



Actual Wellpath Report

Russell Hervey BRK 3H AWP Proj: 13262'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWB
Facility	Russell Hervey BRK Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.0
North Reference	Grid	User	Edsaryar
Scale	0.999618	Report Generated	9/26/2016 at 5:04:24 PM
Convergence at slot	0.29° East	Database/Source file	WA_MPL_EASTERNUS_Defn/Russell_Hervey_BRK_3H_AWP_Proj__13262_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	18.65	7.24	1764121.56	14621047.59	40°15'29.338"N	80°33'23.773"W
Facility Reference Pt			1764114.32	14621028.95	40°15'29.154"N	80°33'23.868"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	1191.00ft
Horizontal Reference Pt	Slot	SDC 46 (RKB) to Mean Sea Level	1191.00ft
Vertical Reference Pt	SDC 46 (RKB)	SDC 46 (RKB) to Mud Line at Slot (Slot #03)	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	335.89°

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWB
Facility	Russell Hervey BRK Pad		

WELLPATH DATA (154 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	250.390	0.00	0.00	0.00	0.00	1764121.56	14621047.59	40°15'29.338"N	80°33'23.773"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	250.390	26.00	0.00	0.00	0.00	1764121.56	14621047.59	40°15'29.338"N	80°33'23.773"W	0.00	0.000	0.00	0.00	0.00
129.00	0.500	250.390	129.00	0.04	-0.15	-0.42	1764121.14	14621047.44	40°15'29.337"N	80°33'23.779"W	0.45	250.390	0.49	0.49	-106.42
220.00	0.800	262.390	219.99	0.25	-0.37	-1.43	1764120.13	14621047.22	40°15'29.335"N	80°33'23.792"W	1.47	255.532	0.36	0.33	13.19
374.00	0.300	341.890	373.99	0.95	-0.13	-2.62	1764118.94	14621047.46	40°15'29.337"N	80°33'23.807"W	2.62	267.214	0.52	-0.32	51.62
519.00	0.170	336.720	518.99	1.55	0.43	-2.82	1764118.74	14621048.02	40°15'29.343"N	80°33'23.810"W	2.85	278.687	0.09	-0.09	-3.57
612.00	0.190	286.460	611.99	1.78	0.60	-3.02	1764118.54	14621048.19	40°15'29.345"N	80°33'23.812"W	3.08	281.251	0.17	0.02	-54.04
704.00	0.320	258.940	703.98	1.94	0.60	-3.42	1764118.14	14621048.19	40°15'29.344"N	80°33'23.817"W	3.47	279.870	0.19	0.14	-29.91
797.00	0.520	238.900	796.98	1.95	0.33	-4.04	1764117.52	14621047.92	40°15'29.342"N	80°33'23.825"W	4.05	274.638	0.26	0.22	-21.55
890.00	0.450	212.540	889.98	1.70	-0.20	-4.60	1764116.97	14621047.39	40°15'29.337"N	80°33'23.833"W	4.60	267.529	0.25	-0.08	-28.34
983.00	0.960	228.030	982.97	1.26	-1.03	-5.37	1764116.19	14621046.56	40°15'29.329"N	80°33'23.843"W	5.47	259.174	0.58	0.55	16.66
