

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H 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	8/5/2019 at 10:41:48 AM
Convergence at slot	0.21° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Arthur_Waryck_MSH_5H_AWP_Proj_18733_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	42.94	2.37	1732654.09	14426454.19	39°43'26.917"N	80°40'19.046"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	1352.30ft
Horizontal Reference Pt	Slot	SDC 46 (KB) to Mean Sea Level	1352.30ft
Vertical Reference Pt	SDC 46 (KB)	SDC 46 (KB) to Mud Line at Slot (Slot 5H)	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	316.60°

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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	350.240	0.00	0.00	0.00	0.00	1732654.09	14426454.19	39°43'26.917"N	80°40'19.046"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	350.240	26.00	0.00	0.00	0.00	1732654.09	14426454.19	39°43'26.917"N	80°40'19.046"W	0.00	0.000	0.00	0.00	0.00
50.00	0.500	350.240	50.00	0.09	0.10	-0.02	1732654.07	14426454.29	39°43'26.918"N	80°40'19.046"W	0.10	350.240	2.08	2.08	-40.67
100.00	0.550	326.340	100.00	0.51	0.52	-0.19	1732653.90	14426454.71	39°43'26.922"N	80°40'19.048"W	0.55	340.075	0.45	0.10	-47.80
150.00	0.970	356.970	149.99	1.06	1.14	-0.34	1732653.75	14426455.33	39°43'26.929"N	80°40'19.050"W	1.19	343.253	1.14	0.84	61.26
200.00	0.910	348.790	199.99	1.72	1.95	-0.44	1732653.65	14426456.14	39°43'26.937"N	80°40'19.051"W	2.00	347.225	0.29	-0.12	-16.36
250.00	1.050	2.740	249.98	2.38	2.80	-0.50	1732653.59	14426456.99	39°43'26.945"N	80°40'19.052"W	2.84	349.914	0.55	0.28	27.90
300.00	0.620	68.570	299.97	2.59	3.36	-0.22	1732653.87	14426457.54	39°43'26.950"N	80°40'19.048"W	3.36	356.177	1.95	-0.86	131.66
350.00	0.810	45.600	349.97	2.50	3.70	0.28	1732654.37	14426457.89	39°43'26.954"N	80°40'19.042"W	3.71	4.326	0.68	0.38	-45.94
400.00	0.920	108.150	399.97	2.15	3.82	0.91	1732655.00	14426458.01	39°43'26.955"N	80°40'19.034"W	3.93	13.442	1.81	0.22	125.10
450.00	1.320	99.360	449.96	1.34	3.61	1.86	1732655.95	14426457.79	39°43'26.953"N	80°40'19.022"W	4.06	27.334	0.87	0.80	-17.58
500.00	1.330	121.830	499.94	0.32	3.21	2.92	1732657.01	14426457.39	39°43'26.949"N	80°40'19.008"W	4.34	42.376	1.03	0.02	44.94
550.00	1.670	117.470	549.93	-0.93	2.56	4.06	1732658.15	14426456.75	39°43'26.942"N	80°40'18.993"W	4.81	57.757	0.72	0.68	-8.72
600.00	1.260	145.600	599.91	-2.16	1.77	5.02	1732659.11	14426455.96	39°43'26.935"N	80°40'18.981"W	5.33	70.541	1.63	-0.82	56.26
638.00	1.710	143.190	637.90	-3.14	0.98	5.60	1732659.68	14426455.17	39°43'26.927"N	80°40'18.974"W	5.68	80.114	1.20	1.18	-6.34
669.00	1.520	137.080	668.89	-4.01	0.30	6.15	1732660.24	14426454.49	39°43'26.920"N	80°40'18.967"W	6.16	87.172	0.83	-0.61	-19.71
760.00	1.960	75.960	759.85	-5.98	-0.20	8.49	1732662.57	14426453.99	39°43'26.915"N	80°40'18.937"W	8.49	91.366	1.99	0.48	-67.16
850.00	3.070	57.600	849.76	-7.19	1.46	12.01	1732666.10	14426455.65	39°43'26.931"N	80°40'18.892"W	12.10	83.060	1.51	1.23	-20.40
941.00	4.050	57.200	940.59	-8.25	4.51	16.77	1732670.86	14426458.70	39°43'26.961"N	80°40'18.831"W	17.37	74.953	1.08	1.08	-0.44
1048.00	5.810	68.080	1047.19	-10.93	8.58	24.97	1732679.05	14426462.76	39°43'27.001"N	80°40'18.726"W	26.41	71.043	1.86	1.64	10.17
1138.00	6.640	66.710	1136.66	-14.38	12.34	33.98	1732688.06	14426466.52	39°43'27.038"N	80°40'18.610"W	36.15	70.047	0.94	0.92	-1.52
1228.00	7.430	71.360	1225.98	-18.61	16.25	44.27	1732698.35	14426470.44	39°43'27.076"N	80°40'18.478"W	47.16	69.841	1.08	0.88	5.17
1319.00	8.040	71.750	1316.15	-23.78	20.13	55.89	1732709.96	14426474.31	39°43'27.114"N	80°40'18.329"W	59.41	70.196	0.67	0.67	0.43
1409.00	7.410	79.510	1405.34	-29.61	23.15	67.58	1732717.64	14426477.34	39°43'27.144"N	80°40'18.180"W	71.43	71.086	1.35	-0.70	8.62
1500.00	7.510	83.600	1495.57	-36.37	24.89	79.26	1732733.32	14426479.07	39°43'27.160"N	80°40'18.030"W	83.07	72.568	0.59	0.11	4.49
1590.00	7.900	82.840	1584.75	-43.57	26.31	91.24	1732745.29	14426480.49	39°43'27.174"N	80°40'17.877"W	94.96	73.913	0.45	0.43	-0.84
1680.00	6.910	85.030	1674.00	-50.59	27.55	102.77	1732756.82	14426481.73	39°43'27.186"N	80°40'17.729"W	106.40	74.992	1.14	-1.10	2.43
1771.00	6.530	87.210	1764.38	-57.36	28.28	113.39	1732767.44	14426482.46	39°43'27.193"N	80°40'17.593"W	116.86	75.997	0.50	-0.42	2.40
1862.00	6.160	82.520	1854.82	-63.60	29.17	123.40	1732777.44	14426483.34	39°43'27.201"N	80°40'17.465"W	126.80	76.702	0.70	-0.41	-5.15
1952.00	5.980	80.590	1944.32	-69.05	30.56	132.81	1732786.85	14426484.74	39°43'27.214"N	80°40'17.344"W	136.28	77.041	0.30	-0.20	-2.14

