

SOUTHWESTERN ENERGY

Location: Brooke County, WV
 Facility: Worthley BRK Pad
 Slot: Slot #201H
 Well: Worthley BRK 201H
 Wellbore: Worthley BRK 201H PWB

Plot reference wellbore is Worthley BRK 201H PWP Rev-A0	Grid System: NAD83 UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 41 (RKB)	* s Wellbore was transformed from a different geoidic datum
Measured depths are referenced to SDC 41 (RKB)	North Reference: Grid north
SDC 41 (RKB) to Mean Sea Level: 1182.3 feet	Scale: True distance
Mean Sea Level to Ground level (At Slot, Slot #201H): -1156.3 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Romsuz on 2018-07-02
	Database: VA, Pennsylvania

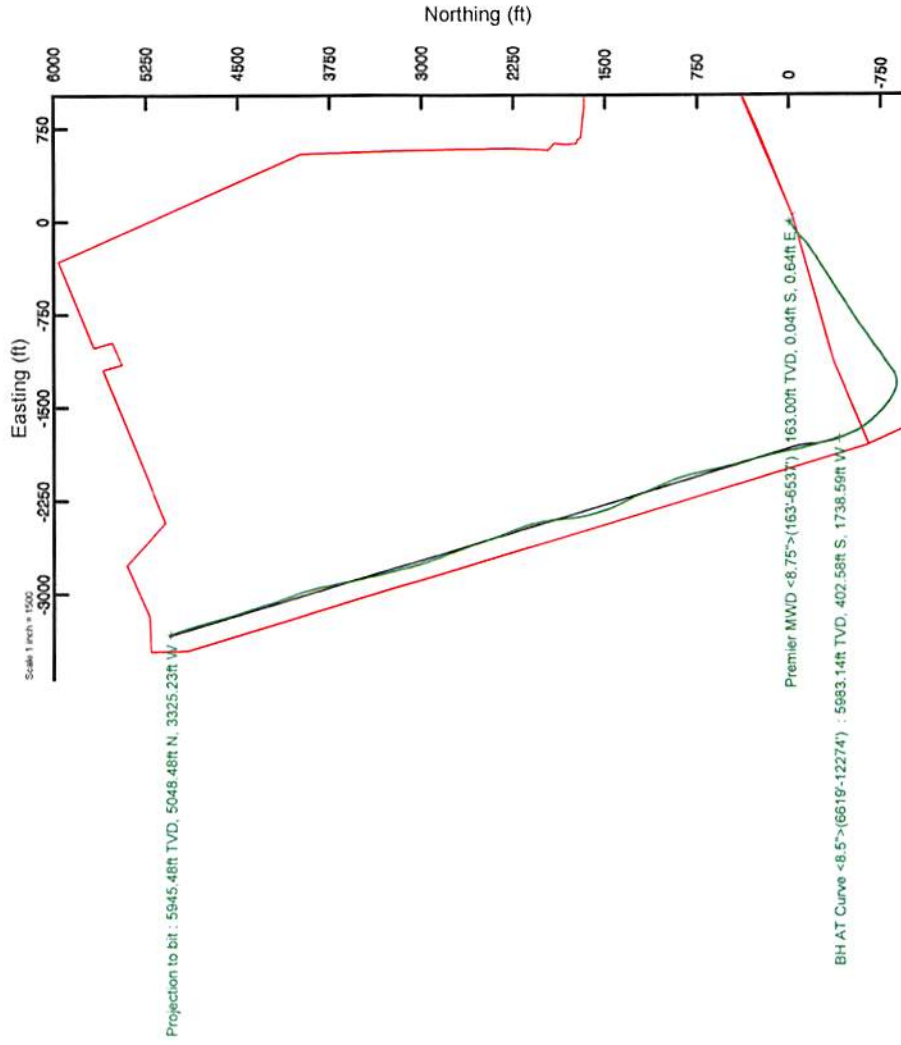


Location Information

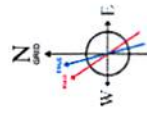
Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Worthley BRK Pad	1764646.254	14605439.176	40°12'55.014"N	80°33'18.013"W
Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
-40.66	1764535.912	14605479.842	40°12'55.419"N	80°33'16.789"W
Slot #201H			20ft	
SDC 41 (RKB) to Ground level (At Slot, Slot #201H)			-1156.3ft	
Mean Sea Level to Ground level (At Slot, Slot #201H)			1182.3ft	