1075.00	1.300	219.570	1074.95	0.56	-2.35	-6.61	1764114.95	14621045.24	40°15'29.316"N	80°33'23.859"W	7.01	250.450	0.41	0.37	-9.20
1168.00	1.290	243.860	1167.93	0.05	-3.62	-8.22	1764113.34	14621043.97	40°15'29.303"N	80°33'23.880"W	8.98	246.226	0.59	-0.01	26.12
1261.00	0.810	239.700	1260.91	-0.06	-4.41	-9.73	1764111.84	14621043.18	40°15'29.295"N	80°33'23.899"W	10.68	245.594	0.52	-0.52	-4.47
1354.00	0.500	209.090	1353.91	-0.37	-5.10	-10.49	1764111.07	14621042.49	40°15'29.289"N	80°33'23.909"W	11.67	244.077	0.49	-0.33	-32.91
1447.00	0.720	220.560	1446.90	-0.86	-5.90	-11.07	1764110.49	14621041.69	40°15'29.281"N	80°33'23.916"W	12.54	241.949	0.27	0.24	12.33
1539.00	0.770	243.470	1538.90	-1.14	-6.61	-12.00	1764109.56	14621040.98	40°15'29.274"N	80°33'23.929"W	13.70	241.136	0.33	0.05	24.90
1632.00	0.610	206.090	1631.89	-1.48	-7.34	-12.78	1764108.79	14621040.25	40°15'29.267"N	80°33'23.939"W	14.73	240.129	0.50	-0.17	-40.19
1725.00	0.540	189.400	1724.88	-2.16	-8.22	-13.07	1764108.50	14621039.38	40°15'29.258"N	80°33'23.942"W	15.43	237.840	0.19	-0.08	-17.95
1817.00	0.400	206.810	1816.88	-2.73	-8.93	-13.28	1764108.28	14621038.66	40°15'29.251"N	80°33'23.945"W	16.00	236.086	0.22	-0.15	18.92
1910.00	0.510	258.690	1909.88	-2.84	-9.30	-13.83	1764107.73	14621038.29	40°15'29.247"N	80°33'23.952"W	16.67	236.087	0.44	0.12	55.78
1962.00	0.620	242.980	1961.88	-2.80	-9.47	-14.31	1764107.25	14621038.12	40°15'29.246"N	80°33'23.959"W	17.16	236.497	0.36	0.21	-30.21
2095.00	0.470	199.840	2094.87	-3.23	-10.31	-15.14	1764106.43	14621037.28	40°15'29.237"N	80°33'23.969"W	18.32	235.732	0.32	-0.11	-32.44
2188.00	1.270	57.030	2187.86	-3.35	-10.11	-14.40	1764107.16	14621037.48	40°15'29.239"N	80°33'23.960"W	17.60	234.928	1.79	0.86	-153.56
2281.00	1.880	44.320	2280.83	-2.63	-8.46	-12.47	1764109.09	14621039.13	40°15'29.255"N	80°33'23.935"W	15.07	235.852	0.75	0.66	-13.67
2374.00	1.740	43.820	2373.78	-1.54	-6.35	-10.43	1764111.14	14621041.24	40°15'29.276"N	80°33'23.908"W	12.21	238.666	0.15	-0.15	-0.54
2466.00	1.830	48.300	2465.74	-0.57	-4.36	-8.36	1764113.20	14621043.23	40°15'29.296"N	80°33'23.881"W	9.43	242.447	0.18	0.10	4.87
2559.00	1.680	42.080	2558.69	0.43	-2.36	-6.34	1764115.22	14621045.23	40°15'29.315"N	80°33'23.855"W	6.77	249.554	0.26	-0.16	-6.69
2652.00	1.750	39.100	2651.65	1.62	-0.25	-4.53	1764117.03	14621047.34	40°15'29.336"N	80°33'23.832"W	4.54	266.836	0.12	0.08	-3.20
2745.00	1.490	34.860	2744.62	2.89	1.84	-2.95	1764118.61	14621049.43	40°15'29.357"N	80°33'23.811"W	3.48	302.036	0.31	-0.28	-4.56



