSH 1H AWB
Marshall		
Arthur Waryck MSH Pad		

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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
0.00†	0.000	304.630	0.00	0.00	0.00	0.00	1732646.54	14426472.55	39°43'27.099"N	80°40'19.141"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	304.630	26.00	0.00	0.00	0.00	1732646.54	14426472.55	39°43'27.099"N	80°40'19.141"W	0.00	0.000	0.00	0.00	0.00
100.00	0.310	304.630	100.00	0.20	0.11	-0.16	1732646.38	14426472.66	39°43'27.100"N	80°40'19.144"W	0.20	304.630	0.42	0.42	-74.82
150.00	0.320	309.130	150.00	0.47	0.28	-0.38	1732646.16	14426472.83	39°43'27.102"N	80°40'19.146"W	0.47	305.952	0.05	0.02	9.00
200.00	0.080	357.460	200.00	0.64	0.40	-0.49	1732646.05	14426472.95	39°43'27.103"N	80°40'19.148"W	0.64	309.108	0.55	-0.48	96.66
250.00	0.090	118.180	250.00	0.62	0.42	-0.46	1732646.08	14426472.97	39°43'27.103"N	80°40'19.147"W	0.62	312.196	0.30	0.02	241.44
300.00	0.120	120.630	300.00	0.53	0.37	-0.38	1732646.16	14426472.92	39°43'27.103"N	80°40'19.146"W	0.53	314.346	0.06	0.06	4.90
350.00	0.100	158.710	350.00	0.44	0.31	-0.32	1732646.22	14426472.86	39°43'27.102"N	80°40'19.146"W	0.44	313.623	0.15	-0.04	76.16
400.00	0.140	155.120	400.00	0.35	0.21	-0.28	1732646.26	14426472.76	39°43'27.101"N	80°40'19.145"W	0.35	306.893	0.08	0.08	-7.18
450.00	0.150	150.610	450.00	0.23	0.10	-0.22	1732646.32	14426472.65	39°43'27.100"N	80°40'19.144"W	0.24	293.677	0.03	0.02	-9.02
500.00	0.090	155.300	500.00	0.14	0.00	-0.17	1732646.37	14426472.55	39°43'27.099"N	80°40'19.144"W	0.17	271.422	0.12	-0.12	9.38
550.00	0.140	121.940	550.00	0.04	-0.06	-0.10	1732646.44	14426472.49	39°43'27.098"N	80°40'19.143"W	0.12	238.611	0.16	0.10	-66.72
600.00	0.090	106.270	600.00	-0.05	-0.11	-0.01	1732646.53	14426472.44	39°43'27.098"N	80°40'19.142"W	0.11	187.915	0.12	-0.10	-31.34
650.00	0.070	125.830	650.00	-0.12	-0.14	0.05	1732646.59	14426472.41	39°43'27.098"N	80°40'19.141"W	0.14	160.705	0.07	-0.04	39.12
700.00	0.090	125.800	700.00	-0.19	-0.18	0.10	1732646.64	14426472.37	39°43'27.097"N	80°40'19.140"W	0.21	149.482	0.04	0.04	-0.06
750.00	0.270	10.570	750.00	-0.18	-0.08	0.16	1732646.70	14426472.47	39°43'27.098"N	80°40'19.139"W	0.18	118.026	0.64	0.36	-230.46
800.00	2.020	359.200	799.99	0.43	0.91	0.17	1732646.71	14426473.46	39°43'27.108"N	80°40'19.139"W	0.93	10.362	3.51	3.50	-22.74
850.00	2.210	357.720	849.95	1.61	2.76	0.12	1732646.66	14426475.31	39°43'27.126"N	80°40'19.140"W	2.76	2.415	0.40	0.38	-2.96
900.00	2.470	356.030	899.91	2.96	4.80	0.00	1732646.54	14426477.34	39°43'27.146"N	80°40'19.141"W	4.80	0.040	0.54	0.52	-3.38
950.00	2.760	354.050	949.86	4.52	7.07	-0.20	1732646.34	14426479.62	39°43'27.169"N	80°40'19.144"W	7.07	358.411	0.61	0.58	-3.96
1000.00	3.210	353.100	999.79	6.35	9.65	-0.49	1732646.05	14426482.20	39°43'27.194"N	80°40'19.147"W	9.67	357.101	0.91	0.90	-1.90
1050.00	3.770	352.730	1049.70	8.52	12.68	-0.87	1732645.22	14426485.22	39°43'27.224"N	80°40'19.152"W	12.70	356.095	1.12	1.12	-0.74
1100.00	3.910	352.860	1099.58	10.90	16.00	-1.29	1732645.26	14426488.54	39°43'27.257"N	80°40'19.157"W	16.05	355.407	0.28	0.28	0.26
1150.00	3.420	357.020	1149.48	13.10	19.18	-1.57	1732644.97	14426491.72	39°43'27.289"N	80°40'19.161"W	19.24	355.307	1.11	-0.98	8.32
1200.00	3.210	358.750	1199.40	14.97	22.07	-1.68	1732644.86	14426494.61	39°43'27.317"N	80°40'19.162"W	22.13	355.640	0.47	-0.42	3.46
1250.00	1.750	15.200	1249.35	16.16	24.20	-1.51	1732645.03	14426496.74	39°43'27.338"N	80°40'19.160"W	24.25	356.423	3.22	-2.92	32.90
1300.00	1.160	20.660	1299.33	16.61	25.41	-1.13	1732645.41	14426497.95	39°43'27.350"N	80°40'19.155"W	25.44	357.445	1.21	-1.18	10.92
1350.00	0.670	27.010	1349.33	16.82	26.15	-0.82	1732645.72	14426498.69	39°43'27.357"N	80°40'19.151"W	26.16	358.198	1.00	-0.98	12.70
1400.00	0.670	24.010	1399.32	16.95	26.68	-0.57	1732645.97	14426499.21	39°43'27.363"N	80°40'19.147"W	26.68	358.773	0.07	0.00	-6.00
1450.00	0.680	24.430	1449.32	17.09	27.21	-0.33	1732646.21	14426499.75	39°43'27.368"N	80°40'19.144"W	27.21	359.306	0.02	0.02	0.84

