

# SOUTHWESTERN ENERGY

Location: Ohio County, WV  
 Field: Ohio  
 Facility: Esther Weeks OHI Pad

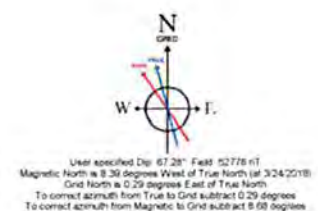
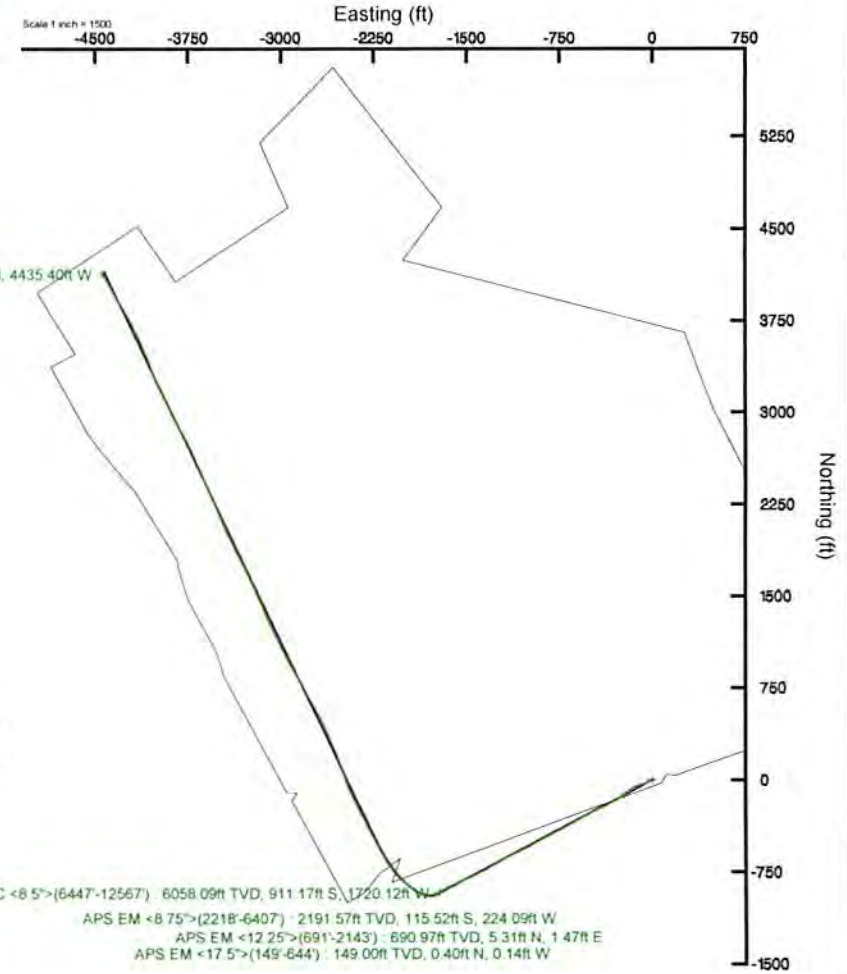
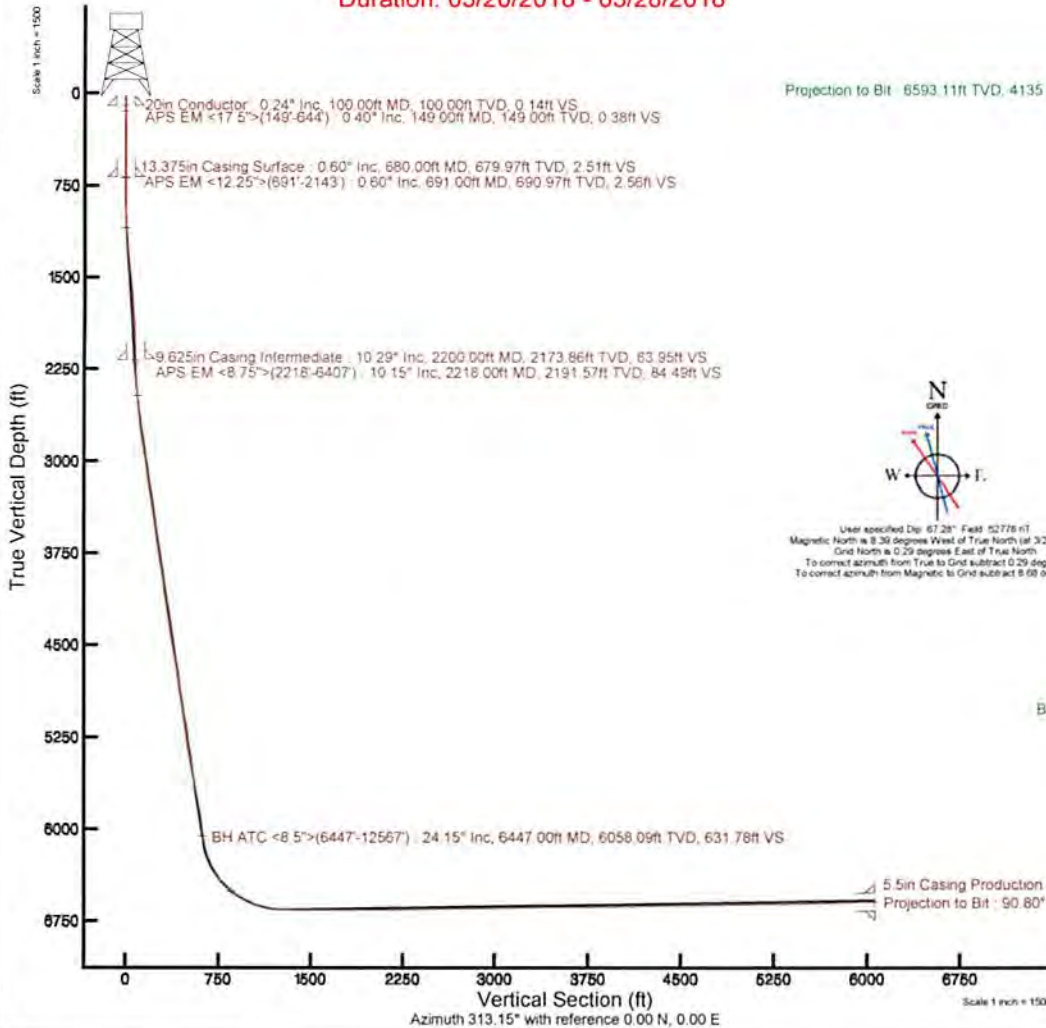
Slot: Slot #201H  
 Well: Esther Weeks OHI 201H  
 Wellbore: Esther Weeks OHI 201H PWB