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Russell Hervey BRK 3H AWP Proj: 13262'
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Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWP
Facility	Russell Hervey BRK Pad		

WELLPATH DATA (154 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]
2837.00	1.220	34.190	2836.59	4.02	3.64	-1.71	1764119.85	14621051.22	40°15'29.374"N	80°33'23.795"W	4.02	334.780	0.29	-0.29	-0.73
2930.00	1.340	35.190	2929.57	5.09	5.34	-0.53	1764121.03	14621052.93	40°15'29.391"N	80°33'23.780"W	5.37	354.344	0.13	0.13	1.08
3023.00	0.610	294.600	3022.56	6.02	6.44	-0.35	1764121.21	14621054.03	40°15'29.402"N	80°33'23.777"W	6.45	356.865	1.69	-0.78	-108.16
3116.00	1.040	283.930	3115.55	6.91	6.85	-1.62	1764119.94	14621054.43	40°15'29.406"N	80°33'23.794"W	7.04	346.674	0.49	0.46	-11.47
3208.00	0.880	287.220	3207.53	7.89	7.26	-3.11	1764118.45	14621054.84	40°15'29.410"N	80°33'23.813"W	7.89	336.822	0.18	-0.17	3.58
3301.00	0.860	294.920	3300.52	8.89	7.76	-4.42	1764117.14	14621055.35	40°15'29.415"N	80°33'23.830"W	8.93	330.331	0.13	-0.02	8.28
3394.00	0.570	293.060	3393.52	9.76	8.24	-5.48	1764116.08	14621055.82	40°15'29.420"N	80°33'23.843"W	9.89	326.364	0.31	-0.31	-2.00
3487.00	2.960	337.230	3486.47	12.50	10.63	-6.84	1764114.73	14621058.22	40°15'29.444"N	80°33'23.861"W	12.64	327.264	2.78	2.57	47.49
3579.00	4.080	337.640	3578.29	18.14	15.85	-9.00	1764112.56	14621063.43	40°15'29.495"N	80°33'23.888"W	18.23	330.411	1.22	1.22	0.45
3672.00	3.930	345.450	3671.07	24.59	22.00	-11.06	1764110.50	14621069.58	40°15'29.556"N	80°33'23.915"W	24.62	333.306	0.61	-0.16	8.40
3765.00	5.160	326.750	3763.78	31.87	28.58	-14.15	1764107.41	14621076.16	40°15'29.622"N	80°33'23.954"W	31.89	333.652	2.05	1.32	-20.11
3858.00	6.780	314.480	3856.27	41.11	35.92	-20.36	1764101.20	14621083.50	40°15'29.694"N	80°33'24.034"W	41.29	330.452	2.21	1.74	-13.19
3950.00	6.910	315.070	3947.62	51.34	43.65	-28.15	1764093.42	14621091.22	40°15'29.771"N	80°33'24.134"W	51.93	327.182	0.16	0.14	0.64
4043.00	7.670	302.990	4039.87	61.78	50.99	-37.30	1764084.27	14621098.56	40°15'29.844"N	80°33'24.251"W	63.18	323.808	1.84	0.82	-12.99
4135.00	9.420	295.020	4130.85	72.63	57.51	-49.28	1764072.30	14621105.08	40°15'29.909"N	80°33'24.405"W	75.74	319.410	2.29	1.90	-8.66
4228.00	10.820	286.310	4222.41	84.04	63.19	-64.55	1764057.03	14621110.75	40°15'29.966"N	80°33'24.602"W	90.33	314.386	2.23	1.51	-9.37
4321.00	10.900	286.270	4313.74	95.40	68.10	-81.37	1764040.22	14621115.66	40°15'30.015"N	80°33'24.818"W	106.11	309.926	0.09	0.09	-0.04
4414.00	12.300	285.730	4404.84	107.44	73.25	-99.35	1764022.25	14621120.81	40°15'30.067"N	80°33'25.050"W	123.43	306.401	1.51	1.51	-0.58
4507.00	14.870	282.410	4495.23	120.89	78.50	-120.54	1764001.06	14621126.06	40°15'30.120"N	80°33'25.323"W	143.85	303.073	2.89	2.76	-3.57
4599.00	14.680	279.550	4584.19	134.38	82.97	-143.57	1763978.05	14621130.53	40°15'30.165"N	80°33'25.620"W	165.82	300.025	0.82	-0.21	-3.11
4692.00	13.870	279.170	4674.32	147.03	86.70	-166.19	1763955.43	14621134.26	40°15'30.203"N	80°33'25.911"W	187.45	297.551	0.88	-0.87	-0.41
4785.00	14.540	283.310	4764.48	160.24	91.17	-188.56	1763933.07	14621138.72	40°15'30.249"N	80°33'26.200"W	209.44	295.803	1.31	0.72	4.45
4878.00	14.110	283.470	4854.58	174.25	96.50	-210.94	1763910.70	14621144.05	40°15'30.302"N	80°33'26.488"W	231.97	294.581	0.46	-0.46	0.17
4970.00	15.110	287.150	4943.61	188.99	102.64	-233.31	1763888.34	14621150.19	40°15'30.364"N	80°33'26.776"W	254.89	293.747	1.48	1.09	4.00
5063.00	14.860	288.920	5033.45	205.13	110.08	-256.17	1763865.49	14621157.63	40°15'30.439"N	80°33'27.070"W	278.82	293.255	0.56	-0.27	1.90
5156.00	16.820	291.910	5122.91	222.95	118.97	-279.94	1763841.73	14621166.52	40°15'30.528"N	80°33'27.376"W	304.17	293.025	2.28	2.11	3.22
5248.00	18.900	291.010	5210.47	243.09	129.28	-306.20	1763815.48	14621176.82	40°15'30.631"N	80°33'27.714"W	332.38	292.890	2.28	2.26	-0.98
5348.00	19.490	293.000	5304.92	266.79	141.61	-336.68	1763785.01	14621189.14	40°15'30.754"N	80°33'28.107"W	365.25	292.812	0.88	0.59	1.99
5373.00	18.750	293.840	5328.54	272.82	144.86	-344.19	1763777.50	14621192.40	40°15'30.787"N	80°33'28.203"W	373.43	292.825	3.16	-2.96	3.36
5420.00	16.150	294.060	5373.37	283.31	150.58	-357.07	1763764.63	14621198.11	40°15'30.844"N	80°33'28.369"W	387.52	292.866	5.53	-5.53	0.47



