



# Actual Wellpath Report

Theлма Hays OHI 6H AWP Proj: 14572'

Page 1 of 9

## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #06
Area	Ohio County, WV	Well	Theлма Hays OHI 6H
Field	Ohio	Wellbore	Theлма Hays OHI 6H AWB
Facility	Theлма Hays OHI Pad		

## REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Thomsuzc
Scale	0.999618	Report Generated	11/15/2017 at 10:06:31 PM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Theлма Hays_OHI_6H_AWP_Proj_14572_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-18.85	-21.06	1764951.34	14582153.57	40°09'04.805"N	80°33'15.586"W
Facility Reference Pt			1764972.40	14582172.42	40°09'04.990"N	80°33'15.314"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 (RKB) to Facility Vertical Datum	1270.10ft
Horizontal Reference Pt	Slot	SDC-46 (RKB) to Mean Sea Level	1270.10ft
Vertical Reference Pt	SDC-46 (RKB)	SDC-46 (RKB) to Ground Level at Slot (Slot #06)	26.00ft
MD Reference Pt	SDC-46 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	162.69°

RECEIVED  
Office of Oil and Gas  
JUN 21 2018  
WV Department of  
Environmental Protection

09/07/2018



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #06
Area	Ohio County, WV	Well	Thelma Hays OHI 6H
Field	Ohio	Wellbore	Thelma Hays OHI 6H AWB
Facility	Thelma Hays OHI Pad		

## WELLPATH DATA (160 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	108.330	0.00	0.00	0.00	0.00	1764951.34	14582153.57	40°09'04.805"N	80°33'15.586"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	108.330	26.00	0.00	0.00	0.00	1764951.34	14582153.57	40°09'04.805"N	80°33'15.586"W	0.00	0.000	0.00	0.00	0.00
186.00	1.500	108.330	185.98	1.22	-0.66	1.99	1764953.33	14582152.91	40°09'04.798"N	80°33'15.561"W	2.09	108.330	0.94	0.94	67.71
277.00	0.800	121.430	276.96	2.39	-1.36	3.66	1764955.00	14582152.21	40°09'04.791"N	80°33'15.539"W	3.91	110.442	0.82	-0.77	14.40
352.00	0.600	127.730	351.96	3.11	-1.88	4.42	1764955.76	14582151.69	40°09'04.786"N	80°33'15.530"W	4.80	113.027	0.29	-0.27	8.40
398.00	0.300	151.630	397.96	3.42	-2.13	4.67	1764956.00	14582151.44	40°09'04.783"N	80°33'15.527"W	5.13	114.549	0.76	-0.65	51.96
444.00	0.200	57.130	443.96	3.52	-2.19	4.79	1764956.13	14582151.38	40°09'04.783"N	80°33'15.525"W	5.27	114.603	0.81	-0.22	-205.43
537.00	0.500	184.330	536.95	3.85	-2.51	4.90	1764956.23	14582151.06	40°09'04.780"N	80°33'15.524"W	5.50	117.143	0.69	0.32	136.77
744.00	0.470	193.950	743.95	5.42	-4.23	4.62	1764955.96	14582149.34	40°09'04.763"N	80°33'15.527"W	6.27	132.488	0.04	-0.01	4.65
790.00	0.380	282.270	789.95	5.50	-4.39	4.43	1764955.77	14582149.19	40°09'04.761"N	80°33'15.530"W	6.23	134.718	1.29	-0.20	192.00
