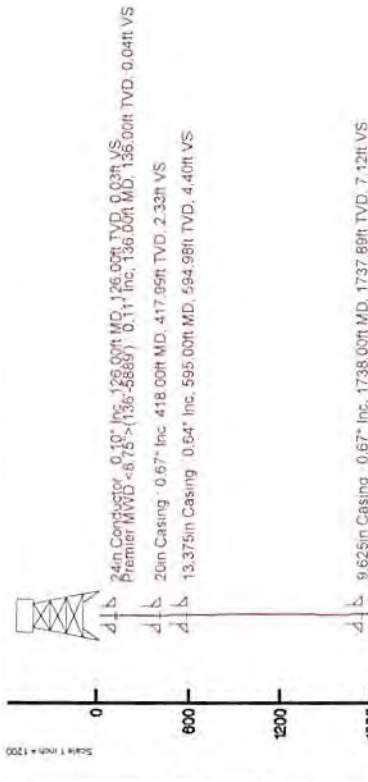


SOUTHWESTERN ENERGY

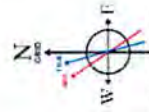
Location: Brooke County, WV
 Field: Brooke
 Facility: Worthley BRK Pad

Slot: Slot #01H
 Well: Worthley BRK 1H
 Wellbore: Worthley BRK 1H PWB

Photo reference wellpath is Worthley BRK 1H PWB Rev-B.0	Grid System: NAD83 / UTM Zone 17 North, US Feet
True vertical depths are referenced to SDC 41 (RRB)	* = Wellpath was transformed from a different geoidic datum
Measured depths are referenced to SDC 41 (RRB)	North Reference: Grid north
SDC 41 (RRB) to Mean Sea Level: -1182.3 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot Slot #01H): -1156.3 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: thomazuc on 2018-06-25
	Diabase: WA, Pennsylvania



True Vertical Depth (ft)



Use North as Dip Angle. SDC 41 (RRB)
 Magnetic North 37.0° West of True North (04/06/2018)
 True Grid North is 0.25° East of True North
 To convert azimuth from True to Grid subtract 0.25 degrees.
 To convert azimuth from Magnetic to Grid subtract 6.68 degrees

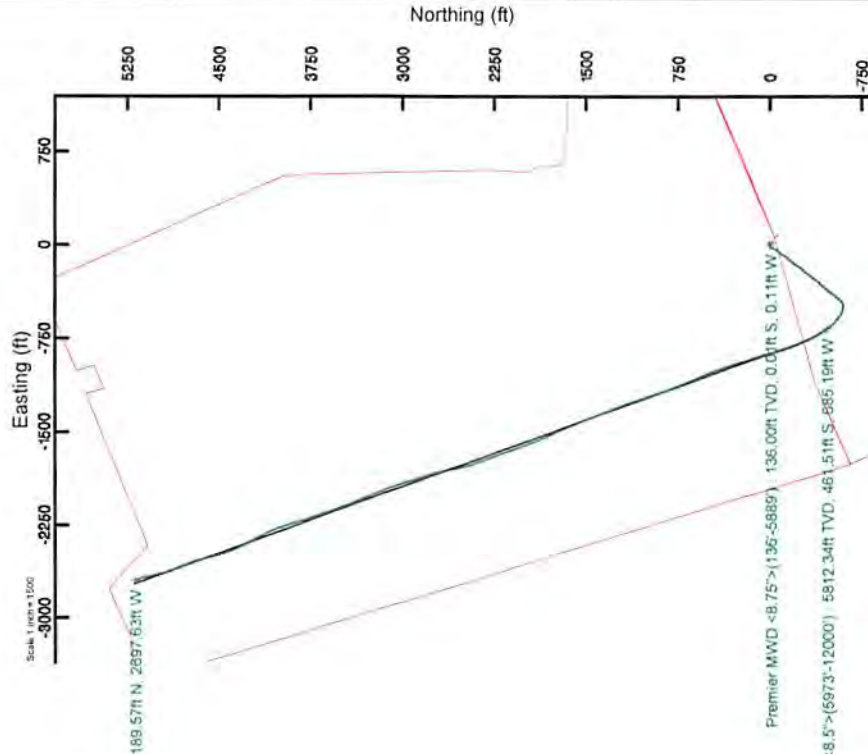


Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Worthley BRK Pad	1760646.204	14605439.176	40°12'55.014"N	80°33'18.013"W
Slot	Local N (ft)	Local E (ft)	Latitude	Longitude
Slot #01H	51.36	-69.46	40°12'55.525"N	80°33'18.905"W
SDC 41 (RRB) to Ground level (At Slot Slot #01H)	1764576.663	14605480.519	40°12'55.525"N	80°33'18.905"W
Mean Sea Level to Ground level (At Slot Slot #01H)			-1156.3ft	
SDC 41 (RRB) to Mean Sea Level			-1182.3ft	

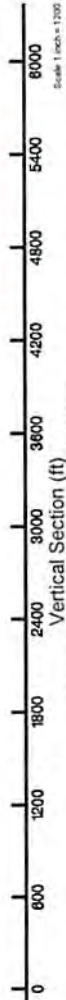
Comments

APL 47-009-00224-0000
 BH Job #: 9173350
 Rig: SDC 41
 Duration: 06/09/2018 - 06/10/2018