Comments

API: 47-009-00226-0000
 BH Job #: 9217345
 Rig: SDC 41
 Duration: 06/20/2018 - 06/21/2018



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User specified Dip: 67.80° Field: 5/20/2019
 Magnetic North is 8.37 degrees West of True North (at 6/20/2019).
 To correct azimuth from True to Grid subtract 0.29 degrees.
 To correct azimuth from Magnetic to Grid subtract 8.66 degrees.

BH AT Curve $\langle 8.5^\circ \rangle$ (6619-12274) : 79.54° Inc, 6619.00ft MD, 5983.14ft TVD, 621.28ft VS
 Projection to bit : 90.37° Inc, 12314.00ft MD, 5945.48ft TVD, 6045.19ft VS



Azimuth 326.59° with reference 0.00 N, 0.00 E

REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Worthley BRK 201H
Field	Brooke	Wellbore	Worthley BRK 201H 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	7/2/2018 at 9:27:32 AM
Convergence at slot	0.29° East	Database/Source file	WA_Pennsylvania/Worthley_BRK_201H_AWP_Proj_12314_MD.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	40.68	-60.41	1764585.91	14605479.84	40°12'55.419"N	80°33'18.789"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 #201H)	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	326.59°

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Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (149 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	93.540	0.00	0.00	0.00	0.00	1764585.91	14605479.84	40°12'55.419"N	80°33'18.789"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	93.540	26.00	0.00	0.00	0.00	1764585.91	14605479.84	40°12'55.419"N	80°33'18.789"W	0.00	0.000	0.00	0.00	0.00
163.00	0.540	93.540	163.00	-0.39	-0.04	0.64	1764586.56	14605479.80	40°12'55.419"N	80°33'18.781"W	0.65	93.540	0.39	0.39	68.28
223.00	0.460	83.650	223.00	-0.67	-0.03	1.17	1764587.08	14605479.81	40°12'55.419"N	80°33'18.774"W	1.17	91.507	0.20	-0.13	-16.48
314.00	0.330	83.470	313.99	-0.95	0.04	1.79	1764587.70	14605479.88	40°12'55.419"N	80°33'18.766"W	1.79	88.735	0.14	-0.14	-0.20
404.00	0.700	92.550	403.99	-1.39	0.04	2.60	1764588.51	14605479.89	40°12'55.419"N	80°33'18.756"W	2.60	89.017	0.42	0.41	10.09
497.00	0.570	114.070	496.98	-2.12	-0.17	3.59	1764589.50	14605479.67	40°12'55.417"N	80°33'18.743"W	3.59	92.705	0.29	-0.14	23.14
532.00	0.580	92.300	531.98	-2.37	-0.25	3.92	1764589.83	14605479.59	40°12'55.416"N	80°33'18.738"W	3.93	93.611	0.62	0.03	-62.20
620.00	0.660	93.600	619.98	-2.93	-0.30	4.87	1764590.78	14605479.54	40°12'55.416"N	80°33'18.726"W	4.88	93.490	0.09	0.09	1.48
711.00	0.580	203.830	710.97	-3.50	-0.75	5.21	1764591.12	14605479.09	40°12'55.411"N	80°33'18.722"W	5.26	98.208	1.12	-0.09	121.13