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5466.00	18.050	296.510	5417.33	293.58	156.37	-369.29	1763752.41	14621203.90	40°15'30.902"N	80°33'28.526"W	401.03	292.950	4.42	4.13	5.33
5512.00	22.240	304.120	5460.52	306.50	164.44	-382.88	1763738.82	14621211.97	40°15'30.982"N	80°33'28.701"W	416.70	293.242	10.73	9.11	16.54
5559.00	25.470	311.480	5503.51	323.27	176.13	-397.83	1763723.89	14621223.65	40°15'31.098"N	80°33'28.893"W	435.07	293.880	9.33	6.87	15.66
5605.00	28.360	318.130	5544.53	342.69	190.82	-412.53	1763709.18	14621238.34	40°15'31.244"N	80°33'29.082"W	454.53	294.823	9.06	6.28	14.46
5652.00	31.650	322.290	5585.23	365.32	208.90	-427.53	1763694.19	14621256.41	40°15'31.424"N	80°33'29.274"W	475.84	296.041	8.28	7.00	8.85
5698.00	36.060	323.500	5623.42	390.28	229.34	-442.98	1763678.75	14621276.84	40°15'31.627"N	80°33'29.472"W	498.82	297.372	9.70	9.59	2.63
5744.00	40.450	324.030	5659.53	418.12	252.31	-459.80	1763661.93	14621299.80	40°15'31.854"N	80°33'29.688"W	524.48	298.755	9.57	9.54	1.15
5791.00	45.000	325.920	5694.05	449.43	278.43	-478.08	1763643.67	14621325.91	40°15'32.113"N	80°33'29.922"W	553.25	300.216	10.06	9.68	4.02
5837.00	47.850	326.360	5725.76	482.27	306.10	-496.64	1763625.11	14621353.57	40°15'32.388"N	80°33'30.159"W	583.40	301.647	6.23	6.20	0.96
5883.00	51.750	326.160	5755.44	516.90	335.31	-516.15	1763605.60	14621382.77	40°15'32.677"N	80°33'30.409"W	615.51	303.009	8.48	8.48	-0.43
5930.00	57.020	326.000	5782.80	554.54	367.00	-537.47	1763584.30	14621414.45	40°15'32.992"N	80°33'30.682"W	650.82	304.327	11.22	11.21	-0.34
5976.00	61.640	327.980	5806.26	593.62	400.18	-559.00	1763562.77	14621447.62	40°15'33.320"N	80°33'30.958"W	687.48	305.598	10.70	10.04	4.30
6022.00	66.130	330.180	5826.51	634.62	435.61	-580.21	1763541.58	14621483.03	40°15'33.672"N	80°33'31.229"W	725.53	306.899	10.66	9.76	4.78
6069.00	71.340	332.990	5843.55	678.28	474.12	-601.02	1763520.77	14621521.53	40°15'34.053"N	80°33'31.495"W	765.52	308.268	12.41	11.09	5.98
6115.00	76.140	335.500	5856.43	722.40	513.89	-620.19	1763501.61	14621561.28	40°15'34.447"N	80°33'31.740"W	805.43	309.645	11.67	10.43	5.46
6161.00	79.670	335.830	5866.07	767.37	554.86	-638.72	1763483.08	14621602.24	40°15'34.853"N	80°33'31.976"W	846.07	310.981	7.71	7.67	0.72
6208.00	83.190	335.870	5873.07	813.84	597.26	-657.74	1763464.08	14621644.62	40°15'35.273"N	80°33'32.219"W	888.45	312.241	7.49	7.49	0.09
6300.00	88.190	336.070	5879.98	905.55	681.03	-695.08	1763426.75	14621728.35	40°15'36.102"N	80°33'32.695"W	973.10	314.415	5.44	5.43	0.22
6393.00	90.180	336.610	5881.30	998.53	766.20	-732.40	1763389.44	14621813.49	40°15'36.946"N	80°33'33.171"W	1059.93	316.292	2.22	2.14	0.58
6486.00	90.150	335.710	5881.04	1091.53	851.26	-769.99	1763351.87	14621898.52	40°15'37.788"N	80°33'33.650"W	1147.83	317.870	0.97	-0.03	-0.97
6578.00	90.310	337.090	5880.67	1183.52	935.56	-806.82	1763315.05	14621982.79	40°15'38.623"N	80°33'34.120"W	1235.41	319.226	1.51	0.17	1.50
6671.00	90.650	340.380	5879.89	1276.39	1022.21	-840.54	1763281.34	14622069.41	40°15'39.481"N	80°33'34.549"W	1323.42	320.570	3.56	0.37	3.54
6764.00	91.140	344.700	5878.43	1368.73	1110.90	-868.43	1763253.46	14622158.06	40°15'40.359"N	80°33'34.903"W	1410.06	321.984	4.67	0.53	4.65
6857.00	89.940	348.970	5877.56	1460.02	1201.43	-889.61	1763232.29	14622248.55	40°15'41.254"N	80°33'35.171"W	1494.93	323.482	4.77	-1.29	4.59
6949.00	89.940	342.540	5877.65	1550.61	1290.55	-912.23	1763209.68	14622337.64	40°15'42.136"N	80°33'35.457"W	1580.41	324.745	6.99	0.00	-6.99
7042.00	89.880	339.820	5877.80	1643.20	1378.57	-942.23	1763179.69	14622425.63	40°15'43.007"N	80°33'35.838"W	1669.81	325.648	2.93	-0.06	-2.92
7135.00	89.880	338.140	5877.99	1736.06	1465.38	-975.59	1763146.34	14622512.41	40°15'43.867"N	80°33'36.263"W	1760.43	326.346	1.81	0.00	-1.81
7228.00	89.910	337.810	5878.17	1829.00	1551.59	-1010.47	1763111.48	14622598.58	40°15'44.721"N	80°33'36.707"W	1851.61	326.926	0.36	0.03	-0.35
7321.00	89.820	336.830	5878.38	1921.97	1637.40	-1046.33	1763075.64	14622684.36	40°15'45.570"N	80°33'37.164"W	1943.16	327.421	1.06	-0.10	-1.05
7413.00	89.940	335.910	5878.58	2013.97	1721.68	-1083.20	1763038.78	14622768.61	40°15'46.405"N	80°33'37.635"W	2034.09	327.824	1.01	0.13	-1.00