883.00	2.320	291.190	882.92	4.18	-3.64	2.37	1764953.71	14582149.93	40°09'04.769"N	80°33'15.556"W	4.34	146.904	2.09	2.09	9.59
976.00	3.530	290.300	975.79	1.26	-1.97	-2.07	1764949.27	14582151.61	40°09'04.785"N	80°33'15.613"W	2.85	226.460	1.30	1.30	-0.96
1069.00	4.660	304.370	1068.56	-3.45	1.16	-7.87	1764943.47	14582154.73	40°09'04.817"N	80°33'15.688"W	7.96	278.387	1.62	1.22	15.13
1161.00	5.550	310.500	1160.19	-10.15	6.16	-14.34	1764937.01	14582159.73	40°09'04.866"N	80°33'15.771"W	15.61	293.246	1.13	0.97	6.66
1254.00	6.830	309.810	1252.65	-18.60	12.62	-22.01	1764929.34	14582166.19	40°09'04.931"N	80°33'15.869"W	25.37	299.834	1.38	1.38	-0.74
1347.00	7.580	309.420	1344.91	-28.37	20.06	-30.99	1764920.36	14582173.62	40°09'05.004"N	80°33'15.984"W	36.92	302.907	0.81	0.81	-0.42
1440.00	7.590	305.090	1437.10	-38.37	27.48	-40.76	1764910.60	14582181.04	40°09'05.078"N	80°33'16.110"W	49.16	303.991	0.61	0.01	-4.66
1533.00	7.900	302.450	1529.25	-48.11	34.44	-51.18	1764900.18	14582188.00	40°09'05.148"N	80°33'16.243"W	61.69	303.941	0.51	0.33	-2.84
1625.00	7.680	300.050	1620.40	-57.46	40.91	-61.83	1764889.53	14582194.47	40°09'05.212"N	80°33'16.380"W	74.14	303.491	0.43	-0.24	-2.61
1718.00	6.800	297.290	1712.66	-65.90	46.55	-72.11	1764879.26	14582200.10	40°09'05.268"N	80°33'16.512"W	85.83	302.845	1.02	-0.95	-2.97
1811.00	6.560	292.600	1805.03	-73.17	51.12	-81.90	1764869.47	14582204.67	40°09'05.314"N	80°33'16.638"W	96.55	301.968	0.64	-0.26	-5.04
1908.00	7.000	287.450	1901.35	-80.10	55.02	-92.66	1764858.72	14582208.57	40°09'05.353"N	80°33'16.776"W	107.76	300.701	0.77	0.45	-5.31
2001.00	5.310	282.350	1993.81	-85.46	57.64	-102.27	1764849.11	14582211.19	40°09'05.379"N	80°33'16.900"W	117.39	299.405	1.91	-1.82	-5.48
2094.00	3.090	272.260	2086.56	-88.43	58.66	-108.98	1764842.40	14582212.20	40°09'05.390"N	80°33'16.982"W	123.76	298.291	2.51	-2.39	-10.85
2187.00	6.370	252.300	2179.23	-89.23	57.19	-116.40	1764834.99	14582210.73	40°09'05.376"N	80°33'17.082"W	129.69	296.165	3.89	3.53	-21.46
2279.00	5.370	242.430	2270.75	-88.43	53.64	-125.08	1764826.31	14582207.19	40°09'05.341"N	80°33'17.194"W	136.10	293.213	1.54	-1.09	-10.73
2372.00	4.610	239.100	2363.40	-86.78	49.71	-132.14	1764819.25	14582203.26	40°09'05.303"N	80°33'17.285"W	141.18	290.615	0.87	-0.82	-3.58
2466.00	5.400	246.120	2456.05	-85.40	46.02	-139.35	1764812.04	14582199.57	40°09'05.266"N	80°33'17.378"W	146.75	288.275	1.07	0.85	7.55
2558.00	7.090	252.750	2548.49	-84.90	42.54	-148.83†	1764802.56	14582196.10	40°09'05.233"N	80°33'17.500"W	154.80	285.953	1.97	1.82	7.13
2651.00	10.930	248.040	2640.33	-84.19	37.54	-162.50†	1764788.98†	14582191.10	40°09'05.184"N	80°33'17.677"W	166.78	283.009	4.20	4.13	-5.06