Actual Wellpath Report

Arthur Waryck MSH 5H AWP Proj: 18733'

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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]
2042.00	5.740	82.660	2033.85	-74.32	31.90	141.90	1732795.94	14426486.08	39°43'27.227"N	80°40'17.228"W	145.44	77.329	0.36	-0.27	2.30
2133.00	5.430	92.360	2124.42	-80.08	32.31	150.72	1732804.75	14426486.48	39°43'27.231"N	80°40'17.115"W	154.14	77.902	1.09	-0.34	10.66
2224.00	5.550	94.350	2215.00	-86.42	31.80	159.41	1732813.43	14426485.97	39°43'27.226"N	80°40'17.004"W	162.55	78.720	0.25	0.13	2.19
2313.00	5.930	92.980	2303.55	-92.94	31.23	168.29	1732822.31	14426485.41	39°43'27.220"N	80°40'16.890"W	171.16	79.487	0.45	0.43	-1.54
2404.00	6.140	94.200	2394.05	-99.94	30.63	177.84	1732831.86	14426484.81	39°43'27.214"N	80°40'16.768"W	180.46	80.228	0.27	0.23	1.34
2494.00	6.220	94.520	2483.53	-107.11	29.89	187.50	1732841.51	14426484.07	39°43'27.206"N	80°40'16.645"W	189.87	80.942	0.10	0.09	0.36
2585.00	6.380	93.090	2573.98	-114.43	29.23	197.46	1732851.47	14426483.41	39°43'27.199"N	80°40'16.517"W	199.61	81.579	0.25	0.18	-1.57
2675.00	5.490	88.370	2663.49	-120.93	29.08	206.76	1732860.77	14426483.26	39°43'27.197"N	80°40'16.398"W	208.79	81.993	1.13	-0.99	-5.24
2784.00	4.860	81.250	2772.05	-127.03	29.94	216.53	1732870.54	14426484.11	39°43'27.205"N	80°40'16.273"W	218.59	82.129	0.82	-0.58	-6.53
2875.00	6.390	60.170	2862.62	-130.41	33.04	224.74	1732878.74	14426487.22	39°43'27.236"N	80°40'16.168"W	227.15	81.636	2.80	1.68	-23.16
2966.00	8.740	53.180	2952.82	-132.39	39.70	234.67	1732888.67	14426493.88	39°43'27.301"N	80°40'16.040"W	238.00	80.397	2.77	2.58	-7.68
3057.00	9.660	57.870	3042.65	-134.67	47.91	246.67	1732900.66	14426502.08	39°43'27.382"N	80°40'15.886"W	251.28	79.009	1.30	1.01	5.15
3147.00	9.660	68.960	3131.38	-139.02	54.64	260.11	1732914.10	14426508.81	39°43'27.448"N	80°40'15.714"W	265.79	78.137	2.06	0.00	12.32
3237.00	9.060	82.020	3220.19	-146.00	58.33	274.18	1732928.16	14426512.50	39°43'27.484"N	80°40'15.534"W	280.31	77.989	2.45	-0.67	14.51
3328.00	8.590	80.650	3310.12	-153.96	60.43	287.98	1732941.96	14426514.60	39°43'27.504"N	80°40'15.357"W	294.25	78.149	0.57	-0.52	-1.51
3418.00	9.910	81.660	3398.94	-162.17	62.65	302.27	1732956.25	14426516.81	39°43'27.525"N	80°40'15.174"W	308.70	78.291	1.48	1.47	1.12
3508.00	9.290	76.440	3487.69	-170.24	65.47	317.00	1732970.97	14426519.64	39°43'27.553"N	80°40'14.986"W	323.69	78.330	1.19	-0.69	-5.80
3599.00	10.570	70.420	3577.32	-177.26	69.99	332.01	1732985.96	14426524.15	39°43'27.597"N	80°40'14.793"W	339.30	78.095	1.81	1.41	-6.62
3689.00	11.180	77.210	3665.71	-185.04	74.69	348.29	1733002.25	14426528.85	39°43'27.643"N	80°40'14.585"W	356.21	77.896	1.58	0.68	7.54
3779.00	9.920	74.420	3754.19	-193.10	78.70	364.27	1733018.22	14426532.86	39°43'27.682"N	80°40'14.380"W	372.67	77.808	1.51	-1.40	-3.10
3870.00	11.240	73.890	3843.64	-200.82	83.27	380.34	1733034.28	14426537.43	39°43'27.726"N	80°40'14.174"W	389.35	77.651	1.45	1.45	-0.58
3960.00	13.030	78.830	3931.63	-210.26	92.11	398.72	1733052.66	14426541.83	39°43'27.769"N	80°40'13.939"W	408.25	77.599	2.30	1.99	5.49
4050.00	12.490	75.300	4019.40	-220.34	92.11	418.09	1733072.02	14426546.26	39°43'27.812"N	80°40'13.690"W	428.12	77.576	1.05	-0.60	-3.92
4140.00	11.240	70.380	4107.48	-228.55	97.52	435.77	1733089.69	14426551.67	39°43'27.865"N	80°40'13.464"W	446.55	77.386	1.79	-1.39	-5.47
4230.00	13.130	70.340	4195.45	-236.21	103.91	453.66	1733107.57	14426558.05	39°43'27.928"N	80°40'13.235"W	465.40	77.099	2.10	2.10	-0.04
4321.00	12.540	67.900	4284.18	-243.96	111.10	472.54	1733126.45	14426565.25	39°43'27.998"N	80°40'12.993"W	485.43	76.769	0.88	-0.65	-2.68
4411.00	13.640	70.240	4371.84	-251.76	118.36	491.58	1733145.48	14426572.51	39°43'28.069"N	80°40'12.749"W	505.63	76.462	1.36	1.22	2.60
4502.00	12.970	67.500	4460.40	-259.71	125.90	511.12	1733165.01	14426580.04	39°43'28.143"N	80°40'12.498"W	526.40	76.162	1.01	-0.74	-3.01
4592.00	11.390	64.680	4548.37	-266.07	133.57	528.48	1733182.37	14426587.70	39°43'28.218"N	80°40'12.276"W	545.10	75.816	1.88	-1.76	-3.13
4683.00	12.050	72.910	4637.48	-273.07	140.20	545.69	1733199.56	14426594.34	39°43'28.283"N	80°40'12.055"W	563.41	75.591	1.97	0.73	9.04