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
1500.00	0.680	25.790	1499.32	17.22	27.75	-0.08	1732646.46	14426500.29	39°43'27.373"N	80°40'19.141"W	27.75	359.840	0.03	0.00	2.72
1550.00	0.650	17.190	1549.31	17.39	28.29	0.14	1732646.68	14426500.83	39°43'27.379"N	80°40'19.138"W	28.29	0.274	0.21	-0.06	-17.20
1600.00	0.310	4.240	1599.31	17.56	28.69	0.23	1732646.77	14426501.23	39°43'27.383"N	80°40'19.137"W	28.69	0.457	0.71	-0.68	-25.90
1650.00	0.340	27.120	1649.31	17.67	28.96	0.31	1732646.85	14426501.50	39°43'27.385"N	80°40'19.136"W	28.96	0.607	0.26	0.06	45.76
1700.00	0.390	45.050	1699.31	17.68	29.21	0.49	1732647.03	14426501.75	39°43'27.388"N	80°40'19.134"W	29.22	0.970	0.25	0.10	35.86
1750.00	0.340	56.200	1749.31	17.61	29.42	0.74	1732647.28	14426501.95	39°43'27.390"N	80°40'19.131"W	29.43	1.438	0.17	-0.10	22.30
1800.00	0.310	80.940	1799.31	17.47	29.52	1.00	1732647.53	14426502.06	39°43'27.391"N	80°40'19.127"W	29.54	1.931	0.28	-0.06	49.48
1850.00	0.340	71.310	1849.31	17.30	29.59	1.27	1732647.81	14426502.13	39°43'27.391"N	80°40'19.124"W	29.62	2.457	0.12	0.06	-19.26
1900.00	0.490	85.640	1899.31	17.06	29.65	1.62	1732648.16	14426502.19	39°43'27.392"N	80°40'19.119"W	29.70	3.133	0.36	0.30	28.66
1950.00	0.520	101.940	1949.30	16.70	29.62	2.06	1732648.60	14426502.16	39°43'27.392"N	80°40'19.114"W	29.69	3.975	0.29	0.06	32.60
2000.00	0.770	165.280	1999.30	16.23	29.25	2.37	1732648.90	14426501.79	39°43'27.388"N	80°40'19.110"W	29.35	4.624	1.42	0.50	126.68
2050.00	1.170	178.770	2049.30	15.64	28.41	2.46	1732649.00	14426500.95	39°43'27.380"N	80°40'19.109"W	28.52	4.952	0.92	0.80	26.98
2100.00	1.440	192.540	2099.28	15.04	27.29	2.34	1732648.88	14426499.83	39°43'27.369"N	80°40'19.110"W	27.39	4.893	0.82	0.54	27.54
2150.00	1.150	219.110	2149.27	14.78	26.29	1.88	1732648.42	14426498.83	39°43'27.359"N	80°40'19.116"W	26.36	4.098	1.32	-0.58	53.14
2200.00	1.130	221.780	2199.26	14.82	25.53	1.24	1732647.78	14426498.07	39°43'27.351"N	80°40'19.124"W	25.56	2.777	0.11	-0.04	5.34
2250.00	1.210	214.850	2249.25	14.82	24.73	0.61	1732647.15	14426497.27	39°43'27.343"N	80°40'19.132"W	24.74	1.409	0.32	0.16	-13.86
2300.00	1.340	215.940	2299.24	14.76	23.82	-0.04	1732646.50	14426496.36	39°43'27.334"N	80°40'19.141"W	23.82	359.912	0.26	0.26	2.18
2350.00	1.630	209.230	2349.22	14.63	22.73	-0.73	1732645.81	14426495.27	39°43'27.324"N	80°40'19.150"W	22.74	358.169	0.68	0.58	-13.42
2400.00	1.730	202.870	2399.20	14.32	21.41	-1.37	1732645.17	14426493.96	39°43'27.311"N	80°40'19.158"W	21.46	356.346	0.42	0.20	-12.72
2450.00	1.970	190.820	2449.17	13.72	19.87	-1.82	1732644.72	14426492.42	39°43'27.296"N	80°40'19.164"W	19.96	354.762	0.91	0.48	-24.10
2500.00	2.200	181.470	2499.14	12.75	18.07	-2.01	1732644.53	14426490.61	39°43'27.278"N	80°40'19.166"W	18.18	353.659	0.82	0.46	-18.70
2522.00	2.210	180.900	2521.12	12.24	17.22	-2.03	1732644.52	14426489.77	39°43'27.269"N	80°40'19.167"W	17.34	353.293	0.11	0.05	-2.59
2589.00	2.050	189.210	2588.08	10.88	14.75	-2.24	1732644.30	14426487.29	39°43'27.245"N	80°40'19.169"W	14.92	351.374	0.52	-0.24	12.40
2680.00	1.340	215.910	2679.04	10.05	12.28	-3.12	1732643.02	14426484.83	39°43'27.221"N	80°40'19.181"W	12.67	345.736	1.15	-0.78	29.34
2788.00	0.850	229.830	2787.02	10.16	10.74	-4.47	1732642.07	14426483.29	39°43'27.205"N	80°40'19.198"W	11.64	337.384	0.51	-0.45	12.89
2879.00	2.830	275.150	2877.97	12.18	10.51	-7.23	1732639.31	14426483.06	39°43'27.203"N	80°40'19.233"W	12.75	325.476	2.54	2.18	49.80
2970.00	4.430	272.650	2968.78	16.92	10.87	-12.98	1732633.57	14426483.42	39°43'27.207"N	80°40'19.307"W	16.93	309.956	1.77	1.76	-2.75
3060.00	6.200	265.430	3058.40	23.32	10.65	-21.29	1732625.25	14426483.19	39°43'27.205"N	80°40'19.413"W	23.81	296.562	2.10	1.97	-8.02
3150.00	6.850	259.580	3147.81	30.43	9.29	-31.42	1732615.13	14426481.83	39°43'27.192"N	80°40'19.543"W	32.76	286.469	1.03	0.72	-6.50
3241.00	7.390	255.230	3238.11	37.55	6.81	-42.41	1732604.14	14426479.36	39°43'27.168"N	80°40'19.684"W	42.96	279.127	0.84	0.59	-4.78