BH AT Curve <8.5° > (5973°-12000°) 43.48° Inc, 5973.00ft MD, 5812.34ft TVD, 59.97ft VS

Projection to Bit: 59.28° Inc, 12040.00ft MD, 5953.79ft TVD, 5848.78ft VS



Azimuth 332.29° with reference 0.00 N, 0.00 E

Scale 1 inch = 100'

Actual Wellpath Report

Worthley BRK 1H AWP Proj: 12040'MD

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK 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	6/25/2018 at 10:25:51 AM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Worthley_BRK_1H_AWP_Proj_12040_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	51.36	-69.46	1764576.86	14605490.52	40°12'55.525"N	80°33'18.905"W
Facility Reference Pt			1764646.29	14605439.18	40°12'55.014"N	80°33'18.013"W
Field Reference Pt			0.00	0.00	0°00'00.000"	85°29'19.478"W

WELLPATH DATUM			
Calculation method	Minimum curvature	SDC 41 (RKB) to Facility Vertical Datum	1182.30ft
Horizontal Reference Pt	Slot	SDC 41 (RKB) to Mean Sea Level	1182.30ft
Vertical Reference Pt	SDC 41 (RKB)	SDC 41 (RKB) to Ground Level at Slot (Slot #01H)	26.00ft
MD Reference Pt	SDC 41 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	332.29°

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Actual Wellpath Report

Worthley BRK 1H AWP Proj: 12040'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (147 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	265.270	0.00	0.00	0.00	0.00	1764576.86	14605490.52	40°12'55.525"N	80°33'18.905"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	265.270	26.00	0.00	0.00	0.00	1764576.86	14605490.52	40°12'55.525"N	80°33'18.905"W	0.00	0.000	0.00	0.00	0.00
136.00	0.110	265.270	136.00	0.04	-0.01	-0.11	1764576.76	14605490.51	40°12'55.525"N	80°33'18.906"W	0.11	265.270	0.10	0.10	-86.12
227.00	0.410	335.480	227.00	0.40	0.28	-0.33	1764576.54	14605490.80	40°12'55.528"N	80°33'18.909"W	0.43	310.569	0.43	0.33	77.15
318.00	0.640	348.820	318.00	1.21	1.08	-0.56	1764576.30	14605491.59	40°12'55.536"N	80°33'18.912"W	1.21	332.441	0.28	0.25	14.66
360.00	0.680	348.750	359.99	1.68	1.55	-0.66	1764576.21	14605492.07	40°12'55.540"N	80°33'18.913"W	1.68	337.082	0.10	0.10	-0.17
499.00	0.660	346.090	498.98	3.25	3.14	-1.01	1764575.85	14605493.65	40°12'55.556"N	80°33'18.918"W	3.29	342.171	0.03	-0.01	-1.91
538.00	0.750	343.320	537.98	3.71	3.60	-1.14	1764575.73	14605494.12	40°12'55.561"N	80°33'18.919"W	3.77	342.482	0.25	0.23	-7.10
622.00	0.590	336.000	621.97	4.68	4.52	-1.47	1764575.39	14605495.04	40°12'55.570"N	80°33'18.924"W	4.75	341.990	0.22	-0.19	-8.71
713.00	0.790	312.660	712.97	5.74	5.37	-2.12	1764574.74	14605495.89	40°12'55.578"N	80°33'18.932"W	5.78	338.455	0.37	0.22	-25.65