RECEIVED  
Office of Oil and Gas  
JUN 21 2018  
W Department of  
Environmental Protection

06/27/2018



# Actual Wellpath Report

Thelma Hays OHI 6H AWP Proj: 14572

Page 3 of 9



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #06
Area	Ohio County, WV	Well	Thelma Hays OHI 6H
Field	Ohio	Wellbore	Thelma Hays OHI 6H AWB
Facility	Thelma Hays OHI Pad		

## WELLPATH DATA (160 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]
2743.00	12.950	248.310	2730.33	-82.70	30.47	-180.17	1764771.24	14582184.03	40°09'05.115"N	80°33'17.905"W	182.73	279.599	2.20	2.20	0.29
2839.00	12.870	246.120	2823.91	-80.65	22.17	-199.94	1764751.48	14582175.73	40°09'05.034"N	80°33'18.160"W	201.17	276.326	0.52	-0.08	-2.28
2932.00	12.300	245.210	2914.67	-78.18	13.82	-218.40	1764733.02	14582167.39	40°09'04.952"N	80°33'18.398"W	218.84	273.621	0.65	-0.61	-0.98
3024.00	11.390	243.620	3004.71	-75.47	5.68	-235.44	1764715.99	14582159.24	40°09'04.872"N	80°33'18.618"W	235.51	271.381	1.05	-0.99	-1.73
3117.00	10.650	240.380	3096.00	-72.19	-2.65	-251.14	1764700.30	14582150.92	40°09'04.791"N	80°33'18.821"W	251.15	269.395	1.04	-0.80	-3.48
3210.00	11.230	241.200	3187.31	-68.56	-11.26	-266.54	1764684.90	14582142.31	40°09'04.707"N	80°33'19.020"W	266.78	267.580	0.65	0.62	0.88
3302.00	12.000	241.970	3277.42	-64.99	-20.07	-282.84	1764668.61	14582133.50	40°09'04.620"N	80°33'19.230"W	283.55	265.940	0.85	0.84	0.84
3395.00	11.640	240.470	3368.45	-61.21	-29.24	-299.53	1764651.92	14582124.34	40°09'04.531"N	80°33'19.446"W	300.96	264.424	0.51	-0.39	-1.61
3488.00	11.250	241.840	3459.60	-57.51	-38.15	-315.69	1764635.77	14582115.44	40°09'04.443"N	80°33'19.654"W	317.99	263.110	0.51	-0.42	1.47
3584.00	12.060	242.060	3553.62	-53.90	-47.26	-332.81	1764618.66	14582106.32	40°09'04.354"N	80°33'19.875"W	336.15	261.917	0.85	0.84	0.23
3676.00	12.070	241.380	3643.59	-50.24	-56.38	-349.75	1764601.73	14582097.22	40°09'04.265"N	80°33'20.094"W	354.26	260.843	0.15	0.01	-0.74
3766.00	11.310	241.140	3731.72	-46.63	-65.14	-365.73	1764585.75	14582088.45	40°09'04.179"N	80°33'20.301"W	371.49	259.901	0.85	-0.84	-0.27
3859.00	12.010	236.290	3822.81	-42.07	-74.91	-381.77	1764569.72	14582078.68	40°09'04.083"N	80°33'20.508"W	389.05	258.898	1.29	0.75	-5.22
3952.00	11.520	233.460	3913.85	-36.28	-85.81	-397.28	1764554.21	14582067.79	40°09'03.976"N	80°33'20.708"W	406.44	257.811	0.81	-0.53	-3.04
4045.00	10.590	231.830	4005.13	-30.18	-96.62	-411.46	1764540.04	14582056.98	40°09'03.870"N	80°33'20.891"W	422.65	256.785	1.05	-1.00	-1.75
4141.00	11.150	232.620	4099.40	-23.85	-107.71	-425.77	1764525.73	14582045.90	40°09'03.761"N	80°33'21.076"W	439.19	255.803	0.60	0.58	0.82
4234.00	12.360	234.390	4190.45	-17.64	-118.97	-441.01	1764510.50	14582034.65	40°09'03.651"N	80°33'21.273"W	456.77	254.903	1.36	1.30	1.90
4327.00	12.100	234.080	4281.34	-11.41	-130.48	-457.00	1764494.52	14582023.14	40°09'03.538"N	80°33'21.480"W	475.26	254.065	0.29	-0.28	-0.33
4419.00	12.710	231.730	4371.19	-4.71	-142.41	-472.75	1764478.77	14582011.22	40°09'03.421"N	80°33'21.684"W	493.73	253.236	0.86	0.66	-2.55
4512.00	12.610	230.980	4461.93	2.71	-155.13	-488.67	1764462.86	14581998.50	40°09'03.296"N	80°33'21.890"W	512.70	252.387	0.21	-0.11	-0.81
4605.00	11.800	226.280	4552.83	10.69	-168.10	-503.43	1764448.10	14581985.54	40°09'03.169"N	80°33'22.080"W	530.75	251.536	1.38	-0.87	-5.05
4698.00	11.670	231.740	4643.89	18.29	-180.49	-517.69	1764433.85	14581973.15	40°09'03.047"N	80°33'22.265"W	548.25	250.779	1.20	-0.14	5.87
4791.00	11.590	232.530	4734.98	24.87	-192.00	-532.49	1764419.06	14581961.64	40°09'02.934"N	80°33'22.456"W	566.05	250.172	0.19	-0.09	0.85
4884.00	11.440	231.430	4826.11	31.43	-203.44	-547.11	1764404.44	14581950.21	40°09'02.821"N	80°33'22.645"W	583.71	249.603	0.29	-0.16	-1.18
4977.00	11.500	229.730	4917.25	38.39	-215.18	-561.40	1764390.16	14581938.47	40°09'02.706"N	80°33'22.830"W	601.22	249.029	0.37	0.06	-1.83
5070.00	11.240	227.550	5008.43	45.86	-227.29	-575.16	1764376.40	14581926.37	40°09'02.587"N	80°33'23.008"W	618.44	248.437	0.54	-0.28	-2.34
5163.00	11.780	231.050	5099.56	53.21	-239.37	-589.23	1764362.33	14581914.29	40°09'02.468"N	80°33'23.190"W	636.00	247.891	0.95	0.58	3.76
5255.00	12.160	231.280	5189.56	60.21	-251.34	-604.09	1764347.48	14581902.33	40°09'02.351"N	80°33'23.382"W	654.29	247.410	0.42	0.41	0.25
5348.00	11.940	227.760	5327.45	71.28	-270.43	-626.48	1764325.10	14581883.24	40°09'02.163"N	80°33'23.672"W	682.36	246.652	0.54	-0.16	-2.50
5423.00	11.740	227.110	5353.88	74.34	-274.18	-630.56	1764321.02	14581879.50	40°09'02.126"N	80°33'23.724"W	687.59	246.500	0.89	-0.74	-2.41

RECEIVED  
Department of  
Environmental Protection  
21 2018

07/2018



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #06
SOUTHWESTERN ENERGY	Well	Thelma Hays OHI 6H
Ohio County, WV	Wellbore	Thelma Hays OHI 6H AWB
Ohio		
Thelma Hays OHI Pad		