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
3332.00	7.810	252.460	3328.31	44.55	3.46	-53.97	1732592.59	14426476.01	39°43'27.135"N	80°40'19.832"W	54.08	273.667	0.61	0.46	-3.04
3422.00	9.000	250.340	3417.34	51.74	-0.75	-66.43	1732580.14	14426471.80	39°43'27.094"N	80°40'19.992"W	66.43	269.351	1.37	1.32	-2.36
3512.00	10.480	249.450	3506.04	59.73	-5.99	-80.72	1732565.85	14426466.56	39°43'27.043"N	80°40'20.175"W	80.95	265.753	1.65	1.64	-0.99
3603.00	10.850	246.670	3595.47	68.11	-12.29	-96.34	1732550.24	14426460.26	39°43'26.981"N	80°40'20.375"W	97.12	262.729	0.70	0.41	-3.05
3693.00	10.760	241.660	3683.88	75.49	-19.63	-111.51	1732535.07	14426452.92	39°43'26.909"N	80°40'20.569"W	113.23	260.014	1.05	-0.10	-5.57
3783.00	11.400	238.230	3772.20	81.88	-28.31	-126.47	1732520.12	14426444.26	39°43'26.824"N	80°40'20.761"W	129.60	257.384	1.02	0.71	-3.81
3873.00	12.860	237.920	3860.19	88.31	-38.31	-142.52	1732504.08	14426434.26	39°43'26.726"N	80°40'20.967"W	147.58	254.954	1.62	1.62	-0.34
3964.00	14.170	236.680	3948.67	95.25	-49.81	-160.40	1732486.20	14426422.76	39°43'26.613"N	80°40'21.197"W	167.96	252.750	1.47	1.44	-1.36
4054.00	14.500	232.140	4035.87	101.46	-62.77	-178.51	1732468.10	14426409.80	39°43'26.485"N	80°40'21.429"W	189.22	250.625	1.30	0.37	-5.04
4144.00	14.540	227.540	4123.00	106.01	-77.32	-195.74	1732450.88	14426395.27	39°43'26.342"N	80°40'21.650"W	210.45	248.446	1.28	0.04	-5.11
4235.00	14.250	222.600	4211.14	108.72	-93.27	-211.75	1732434.88	14426379.32	39°43'26.185"N	80°40'21.856"W	231.38	246.227	1.39	-0.32	-5.43
4325.00	13.700	224.980	4298.48	110.83	-108.96	-226.78	1732419.85	14426363.63	39°43'26.030"N	80°40'22.049"W	251.60	244.336	0.88	-0.61	2.64
4416.00	13.390	231.630	4386.95	114.55	-123.13	-242.66	1732403.98	14426349.47	39°43'25.891"N	80°40'22.253"W	272.11	243.096	1.74	-0.34	7.31
4506.00	12.930	229.820	4474.59	119.00	-136.09	-258.52	1732388.12	14426336.51	39°43'25.763"N	80°40'22.456"W	292.15	242.236	0.69	-0.51	-2.01
4596.00	12.330	230.810	4562.41	123.12	-148.66	-273.66	1732372.99	14426323.95	39°43'25.640"N	80°40'22.651"W	311.43	241.488	0.71	-0.67	1.10
4686.00	12.280	236.350	4650.35	128.20	-160.04	-289.08	1732357.58	14426312.57	39°43'25.528"N	80°40'22.849"W	330.42	241.030	1.31	-0.06	6.16
4776.00	11.710	232.840	4738.38	133.49	-170.86	-304.32	1732342.34	14426301.76	39°43'25.421"N	80°40'23.044"W	349.01	240.688	1.03	-0.63	-3.90
4867.00	11.310	234.680	4827.55	138.36	-181.60	-318.96	1732327.70	14426291.03	39°43'25.316"N	80°40'23.232"W	367.04	240.346	0.60	-0.44	2.02
4957.00	12.510	237.380	4915.62	144.07	-191.95	-334.38	1732312.30	14426280.67	39°43'25.214"N	80°40'23.430"W	385.56	240.141	1.47	1.33	3.00
5048.00	13.250	237.030	5004.33	150.67	-202.94	-351.43	1732295.25	14426269.69	39°43'25.106"N	80°40'23.649"W	405.81	239.994	0.82	0.81	-0.38
5138.00	13.000	232.590	5091.98	156.51	-214.70	-368.12	1732278.56	14426257.93	39°43'24.990"N	80°40'23.863"W	426.16	239.747	1.15	-0.28	-4.93
5228.00	11.720	233.230	5179.89	161.40	-226.33	-383.48	1732263.21	14426246.31	39°43'24.876"N	80°40'24.060"W	445.29	239.451	1.43	-1.42	0.71
5319.00	11.460	238.290	5269.04	166.90	-236.61	-398.58	1732248.12	14426236.03	39°43'24.775"N	80°40'24.254"W	463.52	239.305	1.15	-0.29	5.56
5409.00	11.820	242.130	5357.19	173.71	-245.62	-414.33	1732232.37	14426227.03	39°43'24.687"N	80°40'24.456"W	481.66	239.340	0.95	0.40	4.27
5499.00	12.640	244.130	5445.14	181.76	-254.23	-431.34	1732215.37	14426218.42	39°43'24.602"N	80°40'24.674"W	500.69	239.486	1.03	0.91	2.22
5590.00	13.930	242.820	5533.71	190.68	-263.57	-450.05	1732196.67	14426209.08	39°43'24.510"N	80°40'24.913"W	521.55	239.644	1.46	1.42	-1.44
5680.00	14.030	239.420	5621.04	199.14	-274.07	-469.07	1732177.65	14426198.59	39°43'24.407"N	80°40'25.158"W	543.27	239.703	0.92	0.11	-3.78
5770.00	13.780	235.480	5708.41	206.27	-285.70	-487.30	1732159.43	14426186.97	39°43'24.293"N	80°40'25.391"W	564.87	239.617	1.09	-0.28	-4.38
5861.00	13.640	231.660	5796.82	211.99	-298.49	-504.64	1732142.09	14426174.17	39°43'24.167"N	80°40'25.614"W	586.32	239.396	1.01	-0.15	-4.20
5951.00	13.490	236.960	5884.31	217.83	-310.80	-521.77	1732124.98	14426161.87	39°43'24.046"N	80°40'25.834"W	607.32	239.219	1.39	-0.17	5.89