Location Information					
Facility Name		Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Esther Weeks OHI Pad		1765685 170	14536300 640	40°01'31.473"N	80°33'09.104"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude
Slot #201H	0.30	-5.34	1765679 830	14536300 940	40°01'31.477"N
SDC 42 (RKB) to Ground level (At Slot, Slot #201H)				26ft	
Mean Sea Level to Ground level (At Slot, Slot #201H)				-1256.77ft	
SDC 42 (RKB) to Mean Sea Level				1282.77ft	

Plot reference wellpath is Esther Weeks OHI 201H PWB Rev-A 0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 42 (RKB)	* = Wellpath was transformed from a different geodetic datum
Measured depths are referenced to SDC 42 (RKB)	North Reference: Grid north
SDC 42 (RKB) to Mean Sea Level: 1282.77 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot, Slot #201H): -1256.77 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomsuzc on 2016-04-04
	Database: WA_Pennsylvania

API: 47-069-00256-0000  
 Job #: 9058884  
 Rig: SDC 42  
 Duration: 03/20/2018 - 03/28/2018



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks 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	4/4/2018 at 2:34:55 PM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Esther_Weeks_OHI_201H_AWP_Proj_12592_.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.30	-5.34	1765679.83	14536300.94	40°01'31.477"N	80°33'09.172"W
Facility Reference Pt			1765685.17	14536300.64	40°01'31.473"N	80°33'09.104"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 42 (RKB) to Facility Vertical Datum	1282.77ft
Horizontal Reference Pt	Slot	SDC 42 (RKB) to Mean Sea Level	1282.77ft
Vertical Reference Pt	SDC 42 (RKB)	SDC 42 (RKB) to Ground Level at Slot (Slot #201H)	26.00ft
MD Reference Pt	SDC 42 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	313.15°