## WELLPATH DATA (160 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]
5516.00	10.550	231.290	5445.12	81.34	-285.94	-644.14	1764307.45	14581867.74	40°09'02.011"N	80°33'23.900"W	704.75	246.063	1.55	-1.28	4.49
5609.00	10.320	233.250	5536.59	87.21	-296.25	-657.45	1764294.14	14581857.43	40°09'01.910"N	80°33'24.072"W	721.12	245.743	0.45	-0.25	2.11
5702.00	11.430	237.760	5627.92	92.36	-306.15	-671.92	1764279.67	14581847.53	40°09'01.813"N	80°33'24.259"W	738.38	245.504	1.50	1.19	4.85
5794.00	11.600	239.490	5718.06	96.82	-315.71	-687.60	1764264.00	14581837.98	40°09'01.719"N	80°33'24.462"W	756.62	245.338	0.42	0.18	1.88
5888.00	11.680	243.700	5810.13	100.47	-324.73	-704.28	1764247.33	14581828.97	40°09'01.631"N	80°33'24.677"W	775.53	245.247	0.91	0.09	4.48
5980.00	16.930	220.590	5899.32	109.05	-339.05	-721.37	1764230.25	14581814.65	40°09'01.490"N	80°33'24.898"W	797.07	244.826	8.33	5.71	-25.12
6073.00	23.670	196.370	5986.64	131.85	-367.32	-735.48	1764216.14	14581786.39	40°09'01.211"N	80°33'25.082"W	822.10	243.461	11.44	7.25	-26.04
6166.00	31.000	183.390	6069.28	169.87	-409.23	-742.17	1764209.45	14581744.49	40°09'00.797"N	80°33'25.170"W	847.52	241.128	10.12	7.88	-13.96
6259.00	39.620	172.560	6145.17	221.64	-462.70	-739.74	1764211.88	14581691.05	40°09'00.269"N	80°33'25.143"W	872.53	237.975	11.42	9.27	-11.65
6351.00	45.620	166.510	6212.87	283.42	-523.84	-728.26	1764223.36	14581629.93	40°08'59.664"N	80°33'24.999"W	897.09	234.272	7.89	6.52	-6.58
6444.00	56.580	157.420	6271.25	355.54	-592.29	-705.50	1764246.11	14581561.51	40°08'58.987"N	80°33'24.710"W	921.16	229.986	14.01	11.78	-9.77
6537.00	67.030	155.830	6315.13	436.93	-667.39	-672.98	1764278.62	14581486.43	40°08'58.243"N	80°33'24.296"W	947.80	225.239	11.34	11.24	-1.71
6629.00	72.500	156.690	6346.94	522.67	-746.38	-638.25	1764313.33	14581407.47	40°08'57.461"N	80°33'23.854"W	982.07	220.535	6.01	5.95	0.93
6722.00	78.570	158.020	6370.16	612.29	-829.46	-603.61	1764347.96	14581324.43	40°08'56.638"N	80°33'23.413"W	1025.84	216.044	6.67	6.53	1.43
6815.00	86.580	158.850	6382.17	704.18	-915.16	-569.75	1764381.81	14581238.77	40°08'55.789"N	80°33'22.982"W	1078.02	211.905	8.66	8.61	0.89
6907.00	88.950	159.100	6385.76	795.91	-1000.96	-536.77	1764414.78	14581153.00	40°08'54.940"N	80°33'22.563"W	1135.80	208.203	2.59	2.58	0.27
7000.00	87.970	159.280	6388.26	888.71	-1087.86	-503.74	1764447.79	14581066.13	40°08'54.079"N	80°33'22.144"W	1198.83	204.847	1.07	-1.05	0.19
7093.00	88.060	158.230	6391.48	981.43	-1174.49	-470.06	1764481.46	14580979.54	40°08'53.222"N	80°33'21.715"W	1265.06	201.813	1.13	0.10	-1.13
7186.00	88.030	157.130	6394.65	1074.02	-1260.47	-434.76	1764516.74	14580893.59	40°08'52.370"N	80°33'21.266"W	1333.34	199.030	1.18	-0.03	-1.18
7278.00	88.090	156.750	6397.77	1165.50	-1345.07	-398.75	1764552.75	14580809.02	40°08'51.533"N	80°33'20.808"W	1402.93	196.513	0.42	0.07	-0.41
7371.00	88.060	157.230	6400.89	1257.99	-1430.62	-362.42	1764589.06	14580723.50	40°08'50.685"N	80°33'20.346"W	1475.81	194.216	0.52	-0.03	0.52
7464.00	89.630	157.850	6402.77	1350.59	-1516.54	-326.89	1764624.57	14580637.61	40°08'49.835"N	80°33'19.894"W	1551.38	192.164	1.81	1.69	0.67
7556.00	89.630	158.160	6403.36	1442.28	-1601.85	-292.44	1764659.01	14580552.34	40°08'48.990"N	80°33'19.456"W	1628.32	190.346	0.34	0.00	0.34
7649.00	89.570	158.270	6404.01	1535.00	-1688.20	-257.93	1764693.51	14580466.02	40°08'48.135"N	80°33'19.017"W	1707.79	188.687	0.13	-0.06	0.12
7742.00	89.600	157.920	6404.68	1627.70	-1774.49	-223.23	1764728.20	14580379.77	40°08'47.280"N	80°33'18.576"W	1788.47	187.170	0.38	0.03	-0.38
7835.00	89.630	158.110	6405.31	1720.39	-1860.72	-188.42	1764763.00	14580293.56	40°08'46.427"N	80°33'18.133"W	1870.24	185.782	0.21	0.03	0.20
7928.00	89.630	156.220	6405.91	1812.95	-1946.43	-152.33	1764799.07	14580207.89	40°08'45.578"N	80°33'17.674"W	1952.38	184.475	2.03	0.00	-2.03
8020.00	89.510	152.660	6406.60	1903.98	-2029.41	-112.64	1764838.74	14580124.94	40°08'44.756"N	80°33'17.168"W	2032.53	183.177	3.87	-0.13	-3.87
8113.00	89.540	152.670	6407.37	1995.55	-2112.02	-69.94	1764881.43	14580042.36	40°08'43.937"N	80°33'16.623"W	2113.18	181.897	0.03	0.03	0.01
8206.00	89.570	150.550	6408.09	2086.81	-2193.85	105.72	1764925.63	14579960.59	40°08'43.127"N	80°33'16.059"W	2193.98	180.672	2.28	0.03	-2.28