803.00	0.880	311.220	802.96	6.97	6.25	-3.10	1764573.77	14605496.77	40°12'55.587"N	80°33'18.945"W	6.97	333.633	0.10	0.10	-1.60
894.00	1.320	314.750	893.94	8.62	7.45	-4.37	1764572.50	14605497.96	40°12'55.599"N	80°33'18.961"W	8.63	329.610	0.49	0.48	3.88
987.00	0.420	324.110	986.93	9.98	8.48	-5.33	1764571.54	14605498.99	40°12'55.609"N	80°33'18.973"W	10.01	327.851	0.98	-0.97	10.06
1079.00	0.610	102.910	1078.93	10.00	8.64	-5.05	1764571.82	14605499.16	40°12'55.611"N	80°33'18.970"W	10.01	329.706	1.05	0.21	150.87
1172.00	0.660	114.840	1171.92	9.25	8.31	-4.08	1764572.78	14605498.82	40°12'55.607"N	80°33'18.957"W	9.25	333.840	0.15	0.05	12.83
1265.00	0.790	113.350	1264.91	8.33	7.83	-3.01	1764573.86	14605498.34	40°12'55.602"N	80°33'18.943"W	8.38	338.995	0.14	0.14	-1.60
1358.00	0.910	98.950	1357.90	7.39	7.46	-1.69	1764575.18	14605497.97	40°12'55.599"N	80°33'18.926"W	7.65	347.254	0.26	0.13	-15.48
1450.00	0.170	148.500	1449.90	6.81	7.23	-0.89	1764575.97	14605497.74	40°12'55.596"N	80°33'18.916"W	7.28	352.949	0.88	-0.80	53.86
1543.00	0.190	254.830	1542.90	6.71	7.07	-0.97	1764575.89	14605497.59	40°12'55.595"N	80°33'18.917"W	7.14	352.181	0.31	0.02	114.33
1636.00	0.600	254.850	1635.90	6.85	6.90	-1.59	1764575.27	14605497.42	40°12'55.593"N	80°33'18.925"W	7.08	347.031	0.44	0.44	0.02
1685.00	0.560	251.360	1684.89	6.94	6.76	-2.06	1764574.80	14605497.28	40°12'55.592"N	80°33'18.931"W	7.07	343.017	0.11	-0.08	-7.12
1760.00	0.730	273.600	1759.89	7.25	6.67	-2.89	1764573.98	14605497.19	40°12'55.591"N	80°33'18.942"W	7.27	336.591	0.40	0.23	29.65
1823.00	0.910	271.240	1822.88	7.70	6.71	-3.79	1764573.08	14605497.22	40°12'55.591"N	80°33'18.953"W	7.70	330.538	0.29	0.29	-3.75
1913.00	0.920	272.080	1912.87	8.40	6.75	-5.23	1764571.64	14605497.27	40°12'55.592"N	80°33'18.972"W	8.54	322.251	0.02	0.01	0.93
2004.00	2.480	229.340	2003.83	8.33	5.49	-7.45	1764569.42	14605496.01	40°12'55.580"N	80°33'19.001"W	9.26	306.403	2.10	1.71	-46.97
2094.00	4.930	217.670	2093.64	6.28	1.16	-11.29	1764565.58	14605491.68	40°12'55.537"N	80°33'19.050"W	11.35	275.877	2.83	2.72	-12.97
2185.00	6.620	215.450	2184.17	2.28	-6.21	-16.72	1764560.15	14605484.32	40°12'55.464"N	80°33'19.121"W	17.84	249.638	1.87	1.86	-2.44
2278.00	8.120	211.380	2276.40	-3.51	-16.18	-23.25	1764553.62	14605474.34	40°12'55.366"N	80°33'19.206"W	28.33	235.166	1.71	1.61	-4.38
2371.00	9.230	211.270	2368.34	-10.73	-28.16	-30.54	1764546.33	14605462.37	40°12'55.248"N	80°33'19.301"W	41.55	227.321	1.19	1.19	-0.12
2463.00	10.090	215.500	2459.03	-18.17	-41.03	-39.05	1764537.82	14605449.50	40°12'55.121"N	80°33'19.411"W	56.65	223.585	1.21	0.93	4.60