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

WELLPATH DATA (157 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	340.380	0.00	0.00	0.00	0.00	1765679.83	14536300.94	40°01'31.477"N	80°33'09.172"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	340.380	26.00	0.00	0.00	0.00	1765679.83	14536300.94	40°01'31.477"N	80°33'09.172"W	0.00	0.000	0.00	0.00	0.00
149.00	0.400	340.380	149.00	0.38	0.40	-0.14	1765679.69	14536301.34	40°01'31.481"N	80°33'09.174"W	0.43	340.380	0.33	0.33	-15.95
240.00	0.380	7.890	240.00	0.84	1.00	-0.21	1765679.62	14536301.94	40°01'31.487"N	80°33'09.175"W	1.02	348.202	0.20	-0.02	30.23
331.00	0.540	23.120	330.99	1.16	1.70	0.00	1765679.83	14536302.64	40°01'31.493"N	80°33'09.172"W	1.70	0.014	0.22	0.18	16.74
412.00	0.570	24.720	411.99	1.42	2.41	0.32	1765680.15	14536303.35	40°01'31.500"N	80°33'09.168"W	2.43	7.526	0.04	0.04	1.98
496.00	0.670	23.840	495.99	1.71	3.24	0.69	1765680.52	14536304.18	40°01'31.509"N	80°33'09.163"W	3.31	12.050	0.12	0.12	-1.05
579.00	0.710	22.050	578.98	2.06	4.16	1.08	1765680.91	14536305.10	40°01'31.518"N	80°33'09.158"W	4.30	14.562	0.05	0.05	-2.16
644.00	0.580	17.520	643.98	2.34	4.85	1.33	1765681.16	14536305.79	40°01'31.525"N	80°33'09.155"W	5.03	15.353	0.21	-0.20	-6.97
691.00	0.600	16.220	690.97	2.56	5.31	1.47	1765681.30	14536306.25	40°01'31.529"N	80°33'09.153"W	5.51	15.486	0.05	0.04	-2.77
730.00	0.510	20.250	729.97	2.72	5.67	1.59	1765681.42	14536306.61	40°01'31.533"N	80°33'09.151"W	5.89	15.651	0.25	-0.23	10.33
775.00	0.760	218.060	774.97	2.77	5.62	1.47	1765681.30	14536306.56	40°01'31.532"N	80°33'09.153"W	5.81	14.688	2.79	0.56	-360.42
858.00	3.470	214.410	857.91	2.34	3.12	-0.28	1765679.55	14536304.06	40°01'31.507"N	80°33'09.176"W	3.13	354.779	3.27	3.27	-4.40
940.00	5.330	224.920	939.66	2.08	-1.63	-4.38	1765675.45	14536299.31	40°01'31.461"N	80°33'09.229"W	4.67	249.612	2.46	2.27	12.82
1024.00	6.420	241.430	1023.23	3.67	-6.64	-11.26	1765668.58	14536294.31	40°01'31.412"N	80°33'09.317"W	13.07	239.482	2.38	1.30	19.65
1107.00	7.560	246.510	1105.61	7.30	-11.03	-20.34	1765659.50	14536289.91	40°01'31.369"N	80°33'09.434"W	23.14	241.527	1.56	1.37	6.12
1191.00	9.320	248.500	1188.69	12.40	-15.73	-31.74	1765648.10	14536285.22	40°01'31.323"N	80°33'09.581"W	35.42	243.640	2.12	2.10	2.37
1275.00	9.340	247.840	1271.58	18.16	-20.79	-44.38	1765635.47	14536280.16	40°01'31.273"N	80°33'09.744"W	49.01	244.897	0.13	0.02	-0.79
1360.00	9.700	250.000	1355.41	24.27	-25.84	-57.50	1765622.36	14536275.11	40°01'31.224"N	80°33'09.913"W	63.04	245.798	0.60	0.42	2.54
1444.00	12.300	254.090	1437.86	32.07	-30.72	-72.75	1765607.11	14536270.24	40°01'31.177"N	80°33'10.109"W	78.97	247.111	3.23	3.10	4.87
1525.00	13.170	253.000	1516.87	41.10	-35.78	-89.87	1765589.99	14536265.17	40°01'31.128"N	80°33'10.330"W	96.73	248.293	1.11	1.07	-1.35
1610.00	13.620	249.350	1599.56	50.34	-42.14	-108.50	1765571.37	14536258.82	40°01'31.066"N	80°33'10.570"W	116.40	248.775	1.13	0.53	-4.29
1692.00	14.060	245.310	1679.18	58.36	-49.71	-126.59	1765553.29	14536251.25	40°01'30.992"N	80°33'10.803"W	135.99	248.562	1.29	0.54	-4.93
1776.00	14.310	242.480	1760.62	65.64	-58.76	-145.06	1765534.82	14536242.20	40°01'30.903"N	80°33'11.041"W	156.51	247.947	0.88	0.30	-3.37
1858.00	14.730	238.860	1840.00	71.82	-68.84	-162.97	1765516.92	14536232.13	40°01'30.804"N	80°33'11.272"W	176.91	247.101	1.22	0.51	-4.41
1941.00	13.770	233.200	1920.45	76.40	-80.21	-179.92	1765499.98	14536220.76	40°01'30.693"N	80°33'11.490"W	196.99	245.971	2.04	-1.16	-6.82
2025.00	12.260	229.550	2002.29	79.14	-91.99	-194.71	1765485.20	14536208.99	40°01'30.577"N	80°33'11.681"W	215.34	244.712	2.05	-1.80	-4.35
2110.00	11.700	231.860	2085.44	81.45	-103.17	-208.35	1765471.56	14536197.81	40°01'30.467"N	80°33'11.857"W	232.50	243.658	0.87	-0.66	2.72
2143.00	10.730	231.070	2117.81	82.38	-107.16	-213.38	1765466.54	14536193.82	40°01'30.428"N	80°33'11.922"W	238.77	243.333	2.98	-2.94	-2.39
2218.00	10.150	233.100	2191.57	84.49	-115.52	-224.09	1765455.82	14536185.47	40°01'30.346"N	80°33'12.060"W	252.11	242.729	0.92	-0.77	2.71



## REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

## WELLPATH DATA (157 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]
2284.00	10.300	231.980	2256.52	86.40	-122.64	-233.39	1765446.53	14536178.34	40°01'30.276"N	80°33'12.180"W	263.65	242.279	0.38	0.23	-1.70
2366.00	13.090	234.610	2336.81	89.37	-132.54	-246.74	1765433.19	14536168.45	40°01'30.179"N	80°33'12.352"W	280.08	241.757	3.46	3.40	3.21
2449.00	15.940	240.840	2417.16	94.70	-143.54	-264.36	1765415.57	14536157.46	40°01'30.071"N	80°33'12.580"W	300.81	241.499	3.91	3.43	7.51
2532.00	18.240	240.550	2496.49	102.05	-155.48	-285.63	1765394.31	14536145.52	40°01'29.954"N	80°33'12.854"W	325.20	241.438	2.77	2.77	-0.35
2616.00	19.380	238.520	2576.00	109.67	-169.22	-308.96	1765370.99	14536131.78	40°01'29.820"N	80°33'13.155"W	352.27	241.290	1.56	1.36	-2.42
2698.00	20.460	239.110	2653.10	117.22	-183.68	-332.86	1765347.10	14536117.33	40°01'29.678"N	80°33'13.463"W	380.18	241.109	1.34	1.32	0.72
2780.00	22.460	241.140	2729.41	126.00	-198.60	-358.88	1765321.09	14536102.41	40°01'29.532"N	80°33'13.798"W	410.17	241.040	2.60	2.44	2.48
2863.00	23.810	242.740	2805.73	136.51	-213.93	-387.66	1765292.32	14536087.09	40°01'29.382"N	80°33'14.169"W	442.77	241.108	1.79	1.63	1.93
2947.00	23.570	245.480	2882.66	148.58	-228.67	-418.02	1765261.98	14536072.36	40°01'29.238"N	80°33'14.560"W	476.47	241.320	1.34	-0.29	3.26
3031.00	23.150	244.840	2959.77	161.06	-242.66	-448.24	1765231.76	14536058.38	40°01'29.101"N	80°33'14.950"W	509.71	241.571	0.58	-0.50	-0.76
3119.00	22.450	242.610	3040.90	173.06	-257.74	-478.82	1765201.20	14536043.30	40°01'28.953"N	80°33'15.344"W	543.78	241.707	1.26	-0.80	-2.53
3201.00	24.110	240.880	3116.22	183.37	-273.10	-507.35	1765172.67	14536027.95	40°01'28.803"N	80°33'15.711"W	576.18	241.707	2.19	2.02	-2.11
3283.00	24.710	241.210	3190.89	193.79	-289.50	-537.00	1765143.03	14536011.55	40°01'28.642"N	80°33'16.094"W	610.07	241.671	0.75	0.73	0.40
3367.00	25.070	241.550	3267.09	204.85	-306.44	-568.04	1765112.01	14535994.62	40°01'28.477"N	80°33'16.494"W	645.42	241.655	0.46	0.43	0.40
3451.00	27.000	241.650	3342.56	216.52	-323.97	-600.47	1765079.59	14535977.09	40°01'28.305"N	80°33'16.912"W	682.29	241.652	2.30	2.30	0.12
3535.00	26.490	240.300	3417.57	228.09	-342.31	-633.52	1765046.55	14535958.77	40°01'28.125"N	80°33'17.338"W	720.09	241.617	0.94	-0.61	-1.61
3620.00	25.910	239.250	3493.84	238.83	-361.19	-665.95	1765014.14	14535939.88	40°01'27.940"N	80°33'17.756"W	757.60	241.526	0.87	-0.68	-1.24
3702.00	25.810	242.380	3567.63	249.68	-378.63	-697.17	1764982.93	14535922.46	40°01'27.769"N	80°33'18.158"W	793.35	241.494	1.67	-0.12	3.82
3784.00	25.760	241.010	3641.47	261.02	-395.54	-728.57	1764951.54	14535905.55	40°01'27.604"N	80°33'18.563"W	829.01	241.502	0.73	-0.06	-1.67
3868.00	25.020	239.310	3717.35	271.57	-413.46	-759.81	1764920.31	14535887.64	40°01'27.428"N	80°33'18.966"W	865.02	241.447	1.24	-0.88	-2.02
3951.00	24.030	243.670	3792.87	282.38	-429.91	-790.05	1764890.08	14535871.19	40°01'27.267"N	80°33'19.355"W	899.45	241.447	2.48	-1.19	5.25
4035.00	23.610	244.370	3869.72	294.46	-444.77	-820.55	1764859.60	14535856.34	40°01'27.122"N	80°33'19.748"W	933.34	241.540	0.60	-0.50	0.83
4118.00	23.370	241.650	3945.84	305.70	-459.78	-850.02	1764830.13	14535841.34	40°01'26.975"N	80°33'20.128"W	966.40	241.591	1.34	-0.29	-3.28
4202.00	24.390	241.440	4022.65	316.43	-475.98	-879.92	1764800.25	14535825.14	40°01'26.816"N	80°33'20.513"W	1000.41	241.589	1.22	1.21	-0.25
4285.00	25.490	241.280	4097.91	327.36	-492.76	-910.63	1764769.55	14535808.37	40°01'26.652"N	80°33'20.909"W	1035.41	241.581	1.33	1.33	-0.19
4367.00	24.680	241.880	4172.17	338.35	-509.31	-941.21	1764738.98	14535791.83	40°01'26.490"N	80°33'21.303"W	1070.17	241.581	1.04	-0.99	0.73
4450.00	24.240	240.680	4247.72	349.05	-525.82	-971.35	1764708.86	14535775.32	40°01'26.328"N	80°33'21.692"W	1104.53	241.572	0.80	-0.53	-1.45
4532.00	23.430	241.830	4322.73	359.34	-541.76	-1000.39	1764679.82	14535759.39	40°01'26.172"N	80°33'22.066"W	1137.67	241.563	1.14	-0.99	1.40
4615.00	23.860	243.250	4398.76	370.39	-557.10	-1029.93	1764650.29	14535744.05	40°01'26.022"N	80°33'22.447"W	1170.95	241.590	0.86	0.52	1.71
4700.00	24.930	245.330	4476.17	383.07	-572.32	-1061.56	1764618.67	14535728.84	40°01'25.873"N	80°33'22.854"W	1206.01	241.670	1.61	1.26	2.45



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Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