802.00	2.530	233.080	801.94	-3.87	-2.38	3.42	1764589.33	14605477.46	40°12'55.395"N	80°33'18.745"W	4.16	124.845	2.25	2.14	32.14
895.00	4.770	236.570	894.74	-4.00	-5.74	-1.45	1764584.46	14605474.10	40°12'55.362"N	80°33'18.808"W	5.92	194.178	2.42	2.41	3.75
987.00	7.330	240.030	986.22	-3.64	-10.78	-9.73	1764576.19	14605469.06	40°12'55.313"N	80°33'18.915"W	14.52	222.057	2.81	2.78	3.76
1080.00	9.370	236.950	1078.23	-3.24	-17.88	-21.22	1764564.70	14605461.97	40°12'55.243"N	80°33'19.064"W	27.74	229.882	2.24	2.19	-3.31
1173.00	10.740	236.240	1169.80	-3.25	-26.82	-34.77	1764551.16	14605453.03	40°12'55.156"N	80°33'19.239"W	43.91	232.350	1.48	1.47	-0.76
1266.00	10.460	235.870	1261.22	-3.41	-36.37	-48.96	1764536.97	14605443.48	40°12'55.062"N	80°33'19.422"W	60.99	233.390	0.31	-0.30	-0.40
1358.00	11.090	231.570	1351.59	-4.28	-46.56	-62.80	1764523.13	14605433.30	40°12'54.962"N	80°33'19.602"W	78.18	233.449	1.11	0.68	-4.67
1451.00	12.670	234.390	1442.60	-5.46	-58.06	-78.10	1764507.84	14605421.81	40°12'54.849"N	80°33'19.799"W	97.32	233.375	1.81	1.70	3.03
1544.00	12.060	234.610	1533.44	-6.19	-69.62	-94.31	1764491.63	14605410.25	40°12'54.736"N	80°33'20.009"W	117.23	233.565	0.66	-0.66	0.24
1636.00	11.390	232.880	1623.52	-7.11	-80.67	-109.39	1764476.56	14605399.20	40°12'54.627"N	80°33'20.204"W	135.92	233.593	0.82	-0.73	-1.88
1686.00	10.690	229.570	1672.60	-7.99	-86.66	-116.86	1764469.10	14605393.22	40°12'54.568"N	80°33'20.301"W	145.49	233.441	1.89	-1.40	-6.62
1791.00	10.000	224.270	1775.89	-11.13	-99.50	-130.64	1764455.32	14605380.38	40°12'54.442"N	80°33'20.479"W	164.22	232.705	1.12	-0.66	-5.05
1822.00	10.210	221.590	1806.41	-12.41	-103.48	-134.34	1764451.62	14605376.40	40°12'54.403"N	80°33'20.527"W	169.58	232.392	1.66	0.68	-8.65
1912.00	13.820	225.020	1894.43	-16.63	-117.05	-147.24	1764438.73	14605362.83	40°12'54.270"N	80°33'20.695"W	188.10	231.516	4.09	4.01	3.81
2003.00	18.280	229.710	1981.86	-20.53	-133.97	-165.83	1764420.15	14605345.92	40°12'54.103"N	80°33'20.935"W	213.18	231.065	5.10	4.90	5.15
2093.00	21.020	233.740	2066.62	-23.02	-152.65	-189.61	1764396.37	14605327.25	40°12'53.920"N	80°33'21.243"W	243.43	231.164	3.39	3.04	4.48
2184.00	22.180	236.080	2151.23	-23.98	-171.89	-217.03	1764368.97	14605308.02	40°12'53.731"N	80°33'21.598"W	276.86	231.620	1.59	1.27	2.57
2277.00	22.450	235.290	2237.26	-24.54	-191.80	-246.19	1764339.81	14605288.12	40°12'53.536"N	80°33'21.975"W	312.09	232.079	0.43	0.29	-0.85
2370.00	22.590	234.960	2323.17	-25.45	-212.17	-275.42	1764310.60	14605267.76	40°12'53.336"N	80°33'22.353"W	347.66	232.391	0.20	0.15	-0.35
2462.00	22.040	238.860	2408.28	-25.27	-231.24	-304.66	1764281.37	14605248.69	40°12'53.149"N	80°33'22.731"W	382.48	232.801	1.72	-0.60	4.24