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4773.00	12.900	83.110	4725.36	-283.21	144.17	564.64	1733218.51	14426598.30	39°43'28.322"N	80°40'11.812"W	582.76	75.677	2.62	0.94	11.33
4864.00	12.090	82.720	4814.21	-294.87	146.59	584.18	1733238.04	14426600.73	39°43'28.345"N	80°40'11.562"W	602.29	75.913	0.89	-0.89	-0.43
4954.00	13.010	82.880	4902.05	-306.42	149.04	603.58	1733257.44	14426603.17	39°43'28.368"N	80°40'11.314"W	621.71	76.129	1.02	1.02	0.18
5045.00	14.280	83.800	4990.48	-319.27	151.53	624.90	1733278.75	14426605.66	39°43'28.392"N	80°40'11.041"W	643.01	76.370	1.42	1.40	1.01
5135.00	13.420	81.520	5077.87	-331.96	154.26	646.27	1733300.11	14426608.39	39°43'28.418"N	80°40'10.767"W	664.43	76.575	1.13	-0.96	-2.53
5226.00	11.740	78.610	5166.68	-342.91	157.65	665.79	1733319.62	14426611.78	39°43'28.451"N	80°40'10.517"W	684.20	76.679	1.97	-1.85	-3.20
5316.00	12.470	77.550	5254.68	-352.76	161.55	684.26	1733338.08	14426615.68	39°43'28.489"N	80°40'10.281"W	703.07	76.716	0.85	0.81	-1.18
5407.00	13.380	74.320	5343.37	-362.71	166.52	703.99	1733357.80	14426620.64	39°43'28.537"N	80°40'10.028"W	723.41	76.692	1.28	1.00	-3.55
5497.00	12.350	70.500	5431.11	-371.46	172.54	723.09	1733376.89	14426626.67	39°43'28.596"N	80°40'09.783"W	743.39	76.579	1.48	-1.14	-4.24
5587.00	13.460	78.170	5518.85	-380.84	177.91	742.41	1733396.21	14426632.03	39°43'28.648"N	80°40'09.536"W	763.43	76.524	2.27	1.23	8.52
5678.00	13.170	77.160	5607.40	-391.66	182.38	762.89	1733416.68	14426636.50	39°43'28.692"N	80°40'09.273"W	784.38	76.555	0.41	-0.32	-1.11
5768.00	13.160	79.660	5695.04	-402.46	186.50	782.96	1733436.75	14426640.61	39°43'28.732"N	80°40'09.016"W	804.87	76.602	0.63	-0.01	2.78
5858.00	15.340	76.130	5782.26	-413.92	191.19	804.60	1733458.38	14426645.31	39°43'28.778"N	80°40'08.739"W	827.01	76.633	2.61	2.42	-3.92
5949.00	15.770	68.620	5869.94	-424.49	198.59	827.81	1733481.57	14426652.70	39°43'28.850"N	80°40'08.442"W	851.29	76.510	2.26	0.47	-8.25
6039.00	13.720	64.840	5956.97	-432.41	207.58	848.86	1733502.61	14426661.69	39°43'28.938"N	80°40'08.172"W	873.87	76.258	2.51	-2.28	-4.20
6130.00	13.040	69.300	6045.50	-439.75	215.80	868.23	1733521.98	14426669.90	39°43'29.018"N	80°40'07.924"W	894.65	76.042	1.36	-0.75	4.90
6220.00	11.150	69.450	6133.50	-447.05	222.44	885.88	1733539.62	14426676.55	39°43'29.083"N	80°40'07.697"W	913.38	75.904	2.10	-2.10	0.17
6310.00	10.700	68.480	6221.87	-453.55	228.56	901.80	1733555.53	14426682.66	39°43'29.143"N	80°40'07.493"W	930.31	75.778	0.54	-0.50	-1.08
6400.00	12.960	32.730	6310.07	-454.24	240.13	915.05	1733568.78	14426694.23	39°43'29.257"N	80°40'07.323"W	946.03	75.296	8.37	2.51	-39.72
6491.00	15.020	4.320	6398.47	-443.85	260.50	921.46	1733575.19	14426714.59	39°43'29.458"N	80°40'07.240"W	957.57	74.214	7.79	2.26	-31.22
6581.00	16.440	340.250	6485.19	-424.32	284.14	918.03	1733571.76	14426738.22	39°43'29.692"N	80°40'07.283"W	961.00	72.802	7.36	1.58	-26.74
6671.00	18.940	327.930	6570.96	-398.31	308.52	905.97	1733559.70	14426762.59	39°43'29.933"N	80°40'07.436"W	957.06	71.194	4.99	2.78	-13.69
6761.00	23.820	325.170	6654.74	-366.03	335.83	887.82	1733541.56	14426789.89	39°43'30.204"N	80°40'07.667"W	949.21	69.280	5.53	5.42	-3.07
6851.00	29.350	321.720	6735.20	-326.03	368.09	863.75	1733517.51	14426822.14	39°43'30.524"N	80°40'07.974"W	938.92	66.919	6.38	6.14	-3.83
6942.00	33.650	316.260	6812.78	-278.57	403.84	832.49	1733486.25	14426857.87	39°43'30.878"N	80°40'08.372"W	925.27	64.122	5.67	4.73	-6.00
7032.00	39.180	313.500	6885.19	-225.20	441.45	794.59	1733448.37	14426895.47	39°43'31.251"N	80°40'08.855"W	908.99	60.945	6.41	6.14	-3.07
7123.00	48.600	315.370	6950.70	-162.24	485.63	749.66	1733403.46	14426939.63	39°43'31.689"N	80°40'09.428"W	893.21	57.065	10.45	10.35	2.05
7213.00	54.500	314.890	7006.64	-91.81	535.55	699.95	1733353.76	14426989.53	39°43'32.185"N	80°40'10.062"W	881.33	52.579	6.57	6.56	-0.53
7303.00	63.580	312.240	7052.90	-14.83	588.62	644.03	1733297.87	14427042.58	39°43'32.711"N	80°40'10.775"W	872.50	47.574	10.40	10.09	-2.94
7349.00	70.430	310.180	7070.86	27.29	616.48	612.19	1733266.04	14427070.43	39°43'32.988"N	80°40'11.182"W	868.81	44.800	15.45	14.89	-4.48