Office of Oil and Gas

JUN 21 2018

WV Department of Environmental Protection

06/27/2018



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #06
Area	Ohio County, WV	Well	Thelma Hays OHI 6H
Field	Ohio	Wellbore	Thelma Hays OHI 6H AWB
Facility	Thelma Hays OHI Pad		

## WELLPATH DATA (160 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]
8299.00	89.540	152.430	6408.81	2178.04	-2275.54	18.66	1764970.00	14579878.90	40°08'42.317"N	80°33'15.493"W	2275.62	179.530	2.02	-0.03	2.02
8391.00	89.660	154.350	6409.46	2268.82	-2357.79	59.87	1765011.19	14579796.68	40°08'41.502"N	80°33'14.968"W	2358.55	178.545	2.09	0.13	2.09
8484.00	89.880	158.000	6409.83	2361.20	-2442.85	97.43	1765048.73	14579711.66	40°08'40.660"N	80°33'14.490"W	2444.79	177.716	3.93	0.24	3.92
8576.00	89.600	157.980	6410.25	2452.89	-2528.15	131.91	1765083.20	14579626.40	40°08'39.815"N	80°33'14.051"W	2531.59	177.013	0.31	-0.30	-0.02
8669.00	89.600	156.220	6410.90	2545.44	-2613.81	168.09	1765119.37	14579540.76	40°08'38.967"N	80°33'13.591"W	2619.21	176.320	1.89	0.00	-1.89
8762.00	89.600	155.280	6411.55	2637.76	-2698.60	206.29	1765157.55	14579456.00	40°08'38.127"N	80°33'13.104"W	2706.48	175.629	1.01	0.00	-1.01
8854.00	89.290	153.220	6412.44	2728.75	-2781.46	246.25	1765197.50	14579373.18	40°08'37.306"N	80°33'12.595"W	2792.34	174.941	2.26	-0.34	-2.24
8947.00	89.260	153.320	6413.61	2820.49	-2864.51	288.08	1765239.31	14579290.16	40°08'36.483"N	80°33'12.062"W	2878.96	174.257	0.11	-0.03	0.11
9040.00	89.260	153.270	6414.82	2912.24	-2947.59	329.87	1765281.09	14579207.12	40°08'35.660"N	80°33'11.529"W	2965.99	173.614	0.05	0.00	-0.05
9132.00	89.080	155.170	6416.15	3003.22	-3030.42	369.88	1765321.08	14579124.32	40°08'34.840"N	80°33'11.019"W	3052.91	173.041	2.07	-0.20	2.07
9225.00	89.290	156.030	6417.47	3095.50	-3115.10	408.29	1765359.48	14579039.67	40°08'34.001"N	80°33'10.530"W	3141.74	172.533	0.95	0.23	0.92
9317.00	89.350	158.730	6418.56	3187.09	-3200.01	443.67	1765394.84	14578954.79	40°08'33.160"N	80°33'10.080"W	3230.62	172.106	2.94	0.07	2.93
9410.00	89.660	162.600	6419.37	3280.01	-3287.74	474.46	1765425.61	14578867.09	40°08'32.292"N	80°33'09.690"W	3321.80	171.788	4.17	0.33	4.16
9503.00	89.260	162.260	6420.24	3373.00	-3376.40	502.53	1765453.68	14578778.47	40°08'31.414"N	80°33'09.334"W	3413.59	171.534	0.56	-0.43	-0.37
9595.00	89.690	164.820	6421.09	3464.98	-3464.62	528.59	1765479.73	14578690.28	40°08'30.541"N	80°33'09.004"W	3504.71	171.325	2.82	0.47	2.78
9688.00	89.320	165.180	6421.89	3557.90	-3554.45	552.66	1765503.79	14578600.49	40°08'29.652"N	80°33'08.700"W	3597.16	171.162	0.56	-0.40	0.39
9780.00	90.090	163.050	6422.36	3649.87	-3642.93	577.84	1765528.96	14578512.04	40°08'28.777"N	80°33'08.381"W	3688.47	170.987	2.46	0.84	-2.32
9873.00	90.150	159.410	6422.17	3742.82	-3730.97	607.76	1765558.87	14578424.04	40°08'27.905"N	80°33'08.002"W	3780.14	170.748	3.91	0.06	-3.91
9966.00	90.950	156.050	6421.28	3835.45	-3817.01	643.00	1765594.09	14578338.02	40°08'27.053"N	80°33'07.554"W	3870.79	170.438	3.71	0.86	-3.61
10059.00	89.880	154.070	6420.60	3927.62	-3901.33	682.21	1765633.29	14578253.74	40°08'26.218"N	80°33'07.054"W	3960.53	170.081	2.42	-1.15	-2.13
10152.00	89.320	154.770	6421.25	4019.65	-3985.21	722.36	1765673.43	14578169.89	40°08'25.387"N	80°33'06.543"W	4050.15	169.726	0.96	-0.60	0.75
10245.00	89.290	151.280	6422.38	4111.31	-4068.08	764.54	1765715.59	14578087.06	40°08'24.566"N	80°33'06.005"W	4139.30	169.356	3.75	-0.03	-3.75
10338.00	89.290	151.070	6423.53	4202.43	-4149.55	809.37	1765760.40	14578005.62	40°08'23.759"N	80°33'05.433"W	4227.75	168.963	0.23	0.00	-0.23
10430.00	89.230	150.690	6424.72	4292.48	-4229.91	854.14	1765805.15	14577925.28	40°08'22.963"N	80°33'04.862"W	4315.29	168.584	0.42	-0.07	-0.41
10523.00	89.230	152.510	6425.97	4383.73	-4311.71	898.37	1765849.36	14577843.52	40°08'22.152"N	80°33'04.298"W	4404.30	168.230	1.96	0.00	1.96
10616.00	89.320	154.000	6427.15	4475.45	-4394.75	940.22	1765891.19	14577760.51	40°08'21.329"N	80°33'03.764"W	4494.20	167.924	1.60	0.10	1.60
10709.00	89.140	153.460	6428.40	4567.32	-4478.14	981.37	1765932.34	14577677.15	40°08'20.503"N	80°33'03.240"W	4584.41	167.639	0.61	-0.19	-0.58
10801.00	89.050	154.540	6429.85	4658.25	-4560.82	1021.70	1765972.65	14577594.51	40°08'19.684"N	80°33'02.726"W	4673.85	167.373	1.18	-0.10	1.17
10894.00	89.350	155.500	6431.15	4750.41	-4645.90	1060.97	1766011.90	14577510.25	40°08'18.849"N	80°33'02.226"W	4764.73	167.134	1.08	0.32	1.03
10987.00	89.260	156.450	6432.28	4842.76	-4730.04	1098.83	1766049.75	14577425.35	40°08'18.008"N	80°33'01.744"W	4856.00	166.922	1.03	-0.10	1.02