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Worthley BRK 1H AWP Proj: 12040'MD
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REFERENCE WELLPATH IDENTIFICATION				
Operator	SOUTHWESTERN ENERGY		Slot	Slot #01H
Area	Brooke County, WV		Well	Worthley BRK 1H
Field	Brooke		Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad			

WELLPATH DATA (147 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]
2556.00	11.570	215.380	2550.37	-26.06	-55.27	-49.19	1764527.70	14605435.27	40°12'54.981"N	80°33'19.543"W	73.99	221.667	1.59	1.59	-0.13
2649.00	13.270	216.340	2641.19	-34.95	-71.47	-60.91	1764515.98	14605419.07	40°12'54.822"N	80°33'19.695"W	93.91	220.439	1.84	1.83	1.03
2741.00	13.380	214.310	2730.72	-44.57	-88.77	-73.17	1764503.72	14605401.78	40°12'54.651"N	80°33'19.854"W	115.04	219.497	0.52	0.12	-2.21
2834.00	14.540	212.740	2820.97	-55.37	-107.48	-85.55	1764491.35	14605383.08	40°12'54.467"N	80°33'20.015"W	137.37	218.518	1.31	1.25	-1.69
2927.00	14.560	214.610	2910.99	-66.56	-126.92	-98.50	1764478.40	14605363.65	40°12'54.276"N	80°33'20.183"W	160.66	217.815	0.51	0.02	2.01
3020.00	13.820	221.040	3001.16	-76.02	-144.92	-112.43	1764464.47	14605345.66	40°12'54.098"N	80°33'20.364"W	183.42	217.806	1.87	-0.80	6.91
3113.00	13.440	220.130	3091.54	-84.12	-161.56	-126.69	1764450.22	14605329.02	40°12'53.935"N	80°33'20.549"W	205.31	218.103	0.47	-0.41	-0.98
3205.00	14.600	218.650	3180.79	-92.80	-178.79	-140.83	1764436.09	14605311.80	40°12'53.765"N	80°33'20.732"W	227.59	218.226	1.32	1.26	-1.61
3295.00	14.420	215.370	3267.93	-102.42	-196.79	-154.40	1764422.52	14605293.81	40°12'53.588"N	80°33'20.908"W	250.13	218.117	0.93	-0.20	-3.64
3384.00	13.970	211.490	3354.21	-112.94	-214.99	-166.43	1764410.50	14605275.62	40°12'53.409"N	80°33'21.064"W	271.88	217.744	1.18	-0.51	-4.36
3477.00	13.000	216.000	3444.65	-123.32	-233.02	-178.44	1764398.49	14605257.59	40°12'53.231"N	80°33'21.220"W	293.50	217.443	1.54	-1.04	4.85
3570.00	13.880	216.270	3535.10	-132.85	-250.48	-191.19	1764385.75	14605240.14	40°12'53.059"N	80°33'21.386"W	315.11	217.354	0.95	0.95	0.29
3662.00	14.430	221.550	3624.31	-141.75	-267.96	-205.32	1764371.62	14605222.67	40°12'52.887"N	80°33'21.569"W	337.57	217.461	1.52	0.60	5.74
3755.00	14.150	220.930	3714.43	-150.00	-285.22	-220.45	1764356.50	14605205.41	40°12'52.717"N	80°33'21.765"W	360.48	217.701	0.34	-0.30	-0.67
3848.00	14.140	219.380	3804.61	-158.56	-302.58	-235.11	1764341.85	14605188.05	40°12'52.547"N	80°33'21.955"W	383.19	217.847	0.41	-0.01	-1.67
3940.00	13.990	217.630	3893.86	-167.57	-320.08	-249.03	1764327.93	14605170.56	40°12'52.374"N	80°33'22.136"W	405.54	217.883	0.49	-0.16	-1.90
4033.00	14.480	215.040	3984.00	-177.59	-338.50	-262.56	1764314.40	14605152.15	40°12'52.193"N	80°33'22.311"W	428.40	217.800	0.86	0.53	-2.78
4126.00	15.680	216.820	4073.80	-188.32	-358.08	-276.77	1764300.20	14605132.58	40°12'52.000"N	80°33'22.496"W	452.58	217.702	1.38	1.29	1.91
4219.00	16.710	221.360	4163.11	-198.50	-378.18	-293.14	1764283.84	14605112.49	40°12'51.802"N	80°33'22.708"W	478.49	217.781	1.75	1.11	4.88
4311.00	16.190	218.380	4251.34	-208.42	-398.16	-309.84	1764267.14	14605092.51	40°12'51.606"N	80°33'22.925"W	504.51	217.890	1.08	-0.57	-3.24
4404.00	14.360	222.950	4341.06	-217.50	-416.77	-325.75	1764251.23	14605073.91	40°12'51.423"N	80°33'23.131"W	528.97	218.012	2.35	-1.97	4.91
4497.00	12.970	220.060	4431.42	-225.26	-433.20	-340.33	1764236.66	14605057.49	40°12'51.261"N	80°33'23.320"W	550.89	218.154	1.66	-1.49	-3.11
4590.00	13.130	218.500	4522.02	-233.47	-449.45	-353.62	1764223.38	14605041.24	40°12'51.101"N	80°33'23.492"W	571.89	218.195	0.42	0.17	-1.68
4682.00	14.270	220.190	4611.40	-241.95	-466.29	-367.44	1764209.56	14605024.41	40°12'50.935"N	80°33'23.671"W	593.67	218.239	1.31	1.24	1.84
4775.00	16.040	219.020	4701.17	-251.34	-485.03	-382.93	1764194.08	14605005.67	40°12'50.751"N	80°33'23.872"W	617.97	218.291	1.93	1.90	-1.26
4868.00	15.940	214.420	4790.57	-262.39	-505.55	-398.24	1764178.78	14604985.16	40°12'50.549"N	80°33'24.071"W	643.56	218.229	1.37	-0.11	-4.95
4961.00	15.580	216.360	4880.08	-273.82	-526.14	-412.86	1764164.16	14604964.58	40°12'50.346"N	80°33'24.261"W	668.79	218.121	0.69	-0.39	2.09
5054.00	15.190	221.600	4969.75	-283.59	-545.31	-428.36	1764148.67	14604945.42	40°12'50.158"N	80°33'24.462"W	693.44	218.151	1.55	-0.42	5.63
5147.00	14.090	218.880	5059.73	-292.79	-563.24	-443.55	1764133.48	14604927.50	40°12'49.981"N	80°33'24.659"W	716.92	218.221	1.39	-1.18	-2.92
5239.00	13.960	215.410	5148.99	-301.86	-581.00	-457.01	1764120.03	14604909.74	40°12'49.806"N	80°33'24.833"W	739.20	218.188	0.92	-0.14	-3.77