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H AWB
Facility	Arthur Waryck MSH Pad		

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]
7394.00	76.270	309.600	7083.74	70.09	644.12	579.12	1733232.98	14427098.05	39°43'33.262"N	80°40'11.604"W	866.18	41.958	13.04	12.98	-1.29
7439.00	78.680	308.440	7093.50	113.63	671.77	544.99	1733198.87	14427125.70	39°43'33.536"N	80°40'12.039"W	865.04	39.052	5.92	5.36	-2.58
7484.00	79.300	309.440	7102.10	157.41	699.53	510.64	1733164.53	14427153.45	39°43'33.812"N	80°40'12.477"W	866.08	36.128	2.58	1.38	2.22
7529.00	80.670	309.900	7109.92	201.40	727.82	476.53	1733130.43	14427181.72	39°43'34.093"N	80°40'12.913"W	869.94	33.214	3.21	3.04	1.02
7574.00	83.850	311.320	7115.98	245.74	756.84	442.68	1733096.60	14427210.73	39°43'34.381"N	80°40'13.344"W	876.80	30.324	7.73	7.07	3.16
7620.00	88.490	310.350	7119.05	291.39	786.84	407.97	1733061.90	14427240.72	39°43'34.679"N	80°40'13.787"W	886.32	27.406	10.30	10.09	-2.11
7665.00	90.630	312.160	7119.40	336.19	816.51	374.14	1733028.08	14427270.38	39°43'34.973"N	80°40'14.219"W	898.15	24.618	6.23	4.76	4.02
7755.00	93.240	313.430	7116.36	425.93	877.62	308.14	1732962.11	14427331.46	39°43'35.579"N	80°40'15.061"W	930.14	19.347	3.22	2.90	1.41
7814.00	94.280	311.900	7112.49	484.66	917.51	264.85	1732918.84	14427371.34	39°43'35.975"N	80°40'15.613"W	954.97	16.102	3.13	1.76	-2.59
7903.00	92.280	309.270	7107.40	573.02	975.31	197.38	1732851.40	14427429.12	39°43'36.549"N	80°40'16.474"W	995.08	11.441	3.71	-2.25	-2.96
7994.00	90.030	309.120	7105.57	663.23	1032.80	126.88	1732780.92	14427486.59	39°43'37.120"N	80°40'17.373"W	1040.57	7.004	2.48	-2.47	-0.16
8084.00	88.400	312.460	7106.80	752.75	1091.58	58.75	1732712.82	14427545.34	39°43'37.703"N	80°40'18.243"W	1093.16	3.081	4.13	-1.81	3.71
8175.00	90.310	312.900	7107.82	843.52	1153.26	-8.14	1732645.96	14427607.00	39°43'38.315"N	80°40'19.096"W	1153.29	359.596	2.15	2.10	0.48
8265.00	87.940	312.700	7109.20	933.31	1214.40	-74.16	1732579.96	14427668.12	39°43'38.922"N	80°40'19.938"W	1216.66	356.505	2.64	-2.63	-0.22
8356.00	87.880	314.360	7112.52	1024.11	1277.03	-140.09	1732514.06	14427730.72	39°43'39.543"N	80°40'20.779"W	1284.69	353.740	1.82	-0.07	1.82
8446.00	87.970	315.940	7115.78	1114.02	1340.80	-203.52	1732450.65	14427794.46	39°43'40.175"N	80°40'21.588"W	1356.15	351.369	1.76	0.10	1.76
8537.00	88.770	317.670	7118.36	1204.98	1407.11	-265.78	1732388.42	14427860.75	39°43'40.833"N	80°40'22.381"W	1431.99	349.304	2.09	0.88	1.90
8627.00	90.060	316.800	7119.28	1294.97	1473.18	-326.88	1732327.34	14427926.79	39°43'41.488"N	80°40'23.160"W	1509.01	347.489	1.73	1.43	-0.97
8717.00	89.910	311.580	7119.31	1384.86	1535.89	-391.39	1732262.85	14427989.47	39°43'42.110"N	80°40'23.983"W	1584.97	345.703	5.80	-0.17	-5.80
8808.00	89.450	308.490	7119.81	1475.25	1594.42	-461.06	1732193.21	14428047.98	39°43'42.691"N	80°40'24.872"W	1659.74	343.872	3.43	-0.51	-3.40
8898.00	89.350	308.870	7120.76	1564.39	1650.66	-531.31	1732122.99	14428104.20	39°43'43.249"N	80°40'25.769"W	1734.06	342.158	0.44	-0.11	0.42
8989.00	89.910	310.800	7121.34	1654.75	1708.95	-601.19	1732053.14	14428162.47	39°43'43.828"N	80°40'26.660"W	1811.61	340.619	2.21	0.62	2.12
9079.00	89.540	311.620	7121.78	1744.35	1768.24	-668.89	1731985.46	14428221.74	39°43'44.416"N	80°40'27.524"W	1890.53	339.279	1.00	-0.41	0.91
9169.00	89.420	313.080	7122.59	1834.09	1828.87	-735.40	1731918.98	14428282.34	39°43'45.018"N	80°40'28.372"W	1971.18	338.095	1.63	-0.13	1.62
9259.00	89.450	313.840	7123.48	1923.95	1890.77	-800.72	1731853.68	14428344.22	39°43'45.632"N	80°40'29.206"W	2053.33	337.048	0.85	0.03	0.84
9350.00	91.230	316.740	7122.94	2014.91	1955.43	-864.73	1731789.70	14428408.85	39°43'46.273"N	80°40'30.022"W	2138.10	336.144	3.74	1.96	3.19
9440.00	90.340	315.850	7121.71	2104.90	2020.48	-926.91	1731727.54	14428473.88	39°43'46.918"N	80°40'30.815"W	2222.95	335.356	1.40	-0.99	-0.99
9530.00	89.450	311.130	7121.87	2194.74	2082.41	-992.19	1731662.29	14428535.78	39°43'47.533"N	80°40'31.647"W	2306.70	334.524	5.34	-0.99	-5.24
9621.00	89.480	310.330	7122.72	2285.26	2141.78	-1061.14	1731593.36	14428595.13	39°43'48.122"N	80°40'32.527"W	2390.24	333.644	0.88	0.03	-0.88
9711.00	89.450	307.430	7123.56	2374.43	2198.26	-1131.19	1731523.34	14428651.59	39°43'48.683"N	80°40'33.421"W	2472.24	332.770	3.22	-0.03	-3.22