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Area	Brooke County, WV	Well	Worthley BRK 201H
Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (149 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]
2555.00	22.610	239.250	2494.31	-23.75	-249.40	-334.96	1764251.08	14605230.53	40°12'52.971"N	80°33'23.123"W	417.61	233.329	0.63	0.61	0.42
2648.00	23.600	234.970	2579.86	-23.45	-269.23	-365.57	1764220.48	14605210.71	40°12'52.777"N	80°33'23.519"W	454.01	233.629	2.10	1.06	-4.60
2741.00	22.800	237.200	2665.34	-23.78	-289.68	-395.96	1764190.10	14605190.27	40°12'52.576"N	80°33'23.912"W	490.61	233.811	1.28	-0.86	2.40
2833.00	23.120	237.290	2750.05	-23.37	-309.10	-426.14	1764159.93	14605170.86	40°12'52.386"N	80°33'24.302"W	526.44	234.045	0.35	0.35	0.10
2926.00	21.640	235.600	2836.04	-23.45	-328.65	-455.66	1764130.43	14605151.32	40°12'52.194"N	80°33'24.684"W	561.81	234.198	1.74	-1.59	-1.82
3019.00	20.490	240.040	2922.83	-22.76	-346.47	-483.91	1764102.19	14605133.50	40°12'52.019"N	80°33'25.049"W	595.16	234.398	2.11	-1.24	4.77
3112.00	20.750	239.720	3009.87	-20.88	-362.91	-512.24	1764073.87	14605117.07	40°12'51.858"N	80°33'25.415"W	627.77	234.684	0.30	0.28	-0.34
3204.00	21.910	237.450	3095.57	-19.74	-380.36	-540.78	1764045.34	14605099.63	40°12'51.687"N	80°33'25.784"W	661.15	234.879	1.55	1.26	-2.47
3294.00	22.680	233.990	3178.85	-20.27	-399.60	-568.98	1764017.16	14605080.40	40°12'51.498"N	80°33'26.149"W	695.28	234.919	1.69	0.86	-3.84
3383.00	21.320	234.610	3261.37	-21.61	-419.06	-596.05	1763990.09	14605060.95	40°12'51.307"N	80°33'26.499"W	728.61	234.890	1.55	-1.53	0.70
3476.00	19.870	237.810	3348.42	-21.86	-437.27	-623.21	1763962.94	14605042.74	40°12'51.129"N	80°33'26.850"W	761.31	234.945	1.97	-1.56	3.44
3569.00	19.490	235.210	3435.99	-21.89	-454.54	-649.32	1763936.84	14605025.48	40°12'50.959"N	80°33'27.188"W	792.61	235.007	1.03	-0.41	-2.80
3661.00	20.750	235.790	3522.38	-22.49	-472.46	-675.41	1763910.77	14605007.56	40°12'50.784"N	80°33'27.525"W	824.25	235.026	1.39	1.37	0.63
3754.00	20.190	235.920	3609.50	-22.91	-490.72	-702.32	1763883.86	14604989.31	40°12'50.605"N	80°33'27.874"W	856.77	235.058	0.60	-0.60	0.14
3847.00	20.520	236.710	3696.70	-23.06	-508.66	-729.24	1763856.95	14604971.38	40°12'50.429"N	80°33'28.222"W	889.11	235.104	0.46	0.35	0.85
3939.00	22.300	237.390	3782.34	-22.79	-526.92	-757.43	1763828.78	14604953.13	40°12'50.250"N	80°33'28.586"W	922.68	235.175	1.95	1.93	0.74
4032.00	21.280	236.300	3868.70	-22.62	-545.79	-786.33	1763799.88	14604934.26	40°12'50.064"N	80°33'28.960"W	957.18	235.236	1.18	-1.10	-1.17
4125.00	21.550	235.310	3955.28	-23.09	-564.87	-814.41	1763771.81	14604915.19	40°12'49.877"N	80°33'29.323"W	991.14	235.255	0.49	0.29	-1.06
4218.00	22.690	232.980	4041.43	-24.60	-585.39	-842.78	1763743.46	14604894.67	40°12'49.676"N	80°33'29.690"W	1026.14	235.216	1.55	1.23	-2.51
4310.00	22.120	231.720	4126.49	-27.19	-606.81	-870.55	1763715.70	14604873.27	40°12'49.466"N	80°33'30.049"W	1061.16	235.122	0.81	-0.62	-1.37
4403.00	22.830	233.780	4212.42	-29.56	-628.32	-898.85	1763687.41	14604851.77	40°12'49.254"N	80°33'30.415"W	1096.68	235.045	1.14	0.76	2.22
4496.00	22.740	237.720	4298.17	-30.09	-648.58	-928.60	1763657.67	14604831.51	40°12'49.056"N	80°33'30.800"W	1132.68	235.068	1.64	-0.10	4.24
4589.00	20.600	235.690	4384.60	-29.99	-667.40	-957.31	1763628.97	14604812.70	40°12'48.871"N	80°33'31.172"W	1167.00	235.117	2.44	-2.30	-2.18
4682.00	19.970	234.090	4471.83	-30.94	-685.94	-983.69	1763602.60	14604794.17	40°12'48.689"N	80°33'31.513"W	1199.23	235.111	0.90	-0.68	-1.72
4775.00	19.920	231.730	4559.25	-32.98	-705.07	-1008.99	1763577.31	14604775.05	40°12'48.501"N	80°33'31.840"W	1230.93	235.055	0.87	-0.05	-2.54
4868.00	21.490	231.180	4646.24	-35.93	-725.56	-1034.70	1763551.60	14604754.56	40°12'48.300"N	80°33'32.173"W	1263.74	234.961	1.70	1.69	-0.59
4960.00	22.730	235.860	4731.48	-37.74	-746.10	-1062.55	1763523.77	14604734.03	40°12'48.099"N	80°33'32.533"W	1298.34	234.924	2.34	1.35	5.09
5053.00	22.790	237.870	4817.24	-37.57	-765.76	-1092.67	1763493.66	14604714.37	40°12'47.906"N	80°33'32.923"W	1334.29	234.977	0.84	0.06	2.16
5146.00	21.920	235.950	4903.25	-37.36	-785.06	-1122.31	1763464.03	14604695.08	40°12'47.716"N	80°33'33.306"W	1369.64	235.027	1.22	-0.94	-2.06
5239.00	21.880	234.070	4989.54	-38.32	-804.95	-1150.72	1763435.63	14604675.20	40°12'47.521"N	80°33'33.673"W	1404.32	235.027	0.76	-0.04	-2.02