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Worthley BRK 1H AWP Proj: 12040'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (147 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]
5286.00	13.340	225.610	5194.67	-305.98	-589.41	-464.17	1764112.87	14604901.33	40°12'49.723"N	80°33'24.926"W	750.24	218.221	5.28	-1.32	21.70
5332.00	12.580	241.410	5239.51	-307.58	-595.52	-472.37	1764104.68	14604895.22	40°12'49.663"N	80°33'25.032"W	760.12	218.421	7.85	-1.65	34.35
5378.00	12.190	257.570	5284.45	-306.37	-598.97	-481.51	1764095.54	14604891.78	40°12'49.630"N	80°33'25.150"W	768.51	218.796	7.56	-0.85	35.13
5425.00	13.650	268.530	5330.27	-302.61	-600.18	-491.90	1764085.15	14604890.57	40°12'49.618"N	80°33'25.284"W	776.00	219.338	6.06	3.11	23.32
5471.00	15.720	272.460	5374.76	-297.08	-600.05	-503.55	1764073.50	14604890.70	40°12'49.620"N	80°33'25.434"W	783.34	220.003	4.99	4.50	8.54
5517.00	17.730	277.400	5418.82	-289.92	-598.88	-516.73	1764060.33	14604891.87	40°12'49.633"N	80°33'25.604"W	790.99	220.788	5.35	4.37	10.74
5564.00	20.090	284.900	5463.28	-280.34	-595.88	-531.63	1764045.44	14604894.87	40°12'49.663"N	80°33'25.796"W	798.57	221.738	7.20	5.02	15.96
5610.00	21.270	293.570	5506.33	-268.47	-590.51	-546.92	1764030.16	14604900.23	40°12'49.717"N	80°33'25.993"W	804.87	222.805	7.13	2.57	18.85
5657.00	23.570	301.040	5549.78	-253.78	-582.26	-562.79	1764014.29	14604908.49	40°12'49.799"N	80°33'26.197"W	809.78	224.026	7.78	4.89	15.89
5703.00	26.530	305.180	5591.45	-236.77	-571.59	-579.07	1763998.02	14604919.15	40°12'49.905"N	80°33'26.406"W	813.66	225.372	7.47	6.43	9.00
5749.00	29.250	309.630	5632.11	-217.25	-558.50	-596.13	1763980.97	14604932.23	40°12'50.035"N	80°33'26.625"W	816.88	226.866	7.44	5.91	9.67
5796.00	32.440	312.120	5672.46	-194.82	-542.72	-614.33	1763962.77	14604948.01	40°12'50.192"N	80°33'26.859"W	819.72	228.541	7.31	6.79	5.30
5842.00	35.530	314.940	5710.60	-170.47	-525.00	-632.94	1763944.16	14604965.73	40°12'50.368"N	80°33'27.097"W	822.34	230.326	7.54	6.72	6.13
5889.00	37.390	318.840	5748.41	-143.55	-504.60	-652.01	1763925.11	14604986.11	40°12'50.571"N	80°33'27.342"W	824.46	232.263	6.32	3.96	8.30
5973.00	43.480	325.550	5812.34	-89.97	-461.51	-685.19	1763891.94	14605029.19	40°12'50.998"N	80°33'27.767"W	826.12	236.038	8.90	7.25	7.99
6020.00	47.040	328.400	5845.42	-56.74	-433.51	-703.35	1763873.78	14605057.17	40°12'51.276"N	80°33'27.999"W	826.22	238.352	8.71	7.57	6.06
6066.00	50.510	330.740	5875.74	-22.19	-403.68	-720.86	1763856.28	14605086.99	40°12'51.572"N	80°33'28.223"W	826.19	240.751	8.46	7.54	5.09
6112.00	55.180	332.890	5903.51	14.46	-371.37	-738.15	1763839.00	14605119.30	40°12'51.892"N	80°33'28.444"W	826.30	243.293	10.81	10.15	4.67
6158.00	60.390	334.220	5928.03	53.35	-336.53	-755.46	1763821.69	14605154.12	40°12'52.237"N	80°33'28.665"W	827.03	245.989	11.59	11.33	2.89
6205.00	65.920	335.760	5949.24	95.22	-298.54	-773.17	1763803.99	14605192.10	40°12'52.613"N	80°33'28.890"W	828.80	248.887	12.12	11.77	3.28
6251.00	70.320	337.120	5966.38	137.79	-259.42	-790.22	1763786.95	14605231.20	40°12'53.001"N	80°33'29.108"W	831.71	251.826	9.95	9.57	2.96
6297.00	74.040	338.770	5980.46	181.36	-218.83	-806.66	1763770.52	14605271.77	40°12'53.402"N	80°33'29.317"W	835.81	254.822	8.78	8.09	3.59
6344.00	76.270	340.550	5992.50	226.41	-176.24	-822.44	1763754.74	14605314.35	40°12'53.824"N	80°33'29.518"W	841.11	257.905	5.99	4.74	3.79
6390.00	79.130	341.370	6002.30	270.83	-133.76	-837.10	1763740.08	14605356.81	40°12'54.245"N	80°33'29.704"W	847.72	260.922	6.46	6.22	1.78
6436.00	82.530	342.220	6009.63	315.61	-90.62	-851.28	1763725.91	14605399.93	40°12'54.671"N	80°33'29.884"W	856.09	263.923	7.61	7.39	1.85
6483.00	86.860	343.290	6013.97	361.62	-45.94	-865.15	1763712.04	14605444.60	40°12'55.114"N	80°33'30.060"W	866.37	266.960	9.49	9.21	2.28
6529.00	90.460	343.910	6015.05	406.71	-1.83	-878.13	1763699.07	14605488.69	40°12'55.550"N	80°33'30.224"W	878.14	269.881	7.94	7.83	1.35
6622.00	90.710	342.670	6014.10	497.99	87.23	-904.87	1763672.34	14605577.72	40°12'56.432"N	80°33'30.563"W	909.07	275.507	1.36	0.27	-1.33
6714.00	90.460	342.150	6013.16	588.56	174.93	-932.67	1763644.55	14605665.38	40°12'57.300"N	80°33'30.916"W	948.94	280.623	0.63	-0.27	-0.57
6807.00	90.430	343.380	6012.44	680.00	263.75	-960.23	1763617.00	14605754.17	40°12'58.179"N	80°33'31.266"W	995.79	285.359	1.32	-0.03	1.32