WELLPATH DATA (157 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]
4783.00	26.240	244.560	4551.03	396.37	-587.50	-1094.03	1764586.22	14535713.66	40°01'25.725"N	80°33'23.273"W	1241.80	241.764	1.63	1.58	-0.93
4867.00	25.420	242.910	4626.64	409.24	-603.69	-1126.85	1764553.41	14535697.48	40°01'25.567"N	80°33'23.696"W	1278.37	241.821	1.30	-0.98	-1.96
4949.00	25.540	243.390	4700.67	421.31	-619.62	-1158.33	1764521.95	14535681.56	40°01'25.411"N	80°33'24.101"W	1313.64	241.856	0.29	0.15	0.59
5034.00	26.740	240.060	4776.98	433.21	-637.38	-1191.28	1764489.01	14535663.81	40°01'25.237"N	80°33'24.526"W	1351.07	241.852	2.23	1.41	-3.92
5118.00	25.570	240.140	4852.37	444.00	-655.83	-1223.38	1764456.92	14535645.36	40°01'25.056"N	80°33'24.940"W	1388.08	241.805	1.39	-1.39	0.10
5201.00	25.750	240.950	4927.19	454.75	-673.51	-1254.68	1764425.64	14535627.69	40°01'24.883"N	80°33'25.343"W	1424.02	241.773	0.47	0.22	0.98
5285.00	24.890	239.420	5003.12	465.28	-691.36	-1285.85	1764394.48	14535609.85	40°01'24.708"N	80°33'25.745"W	1459.92	241.734	1.29	-1.02	-1.82
5367.00	24.700	242.230	5077.56	475.72	-708.12	-1315.86	1764364.47	14535593.09	40°01'24.544"N	80°33'26.132"W	1494.30	241.713	1.46	-0.23	3.43
5450.00	24.050	241.260	5153.16	486.64	-724.33	-1346.04	1764334.31	14535576.88	40°01'24.385"N	80°33'26.521"W	1528.55	241.714	0.92	-0.78	-1.17
5534.00	23.660	240.120	5229.99	496.88	-740.96	-1375.66	1764304.70	14535560.26	40°01'24.222"N	80°33'26.903"W	1562.52	241.692	0.72	-0.46	-1.36
5619.00	25.130	243.830	5307.40	508.24	-757.42	-1406.65	1764273.72	14535543.81	40°01'24.061"N	80°33'27.302"W	1597.61	241.699	2.50	1.73	4.36
5702.00	24.720	242.590	5382.67	520.24	-773.18	-1437.87	1764242.51	14535528.05	40°01'23.907"N	80°33'27.704"W	1632.57	241.732	0.80	-0.49	-1.49
5786.00	24.510	244.970	5459.04	532.56	-788.64	-1469.25	1764211.14	14535512.60	40°01'23.756"N	80°33'28.109"W	1667.53	241.775	1.21	-0.25	2.83
5869.00	25.640	245.920	5534.22	545.91	-803.25	-1501.25	1764179.16	14535498.00	40°01'23.613"N	80°33'28.521"W	1702.63	241.851	1.45	1.36	1.14
5949.00	25.760	246.760	5606.30	559.57	-817.17	-1533.02	1764147.39	14535484.08	40°01'23.477"N	80°33'28.930"W	1737.22	241.940	0.48	0.15	1.05
6033.00	25.160	244.080	5682.15	573.26	-832.18	-1565.86	1764114.57	14535469.08	40°01'23.330"N	80°33'29.353"W	1773.26	242.011	1.55	-0.71	-3.19
6115.00	25.190	245.080	5756.36	586.00	-847.15	-1597.36	1764083.08	14535454.11	40°01'23.184"N	80°33'29.759"W	1808.10	242.061	0.52	0.04	1.22
6199.00	24.410	243.780	5832.61	598.79	-862.36	-1629.15	1764051.31	14535438.92	40°01'23.035"N	80°33'30.169"W	1843.30	242.106	1.13	-0.93	-1.55
6284.00	24.330	241.020	5910.04	610.36	-878.60	-1660.22	1764020.25	14535422.68	40°01'22.876"N	80°33'30.569"W	1878.37	242.112	1.34	-0.09	-3.25
6366.00	24.990	241.900	5984.56	621.11	-894.94	-1690.28	1763990.20	14535406.34	40°01'22.716"N	80°33'30.956"W	1912.58	242.100	0.92	0.80	1.07
6407.00	25.020	240.710	6021.72	626.51	-903.26	-1705.48	1763975.01	14535398.02	40°01'22.635"N	80°33'31.152"W	1929.91	242.093	1.23	0.07	-2.90
6447.00	24.150	242.570	6058.09	631.78	-911.17	-1720.12	1763960.37	14535390.12	40°01'22.557"N	80°33'31.341"W	1946.55	242.089	2.91	-2.17	4.65
6539.00	24.840	247.440	6141.82	645.99	-927.26	-1754.67	1763925.83	14535374.04	40°01'22.400"N	80°33'31.786"W	1984.61	242.146	2.32	0.75	5.29
6621.00	25.840	266.630	6216.06	665.40	-934.93	-1788.47	1763892.04	14535366.37	40°01'22.326"N	80°33'32.221"W	2018.10	242.402	10.05	1.22	23.40
6705.00	28.700	281.160	6290.80	695.15	-932.10	-1826.59	1763853.94	14535369.20	40°01'22.356"N	80°33'32.711"W	2050.66	242.965	8.60	3.40	17.30
6789.00	33.780	291.330	6362.64	733.98	-919.68	-1868.18	1763812.36	14535381.61	40°01'22.480"N	80°33'33.245"W	2082.29	243.790	8.70	6.05	12.11
6873.00	42.230	301.700	6428.84	783.47	-896.29	-1914.08	1763766.48	14535405.00	40°01'22.714"N	80°33'33.833"W	2113.54	244.908	12.58	10.06	12.35
6954.00	48.390	306.730	6485.80	840.31	-863.83	-1961.57	1763719.01	14535437.44	40°01'23.037"N	80°33'34.442"W	2143.36	246.232	8.79	7.60	6.21
7036.00	55.280	310.930	6536.45	904.55	-823.36	-2011.68	1763668.92	14535477.89	40°01'23.439"N	80°33'35.083"W	2173.65	247.741	9.31	8.40	5.12
7118.00	62.120	317.850	6579.06	974.48	-774.31	-2061.56	1763619.06	14535526.92	40°01'23.926"N	80°33'35.721"W	2202.18	249.414	11.02	8.34	8.44





# Actual Wellpath Report

Esther Weeks OHI 201H AWP Proj: 12592'  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