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Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (149 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]	
5331.00	23.120	231.490	5074.54	-40.68	-826.26	-1178.74	1763407.62	14604653.90	40°12'47.312"N	80°33'34.036"W	1439.49	234.971	1.72	1.35	-2.80	
5424.00	22.210	233.520	5160.36	-43.24	-848.08	-1207.16	1763379.21	14604632.09	40°12'47.098"N	80°33'34.404"W	1475.29	234.910	1.29	-0.98	2.18	
5470.00	21.410	241.810	5203.08	-42.94	-857.22	-1221.56	1763364.82	14604622.95	40°12'47.008"N	80°33'34.590"W	1492.32	234.941	6.91	-1.74	18.02	
5517.00	21.510	249.820	5246.83	-40.19	-864.24	-1237.21	1763349.18	14604615.93	40°12'46.940"N	80°33'34.792"W	1509.17	235.064	6.23	0.21	17.04	
5563.00	22.280	256.030	5289.51	-35.36	-869.26	-1253.59	1763332.80	14604610.92	40°12'46.891"N	80°33'35.003"W	1525.48	235.262	5.30	1.67	13.50	
5609.00	23.420	260.240	5331.91	-28.79	-872.91	-1271.06	1763315.34	14604607.26	40°12'46.856"N	80°33'35.229"W	1541.94	235.520	4.33	2.48	9.15	
5656.00	24.650	266.090	5374.84	-20.21	-875.17	-1290.05	1763296.36	14604605.01	40°12'46.834"N	80°33'35.474"W	1558.89	235.847	5.70	2.62	12.45	
5702.00	25.530	273.820	5416.51	-9.49	-875.16	-1309.52	1763276.90	14604605.02	40°12'46.835"N	80°33'35.725"W	1575.04	236.245	7.37	1.91	16.80	
5749.00	26.000	281.860	5458.85	3.96	-872.37	-1329.71	1763256.71	14604607.81	40°12'46.864"N	80°33'35.985"W	1590.33	236.733	7.50	1.00	17.11	
5795.00	26.930	289.390	5500.04	19.43	-866.83	-1349.41	1763237.02	14604613.34	40°12'46.920"N	80°33'36.238"W	1603.84	237.284	7.57	2.02	16.37	
5841.00	28.630	294.980	5540.74	37.12	-858.72	-1369.23	1763217.21	14604621.45	40°12'47.001"N	80°33'36.493"W	1616.23	237.906	6.76	3.70	12.15	
5888.00	31.450	297.140	5581.43	57.39	-848.37	-1390.35	1763196.09	14604631.80	40°12'47.104"N	80°33'36.765"W	1628.75	238.609	6.43	6.00	4.60	
5934.00	34.220	300.830	5620.08	79.49	-836.26	-1412.15	1763174.31	14604643.90	40°12'47.225"N	80°33'37.045"W	1641.19	239.366	7.43	6.02	8.02	
5981.00	36.050	304.220	5658.52	104.19	-821.71	-1434.93	1763151.53	14604658.45	40°12'47.370"N	80°33'37.338"W	1653.55	240.203	5.69	3.89	7.21	
6027.00	38.560	307.930	5695.11	130.30	-805.28	-1457.44	1763129.03	14604674.87	40°12'47.533"N	80°33'37.627"W	1665.11	241.078	7.32	5.46	8.07	