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (147 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]
6900.00	90.400	342.950	6011.76	771.33	352.76	-987.16	1763590.08	14605843.14	40°12'59.060"N	80°33'31.607"W	1048.30	289.664	0.46	-0.03	-0.46
6992.00	90.250	340.530	6011.24	862.07	440.12	-1015.99	1763561.27	14605930.47	40°12'59.924"N	80°33'31.973"W	1107.22	293.422	2.64	-0.16	-2.63
7085.00	90.250	336.380	6010.84	954.51	526.60	-1050.13	1763527.14	14606016.92	40°13'00.781"N	80°33'32.408"W	1174.77	296.632	4.46	0.00	-4.46
7177.00	90.680	337.050	6010.09	1046.24	611.10	-1086.50	1763490.78	14606101.39	40°13'01.617"N	80°33'32.871"W	1246.56	299.356	0.87	0.47	0.73
7270.00	90.800	338.550	6008.89	1138.80	697.20	-1121.63	1763455.66	14606187.45	40°13'02.470"N	80°33'33.318"W	1320.66	301.865	1.62	0.13	1.61
7363.00	90.680	339.350	6007.69	1231.16	783.99	-1155.03	1763422.27	14606274.20	40°13'03.329"N	80°33'33.743"W	1395.97	304.167	0.87	-0.13	0.86
7455.00	90.830	340.540	6006.48	1322.33	870.40	-1186.58	1763390.74	14606360.58	40°13'04.185"N	80°33'34.144"W	1471.59	306.261	1.30	0.16	1.29
7548.00	90.830	340.770	6005.13	1414.33	958.14	-1217.38	1763359.95	14606448.29	40°13'05.053"N	80°33'34.536"W	1549.21	308.204	0.25	0.00	0.25
7641.00	90.740	342.370	6003.85	1506.10	1046.36	-1246.78	1763330.56	14606536.48	40°13'05.926"N	80°33'34.909"W	1627.67	310.005	1.72	-0.10	1.72
7734.00	90.800	340.360	6002.60	1597.93	1134.47	-1276.49	1763300.86	14606624.55	40°13'06.799"N	80°33'35.287"W	1707.76	311.629	2.16	0.06	-2.16
7826.00	90.770	339.470	6001.34	1689.10	1220.87	-1308.08	1763269.28	14606710.92	40°13'07.654"N	80°33'35.688"W	1789.30	313.025	0.97	-0.03	-0.97
7919.00	90.920	339.000	5999.97	1781.41	1307.82	-1341.05	1763236.33	14606797.83	40°13'08.515"N	80°33'36.108"W	1873.18	314.281	0.53	0.16	-0.51
8012.00	90.920	338.380	5998.48	1873.82	1394.44	-1374.84	1763202.55	14606884.43	40°13'09.372"N	80°33'36.538"W	1958.23	315.406	0.67	0.00	-0.67
8105.00	90.990	338.550	5996.93	1966.27	1480.94	-1408.98	1763168.43	14606970.89	40°13'10.229"N	80°33'36.972"W	2044.11	316.426	0.20	0.08	0.18
8197.00	91.450	339.090	5994.97	2057.65	1566.71	-1442.21	1763135.21	14607056.62	40°13'11.078"N	80°33'37.395"W	2129.44	317.369	0.77	0.50	0.59
8290.00	91.390	338.530	5992.67	2150.02	1653.39	-1475.81	1763101.62	14607143.28	40°13'11.936"N	80°33'37.823"W	2216.24	318.248	0.61	-0.06	-0.60
8383.00	91.230	334.620	5990.54	2242.71	1738.69	-1512.77	1763064.67	14607228.54	40°13'12.781"N	80°33'38.294"W	2304.67	318.975	4.21	-0.17	-4.20
8476.00	91.350	335.430	5988.44	2335.58	1822.97	-1552.03	1763025.43	14607312.79	40°13'13.616"N	80°33'38.794"W	2394.16	319.590	0.88	0.13	0.87
8568.00	90.920	338.270	5986.62	2427.27	1907.54	-1588.18	1762989.29	14607397.32	40°13'14.453"N	80°33'39.255"W	2482.14	320.220	3.12	-0.47	3.09
8661.00	90.770	340.710	5985.25	2519.51	1994.62	-1620.76	1762956.72	14607484.38	40°13'15.315"N	80°33'39.670"W	2570.10	320.904	2.83	-0.16	2.62
8754.00	90.920	341.330	5983.88	2611.43	2082.56	-1651.01	1762926.49	14607572.28	40°13'16.186"N	80°33'40.054"W	2657.61	321.593	0.69	0.16	0.67
8847.00	90.890	339.780	5982.41	2703.45	2170.24	-1681.96	1762895.55	14607659.93	40°13'17.054"N	80°33'40.447"W	2745.71	322.224	1.67	-0.03	-1.67
8939.00	90.920	338.940	5980.96	2794.74	2256.32	-1714.39	1762863.14	14607745.98	40°13'17.906"N	80°33'40.860"W	2833.75	322.772	0.91	0.03	-0.91
9032.00	90.680	340.930	5979.66	2886.89	2343.67	-1746.29	1762831.25	14607833.28	40°13'18.771"N	80°33'41.265"W	2922.72	323.310	2.16	-0.26	2.14
9125.00	90.830	343.890	5978.43	2978.43	2432.30	-1774.39	1762803.16	14607921.88	40°13'19.648"N	80°33'41.622"W	3010.74	323.889	3.19	0.16	3.18
9218.00	90.860	346.500	5977.06	3069.06	2522.19	-1798.15	1762779.41	14608011.74	40°13'20.537"N	80°33'41.923"W	3097.55	324.514	2.81	0.03	2.81
9311.00	90.890	348.490	5975.64	3158.79	2612.97	-1818.28	1762759.28	14608102.49	40°13'21.435"N	80°33'42.176"W	3183.36	325.167	2.14	0.03	2.14
9404.00	91.230	347.500	5973.92	3248.30	2703.92	-1837.62	1762739.95	14608193.40	40°13'22.335"N	80°33'42.420"W	3269.26	325.799	1.13	0.37	-1.06
9496.00	91.420	343.330	5971.79	3337.86	2792.91	-1860.78	1762716.80	14608282.36	40°13'23.216"N	80°33'42.713"W	3356.02	326.326	4.54	0.21	-4.53
9589.00	90.920	342.270	5969.89	3429.28	2881.74	-1888.27	1762689.32	14608371.15	40°13'24.095"N	80°33'43.062"W	3445.28	326.765	1.26	-0.54	-1.14