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H AWB
Facility	Arthur Waryck MSH Pad		

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]	Buidl Rate ["/100ft]	Turn Rate ["/100ft]
9802.00	89.350	307.830	7124.52	2464.31	2253.82	-1203.26	1731451.30	14428707.13	39°43'49.234"N	80°40'34.341"W	2554.91	331.903	0.45	-0.11	0.44
9892.00	89.630	309.610	7125.32	2553.46	2310.11	-1273.47	1731381.12	14428763.40	39°43'49.793"N	80°40'35.237"W	2637.87	331.134	2.00	0.31	1.98
9982.00	89.630	311.310	7125.90	2642.93	2368.51	-1341.95	1731312.67	14428821.77	39°43'50.373"N	80°40'36.111"W	2722.25	330.465	1.89	0.00	1.89
10073.00	89.110	311.350	7126.90	2733.54	2428.60	-1410.27	1731244.37	14428881.84	39°43'50.969"N	80°40'36.983"W	2808.38	329.857	0.57	-0.57	0.04
10163.00	90.400	312.520	7127.28	2823.24	2488.75	-1477.22	1731177.45	14428941.96	39°43'51.566"N	80°40'37.837"W	2894.14	329.308	1.94	1.43	1.30
10254.00	89.940	311.630	7127.01	2913.96	2549.73	-1544.77	1731109.93	14429002.92	39°43'52.171"N	80°40'38.698"W	2981.18	328.790	1.10	-0.51	-0.98
10344.00	90.000	311.240	7127.06	3003.59	2609.28	-1612.24	1731042.48	14429062.45	39°43'52.762"N	80°40'39.559"W	3067.20	328.289	0.44	0.07	-0.43
10435.00	89.910	310.240	7127.13	3094.11	2668.67	-1681.19	1730973.56	14429121.82	39°43'53.351"N	80°40'40.439"W	3154.08	327.790	1.10	-0.10	-1.10
10525.00	89.940	310.430	7127.25	3183.58	2726.93	-1749.79	1730904.98	14429180.05	39°43'53.929"N	80°40'41.315"W	3240.05	327.313	0.21	0.03	0.21
10616.00	90.520	311.990	7126.89	3274.17	2786.88	-1818.25	1730836.55	14429239.97	39°43'54.524"N	80°40'42.188"W	3327.57	326.878	1.83	0.64	1.71
10706.00	91.050	312.570	7125.65	3363.91	2847.42	-1884.83	1730770.00	14429300.49	39°43'55.125"N	80°40'43.037"W	3414.73	326.498	0.87	0.59	0.64
10796.00	90.950	312.880	7124.08	3453.69	2908.47	-1950.94	1730703.92	14429361.52	39°43'55.731"N	80°40'43.881"W	3502.19	326.147	0.36	-0.11	0.34
10887.00	90.950	313.360	7122.57	3544.51	2970.66	-2017.35	1730637.53	14429423.69	39°43'56.348"N	80°40'44.728"W	3590.90	325.820	0.53	0.00	0.53
10977.00	91.290	312.790	7120.81	3634.32	3032.12	-2083.08	1730571.83	14429485.12	39°43'56.957"N	80°40'45.566"W	3678.72	325.511	0.74	0.38	-0.63
11067.00	90.980	312.470	7119.03	3724.08	3093.06	-2149.28	1730505.65	14429546.04	39°43'57.562"N	80°40'46.411"W	3766.49	325.206	0.49	-0.34	-0.36
11158.00	90.580	313.240	7117.79	3814.88	3154.95	-2215.99	1730438.97	14429607.90	39°43'58.176"N	80°40'47.262"W	3855.42	324.916	0.95	-0.44	0.85
11248.00	90.650	313.310	7116.83	3904.72	3216.64	-2281.51	1730373.48	14429669.57	39°43'58.788"N	80°40'48.098"W	3943.61	324.653	0.11	0.08	0.08
11338.00	90.650	313.240	7115.80	3994.57	3278.33	-2347.03	1730307.98	14429731.23	39°43'59.400"N	80°40'48.934"W	4031.87	324.400	0.08	0.00	-0.08
11429.00	90.680	313.290	7114.75	4085.41	3340.69	-2413.29	1730241.74	14429793.57	39°44'00.019"N	80°40'49.779"W	4121.19	324.156	0.06	0.03	0.05
11519.00	90.800	313.640	7113.59	4175.26	3402.60	-2478.61	1730176.45	14429855.46	39°44'00.633"N	80°40'50.612"W	4209.65	323.929	0.41	0.13	0.39
11609.00	90.980	313.930	7112.19	4265.14	3464.87	-2543.57	1730111.51	14429917.70	39°44'01.250"N	80°40'51.441"W	4298.27	323.717	0.38	0.20	0.32
11700.00	90.650	312.500	7110.89	4355.97	3527.17	-2609.89	1730045.23	14429979.98	39°44'01.868"N	80°40'52.287"W	4387.76	323.501	1.61	-0.36	-1.57
11790.00	90.580	312.780	7109.93	4445.75	3588.13	-2676.09	1729979.05	14430040.92	39°44'02.473"N	80°40'53.132"W	4476.18	323.284	0.32	-0.08	0.31
11881.00	90.550	313.260	7109.03	4536.57	3650.21	-2742.62	1729912.55	14430102.97	39°44'03.089"N	80°40'53.980"W	4565.74	323.080	0.53	-0.03	0.53
11971.00	90.680	312.260	7108.06	4626.36	3711.31	-2808.69	1729846.50	14430164.05	39°44'03.695"N	80°40'54.823"W	4654.31	322.882	1.12	0.14	-1.11
12062.00	90.620	310.700	7107.03	4716.99	3771.58	-2876.86	1729778.36	14430224.29	39°44'04.293"N	80°40'55.693"W	4743.54	322.665	1.72	-0.07	-1.71
12152.00	90.490	311.420	7106.16	4806.57	3830.70	-2944.72	1729710.53	14430283.38	39°44'04.880"N	80°40'56.559"W	4831.73	322.450	0.81	-0.14	0.80
12243.00	90.740	313.170	7105.18	4897.30	3891.93	-3012.02	1729643.25	14430344.59	39°44'05.487"N	80°40'57.418"W	4921.32	322.263	1.94	0.27	1.92
12334.00	90.650	313.930	7104.08	4988.16	3954.62	-3077.97	1729577.33	14430407.26	39°44'06.109"N	80°40'58.259"W	5011.28	322.106	0.84	-0.10	0.84
12424.00	90.770	313.670	7102.96	5078.05	4016.91	-3142.93	1729512.40	14430469.52	39°44'06.727"N	80°40'59.088"W	5100.35	321.960	0.32	0.13	-0.29