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
6041.00	13.640	244.890	5971.81	225.98	-321.03	-540.18	1732106.57	14426151.65	39°43'23.946"N	80°40'26.070"W	628.37	239.277	2.07	0.17	8.81
6132.00	13.190	244.950	6060.32	235.47	-329.98	-559.30	1732087.46	14426142.70	39°43'23.858"N	80°40'26.315"W	649.39	239.460	0.49	-0.49	0.07
6223.00	12.760	240.370	6149.00	243.93	-339.34	-577.44	1732069.32	14426133.34	39°43'23.766"N	80°40'26.547"W	669.77	239.559	1.22	-0.47	-5.03
6313.00	11.680	238.700	6236.96	250.88	-348.99	-593.87	1732052.91	14426123.70	39°43'23.671"N	80°40'26.758"W	688.82	239.559	1.22	-1.20	-1.86
6403.00	11.740	237.630	6325.09	257.11	-358.62	-609.38	1732037.40	14426114.07	39°43'23.577"N	80°40'26.957"W	707.08	239.523	0.25	0.07	-1.19
6494.00	12.000	246.890	6414.15	264.73	-367.30	-625.91	1732020.88	14426105.40	39°43'23.492"N	80°40'27.169"W	725.72	239.595	2.11	0.29	10.18
6584.00	14.820	269.220	6501.75	278.18	-371.13	-646.04	1732000.76	14426101.57	39°43'23.455"N	80°40'27.427"W	745.05	240.124	6.49	3.13	24.81
6674.00	19.730	283.340	6587.70	300.94	-367.78	-672.36	1731974.45	14426104.92	39°43'23.489"N	80°40'27.763"W	766.37	241.322	7.14	5.46	15.69
6764.00	24.640	294.570	6671.05	332.99	-356.46	-704.23	1731942.58	14426116.23	39°43'23.602"N	80°40'28.171"W	789.31	243.153	7.19	5.46	12.48
6855.00	28.800	304.730	6752.35	373.34	-336.06	-739.53	1731907.30	14426136.62	39°43'23.804"N	80°40'28.622"W	812.31	245.562	6.78	4.57	11.16
6965.00	34.480	311.590	6846.00	430.94	-300.26	-784.65	1731862.20	14426172.41	39°43'24.160"N	80°40'29.197"W	840.14	249.060	6.11	5.16	6.24
7002.00	35.690	312.880	6876.27	452.15	-285.96	-800.39	1731846.46	14426186.70	39°43'24.302"N	80°40'29.398"W	849.94	250.339	3.84	3.27	3.49
7092.00	46.020	315.790	6944.26	510.58	-244.77	-842.33	1731804.54	14426227.88	39°43'24.710"N	80°40'29.933"W	877.17	253.797	11.67	11.48	3.23
7183.00	56.210	314.890	7001.31	580.78	-194.48	-892.08	1731754.81	14426278.14	39°43'25.209"N	80°40'30.567"W	913.03	257.701	11.22	11.20	-0.99
7273.00	63.150	309.520	7046.74	658.20	-142.45	-949.65	1731697.27	14426330.16	39°43'25.725"N	80°40'31.302"W	960.27	261.469	9.27	7.71	-5.97
7364.00	69.840	309.310	7083.02	741.58	-89.50	-1014.08	1731632.86	14426383.09	39°43'26.251"N	80°40'32.124"W	1018.02	264.957	7.35	7.35	-0.23
7454.00	77.020	311.360	7108.67	827.72	-33.68	-1079.77	1731567.19	14426438.88	39°43'26.805"N	80°40'32.962"W	1080.30	268.213	8.27	7.98	2.28
7544.00	85.660	312.600	7122.21	916.41	25.78	-1145.84	1731501.15	14426498.32	39°43'27.395"N	80°40'33.805"W	1146.13	271.289	9.70	9.60	1.38
7635.00	88.770	309.420	7126.63	1007.17	85.41	-1214.41	1731432.60	14426557.92	39°43'27.987"N	80°40'34.680"W	1217.41	274.023	4.88	3.42	-3.49
7725.00	88.890	307.320	7128.47	1097.15	141.26	-1284.96	1731362.09	14426613.75	39°43'28.541"N	80°40'35.580"W	1292.70	276.274	2.34	0.13	-2.33
7815.00	89.110	307.970	7130.04	1187.13	196.22	-1356.21	1731290.86	14426668.69	39°43'29.087"N	80°40'36.489"W	1370.33	278.233	0.76	0.24	0.72
7906.00	88.890	309.370	7131.63	1278.11	253.07	-1427.25	1731219.85	14426725.52	39°43'29.651"N	80°40'37.396"W	1449.51	280.055	1.56	-0.24	1.54
7996.00	88.950	310.890	7133.32	1368.04	311.07	-1496.04	1731151.08	14426783.49	39°43'30.227"N	80°40'38.274"W	1528.04	281.746	1.69	0.07	1.69
8086.00	89.380	313.920	7134.64	1457.78	371.74	-1562.48	1731084.67	14426844.15	39°43'30.829"N	80°40'39.121"W	1606.10	283.383	3.40	0.48	3.37
8177.00	90.000	313.380	7135.13	1548.37	434.56	-1628.33	1731018.85	14426906.94	39°43'31.452"N	80°40'39.961"W	1685.32	284.942	0.90	0.68	-0.59
8267.00	90.250	315.230	7134.93	1637.85	497.42	-1692.73	1730954.47	14426969.77	39°43'32.076"N	80°40'40.783"W	1764.30	286.376	2.07	0.28	2.06
8358.00	89.940	312.740	7134.78	1728.38	560.61	-1758.20	1730889.03	14427032.94	39°43'32.702"N	80°40'41.618"W	1845.41	287.685	2.76	-0.34	-2.74
8448.00	89.780	312.670	7135.00	1818.10	621.65	-1824.34	1730822.92	14427093.95	39°43'33.308"N	80°40'42.461"W	1927.35	288.817	0.19	-0.18	-0.08
8539.00	90.000	311.430	7135.17	1908.89	682.60	-1891.91	1730755.37	14427154.88	39°43'33.913"N	80°40'43.323"W	2011.28	289.839	1.38	0.24	-1.36
8629.00	90.000	312.460	7135.17	1998.70	742.75	-1958.85	1730688.46	14427215.01	39°43'34.510"N	80°40'44.177"W	2094.94	290.766	1.14	0.00	1.14