WELLPATH DATA (157 stations)																
MD	Inclination	Azimuth	TVD	Vert Sect	North	East	Grid East	Grid North	Latitude	Longitude	Closure Dist	Closure Dir	DLS	Build Rate	Turn Rate	
[ft]	[°]	[°]	[ft]	[ft]	[ft]	[ft]	[US ft]	[US ft]			[ft]	[°]	[°/100ft]	[°/100ft]	[°/100ft]	
7202.00	69.450	325.610	6613.54	1050.08	-714.18	-2108.81	1763571.83	14535587.04	40°01'24.523"N	80°33'36.325"W	2226.46	251.291	12.12	8.73	9.24	
7285.00	77.500	330.590	6637.14	1126.85	-646.67	-2150.75	1763529.91	14535654.52	40°01'25.192"N	80°33'36.860"W	2245.86	253.266	11.27	9.70	6.00	
7369.00	83.400	331.460	6651.07	1205.65	-574.23	-2190.86	1763489.82	14535726.93	40°01'25.910"N	80°33'37.370"W	2264.86	255.313	7.10	7.02	1.04	
7451.00	88.950	332.130	6656.54	1283.14	-502.15	-2229.51	1763451.18	14535798.98	40°01'26.624"N	80°33'37.863"W	2285.36	257.307	6.82	6.77	0.82	
7534.00	89.820	332.530	6657.43	1361.53	-428.65	-2268.05	1763412.65	14535872.45	40°01'27.352"N	80°33'38.353"W	2308.20	259.298	1.15	1.05	0.48	
7619.00	89.850	334.980	6657.67	1441.09	-352.42	-2305.63	1763375.08	14535948.66	40°01'28.107"N	80°33'38.832"W	2332.41	261.310	2.88	0.04	2.88	
7700.00	89.970	332.120	6657.80	1517.00	-279.91	-2341.71	1763339.02	14536021.14	40°01'28.826"N	80°33'39.291"W	2358.38	263.184	3.53	0.15	-3.53	
7784.00	90.000	334.680	6657.82	1595.80	-204.80	-2379.32	1763301.43	14536096.22	40°01'29.570"N	80°33'39.770"W	2388.12	265.080	3.05	0.04	3.05	
7866.00	89.940	335.030	6657.87	1671.99	-130.57	-2414.16	1763266.60	14536170.42	40°01'30.305"N	80°33'40.213"W	2417.69	266.904	0.43	-0.07	0.43	
7948.00	90.490	337.690	6657.56	1747.34	-55.46	-2447.04	1763233.73	14536245.50	40°01'31.049"N	80°33'40.631"W	2447.67	268.702	3.31	0.67	3.24	
8032.00	89.970	342.390	6657.22	1822.24	23.47	-2475.70	1763205.08	14536324.40	40°01'31.830"N	80°33'40.994"W	2475.82	270.543	5.63	-0.62	5.60	
8115.00	90.000	339.110	6657.24	1895.78	101.82	-2503.06	1763177.73	14536402.72	40°01'32.606"N	80°33'41.341"W	2505.13	272.329	3.95	0.04	-3.95	
8199.00	89.910	337.310	6657.31	1971.87	179.81	-2534.24	1763146.56	14536480.68	40°01'33.378"N	80°33'41.737"W	2540.62	274.059	2.15	-0.11	-2.14	
8280.00	89.910	337.280	6657.43	2045.79	254.54	-2565.51	1763115.31	14536555.38	40°01'34.118"N	80°33'42.134"W	2578.11	275.666	0.04	0.00	-0.04	
8364.00	89.850	338.100	6657.61	2122.20	332.25	-2597.40	1763083.43	14536633.06	40°01'34.888"N	80°33'42.539"W	2618.56	277.289	0.98	-0.07	0.98	
8448.00	90.890	337.110	6657.07	2198.66	409.91	-2629.40	1763051.44	14536710.69	40°01'35.657"N	80°33'42.945"W	2661.16	278.861	1.71	1.24	-1.18	
8531.00	90.770	332.010	6655.87	2275.90	484.83	-2665.04	1763015.82	14536785.58	40°01'36.399"N	80°33'43.399"W	2708.78	280.311	6.15	-0.14	-6.14	
8615.00	90.770	329.170	6654.74	2356.02	557.99	-2706.28	1762974.59	14536858.71	40°01'37.124"N	80°33'43.924"W	2763.20	281.650	3.38	0.00	-3.38	
8699.00	90.800	332.240	6653.59	2436.09	631.23	-2747.37	1762933.51	14536931.93	40°01'37.849"N	80°33'44.448"W	2818.95	282.940	3.65	0.04	3.65	
8782.00	90.920	332.920	6652.34	2514.36	704.90	-2785.59	1762895.31	14537005.57	40°01'38.579"N	80°33'44.934"W	2873.39	284.201	0.83	0.14	0.82	
8866.00	90.950	331.310	6650.97	2593.78	779.13	-2824.87	1762856.05	14537079.77	40°01'39.315"N	80°33'45.435"W	2930.35	285.419	1.92	0.04	-1.92	
8950.00	90.860	329.660	6649.64	2673.95	852.22	-2866.24	1762814.69	14537152.83	40°01'40.039"N	80°33'45.962"W	2990.26	286.559	1.97	-0.11	-1.96	
9033.00	90.770	332.190	6648.46	2752.98	924.74	-2906.57	1762774.37	14537225.33	40°01'40.758"N	80°33'46.476"W	3050.13	287.649	3.05	-0.11	3.05	
9117.00	90.770	332.850	6647.33	2832.22	999.26	-2945.33	1762735.63	14537299.82	40°01'41.496"N	80°33'46.969"W	3110.22	288.741	0.79	0.00	0.79	
9200.00	90.830	333.400	6646.17	2910.21	1073.29	-2982.84	1762698.13	14537373.82	40°01'42.229"N	80°33'47.447"W	3170.06	289.790	0.67	0.07	0.66	
9284.00	90.800	333.210	6644.98	2989.06	1148.33	-3020.58	1762660.41	14537448.83	40°01'42.973"N	80°33'47.927"W	3231.49	290.815	0.23	-0.04	-0.23	
9368.00	90.770	334.820	6643.83	3067.54	1223.83	-3057.38	1762623.63	14537524.30	40°01'43.721"N	80°33'48.395"W	3293.22	291.816	1.92	-0.04	1.92	
9453.00	90.770	336.180	6642.69	3146.15	1301.16	-3092.62	1762588.40	14537601.60	40°01'44.487"N	80°33'48.844"W	3355.19	292.818	1.60	0.00	1.60	
9537.00	90.800	337.690	6641.53	3223.01	1378.44	-3125.53	1762555.50	14537678.85	40°01'45.252"N	80°33'49.262"W	3415.99	293.799	1.80	0.04	1.80	
9619.00	90.890	336.510	6640.32	3297.94	1453.97	-3157.43	1762523.61	14537754.35	40°01'46.000"N	80°33'49.667"W	3476.12	294.726	1.44	0.11	-1.44	