JUN 21 2018

WV Department of  
Environmental Protection

6/27/2018



### REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #06
Area	Ohio County, WV	Well	Thelma Hays OHI 6H
Field	Ohio	Wellbore	Thelma Hays OHI 6H AWB
Facility	Thelma Hays OHI Pad		

### WELLPATH DATA (160 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]	Bulid Rate [°/100ft]	Turn Rate [°/100ft]
11080.00	89.320	160.000	6433.43	4935.46	-4816.39	1133.32	1766084.22	14577339.03	40°08'17.153"N	80°33'01.305"W	4947.93	166.759	3.82	0.06	3.82
11173.00	89.480	161.310	6434.40	5028.39	-4904.13	1164.12	1766115.02	14577251.33	40°08'16.284"N	80°33'00.915"W	5040.40	166.646	1.42	0.17	1.41
11265.00	89.480	158.780	6435.24	5120.28	-4990.59	1195.52	1766146.40	14577164.89	40°08'15.428"N	80°33'00.516"W	5131.79	166.528	2.75	0.00	-2.75
11358.00	89.380	159.820	6436.16	5213.11	-5077.59	1228.39	1766179.26	14577077.94	40°08'14.567"N	80°33'00.098"W	5224.06	166.400	1.12	-0.11	1.12
11451.00	89.510	162.310	6437.06	5306.06	-5165.54	1258.56	1766209.42	14576990.01	40°08'13.696"N	80°32'59.716"W	5316.65	166.307	2.68	0.14	2.68
11544.00	89.450	161.100	6437.91	5399.04	-5253.84	1287.76	1766238.60	14576901.75	40°08'12.822"N	80°32'59.346"W	5409.35	166.228	1.30	-0.06	-1.30
11637.00	89.320	155.370	6438.91	5491.72	-5340.16	1322.22	1766273.06	14576815.46	40°08'11.968"N	80°32'58.907"W	5501.42	166.093	6.16	-0.14	-6.16
11729.00	89.690	156.890	6439.70	5583.11	-5424.29	1359.45	1766310.27	14576731.36	40°08'11.134"N	80°32'58.434"W	5592.05	165.930	1.70	0.40	1.65
11822.00	89.690	156.810	6440.21	5675.63	-5509.80	1396.01	1766346.81	14576645.89	40°08'10.288"N	80°32'57.968"W	5683.90	165.782	0.09	0.00	-0.09
11915.00	89.680	154.940	6440.73	5767.96	-5594.67	1434.02	1766384.81	14576561.05	40°08'09.447"N	80°32'57.485"W	5775.53	165.624	2.01	-0.03	-2.01
12007.00	89.660	153.810	6441.28	5858.99	-5677.62	1473.81	1766424.58	14576478.13	40°08'08.625"N	80°32'56.978"W	5865.79	165.448	1.23	0.00	-1.23
12100.00	89.420	155.040	6442.03	5951.02	-5761.50	1513.95	1766464.71	14576394.28	40°08'07.794"N	80°32'56.466"W	5957.10	165.277	1.35	-0.26	1.32
12193.00	89.350	154.870	6443.02	6043.17	-5845.75	1553.32	1766504.06	14576310.06	40°08'06.960"N	80°32'55.965"W	6048.61	165.119	0.20	-0.08	-0.18
12286.00	89.420	155.310	6444.02	6135.35	-5930.10	1592.49	1766543.22	14576225.75	40°08'06.124"N	80°32'55.466"W	6140.20	164.968	0.48	0.08	0.47
12379.00	89.260	155.710	6445.09	6227.61	-6014.73	1631.04	1766581.75	14576141.16	40°08'05.286"N	80°32'54.975"W	6231.95	164.828	0.46	-0.17	0.43