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
8720.00	89.910	312.740	7135.25	2089.43	804.35	-2025.84	1730621.50	14427276.58	39°43'35.121"N	80°40'45.032"W	2179.68	291.655	0.32	-0.10	0.31
8810.00	89.910	312.260	7135.39	2179.18	865.15	-2092.19	1730555.17	14427337.36	39°43'35.724"N	80°40'45.878"W	2264.01	292.466	0.53	0.00	-0.53
8900.00	89.910	311.170	7135.53	2269.01	925.04	-2159.37	1730488.02	14427397.23	39°43'36.318"N	80°40'46.735"W	2349.17	293.189	1.21	0.00	-1.21
8991.00	89.970	311.570	7135.62	2359.87	985.18	-2227.66	1730419.75	14427457.35	39°43'36.915"N	80°40'47.607"W	2435.79	293.857	0.44	0.07	0.44
9081.00	90.800	312.500	7135.02	2449.66	1045.44	-2294.51	1730352.93	14427517.58	39°43'37.513"N	80°40'48.459"W	2521.45	294.495	1.38	0.92	1.03
9171.00	90.280	313.120	7134.17	2539.37	1106.60	-2360.53	1730286.94	14427578.72	39°43'38.120"N	80°40'49.301"W	2607.04	295.117	0.90	-0.58	0.69
9261.00	90.430	311.980	7133.61	2629.01	1167.46	-2426.83	1730220.67	14427639.55	39°43'38.723"N	80°40'50.147"W	2693.04	295.691	1.28	0.17	-1.27
9352.00	89.820	309.370	7133.42	2720.01	1226.76	-2495.84	1730151.68	14427698.83	39°43'39.312"N	80°40'51.028"W	2781.03	296.175	2.95	-0.67	-2.87
9442.00	90.280	313.450	7133.34	2809.85	1286.28	-2563.32	1730084.22	14427758.33	39°43'39.902"N	80°40'51.889"W	2867.95	296.648	4.56	0.51	4.53
9533.00	89.660	312.580	7133.38	2900.53	1348.36	-2629.86	1730017.71	14427820.38	39°43'40.518"N	80°40'52.738"W	2955.37	297.145	1.17	-0.68	-0.96
9623.00	89.380	311.120	7134.14	2990.34	1408.40	-2696.89	1729950.70	14427880.40	39°43'41.114"N	80°40'53.593"W	3042.50	297.575	1.65	-0.31	-1.62
9713.00	89.170	312.530	7135.28	3080.15	1468.41	-2763.95	1729883.67	14427940.39	39°43'41.709"N	80°40'54.448"W	3129.80	297.980	1.58	-0.23	1.57
9804.00	89.970	315.830	7135.96	3170.64	1531.82	-2829.20	1729818.45	14428003.77	39°43'42.338"N	80°40'55.281"W	3217.28	298.433	3.73	0.88	3.63
9895.00	89.570	312.050	7136.33	3261.17	1594.95	-2894.72	1729752.96	14428066.88	39°43'42.965"N	80°40'56.116"W	3305.04	298.854	4.18	-0.44	-4.15
9985.00	89.170	313.110	7137.32	3350.90	1655.85	-2960.98	1729686.72	14428127.75	39°43'43.569"N	80°40'56.962"W	3392.53	299.215	1.26	-0.44	1.18
10076.00	90.430	313.970	7137.63	3441.50	1718.53	-3026.94	1729620.78	14428190.41	39°43'44.190"N	80°40'57.803"W	3480.77	299.585	1.68	1.38	0.95
10166.00	90.430	313.310	7136.96	3531.09	1780.64	-3092.07	1729555.68	14428252.49	39°43'44.807"N	80°40'58.634"W	3568.14	299.936	0.73	0.00	-0.73
10257.00	90.180	313.190	7136.47	3621.74	1842.99	-3158.35	1729489.42	14428314.82	39°43'45.425"N	80°40'59.479"W	3656.75	300.265	0.30	-0.27	-0.13
10348.00	90.650	314.320	7135.81	3712.30	1905.92	-3224.08	1729423.72	14428377.72	39°43'46.049"N	80°41'00.318"W	3745.29	300.590	1.34	0.52	1.24
10438.00	90.220	311.330	7135.13	3802.00	1967.09	-3290.08	1729357.75	14428438.87	39°43'46.656"N	80°41'01.160"W	3833.29	300.875	3.36	-0.48	-3.32
10529.00	91.350	312.580	7133.88	3892.79	2027.92	-3357.75	1729290.11	14428499.67	39°43'47.260"N	80°41'02.023"W	3922.62	301.130	1.85	1.24	1.37
10619.00	91.200	312.910	7131.88	3982.49	2088.99	-3423.82	1729224.06	14428560.72	39°43'47.865"N	80°41'02.866"W	4010.79	301.389	0.40	-0.17	0.37
10709.00	90.830	310.830	7130.29	4072.28	2149.05	-3490.83	1729157.08	14428620.75	39°43'48.461"N	80°41'03.721"W	4099.30	301.618	2.35	-0.41	-2.31
10800.00	91.080	312.190	7128.77	4163.11	2209.35	-3558.96	1729088.97	14428681.03	39°43'49.060"N	80°41'04.590"W	4188.97	301.831	1.52	0.27	1.49
10890.00	91.080	311.190	7127.07	4252.93	2269.20	-3626.16	1729021.80	14428740.86	39°43'49.653"N	80°41'05.448"W	4277.65	302.038	1.11	0.00	-1.11
10980.00	90.550	311.360	7125.79	4342.79	2328.56	-3693.79	1728954.20	14428800.20	39°43'50.242"N	80°41'06.311"W	4366.50	302.227	0.62	-0.59	0.19
11071.00	90.580	311.330	7124.90	4433.65	2388.67	-3762.10	1728885.91	14428860.28	39°43'50.839"N	80°41'07.182"W	4456.36	302.413	0.05	0.03	-0.03
11161.00	90.890	312.440	7123.74	4523.46	2448.75	-3829.10	1728818.94	14428920.34	39°43'51.435"N	80°41'08.037"W	4545.15	302.599	1.28	0.34	1.23
11252.00	90.830	311.070	7122.38	4614.27	2509.35	-3896.98	1728751.09	14428980.91	39°43'52.036"N	80°41'08.903"W	4635.00	302.778	1.51	-0.07	-1.51
11342.00	91.110	312.880	7120.85	4704.06	2569.53	-3963.88	1728684.22	14429041.07	39°43'52.633"N	80°41'09.757"W	4723.85	302.953	2.03	0.31	2.01