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Actual Wellpath Report

Russell Hervey BRK 3H AWP Proj: 13262'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWP
Facility	Russell Hervey BRK Pad		

WELLPATH DATA (154 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]
7506.00	90.650	339.110	5878.10	2106.92	1807.60	-1118.77	1763003.22	14622854.49	40°15'47.256"N	80°33'38.088"W	2125.81	328.246	3.52	0.76	3.44
7599.00	90.950	339.940	5876.80	2199.72	1894.71	-1151.30	1762970.70	14622941.57	40°15'48.118"N	80°33'38.502"W	2217.08	328.716	0.95	0.32	0.89
7691.00	90.920	339.550	5875.30	2291.50	1981.01	-1183.14	1762938.87	14623027.84	40°15'48.972"N	80°33'38.907"W	2307.43	329.153	0.43	-0.03	-0.42
7784.00	90.990	338.330	5873.75	2384.35	2067.79	-1216.56	1762905.47	14623114.58	40°15'49.832"N	80°33'39.333"W	2399.12	329.530	1.31	0.08	-1.31
7877.00	90.890	337.060	5872.22	2477.29	2153.81	-1251.85	1762870.19	14623200.58	40°15'50.683"N	80°33'39.782"W	2491.19	329.834	1.37	-0.11	-1.37
7969.00	90.740	335.860	5870.91	2569.28	2238.15	-1288.59	1762833.47	14623284.88	40°15'51.519"N	80°33'40.251"W	2582.59	330.069	1.31	-0.16	-1.30
8062.00	90.650	333.840	5869.79	2662.25	2322.32	-1328.11	1762793.96	14623369.02	40°15'52.352"N	80°33'40.755"W	2675.27	330.235	2.17	-0.10	-2.17
8156.00	90.620	334.830	5868.74	2756.21	2407.04	-1368.82	1762753.27	14623453.71	40°15'53.191"N	80°33'41.275"W	2769.03	330.374	1.05	-0.03	1.05
8249.00	90.650	336.590	5867.71	2849.20	2491.80	-1407.07	1762715.03	14623538.43	40°15'54.031"N	80°33'41.763"W	2861.63	330.547	1.89	0.03	1.89
8341.00	90.710	337.990	5866.62	2941.16	2576.66	-1442.58	1762679.53	14623623.26	40°15'54.871"N	80°33'42.216"W	2953.00	330.757	1.52	0.07	1.52
8433.00	90.680	340.360	5865.51	3033.00	2662.64	-1475.29	1762646.84	14623709.20	40°15'55.722"N	80°33'42.632"W	3044.03	331.010	2.58	-0.03	2.58
8523.00	90.550	341.440	5864.54	3122.65	2747.68	-1504.73	1762617.40	14623794.21	40°15'56.564"N	80°33'43.007"W	3132.72	331.293	1.21	-0.14	1.20
8615.00	90.620	340.890	5863.60	3214.25	2834.74	-1534.43	1762587.72	14623881.24	40°15'57.426"N	80°33'43.384"W	3223.39	331.574	0.60	0.08	-0.60
8708.00	90.770	339.270	5862.47	3306.99	2922.17	-1566.12	1762556.05	14623968.64	40°15'58.291"N	80°33'43.787"W	3315.39	331.811	1.75	0.16	-1.74
8800.00	90.580	341.650	5861.39	3398.69	3008.86	-1596.88	1762525.29	14624055.29	40°15'59.150"N	80°33'44.179"W	3406.36	332.044	2.60	-0.21	2.59