12472.00	89.230	155.590	6446.32	6319.90	-6099.45	1669.38	1766620.08	14576056.47	40°08'04.447"N	80°32'54.487"W	6323.77	164.693	0.13	-0.03	-0.13
12565.00	89.260	157.310	6447.54	6412.34	-6184.69	1706.53	1766657.22	14575971.26	40°08'03.603"N	80°32'54.015"W	6415.81	164.574	1.85	0.03	1.85
12658.00	89.140	157.280	6448.84	6504.92	-6270.47	1742.43	1766693.10	14575885.51	40°08'02.753"N	80°32'53.558"W	6508.06	164.471	0.13	-0.13	-0.03
12750.00	89.290	156.660	6450.10	6596.45	-6355.13	1778.41	1766729.07	14575800.88	40°08'01.915"N	80°32'53.100"W	6599.28	164.366	0.69	0.16	-0.67
12843.00	89.230	155.460	6451.31	6688.82	-6440.12	1816.15	1766766.79	14575715.92	40°08'01.073"N	80°32'52.620"W	6691.31	164.251	1.29	-0.06	-1.29
12936.00	89.380	154.980	6452.43	6781.03	-6524.55	1855.12	1766805.75	14575631.52	40°08'00.237"N	80°32'52.124"W	6783.16	164.128	0.54	0.16	-0.52
13029.00	89.320	156.130	6453.49	6873.30	-6609.21	1893.61	1766844.22	14575546.90	40°07'59.398"N	80°32'51.634"W	6875.13	164.012	1.24	-0.06	1.24
13122.00	89.380	156.660	6454.54	6965.73	-6694.42	1930.84	1766881.44	14575461.72	40°07'58.554"N	80°32'51.160"W	6967.31	163.911	0.57	0.06	0.57
13214.00	89.720	155.800	6455.27	7057.14	-6778.61	1967.92	1766918.51	14575377.56	40°07'57.721"N	80°32'50.688"W	7058.49	163.811	1.01	0.37	-0.93
13307.00	90.220	155.370	6455.31	7149.43	-6863.30	2006.37	1766956.93	14575292.91	40°07'56.882"N	80°32'50.199"W	7150.55	163.705	0.71	0.54	-0.46
13400.00	90.180	155.800	6454.99	7241.72	-6948.01	2044.74	1766995.29	14575208.23	40°07'56.043"N	80°32'49.710"W	7242.64	163.601	0.56	-0.04	0.56
13493.00	90.180	155.670	6454.70	7334.05	-7032.82	2082.89	1767033.43	14575123.45	40°07'55.203"N	80°32'49.225"W	7334.78	163.502	0.24	0.00	-0.24
13586.00	90.220	156.800	6454.37	7426.45	-7117.94	2120.37	1767070.89	14575038.37	40°07'54.360"N	80°32'48.748"W	7427.04	163.412	1.22	0.04	1.22
13679.00	90.250	156.350	6453.99	7518.92	-7203.27	2157.34	1767107.85	14574953.07	40°07'53.515"N	80°32'48.277"W	7519.39	163.327	0.48	0.03	-0.48
13772.00	90.120	157.740	6453.69	7610.48	-7287.98	2193.22	1767143.72	14574868.39	40°07'52.676"N	80°32'47.821"W	7610.84	163.252	1.52	-0.14	1.51

RECEIVED  
Department of Environmental Protection  
June 21 2018

6/27/2018



## REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #06
SOUTHWESTERN ENERGY	Well	Theлма Hays OHI 6H
Area	Wellbore	Theлма Hays OHI 6H AWP
Field		
Facility		