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate [°/100ft]	Turn Rate [°/100ft]
11432.00	90.860	312.470	7119.30	4793.77	2630.52	-4030.03	1728618.09	14429102.04	39°43'53.238"N	80°41'10.601"W	4812.57	303.134	0.53	-0.28	-0.46
11523.00	90.800	312.060	7117.99	4884.53	2691.72	-4097.37	1728550.78	14429163.21	39°43'53.845"N	80°41'11.460"W	4902.43	303.302	0.46	-0.07	-0.45
11613.00	90.520	311.600	7116.95	4974.34	2751.74	-4164.43	1728483.75	14429223.21	39°43'54.441"N	80°41'12.316"W	4991.44	303.456	0.60	-0.31	-0.51
11704.00	90.980	312.940	7115.76	5065.10	2812.94	-4231.76	1728416.44	14429284.39	39°43'55.048"N	80°41'13.175"W	5081.38	303.613	1.56	0.51	1.47
11794.00	91.230	312.120	7114.02	5154.83	2873.77	-4298.07	1728350.16	14429345.19	39°43'55.651"N	80°41'14.021"W	5170.29	303.767	0.95	0.28	-0.91
11884.00	91.660	311.510	7111.75	5244.62	2933.75	-4365.12	1728283.13	14429405.15	39°43'56.247"N	80°41'14.876"W	5259.39	303.905	0.83	0.48	-0.68
11974.00	91.510	312.000	7109.26	5334.41	2993.66	-4432.24	1728216.04	14429465.04	39°43'56.841"N	80°41'15.733"W	5348.53	304.036	0.57	-0.17	0.54
12064.00	90.890	311.650	7107.38	5424.21	3053.67	-4499.29	1728149.02	14429525.02	39°43'57.436"N	80°41'16.588"W	5437.69	304.165	0.79	-0.69	-0.39
12155.00	91.140	311.550	7105.77	5515.04	3114.08	-4567.33	1728081.00	14429585.40	39°43'58.036"N	80°41'17.456"W	5527.93	304.287	0.30	0.27	-0.11
12245.00	91.600	312.230	7103.62	5604.82	3174.15	-4634.31	1728014.05	14429645.46	39°43'58.632"N	80°41'18.311"W	5617.12	304.408	0.91	0.51	0.76
12336.00	91.200	312.430	7101.39	5695.56	3235.41	-4701.56	1727946.82	14429706.69	39°43'59.239"N	80°41'19.169"W	5707.24	304.534	0.49	-0.44	0.22
12426.00	91.260	311.650	7099.46	5785.34	3295.67	-4768.39	1727880.02	14429766.92	39°43'59.837"N	80°41'20.022"W	5796.46	304.650	0.87	0.07	-0.87
12516.00	91.140	311.360	7097.58	5875.17	3355.29	-4835.77	1727812.66	14429826.53	39°44'00.429"N	80°41'20.882"W	5885.81	304.755	0.35	-0.13	-0.32
12607.00	91.200	311.440	7095.72	5966.01	3415.46	-4904.02	1727744.45	14429886.67	39°44'01.026"N	80°41'21.753"W	5976.18	304.856	0.11	0.07	0.09
12697.00	91.230	312.010	7093.81	6055.82	3475.35	-4971.17	1727677.32	14429946.53	39°44'01.620"N	80°41'22.610"W	6065.53	304.957	0.63	0.03	0.63
12787.00	91.110	311.430	7091.97	6145.63	3535.23	-5038.34	1727610.18	14430006.39	39°44'02.214"N	80°41'23.467"W	6154.89	305.056	0.66	-0.13	-0.64
12877.00	91.450	312.390	7089.96	6235.42	3595.33	-5105.30	1727543.25	14430066.47	39°44'02.810"N	80°41'24.321"W	6244.23	305.155	1.13	0.38	1.07
12968.00	91.260	312.140	7087.81	6326.16	3656.52	-5172.62	1727475.95	14430127.63	39°44'03.417"N	80°41'25.180"W	6334.52	305.256	0.35	-0.21	-0.27
13059.00	91.480	312.220	7085.63	6416.92	3717.60	-5240.04	1727408.56	14430188.69	39°44'04.023"N	80°41'26.040"W	6424.84	305.354	0.26	0.24	0.09
13148.00	91.570	311.800	7083.26	6505.69	3777.14	-5306.14	1727342.48	14430248.21	39°44'04.614"N	80°41'26.884"W	6513.22	305.445	0.48	0.10	-0.47
13239.00	91.630	311.410	7080.72	6596.49	3837.54	-5374.16	1727274.49	14430308.59	39°44'05.213"N	80°41'27.752"W	6603.66	305.530	0.43	0.07	-0.43
13329.00	91.720	312.110	7078.09	6686.28	3897.46	-5441.27	1727207.41	14430368.48	39°44'05.808"N	80°41'28.608"W	6693.10	305.613	0.78	0.10	0.78
13419.00	91.350	311.980	7075.68	6776.04	3957.71	-5508.08	1727140.62	14430428.71	39°44'06.405"N	80°41'29.461"W	6782.51	305.698	0.44	-0.41	-0.14
13510.00	91.350	312.250	7073.54	6866.81	4018.72	-5575.56	1727073.16	14430489.69	39°44'07.011"N	80°41'30.322"W	6872.92	305.783	0.30	0.00	0.30
13600.00	91.690	312.430	7071.15	6956.54	4079.32	-5642.06	1727006.69	14430550.27	39°44'07.612"N	80°41'31.170"W	6962.31	305.868	0.43	0.38	0.20
13690.00	91.510	311.370	7068.64	7046.31	4139.40	-5709.02	1726939.75	14430610.32	39°44'08.208"N	80°41'32.025"W	7051.78	305.944	1.19	-0.20	-1.18
13780.00	91.940	311.910	7065.93	7136.11	4199.17	-5776.25	1726872.55	14430670.07	39°44'08.801"N	80°41'32.883"W	7141.30	306.016	0.77	0.48	0.60
13871.00	91.230	311.990	7063.41	7226.88	4259.98	-5843.91	1726804.93	14430730.86	39°44'09.404"N	80°41'33.746"W	7231.78	306.091	0.79	-0.78	0.09
13962.00	91.660	311.560	7061.12	7317.67	4320.58	-5911.75	1726737.11	14430791.44	39°44'10.005"N	80°41'34.612"W	7322.31	306.161	0.67	0.47	-0.47
14052.00	91.850	311.500	7058.36	7407.48	4380.23	-5979.09	1726669.79	14430851.06	39°44'10.597"N	80°41'35.471"W	7411.88	306.226	0.22	0.21	-0.07