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

WELLPATH DATA (157 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]	
9701.00	90.830	335.610	6639.09	3373.46	1528.90	-3190.70	1762490.36	14537829.26	40°01'46.742"N	80°33'50.090"W	3538.09	295.603	1.10	-0.07	-1.10	
9784.00	90.830	334.950	6637.89	3450.34	1604.29	-3225.41	1762455.66	14537904.61	40°01'47.489"N	80°33'50.531"W	3602.36	296.445	0.80	0.00	-0.80	
9866.00	90.460	334.090	6636.97	3526.69	1678.31	-3260.68	1762420.40	14537978.60	40°01'48.222"N	80°33'50.980"W	3667.25	297.235	1.14	-0.45	-1.05	
9951.00	90.490	333.930	6636.26	3606.12	1754.71	-3297.93	1762383.17	14538054.98	40°01'48.979"N	80°33'51.454"W	3735.68	298.016	0.19	0.04	-0.19	
10035.00	90.400	333.750	6635.61	3684.70	1830.10	-3334.96	1762346.15	14538130.34	40°01'49.725"N	80°33'51.926"W	3804.11	298.756	0.24	-0.11	-0.21	
10119.00	90.490	333.920	6634.96	3763.28	1905.49	-3372.00	1762309.13	14538205.70	40°01'50.472"N	80°33'52.397"W	3873.15	299.470	0.23	0.11	0.20	
10200.00	90.490	334.030	6634.27	3838.99	1978.28	-3407.54	1762273.60	14538278.46	40°01'51.193"N	80°33'52.849"W	3940.16	300.138	0.14	0.00	0.14	
10285.00	90.430	337.130	6633.58	3917.54	2055.66	-3442.67	1762238.48	14538355.81	40°01'51.960"N	80°33'53.296"W	4009.70	300.842	3.65	-0.07	3.65	
10367.00	91.080	337.340	6632.50	3992.40	2131.27	-3474.40	1762206.77	14538431.39	40°01'52.708"N	80°33'53.699"W	4076.00	301.526	0.83	0.79	0.26	
10449.00	91.020	335.710	6631.00	4067.65	2206.46	-3507.06	1762174.12	14538506.56	40°01'53.453"N	80°33'54.114"W	4143.42	302.176	1.99	-0.07	-1.99	
10528.00	90.890	335.720	6629.68	4140.59	2278.46	-3539.54	1762141.65	14538578.53	40°01'54.166"N	80°33'54.527"W	4209.48	302.770	0.17	-0.16	0.01	
10613.00	90.950	334.940	6628.32	4219.29	2355.69	-3575.02	1762106.19	14538655.73	40°01'54.931"N	80°33'54.979"W	4281.36	303.382	0.92	0.07	-0.92	
10696.00	90.920	336.050	6626.96	4296.05	2431.21	-3609.44	1762071.78	14538731.21	40°01'55.679"N	80°33'55.416"W	4351.87	303.963	1.34	-0.04	1.34	
10779.00	90.950	336.590	6625.61	4372.35	2507.21	-3642.77	1762038.46	14538807.19	40°01'56.431"N	80°33'55.840"W	4422.20	304.538	0.65	0.04	0.65	
10861.00	90.920	336.420	6624.27	4447.62	2582.40	-3675.45	1762005.79	14538882.35	40°01'57.176"N	80°33'56.256"W	4491.97	305.092	0.21	-0.04	-0.21	
10945.00	90.890	336.120	6622.95	4524.86	2659.29	-3709.25	1761972.00	14538959.21	40°01'57.938"N	80°33'56.685"W	4564.03	305.638	0.36	-0.04	-0.36	
11027.00	90.980	332.450	6621.61	4601.32	2733.14	-3744.82	1761936.45	14539033.04	40°01'58.669"N	80°33'57.138"W	4636.14	306.124	4.48	0.11	-4.48	
11109.00	90.950	331.380	6620.23	4678.95	2805.48	-3783.42	1761897.86	14539105.34	40°01'59.386"N	80°33'57.630"W	4710.09	306.558	1.31	-0.04	-1.30	
11193.00	91.080	332.340	6618.74	4758.50	2879.54	-3823.03	1761858.27	14539179.37	40°02'00.120"N	80°33'58.134"W	4786.16	306.987	1.15	0.15	1.14	
11275.00	90.770	335.030	6617.41	4835.27	2953.02	-3859.37	1761821.94	14539252.83	40°02'00.848"N	80°33'58.597"W	4859.54	307.422	3.30	-0.38	3.28	
11357.00	90.990	335.510	6616.15	4911.23	3027.49	-3893.67	1761787.65	14539327.27	40°02'01.585"N	80°33'59.033"W	4932.18	307.867	0.64	0.27	0.59	
11441.00	90.920	333.260	6614.75	4989.51	3103.22	-3929.98	1761751.36	14539402.97	40°02'02.335"N	80°33'59.495"W	5007.47	308.296	2.68	-0.08	-2.68	
11525.00	90.890	334.060	6613.43	5068.17	3178.49	-3967.25	1761714.11	14539478.21	40°02'03.081"N	80°33'59.969"W	5083.49	308.701	0.95	-0.04	0.95	
11607.00	91.050	335.670	6612.04	5144.34	3252.71	-4002.07	1761679.30	14539552.40	40°02'03.816"N	80°34'00.413"W	5157.20	309.103	1.97	0.20	1.96	
11690.00	90.860	341.590	6610.65	5219.22	3329.96	-4032.30	1761649.08	14539629.62	40°02'04.581"N	80°34'00.796"W	5229.54	309.551	7.14	-0.23	7.13	
11774.00	90.000	337.510	6610.02	5294.44	3408.65	-4061.64	1761619.75	14539708.28	40°02'05.360"N	80°34'01.169"W	5302.43	310.004	4.96	-1.02	-4.86	
11857.00	90.550	337.070	6609.63	5370.18	3485.21	-4093.68	1761587.72	14539784.81	40°02'06.118"N	80°34'01.576"W	5376.33	310.410	0.85	0.66	-0.53	
11938.00	90.920	336.390	6608.59	5444.41	3559.62	-4125.68	1761555.74	14539859.19	40°02'06.855"N	80°34'01.982"W	5449.05	310.787	0.96	0.46	-0.84	
12023.00	91.450	334.060	6606.83	5523.16	3636.77	-4161.29	1761520.14	14539936.31	40°02'07.619"N	80°34'02.435"W	5526.52	311.152	2.81	0.62	-2.74	
12107.00	91.450	332.160	6604.70	5602.09	3711.66	-4199.27	1761482.18	14540011.18	40°02'08.361"N	80°34'02.919"W	5604.49	311.473	2.26	0.00	-2.26	