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H AWB
Facility	Arthur Waryck MSH Pad		

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]
12515.00	90.710	313.300	7101.79	5168.91	4079.53	-3208.95	1729446.40	14430532.12	39°44'07.348"N	80°40'59.930"W	5190.36	321.812	0.41	-0.07	-0.41
12606.00	90.950	312.990	7100.47	5259.73	4141.75	-3275.33	1729380.04	14430594.32	39°44'07.965"N	80°41'00.777"W	5280.33	321.663	0.43	0.26	-0.34
12696.00	90.950	311.730	7098.98	5349.47	4202.38	-3341.83	1729313.57	14430654.92	39°44'08.567"N	80°41'01.625"W	5369.15	321.508	1.40	0.00	-1.40
12786.00	90.890	311.520	7097.53	5439.12	4262.16	-3409.09	1729246.33	14430714.67	39°44'09.160"N	80°41'02.484"W	5457.83	321.345	0.24	-0.07	-0.23
12877.00	91.380	311.690	7095.73	5529.76	4322.57	-3477.13	1729178.33	14430775.06	39°44'09.759"N	80°41'03.352"W	5547.52	321.186	0.57	0.54	0.19
12967.00	91.080	314.050	7093.80	5619.54	4383.78	-3543.07	1729112.41	14430836.25	39°44'10.367"N	80°41'04.193"W	5636.56	321.054	2.64	-0.33	2.62
13057.00	91.380	313.260	7091.87	5709.40	4445.89	-3608.17	1729047.34	14430898.34	39°44'10.983"N	80°41'05.024"W	5725.80	320.938	0.94	0.33	-0.88
13148.00	91.380	313.390	7089.88	5800.22	4508.31	-3674.35	1728981.18	14430960.74	39°44'11.602"N	80°41'05.868"W	5815.99	320.819	0.14	0.00	0.14
13238.00	91.450	314.270	7087.45	5890.09	4570.62	-3739.25	1728916.30	14431023.02	39°44'12.220"N	80°41'06.696"W	5905.30	320.713	0.98	0.08	0.98
13328.00	91.630	314.190	7085.03	5979.98	4633.38	-3803.72	1728851.86	14431085.75	39°44'12.842"N	80°41'07.518"W	5994.70	320.616	0.22	0.20	-0.09
13419.00	91.450	313.200	7082.59	6070.83	4696.22	-3869.49	1728786.12	14431148.57	39°44'13.466"N	80°41'08.357"W	6085.01	320.513	1.11	-0.20	-1.09
13509.00	91.630	312.570	7080.17	6160.61	4757.44	-3935.41	1728720.22	14431209.77	39°44'14.073"N	80°41'09.198"W	6174.20	320.402	0.73	0.20	-0.70
13599.00	91.660	313.820	7077.59	6250.41	4819.02	-4000.99	1728654.67	14431271.32	39°44'14.684"N	80°41'10.035"W	6263.46	320.299	1.39	0.03	1.39
13690.00	91.720	314.210	7074.90	6341.28	4882.22	-4066.41	1728589.28	14431334.50	39°44'15.311"N	80°41'10.870"W	6353.88	320.209	0.43	0.07	0.43
13780.00	91.690	313.360	7072.22	6431.13	4944.47	-4131.35	1728524.36	14431396.72	39°44'15.928"N	80°41'11.698"W	6443.28	320.120	0.94	-0.03	-0.94
13870.00	91.290	312.070	7069.88	6520.89	5005.50	-4197.46	1728458.28	14431457.73	39°44'16.534"N	80°41'12.542"W	6532.51	320.018	1.50	-0.44	-1.43
13961.00	91.320	311.940	7067.81	6611.57	5066.38	-4265.06	1728390.70	14431518.58	39°44'17.138"N	80°41'13.404"W	6622.61	319.908	0.15	0.03	-0.14
14051.00	91.450	311.560	7065.64	6701.23	5126.29	-4332.19	1728323.60	14431578.47	39°44'17.732"N	80°41'14.261"W	6711.68	319.799	0.45	0.14	-0.42
14141.00	91.540	311.010	7063.29	6790.81	5185.66	-4399.79	1728256.02	14431637.81	39°44'18.321"N	80°41'15.124"W	6800.68	319.687	0.62	0.10	-0.61
14232.00	91.450	309.710	7060.91	6881.24	5244.56	-4469.11	1728186.74	14431696.70	39°44'18.906"N	80°41'16.008"W	6890.46	319.564	1.43	-0.10	-1.43
14322.00	91.350	310.160	7058.71	6970.60	5302.32	-4538.10	1728117.77	14431754.43	39°44'19.479"N	80°41'16.889"W	6979.18	319.441	0.51	-0.11	0.50
14412.00	91.320	310.160	7056.62	7060.01	5360.35	-4606.86	1728049.04	14431812.43	39°44'20.055"N	80°41'17.767"W	7067.99	319.323	0.03	-0.03	0.00
14503.00	91.350	312.260	7054.50	7150.58	5420.28	-4675.30	1727980.63	14431872.34	39°44'20.649"N	80°41'18.640"W	7158.06	319.220	2.31	0.03	2.31
14593.00	91.290	311.670	7052.42	7240.26	5480.44	-4742.20	1727913.75	14431932.48	39°44'21.246"N	80°41'19.494"W	7247.33	319.131	0.66	-0.07	-0.66
14684.00	91.260	309.550	7050.40	7330.73	5539.66	-4811.26	1727844.72	14431991.68	39°44'21.834"N	80°41'20.375"W	7337.31	319.025	2.33	-0.03	-2.33
14774.00	91.140	308.430	7048.51	7419.92	5596.27	-4881.20	1727774.81	14432048.27	39°44'22.396"N	80°41'21.268"W	7425.92	318.904	1.25	-0.13	-1.24
14864.00	91.600	308.230	7046.36	7508.96	5652.07	-4951.78	1727704.25	14432104.05	39°44'22.949"N	80°41'22.169"W	7514.39	318.778	0.56	0.51	-0.22
14954.00	91.350	308.150	7044.05	7597.96	5707.70	-5022.49	1727633.57	14432159.65	39°44'23.502"N	80°41'23.072"W	7602.84	318.654	0.29	-0.28	-0.09
15045.00	91.570	307.010	7041.73	7687.80	5763.18	-5094.58	1727561.50	14432215.11	39°44'24.052"N	80°41'23.992"W	7692.14	318.524	1.28	0.24	-1.25
15135.00	91.540	310.450	7039.28	7776.91	5819.46	-5164.76	1727491.36	14432271.37	39°44'24.611"N	80°41'24.888"W	7780.80	318.411	3.82	-0.03	3.82