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
14143.00	91.850	311.730	7055.42	7498.27	4440.63	-6047.09	1726601.82	14430911.44	39°44'11.196"N	80°41'36.339"W	7502.43	306.291	0.25	0.00	0.25
14233.00	91.660	311.630	7052.67	7588.06	4500.45	-6114.28	1726534.66	14430971.23	39°44'11.790"N	80°41'37.197"W	7592.00	306.355	0.24	-0.21	-0.11
14323.00	91.660	312.150	7050.06	7677.84	4560.52	-6181.25	1726467.72	14431031.28	39°44'12.385"N	80°41'38.051"W	7681.55	306.420	0.58	0.00	0.58
14414.00	91.690	311.200	7047.40	7768.63	4621.00	-6249.19	1726399.80	14431091.73	39°44'12.985"N	80°41'38.918"W	7772.13	306.481	1.04	0.03	-1.04
14505.00	92.060	312.140	7044.42	7859.42	4681.46	-6317.13	1726331.89	14431152.18	39°44'13.585"N	80°41'39.785"W	7862.71	306.541	1.11	0.41	1.03
14595.00	91.600	311.940	7041.55	7949.17	4741.70	-6383.93	1726265.11	14431212.39	39°44'14.183"N	80°41'40.638"W	7952.25	306.603	0.56	-0.51	-0.22
14685.00	91.970	312.190	7038.74	8038.92	4801.97	-6450.72	1726198.35	14431272.64	39°44'14.781"N	80°41'41.490"W	8041.81	306.664	0.50	0.41	0.28
14775.00	91.750	310.760	7035.82	8128.72	4861.54	-6518.11	1726130.99	14431332.19	39°44'15.372"N	80°41'42.350"W	8131.44	306.717	1.61	-0.24	-1.59
14865.00	91.630	311.430	7033.17	8218.57	4920.68	-6585.91	1726063.22	14431391.30	39°44'15.958"N	80°41'43.215"W	8221.14	306.765	0.76	-0.13	0.74
14955.00	91.750	312.870	7030.51	8308.31	4981.04	-6652.60	1725996.55	14431451.64	39°44'16.557"N	80°41'44.066"W	8310.71	306.824	1.60	0.13	1.60
15046.00	91.630	312.770	7027.83	8398.98	5042.87	-6719.32	1725929.86	14431513.44	39°44'17.171"N	80°41'44.918"W	8401.18	306.888	0.17	-0.13	-0.11
15136.00	91.600	312.630	7025.29	8488.66	5103.88	-6785.44	1725863.77	14431574.43	39°44'17.776"N	80°41'45.762"W	8490.68	306.950	0.16	-0.03	-0.16
15226.00	91.720	311.360	7022.69	8578.43	5164.07	-6852.29	1725796.93	14431634.59	39°44'18.373"N	80°41'46.615"W	8580.30	307.003	1.42	0.13	-1.41
15317.00	91.510	312.720	7020.12	8669.18	5224.98	-6919.85	1725729.40	14431695.48	39°44'18.977"N	80°41'47.477"W	8670.91	307.055	1.51	-0.23	1.49
15407.00	91.750	312.480	7017.56	8758.88	5285.88	-6986.07	1725663.21	14431756.35	39°44'19.581"N	80°41'48.322"W	8760.46	307.112	0.38	0.27	-0.27
15497.00	91.910	312.260	7014.69	8848.60	5346.50	-7052.53	1725596.78	14431816.95	39°44'20.182"N	80°41'49.170"W	8850.04	307.166	0.30	0.18	-0.24
15588.00	92.520	313.410	7011.17	8939.23	5408.32	-7119.21	1725530.12	14431878.75	39°44'20.796"N	80°41'50.021"W	8940.53	307.223	1.43	0.67	1.26
15678.00	91.750	312.410	7007.82	9028.86	5469.55	-7185.08	1725464.28	14431939.96	39°44'21.403"N	80°41'50.862"W	9030.03	307.280	1.40	-0.86	-1.11
15769.00	91.630	312.210	7005.13	9119.59	5530.78	-7252.35	1725397.04	14432001.16	39°44'22.010"N	80°41'51.720"W	9120.64	307.330	0.26	-0.13	-0.22
15859.00	91.690	313.350	7002.53	9209.26	5591.88	-7318.38	1725331.03	14432062.24	39°44'22.616"N	80°41'52.563"W	9210.20	307.383	1.27	0.07	1.27
15950.00	91.660	312.020	6999.87	9299.94	5653.55	-7385.24	1725264.20	14432123.88	39°44'23.228"N	80°41'53.416"W	9300.77	307.435	1.46	-0.03	-1.46
16040.00	91.720	311.870	6997.21	9389.71	5713.68	-7452.15	1725197.31	14432183.99	39°44'23.824"N	80°41'54.270"W	9390.46	307.478	0.18	0.07	-0.17
16131.00	91.260	311.600	6994.85	9480.51	5734.24	-7520.04	1725129.45	14432244.52	39°44'24.425"N	80°41'55.136"W	9481.18	307.519	0.59	-0.51	-0.30
16221.00	91.020	312.110	6993.06	9570.31	5834.28	-7587.06	1725062.46	14432304.54	39°44'25.021"N	80°41'55.992"W	9570.91	307.559	0.63	-0.27	0.57
16311.00	91.170	311.140	6991.34	9660.13	5894.05	-7654.32	1724995.22	14432364.29	39°44'25.614"N	80°41'56.850"W	9660.66	307.597	1.09	0.17	-1.08
16401.00	91.780	313.440	6989.02	9749.86	5954.58	-7720.87	1724928.70	14432424.80	39°44'26.214"N	80°41'57.699"W	9750.33	307.641	2.64	0.68	2.56
16492.00	91.690	313.130	6986.26	9840.46	6016.95	-7787.08	1724862.51	14432487.14	39°44'26.833"N	80°41'58.544"W	9840.85	307.693	0.35	-0.10	-0.34
16582.00	91.570	314.210	6983.70	9930.02	6079.07	-7852.16	1724797.46	14432549.23	39°44'27.449"N	80°41'59.375"W	9930.33	307.747	1.21	-0.13	1.20
16673.00	91.540	314.360	6981.23	10020.47	6142.58	-7917.28	1724732.37	14432612.72	39°44'28.079"N	80°42'00.206"W	10020.71	307.806	0.17	-0.03	0.16
16763.00	91.750	312.440	6978.65	10110.06	6204.39	-7982.64	1724667.03	14432674.51	39°44'28.692"N	80°42'01.040"W	10110.24	307.856	2.15	0.23	-2.13