## WELLPATH DATA (160 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]
13864.00	90.250	158.670	6453.39	7703.19	-7374.33	2227.75	1767178.23	14574782.07	40°07'51.821"N	80°32'47.382"W	7703.48	163.191	1.01	0.14	1.00
13957.00	90.220	158.720	6453.01	7795.96	-7460.98	2261.54	1767212.01	14574695.46	40°07'50.963"N	80°32'46.953"W	7796.20	163.137	0.06	-0.03	0.05
14050.00	90.220	160.030	6452.66	7888.80	-7548.01	2294.30	1767244.75	14574608.46	40°07'50.101"N	80°32'46.537"W	7889.00	163.093	1.41	0.00	1.41
14142.00	89.480	159.570	6452.90	7980.69	-7634.35	2326.06	1767276.51	14574522.15	40°07'49.246"N	80°32'46.134"W	7980.85	163.055	0.95	-0.80	-0.50
14235.00	89.480	158.190	6453.74	8073.47	-7721.10	2359.57	1767310.00	14574435.44	40°07'48.387"N	80°32'45.708"W	8073.60	163.007	1.48	0.00	-1.48
14328.00	89.540	156.020	6454.54	8166.02	-7806.77	2395.75	1767346.17	14574349.80	40°07'47.539"N	80°32'45.248"W	8166.10	162.940	2.33	0.06	-2.33
14420.00	89.420	154.610	6455.37	8257.26	-7890.35	2434.17	1767384.57	14574266.25	40°07'46.711"N	80°32'44.759"W	8257.29	162.855	1.54	-0.13	-1.53
14513.00	89.480	155.660	6456.26	8349.44	-7974.73	2473.27	1767423.66	14574181.91	40°07'45.875"N	80°32'44.261"W	8349.45	162.769	1.13	0.06	1.13
14548.00	89.540	155.310	6456.56	8384.17	-8006.57	2487.79	1767438.18	14574150.08	40°07'45.560"N	80°32'44.076"W	8384.17	162.739	1.01	0.17	-1.00
14572.00	89.540	155.310	6456.76	8407.97	-8028.38	2497.82	1767448.20	14574128.28	40°07'45.344"N	80°32'43.948"W	8407.97	162.718	0.00	0.00	0.00

## HOLE & CASING SECTIONS - Ref Wellbore: Theлма Hays OHI 6H AWP Ref Wellpath: Theлма Hays OHI 6H AWP Proj: 14572'

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]
12.25in Open Hole	667.00	1891.00	1224.00	666.95	1884.48	-3.61	4.76	54.39	-90.70
9.625in Casing	26.00	1874.00	1848.00	26.00	1867.60	0.00	0.00	53.73	-88.77
8.75in Open Hole	1891.00	5418.00	3527.00	1884.48	5348.98	54.39	-90.70	-273.49	-629.81
8.5in Open Hole	5418.00	14572.00	9154.00	5348.98	6456.76	-273.49	-629.81	-8028.38	2497.82



### REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #06
SOUTHWESTERN ENERGY	Well	Theлма Hays OHI 6H
Area	Wellbore	Theлма Hays OHI 6H AWB
Field		
Facility		

### TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Theлма Hays 6H LP Rev-5	6367.00	-890.82	-587.96	1764363.61	14581263.09	40°08'56.031"N	80°33'23.215"W	point
Theлма Hays 6H BHL Rev-5	6443.00	-8044.72	2507.80	1767458.18	14574111.94	40°07'45.182"N	80°32'43.821"W	point

### WELLPATH COMPOSITION - Ref Wellbore: Theлма Hays OHI 6H AWB Ref Wellpath: Theлма Hays OHI 6H AWP Proj: 14572'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	537.00	LOWSG EMS rev2 + HRGM	01_MSS <17-1/2"> (186'-537')	Theлма Hays OHI 6H AWB
537.00	1811.00	BHI NaviTrak (Axial)	02_APS EM <12-1/4"> (537')(744'-1811')	Theлма Hays OHI 6H AWB
1811.00	5255.00	BHI NaviTrak (Axial)	03_APS EM <8.75"> (1811')(1908'-5255')	Theлма Hays OHI 6H AWB
5255.00	14548.00	BHI AutoTrak Curve (Short)	04_BH ATC (5255')(5396'-14548')	Theлма Hays OHI 6H AWB
14548.00	14572.00	Blind Drilling (std)	Projection to bit	Theлма Hays OHI 6H AWB



**REFERENCE WELLPATH IDENTIFICATION**

Operator	Area	Field	Facility	Slot	Well	Wellbore	Slot #06
SOUTHWESTERN ENERGY	Ohio County, WV	Ohio	Thelma Hays OHI Pad	Well	Wellbore		Thelma Hays OHI 6H
							Thelma Hays OHI 6H AWB

**COMMENTS**

Wellpath general comments  
 API: 47-069-00234-0000  
 Job #: 8837532  
 Rig: SDC 46  
 Duration: 11/052017 - 11/12/2017