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Actual Wellpath Report

Worthley BRK 1H AWP Proj: 12040'MD
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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (147 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]
9681.00	91.020	342.700	5968.34	3519.81	2969.46	-1915.96	1762661.64	14608458.84	40°13'24.963"N	80°33'43.413"W	3533.92	327.169	0.48	0.11	0.47
9774.00	90.920	340.730	5966.76	3611.54	3057.74	-1945.13	1762632.48	14608547.09	40°13'25.837"N	80°33'43.783"W	3623.99	327.538	2.12	-0.11	-2.12
9867.00	90.150	338.640	5965.89	3703.75	3144.95	-1977.41	1762600.21	14608634.26	40°13'26.700"N	80°33'44.194"W	3714.95	327.840	2.39	-0.83	-2.25
9959.00	90.250	339.010	5965.57	3795.16	3230.74	-2010.64	1762566.99	14608720.02	40°13'27.549"N	80°33'44.617"W	3805.31	328.104	0.42	0.11	0.40
10052.00	90.220	338.140	5965.19	3887.59	3317.31	-2044.61	1762533.03	14608806.55	40°13'28.407"N	80°33'45.049"W	3896.79	328.353	0.94	-0.03	-0.94
10145.00	90.180	337.720	5964.86	3980.14	3403.49	-2079.56	1762498.10	14608892.71	40°13'29.260"N	80°33'45.494"W	3988.53	328.575	0.45	-0.04	-0.45
10238.00	90.180	340.110	5964.57	4072.52	3490.26	-2113.01	1762464.66	14608979.44	40°13'30.119"N	80°33'45.920"W	4080.04	328.809	2.57	0.00	2.57
10330.00	90.030	340.620	5964.40	4163.60	3576.91	-2143.93	1762433.76	14609066.06	40°13'30.977"N	80°33'46.313"W	4170.22	329.062	0.58	-0.16	0.55
10423.00	90.310	342.870	5964.13	4255.33	3665.22	-2173.06	1762404.64	14609154.33	40°13'31.851"N	80°33'46.683"W	4260.99	329.337	2.44	0.30	2.42
10516.00	90.340	343.490	5963.60	4346.66	3754.24	-2199.97	1762377.74	14609243.32	40°13'32.732"N	80°33'47.024"W	4351.35	329.630	0.67	0.03	0.67
10609.00	90.120	343.950	5963.23	4437.81	3843.51	-2226.04	1762351.68	14609332.56	40°13'33.615"N	80°33'47.355"W	4441.60	329.922	0.55	-0.24	0.49
10702.00	90.550	342.200	5962.68	4529.16	3932.48	-2253.11	1762324.62	14609421.49	40°13'34.496"N	80°33'47.698"W	4532.21	330.189	1.94	0.46	-1.88
10794.00	90.400	340.670	5961.92	4619.99	4019.69	-2282.40	1762295.34	14609508.66	40°13'35.359"N	80°33'48.070"W	4622.47	330.412	1.67	-0.16	-1.66
10887.00	90.580	335.480	5961.12	4712.48	4105.93	-2317.11	1762260.64	14609594.87	40°13'36.213"N	80°33'48.512"W	4714.62	330.563	5.58	0.19	-5.58
10980.00	90.340	331.490	5960.38	4805.44	4189.13	-2358.62	1762219.15	14609678.04	40°13'37.037"N	80°33'49.042"W	4807.48	330.619	4.30	-0.26	-4.29
11073.00	90.310	332.310	5959.85	4898.43	4271.16	-2402.42	1762175.36	14609760.04	40°13'37.850"N	80°33'49.602"W	4900.46	330.643	0.88	-0.03	0.88
11165.00	90.430	335.630	5959.26	4990.38	4353.82	-2442.79	1762135.01	14609842.66	40°13'38.668"N	80°33'50.117"W	4992.29	330.705	3.61	0.13	3.61
11258.00	90.280	342.170	5958.68	5082.71	4440.53	-2476.25	1762101.56	14609929.35	40°13'39.527"N	80°33'50.543"W	5084.30	330.854	7.03	-0.16	7.03
11351.00	90.340	347.240	5958.18	5173.50	4530.21	-2500.78	1762077.05	14610018.99	40°13'40.414"N	80°33'50.853"W	5174.62	331.100	5.45	0.06	5.45
11444.00	90.370	345.360	5957.60	5263.73	4620.56	-2522.80	1762055.03	14610109.30	40°13'41.308"N	80°33'51.132"W	5264.41	331.366	2.02	0.03	-2.02
11536.00	90.400	341.370	5956.98	5354.00	4708.69	-2549.13	1762028.71	14610197.40	40°13'42.180"N	80°33'51.465"W	5354.42	331.570	4.34	0.03	-4.34
11629.00	90.310	338.460	5956.40	5446.16	4796.02	-2581.06	1761996.79	14610284.70	40°13'43.045"N	80°33'51.872"W	5446.44	331.712	3.13	-0.10	-3.13
11722.00	90.490	340.150	5955.76	5538.46	4883.01	-2613.93	1761963.94	14610371.66	40°13'43.906"N	80°33'52.290"W	5538.63	331.839	1.83	0.19	1.82
11815.00	90.460	344.460	5954.98	5630.02	4971.59	-2642.19	1761935.69	14610460.20	40°13'44.783"N	80°33'52.649"W	5630.09	332.011	4.63	-0.03	4.63
11907.00	90.250	348.290	5954.41	5719.23	5060.98	-2663.86	1761914.03	14610549.56	40°13'45.667"N	80°33'52.922"W	5719.24	332.240	4.17	-0.23	4.16
12000.00	90.280	343.670	5953.98	5809.57	5151.19	-2686.38	1761891.52	14610639.73	40°13'46.560"N	80°33'53.207"W	5809.59	332.458	4.97	0.03	-4.97
12040.00	90.280	343.670	5953.79	5848.78	5189.57	-2697.63	1761880.27	14610678.10	40°13'46.940"N	80°33'53.350"W	5848.83	332.534	0.00	0.00	0.00