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 1H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 1H
Area	Wellbore	Arthur Waryck MSH 1H AWB
Field		
Facility		

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]	Build Rate ["/100ft]	Turn Rate ["/100ft]
16854.00	91.630	312.800	6975.97	10200.75	6265.98	-8049.57	1724600.13	14432736.07	39°44'29.302"N	80°42'01.894"W	10200.89	307.898	0.42	-0.13	0.40
16944.00	91.750	312.340	6973.31	10290.45	6326.84	-8115.82	1724533.90	14432796.91	39°44'29.906"N	80°42'02.739"W	10290.55	307.939	0.53	0.13	-0.51
17034.00	91.570	312.440	6970.70	10380.17	6387.49	-8182.27	1724467.48	14432857.53	39°44'30.508"N	80°42'03.587"W	10380.25	307.977	0.23	-0.20	0.11
17124.00	91.660	312.940	6968.17	10469.86	6448.49	-8248.39	1724401.38	14432918.51	39°44'31.113"N	80°42'04.431"W	10469.91	308.017	0.56	0.10	0.56
17215.00	91.790	314.510	6965.43	10560.39	6511.36	-8314.12	1724335.68	14432981.35	39°44'31.736"N	80°42'05.270"W	10560.42	308.067	1.73	0.14	1.73
17305.00	91.510	311.980	6962.84	10650.00	6572.99	-8379.65	1724270.18	14433042.96	39°44'32.347"N	80°42'06.106"W	10650.01	308.111	2.83	-0.31	-2.81
17396.00	91.570	311.950	6960.39	10740.77	6633.81	-8447.29	1724202.56	14433103.76	39°44'32.951"N	80°42'06.970"W	10740.77	308.143	0.07	0.07	-0.03
17486.00	91.320	311.470	6958.12	10830.57	6693.68	-8514.46	1724135.42	14433163.60	39°44'33.545"N	80°42'07.827"W	10830.57	308.173	0.60	-0.28	-0.53
17576.00	91.630	312.340	6955.80	10920.35	6753.77	-8581.42	1724068.49	14433223.67	39°44'34.141"N	80°42'08.681"W	10920.35	308.204	1.03	0.34	0.97
17614.00	91.510	312.670	6954.76	10958.23	6779.43	-8609.42	1724040.50	14433249.32	39°44'34.395"N	80°42'09.039"W	10958.23	308.218	0.92	-0.32	0.87
17639.00	91.510	312.670	6954.10	10983.14	6796.37	-8627.79	1724022.13	14433266.26	39°44'34.563"N	80°42'09.273"W	10983.15	308.229	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Arthur Waryck MSH 1H AWB Ref Wellpath: Arthur Waryck MSH 1H AWP Proj: 17639'

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	0.11	-0.16
17.5in Open Hole	100.00	660.00	560.00	100.00	660.00	0.11	-0.16	-0.14	0.06
13.375in Casing Surface	26.00	660.00	634.00	26.00	660.00	0.00	0.00	-0.14	0.06
12.25in Open Hole	660.00	2731.00	2071.00	660.00	2730.03	-0.14	0.06	11.43	-3.79
9.625in Casing Intermediate	26.00	2731.00	2705.00	26.00	2730.03	0.00	0.00	11.43	-3.79
8.75in Open Hole	2731.00	6974.00	4243.00	2730.03	6853.40	11.43	-3.79	-296.85	-788.46
8.5in Open Hole	6974.00	17639.00	10665.00	6853.40	6954.10	-296.85	-788.46	6796.37	-8627.79
5.5in Casing Production	26.00	17639.00	17613.00	26.00	6954.10	0.00	0.00	6796.37	-8627.79

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Arthur Waryck MSH 1H
Field	Marshall	Wellbore	Arthur Waryck MSH 1H AWB
Facility	Arthur Waryck MSH Pad		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Arthur Waryck MSH 1H LP Rev-4	7123.00	54.75	-1199.56	1731447.45	14426527.28	39°43'27.683"N	80°40'34.491"W	point
Arthur Waryck MSH 1H BHL Rev-4	7158.00	6791.28	-8631.82	1724018.11	14433261.17	39°44'34.513"N	80°42'09.325"W	point

WELLPATH COMPOSITION - Ref Wellbore: Arthur Waryck MSH 1H AWB Ref Wellpath: Arthur Waryck MSH 1H AWP Proj: 17639'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	650.00	VESSI GyroFlex v4	01_VES GyroFlex <17 1/2"> (100'-650')	Arthur Waryck MSH 1H AWB
650.00	2522.00	VESSI GyroFlex v4	02_VES GyroFlex <12 1/4"> (700'-2522')	Arthur Waryck MSH 1H AWB
2522.00	2680.00	OWSG MWD rev2 + HRGM	03_Premier MWD <12 1/4"> (2589'-2680')	Arthur Waryck MSH 1H AWB
2680.00	6855.00	OWSG MWD rev2 + HRGM	04_Premier MWD <8 3/4"> (2788'-6855')	Arthur Waryck MSH 1H AWB
6855.00	17614.00	BHI AutoTrak Curve (Short)	05_BH AT Curve <8 1/2"> (6965'-17614')	Arthur Waryck MSH 1H AWB
17614.00	17639.00	Blind Drilling (std)	Projection to bit	Arthur Waryck MSH 1H AWB

RECEIVED
Office of Oil and Gas
JUN 23 2020
WV Department of
Environmental Protection

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 1H
Area	Marshall County, WV	Well	Arthur Waryck MSH 1H
Field	Marshall	Wellbore	Arthur Waryck MSH 1H AWB
Facility	Arthur Waryck MSH Pad		

COMMENTS

Wellpath general comments
 API: 47-051-02169-0000
 BH Job #: 109938883A
 Rig: SDC 46
 Duration: 08/18/2019 - 08/21/2019

RECEIVED
Office of Oil and Gas

JUN 23 2020

WV Department of
Environmental Protection