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

WELLPATH DATA (157 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]
12190.00	91.540	329.860	6602.54	5681.05	3784.23	-4239.48	1761441.98	14540083.72	40°02'09.080"N	80°34'03.431"W	5682.74	311.753	2.77	0.11	-2.77
12274.00	91.570	330.360	6600.26	5761.37	3857.03	-4281.32	1761400.15	14540156.49	40°02'09.801"N	80°34'03.965"W	5762.50	312.016	0.60	0.04	0.60
12357.00	91.660	330.680	6597.92	5840.55	3929.26	-4322.15	1761359.34	14540228.69	40°02'10.517"N	80°34'04.485"W	5841.24	312.274	0.40	0.11	0.39
12440.00	91.570	331.680	6595.58	5919.45	4001.95	-4362.14	1761319.36	14540301.35	40°02'11.237"N	80°34'04.995"W	5919.79	312.534	1.21	-0.11	1.20
12522.00	90.620	330.760	6594.01	5997.38	4073.80	-4401.62	1761279.90	14540373.18	40°02'11.949"N	80°34'05.498"W	5997.51	312.785	1.61	-1.16	-1.12
12567.00	90.800	331.250	6593.45	6040.21	4113.16	-4423.43	1761258.10	14540412.52	40°02'12.339"N	80°34'05.776"W	6040.26	312.918	1.16	0.40	1.09
12592.00	90.800	331.500	6593.11	6063.96	4135.10	-4435.40	1761246.13	14540434.45	40°02'12.557"N	80°34'05.928"W	6063.98	312.993	1.00	0.00	1.00

HOLE & CASING SECTIONS - Ref Wellbore: Esther Weeks OHI 201H AWB      Ref Wellpath: Esther Weeks OHI 201H AWP Proj: 12592'									
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	0.15	-0.05
17.5in Open Hole	126.00	690.00	564.00	126.00	689.97	0.27	-0.10	5.30	1.47
13.375in Casing Surface	26.00	680.00	654.00	26.00	679.97	0.00	0.00	5.20	1.44
12.25in Open Hole	690.00	2220.00	1530.00	689.97	2193.54	5.30	1.47	-115.73	-224.37
9.625in Casing Intermediate	26.00	2200.00	2174.00	26.00	2173.86	0.00	0.00	-113.59	-221.55
8.75in Open Hole	2220.00	6486.00	4266.00	2193.54	6093.64	-115.73	-224.37	-918.30	-1734.49
8.5in Open Hole	6486.00	12592.00	6106.00	6093.64	6593.11	-918.30	-1734.49	4135.10	-4435.40
5.5in Casing Production	26.00	12592.00	12566.00	26.00	6593.11	0.00	0.00	4135.10	-4435.40



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Esther Weeks OHI 201H BHL Rev-2	6580.00	4142.57	-4419.88	1761261.65	14540441.92	40°02'12.630"N	80°34'05.728"W	point
Esther Weeks OHI 201H LP Rev-2	6656.00	-512.13	-2215.44	1763465.24	14535789.01	40°01'26.525"N	80°33'37.683"W	point

WELLPATH COMPOSITION - Ref Wellbore: Esther Weeks OHI 201H AWB				Ref Wellpath: Esther Weeks OHI 201H AWP Proj: 12592'	
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
26.00	644.00	BHI NaviTrak (Axial)	01_APS EM <17.5">(149'-644')	Esther Weeks OHI 201H AWB	
644.00	2143.00	BHI NaviTrak (Axial)	02_APS EM <12.25">(644')(691'-2143')	Esther Weeks OHI 201H AWB	
2143.00	6407.00	BHI NaviTrak (Axial)	03_APS EM <8-3/4"> (2143')(2218'-6407')	Esther Weeks OHI 201H AWB	
6407.00	12567.00	BHI AutoTrak Curve (Short)	04_BH AT Curve <8-1/2"> (6407')(6447'-12567')	Esther Weeks OHI 201H AWB	
12567.00	12592.00	Blind Drilling (std)	Projection to bit	Esther Weeks OHI 201H AWB	



REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Ohio County, WV	Well	Esther Weeks OHI 201H
Field	Ohio	Wellbore	Esther Weeks OHI 201H AWB
Facility	Esther Weeks OHI Pad		

COMMENTS
<p><b>Wellpath general comments</b>            API: 47-069-00256-0000            Job #: 9058884            Rig: SDC 42            Duration: 03/20/2018 - 03/28/2018</p>