8893.00	90.710	341.520	5860.34	3491.22	3097.09	-1626.26	1762495.93	14624143.49	40°16'00.023"N	80°33'44.552"W	3498.10	332.296	0.20	0.14	-0.14
8986.00	90.650	341.880	5859.24	3583.74	3185.38	-1655.46	1762466.74	14624231.75	40°16'00.897"N	80°33'44.923"W	3589.88	332.539	0.39	-0.06	0.39
9079.00	90.710	340.350	5858.13	3676.34	3273.37	-1685.56	1762436.65	14624319.70	40°16'01.768"N	80°33'45.306"W	3681.85	332.755	1.65	0.06	-1.65
9171.00	90.620	343.380	5857.07	3767.83	3360.78	-1714.19	1762408.03	14624407.08	40°16'02.633"N	80°33'45.669"W	3772.70	332.976	3.29	-0.10	3.29
9264.00	91.450	339.390	5855.38	3860.36	3448.88	-1743.86	1762378.37	14624495.15	40°16'03.505"N	80°33'46.047"W	3864.69	333.177	4.38	0.89	-4.29
9357.00	91.450	335.010	5853.03	3953.29	3534.57	-1779.88	1762342.36	14624580.80	40°16'04.353"N	80°33'46.506"W	3957.42	333.272	4.71	0.00	-4.71
9450.00	91.390	337.940	5850.73	4046.24	3619.80	-1816.99	1762305.27	14624666.00	40°16'05.198"N	80°33'46.979"W	4050.24	333.345	3.15	-0.06	3.15
9543.00	91.450	338.920	5848.42	4139.12	3706.26	-1851.17	1762271.11	14624752.43	40°16'06.054"N	80°33'47.414"W	4142.85	333.459	1.06	0.06	1.05
9635.00	91.480	337.930	5846.07	4231.00	3791.79	-1884.98	1762237.30	14624837.92	40°16'06.900"N	80°33'47.845"W	4234.48	333.567	1.08	0.03	-1.08
9728.00	91.450	340.700	5843.69	4323.79	3878.76	-1917.82	1762204.48	14624924.85	40°16'07.761"N	80°33'48.263"W	4326.98	333.690	2.98	-0.03	2.98
9821.00	90.740	338.180	5841.91	4416.59	3965.81	-1950.47	1762171.84	14625011.87	40°16'08.623"N	80°33'48.679"W	4419.50	333.811	2.81	-0.76	-2.71
9914.00	90.620	337.840	5840.81	4509.52	4052.04	-1985.29	1762137.03	14625098.07	40°16'09.477"N	80°33'49.123"W	4512.25	333.897	0.39	-0.13	-0.37
10006.00	90.550	333.910	5839.87	4601.50	4135.98	-2022.89	1762099.45	14625181.98	40°16'10.308"N	80°33'49.602"W	4604.17	333.937	4.27	-0.08	-4.27
10099.00	90.580	332.540	5838.95	4694.39	4219.00	-2064.78	1762057.57	14625264.97	40°16'11.131"N	80°33'50.138"W	4697.16	333.923	1.47	0.03	-1.47
10192.00	90.580	333.630	5838.01	4787.27	4301.92	-2106.87	1762015.50	14625347.86	40°16'11.952"N	80°33'50.675"W	4790.14	333.907	1.17	0.00	1.17



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Actual Wellpath Report

Russell Hervey BRK 3H AWP Proj: 13262'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWP
Facility	Russell Hervey BRK Pad		