Actual Wellpath Report

Arthur Waryck MSH 5H AWP Proj: 18733'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H AWP
Facility	Arthur Waryck MSH Pad		

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]
15225.00	91.690	310.900	7036.75	7866.39	5878.09	-5232.99	1727423.16	14432329.98	39°44'25.193"N	80°41'25.759"W	7869.95	318.323	0.53	0.17	0.50
15315.00	91.510	312.440	7034.23	7956.02	5937.90	-5300.19	1727355.98	14432389.76	39°44'25.786"N	80°41'26.616"W	7959.31	318.248	1.72	-0.20	1.71
15406.00	91.660	314.230	7031.72	8046.84	6000.33	-5366.35	1727289.85	14432452.16	39°44'26.405"N	80°41'27.461"W	8049.95	318.192	1.97	0.16	1.97
15496.00	91.660	313.420	7029.11	8136.69	6062.62	-5431.25	1727224.97	14432514.43	39°44'27.023"N	80°41'28.289"W	8139.65	318.144	0.90	0.00	-0.90
15586.00	91.690	312.300	7026.48	8226.46	6123.81	-5497.19	1727159.05	14432575.60	39°44'27.630"N	80°41'29.130"W	8229.23	318.086	1.24	0.03	-1.24
15677.00	91.630	313.680	7023.84	8317.24	6185.84	-5563.73	1727092.54	14432637.60	39°44'28.245"N	80°41'29.979"W	8319.83	318.031	1.52	-0.07	1.52
15767.00	91.660	312.670	7021.26	8407.04	6247.39	-5629.34	1727026.96	14432699.13	39°44'28.856"N	80°41'30.816"W	8409.48	317.979	1.12	0.03	-1.12
15857.00	91.600	311.180	7018.70	8496.70	6307.50	-5696.27	1726960.06	14432759.21	39°44'29.452"N	80°41'31.670"W	8498.94	317.915	1.66	-0.07	-1.66
15948.00	91.600	312.390	7016.16	8587.35	6368.11	-5764.09	1726892.26	14432819.80	39°44'30.054"N	80°41'32.536"W	8589.39	317.850	1.33	0.00	1.33
16038.00	91.750	313.160	7013.53	8677.11	6429.20	-5830.13	1726826.25	14432880.87	39°44'30.660"N	80°41'33.379"W	8679.00	317.798	0.87	0.17	0.86
16129.00	90.550	311.850	7011.70	8767.85	6490.67	-5897.20	1726759.20	14432942.32	39°44'31.269"N	80°41'34.235"W	8769.60	317.743	1.95	-1.32	-1.44
16219.00	92.650	319.650	7009.18	8857.73	6555.06	-5959.93	1726696.50	14433006.68	39°44'31.908"N	80°41'35.035"W	8859.43	317.723	8.97	2.33	8.67
16310.00	91.970	315.610	7005.52	8948.62	6622.22	-6021.19	1726635.26	14433073.82	39°44'32.574"N	80°41'35.816"W	8950.34	317.722	4.50	-0.75	-4.44
16400.00	91.230	312.300	7003.00	9038.48	6684.66	-6085.95	1726570.53	14433136.23	39°44'33.193"N	80°41'36.642"W	9040.10	317.684	3.77	-0.82	-3.68
16491.00	91.600	312.440	7000.75	9129.20	6745.97	-6153.16	1726503.35	14433197.51	39°44'33.801"N	80°41'37.500"W	9130.68	317.631	0.43	0.41	0.15
16581.00	91.910	312.780	6998.00	9218.94	6806.87	-6219.36	1726437.17	14433258.39	39°44'34.405"N	80°41'38.345"W	9220.30	317.582	0.51	0.34	0.38
16671.00	91.940	310.520	6994.97	9308.55	6866.64	-6286.57	1726369.99	14433318.14	39°44'34.998"N	80°41'39.203"W	9309.77	317.525	2.51	0.03	-2.51
16761.00	91.820	311.460	6992.02	9398.07	6925.64	-6354.47	1726302.12	14433377.12	39°44'35.583"N	80°41'40.069"W	9399.14	317.463	1.05	-0.13	1.04
16852.00	92.030	313.120	6988.96	9488.76	6986.84	-6421.74	1726234.87	14433438.29	39°44'36.190"N	80°41'40.928"W	9489.72	317.413	1.84	0.23	1.82
16942.00	92.030	313.800	6985.78	9578.57	7048.70	-6487.03	1726169.61	14433500.13	39°44'36.804"N	80°41'41.761"W	9579.45	317.376	0.76	0.00	0.76
17032.00	92.030	312.960	6982.59	9668.37	7110.48	-6552.40	1726104.26	14433561.88	39°44'37.417"N	80°41'42.595"W	9669.17	317.339	0.93	0.00	-0.93
17123.00	91.850	312.310	6979.51	9759.10	7172.08	-6619.31	1726037.38	14433623.46	39°44'38.028"N	80°41'43.449"W	9759.82	317.295	0.74	-0.20	-0.71
17213.00	91.450	312.210	6976.92	9848.80	7232.58	-6685.89	1725970.82	14433683.93	39°44'38.628"N	80°41'44.299"W	9849.43	317.249	0.46	-0.44	-0.11
17303.00	91.450	311.920	6974.64	9938.49	7292.86	-6752.68	1725904.05	14433744.19	39°44'39.226"N	80°41'45.151"W	9939.04	317.202	0.32	0.00	-0.32
17393.00	91.350	313.210	6972.44	10028.24	7353.72	-6818.95	1725837.82	14433805.12	39°44'39.830"N	80°41'45.997"W	10028.72	317.161	1.44	-0.11	1.43
17483.00	91.780	311.140	6969.98	10117.93	7414.12	-6885.62	1725771.17	14433865.40	39°44'40.429"N	80°41'46.848"W	10118.34	317.117	2.35	0.48	-2.30
17574.00	91.720	308.900	6967.20	10208.29	7472.60	-6955.27	1725701.55	14433923.86	39°44'41.009"N	80°41'47.737"W	10208.61	317.054	2.46	-0.07	-2.46
17664.00	92.060	309.020	6964.23	10297.44	7529.16	-7025.22	1725631.63	14433980.40	39°44'41.570"N	80°41'48.630"W	10297.67	316.983	0.40	0.38	0.13
17755.00	92.120	311.910	6960.91	10387.85	7588.18	-7094.40	1725562.48	14434039.39	39°44'42.156"N	80°41'49.513"W	10388.02	316.926	3.17	0.07	3.18
17845.00	92.060	312.540	6957.63	10477.52	7648.62	-7161.00	1725495.90	14434099.81	39°44'42.755"N	80°41'50.363"W	10477.65	316.886	0.70	-0.07	0.70