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Worthley BRK 1H AWB Ref Wellpath: Worthley BRK 1H AWP Proj: 12040'MD									
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]
24in Conductor	26.00	126.00	100.00	26.00	126.00	0.00	0.00	-0.01	-0.09
20in Casing	26.00	418.00	392.00	26.00	417.99	0.00	0.00	2.22	-0.79
17.5in Open Hole	418.00	595.00	177.00	417.99	594.98	2.22	-0.79	4.25	-1.36
13.375in Casing	26.00	595.00	569.00	26.00	594.98	0.00	0.00	4.25	-1.36
12.25in Open Hole	595.00	1738.00	1143.00	594.98	1737.89	4.25	-1.36	6.67	-2.62
9.625in Casing	26.00	1738.00	1712.00	26.00	1737.89	0.00	0.00	6.67	-2.62
8.75in Open Hole	1738.00	5960.00	4222.00	1737.89	5802.83	6.67	-2.62	-468.78	-680.11
8.5in Open Hole	5960.00	12040.00	6080.00	5802.83	5953.79	-468.78	-680.11	5189.57	-2697.63

TARGETS								
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Worthley BRK 1H BHL 1H Rev-3	5958.00	5193.11	-2727.00	1761850.91	14610681.63	40°13'46.976"N	80°33'53.728"W	point
Worthley BRK 1H BHL 1H Rev-2	5963.00	5193.11	-2727.00	1761850.91	14610681.63	40°13'46.976"N	80°33'53.728"W	point
Worthley BRK 1H LP Rev-2	6024.00	-33.90	-873.50	1763703.70	14605456.63	40°12'55.233"N	80°33'30.167"W	point
Worthley BRK 1H LP Rev-1	6024.30	-147.79	-827.98	1763749.20	14605342.78	40°12'54.105"N	80°33'29.587"W	point

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

WELLPATH COMPOSITION - Ref Wellbore: Worthley BRK 1H AWB Ref Wellpath: Worthley BRK 1H AWP Proj: 12040'MD				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
26.00	5889.00	OWSG MWD rev2 + HRGM	01_Premier MWD <8.75">(136'-5889')	Worthley BRK 1H AWB
5889.00	12000.00	BHI AutoTrak Curve (Short)	02_BH AT Curve <8-1/2"> (5889')(5973'-12000')	Worthley BRK 1H AWB
12000.00	12040.00	Blind Drilling (std)	Projection to bit	Worthley BRK 1H AWB

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #01H
Area	Brooke County, WV	Well	Worthley BRK 1H
Field	Brooke	Wellbore	Worthley BRK 1H AWB
Facility	Worthley BRK Pad		

COMMENTS
<p>Wellpath general comments API: 47-009-00224-0000 BH Job #: 9173350 Rig: SDC 41 Duration: 06/09/2018 - 06/10/2018</p>

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