WELLPATH DATA (154 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]
10284.00	90.460	337.120	5837.18	4879.25	4385.54	-2145.20	1761977.18	14625431.44	40°16'12.780"N	80°33'51.164"W	4882.09	333.934	3.80	-0.13	3.79
10377.00	90.580	340.120	5836.33	4972.13	4472.13	-2179.10	1761943.30	14625518.00	40°16'13.638"N	80°33'51.596"W	4974.78	334.022	3.23	0.13	3.23
10470.00	90.460	339.890	5835.49	5064.89	4559.52	-2210.90	1761911.51	14625605.35	40°16'14.503"N	80°33'52.001"W	5067.27	334.131	0.28	-0.13	-0.25
10563.00	90.490	341.520	5834.72	5157.55	4647.29	-2241.63	1761880.80	14625693.09	40°16'15.372"N	80°33'52.392"W	5159.67	334.250	1.75	0.03	1.75
10656.00	90.680	340.010	5833.77	5250.21	4735.09	-2272.26	1761850.17	14625780.86	40°16'16.241"N	80°33'52.781"W	5252.07	334.365	1.64	0.20	-1.62
10748.00	90.620	339.300	5832.72	5342.00	4821.34	-2304.25	1761818.20	14625867.08	40°16'17.095"N	80°33'53.189"W	5343.68	334.456	0.77	-0.07	-0.77
10841.00	90.370	335.900	5831.92	5434.95	4907.31	-2339.68	1761782.78	14625953.01	40°16'17.946"N	80°33'53.640"W	5436.52	334.509	3.67	-0.27	-3.66
10934.00	90.680	337.020	5831.07	5527.94	4992.57	-2376.82	1761745.65	14626038.24	40°16'18.790"N	80°33'54.114"W	5529.46	334.542	1.25	0.33	1.20
11027.00	90.710	338.710	5829.94	5620.87	5078.70	-2411.86	1761710.63	14626124.34	40°16'19.643"N	80°33'54.561"W	5622.30	334.597	1.82	0.03	1.82
11120.00	90.180	340.050	5829.22	5713.69	5165.74	-2444.61	1761677.89	14626211.34	40°16'20.505"N	80°33'54.978"W	5714.98	334.675	1.55	-0.57	1.44
11212.00	90.090	341.140	5829.00	5805.38	5252.51	-2475.17	1761647.34	14626298.08	40°16'21.364"N	80°33'55.366"W	5806.49	334.768	1.19	-0.10	1.18
11305.00	90.060	341.210	5828.88	5897.99	5340.54	-2505.18	1761617.34	14626386.07	40°16'22.235"N	80°33'55.748"W	5898.92	334.869	0.08	-0.03	0.08
11398.00	90.180	340.980	5828.68	5990.60	5428.52	-2535.31	1761587.22	14626474.02	40°16'23.106"N	80°33'56.131"W	5991.38	334.966	0.28	0.13	-0.25
11490.00	90.430	341.600	5828.19	6082.19	5515.66	-2564.83	1761557.72	14626561.12	40°16'23.968"N	80°33'56.506"W	6082.83	335.061	0.73	0.27	0.67
11583.00	90.220	344.990	5827.67	6174.40	5604.72	-2591.55	1761531.00	14626650.15	40°16'24.850"N	80°33'56.846"W	6174.87	335.185	3.65	-0.23	3.65
11675.00	90.180	340.880	5827.34	6265.69	5692.65	-2618.55	1761504.02	14626738.05	40°16'25.720"N	80°33'57.188"W	6266.02	335.298	4.47	-0.04	-4.47
11768.00	90.150	341.840	5827.08	6358.26	5780.77	-2648.27	1761474.31	14626826.13	40°16'26.592"N	80°33'57.566"W	6358.51	335.387	1.03	-0.03	1.03
11861.00	90.090	341.640	5826.88	6450.78	5869.08	-2677.41	1761445.18	14626914.42	40°16'27.466"N	80°33'57.936"W	6450.94	335.478	0.22	-0.06	-0.22
11953.00	90.250	340.430	5826.61	6542.40	5956.09	-2707.31	1761415.29	14627001.39	40°16'28.327"N	80°33'58.317"W	6542.51	335.556	1.33	0.17	-1.32
12046.00	90.280	338.940	5826.18	6635.20	6043.30	-2739.59	1761383.02	14627088.57	40°16'29.191"N	80°33'58.728"W	6635.27	335.614	1.60	0.03	-1.60
12139.00	90.120	337.930	5825.85	6728.10	6129.79	-2773.78	1761348.85	14627175.02	40°16'30.047"N	80°33'59.163"W	6728.16	335.653	1.10	-0.17	-1.09
12232.00	90.150	337.590	5825.63	6821.05	6215.87	-2808.98	1761313.66	14627261.07	40°16'30.899"N	80°33'59.612"W	6821.10	335.682	0.37	0.03	-0.37
12324.00	90.180	336.870	5825.37	6913.03	6300.70	-2844.58	1761278.07	14627345.87	40°16'31.739"N	80°34'00.066"W	6913.06	335.702	0.78	0.03	-0.78
12417.00	89.970	337.050	5825.25	7006.01	6386.28	-2880.98	1761241.69	14627431.41	40°16'32.587"N	80°34'00.530"W	7006.04	335.719	0.30	-0.23	0.19
12510.00	90.000	336.940	5825.27	7098.99	6471.88	-2917.33	1761205.36	14627516.98	40°16'33.434"N	80°34'00.994"W	7099.02	335.736	0.12	0.03	-0.12
12603.00	89.880	338.970	5825.37	7191.93	6558.08	-2952.23	1761170.47	14627603.15	40°16'34.288"N	80°34'01.439"W	7191.94	335.764	2.19	-0.13	2.18
12695.00	89.910	338.810	5825.54	7283.80	6643.90	-2985.36	1761137.34	14627688.94	40°16'35.138"N	80°34'01.861"W	7283.81	335.804	0.18	0.03	-0.17
12788.00	90.000	337.710	5825.61	7376.72	6730.29	-3019.81	1761102.91	14627775.29	40°16'35.993"N	80°34'02.300"W	7376.72	335.835	1.19	0.10	-1.18
12881.00	89.880	336.720	5825.71	7469.69	6816.03	-3055.83	1761066.91	14627861.00	40°16'36.842"N	80°34'02.759"W	7469.70	335.852	1.07	-0.13	-1.06
12974.00	89.910	336.270	5825.88	7562.69	6901.31	-3092.92	1761029.83	14627946.25	40°16'37.686"N	80°34'03.232"W	7562.69	335.860	0.48	0.03	-0.48