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H AWP
Facility	Arthur Waryck MSH Pad		

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]
17936.00	92.090	313.130	6954.34	10568.27	7710.45	-7227.68	1725429.24	14434161.61	39°44'43.369"N	80°41'51.214"W	10568.37	316.851	0.65	0.03	0.65
18026.00	92.000	313.040	6951.13	10658.04	7771.89	-7293.37	1725363.58	14434223.03	39°44'43.978"N	80°41'52.052"W	10658.12	316.819	0.14	-0.10	-0.10
18117.00	91.720	313.020	6948.17	10748.82	7833.95	-7359.86	1725297.12	14434285.07	39°44'44.594"N	80°41'52.901"W	10748.87	316.787	0.31	-0.31	-0.02
18207.00	91.720	312.360	6945.47	10838.57	7894.95	-7425.98	1725231.02	14434346.04	39°44'45.199"N	80°41'53.745"W	10838.61	316.753	0.73	0.00	-0.73
18297.00	91.720	313.290	6942.77	10928.33	7956.10	-7491.96	1725165.07	14434407.16	39°44'45.805"N	80°41'54.587"W	10928.35	316.721	1.03	0.00	1.03
18388.00	91.630	312.780	6940.11	11019.11	8018.17	-7558.45	1725098.61	14434469.22	39°44'46.421"N	80°41'55.435"W	11019.13	316.691	0.57	-0.10	-0.56
18478.00	92.000	313.040	6937.26	11108.88	8079.42	-7624.33	1725032.75	14434530.44	39°44'47.028"N	80°41'56.276"W	11108.89	316.660	0.50	0.41	0.29
18569.00	91.820	312.390	6934.23	11199.62	8141.11	-7691.16	1724965.95	14434592.11	39°44'47.640"N	80°41'57.129"W	11199.62	316.628	0.74	-0.20	-0.71
18659.00	92.030	312.480	6931.20	11289.33	8201.81	-7757.54	1724899.59	14434652.78	39°44'48.242"N	80°41'57.976"W	11289.33	316.595	0.25	0.23	0.10
18708.00	91.820	312.680	6929.56	11338.19	8234.94	-7793.60	1724863.55	14434685.90	39°44'48.571"N	80°41'58.437"W	11338.19	316.577	0.59	-0.43	0.41
18733.00	91.820	312.680	6928.76	11363.12	8251.88	-7811.97	1724845.18	14434702.83	39°44'48.739"N	80°41'58.671"W	11363.12	316.569	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Arthur Waryck MSH 5H AWP Ref Wellpath: Arthur Waryck MSH 5H AWP Proj: 18733'

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	0.52	-0.19
17.5in Open Hole	100.00	678.00	578.00	100.00	677.88	0.52	-0.19	0.14	6.32
13.375in Casing Surface	26.00	655.00	629.00	26.00	654.89	0.00	0.00	0.59	5.90
12.25in Open Hole	678.00	2734.00	2056.00	677.88	2722.24	0.14	6.32	29.41	212.21
9.625in Casing Intermediate	26.00	2732.00	2706.00	26.00	2720.25	0.00	0.00	29.39	212.03
8.75in Open Hole	2734.00	7785.00	5051.00	2722.24	7114.53	29.41	212.21	898.05	286.26
8.5in Open Hole	7785.00	18733.00	10948.00	7114.53	6928.76	898.05	286.26	8251.88	-7811.97
5.5in Casing Production	26.00	18733.00	18707.00	26.00	6928.76	0.00	0.00	8251.88	-7811.97

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot 5H
Area	Marshall County, WV	Well	Arthur Waryck MSH 5H
Field	Marshall	Wellbore	Arthur Waryck MSH 5H 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 5H BHL Rev-5	7114.85	8256.66	-7807.06	1724850.09	14434707.61	39°44'48.786"N	80°41'58.608"W	point

WELLPATH COMPOSITION - Ref Wellbore: Arthur Waryck MSH 5H AWB Ref Wellpath: Arthur Waryck MSH 5H AWP Proj: 18733'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	638.00	VESSI GyroFlex v4	01_VES GyroFlex <17 1/2"> (50'-638')	Arthur Waryck MSH 5H AWB
638.00	941.00	VESSI GyroFlex v4	02_VES GyroFlex <12 1/4"> (669'-941')	Arthur Waryck MSH 5H AWB
941.00	2675.00	OWSG MWD rev2 + HRGM	03_Premier MWD <12 1/4"> (1048'-2675')	Arthur Waryck MSH 5H AWB
2675.00	7755.00	OWSG MWD rev2 + HRGM	04_Premier MWD <8 3/4"> (2784'-7755')	Arthur Waryck MSH 5H AWB
7755.00	18708.00	BHI AutoTrak Curve (Short)	05_BH AT Curve <8 1/2"> (7814'-18708')	Arthur Waryck MSH 5H AWB
18708.00	18733.00	Blind Drilling (std)	Projection to bit	Arthur Waryck MSH 5H AWB

REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot 5H
SOUTHWESTERN ENERGY	Well	Arthur Waryck MSH 5H
Marshall County, WV	Wellbore	Arthur Waryck MSH 5H AWB
Marshall		
Arthur Waryck MSH Pad		

COMMENTS

Wellpath general comments
 API: 47-051-02184-0000
 BH Job #: 109887934
 Rig: SDC 46
 Duration: 07/22/2019 - 07/24/2019