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Russell Hervey BRK 3H AWP Proj: 13262'
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWB
Facility	Russell Hervey BRK Pad		

WELLPATH DATA (154 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]
13067.00	91.020	342.150	5825.12	7655.49	6988.22	-3125.91	1760996.85	14628033.12	40°16'38.547"N	80°34'03.652"W	7655.49	335.900	6.43	1.19	6.32
13159.00	90.950	345.170	5823.54	7746.62	7076.48	-3151.79	1760970.98	14628121.35	40°16'39.420"N	80°34'03.981"W	7746.63	335.992	3.28	-0.08	3.28
13237.00	90.990	339.390	5822.22	7824.09	7150.73	-3175.51	1760947.27	14628195.57	40°16'40.155"N	80°34'04.282"W	7824.12	336.055	7.41	0.05	-7.41
13262.00	90.990	339.390	5821.79	7849.04	7174.13	-3184.31	1760938.47	14628218.96	40°16'40.387"N	80°34'04.394"W	7849.08	336.065	0.00	0.00	0.00

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Russell Hervey BRK 3H BHL Rev-2	5805.00	7155.87	-3202.52	1760920.27	14628200.71	40°16'40.207"N	80°34'04.630"W	point
Russell Hervey BRK 3H LP Rev-2	5878.00	666.46	-691.01	1763430.82	14621713.79	40°15'35.958"N	80°33'32.643"W	point

WELLPATH COMPOSITION - Ref Wellbore: Russell Hervey BRK 3H AWB Ref Wellpath: Russell Hervey BRK 3H AWP Proj: 13262'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	374.00	OWSG EMS rev2 + HRGM	01_MSS <17-1/2"> (129'-374')	Russell Hervey BRK 3H AWB
374.00	1962.00	BHI NaviTrak (Axial)	02_APS EM <12-1/4"> (374')(519'-1962')	Russell Hervey BRK 3H AWB
1962.00	5248.00	BHI NaviTrak (Axial)	03_APS EM <8-3/4"> (1962')(2095'-5248')	Russell Hervey BRK 3H AWB
5248.00	13237.00	BHI AutoTrak Curve (Short)	04_BHI AT Curve <8-1/2"> (5248')(5348'-13237')	Russell Hervey BRK 3H AWB
13237.00	13262.00	Blind Drilling (std)	Projection to bit	Russell Hervey BRK 3H AWB

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #03
Area	Brooke County, WV	Well	Russell Hervey BRK 3H
Field	Brooke	Wellbore	Russell Hervey BRK 3H AWB
Facility	Russell Hervey BRK Pad		

COMMENTS
<p>Wellpath general comments API: 47-009-00179-0000 BHI Job #: 8143147 Rig: SDC 46 Duration: 9/17/2016-9/20/2016 MSS <17-1/2"> (129'-374') APS EM <12-1/4"> (374')(519'-1962') APS EM <8-3/4"> (1962')(2095'-5248') BHI AT Curve <8-1/2"> (5248')(5348'-13237') Projected MD at TD: 13262'</p>

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