6073.00	40.780	310.210	5730.51	158.30	-786.77	-1480.22	1763106.26	14604693.38	40°12'47.717"N	80°33'37.919"W	1676.33	242.009	5.77	4.83	4.96	
6119.00	43.960	312.730	5764.50	188.22	-766.23	-1503.43	1763083.06	14604713.91	40°12'47.921"N	80°33'38.217"W	1687.43	242.994	7.84	6.91	5.48	
6166.00	46.620	313.320	5797.56	220.69	-743.44	-1527.85	1763058.65	14604736.69	40°12'48.148"N	80°33'38.530"W	1699.12	244.053	5.73	5.66	1.26	
6212.00	50.490	315.730	5828.00	254.40	-719.25	-1552.41	1763034.10	14604760.87	40°12'48.388"N	80°33'38.846"W	1710.93	245.141	9.28	8.41	5.24	
6259.00	55.610	317.350	5856.25	291.37	-691.98	-1578.22	1763008.30	14604788.12	40°12'48.659"N	80°33'39.176"W	1723.26	246.325	11.24	10.89	3.45	
6305.00	60.460	319.130	5880.60	329.97	-662.87	-1604.19	1762982.34	14604817.22	40°12'48.948"N	80°33'39.509"W	1735.75	247.549	11.04	10.54	3.87	
6351.00	64.300	323.220	5901.92	370.53	-631.12	-1629.71	1762956.83	14604848.96	40°12'49.263"N	80°33'39.836"W	1747.65	248.831	11.48	8.35	8.89	
6398.00	66.640	327.370	5921.44	413.26	-595.97	-1654.03	1762932.51	14604884.10	40°12'49.611"N	80°33'40.148"W	1758.13	250.185	9.45	4.98	8.83	
6444.00	69.750	332.330	5938.54	455.88	-559.05	-1675.46	1762911.10	14604921.00	40°12'49.977"N	80°33'40.421"W	1766.26	251.548	12.08	6.76	10.78	
6490.00	72.580	335.570	5953.39	499.05	-519.94	-1694.56	1762892.00	14604960.10	40°12'50.364"N	80°33'40.665"W	1772.53	252.942	9.07	6.15	7.04	
6537.00	76.320	338.460	5965.99	543.56	-478.27	-1712.23	1762874.34	14605001.76	40°12'50.777"N	80°33'40.890"W	1777.77	254.394	9.92	7.96	6.15	
6619.00	79.540	343.100	5983.14	621.26	-402.58	-1738.59	1762847.99	14605077.42	40°12'51.526"N	80°33'41.225"W	1784.59	256.963	6.78	3.93	5.66	
6712.00	83.550	344.980	5996.82	709.00	-314.15	-1763.87	1762822.72	14605165.81	40°12'52.401"N	80°33'41.545"W	1791.63	259.901	4.75	4.31	2.02	
6805.00	85.320	344.380	6005.83	796.98	-224.88	-1788.33	1762798.27	14605255.04	40°12'53.285"N	80°33'41.855"W	1802.41	262.833	2.01	1.90	-0.65	
6897.00	87.600	345.560	6011.51	884.11	-136.21	-1812.14	1762774.47	14605343.69	40°12'54.162"N	80°33'42.156"W	1817.25	265.701	2.79	2.48	1.28	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Worthley BRK 201H
Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (149 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]
6990.00	90.460	348.650	6013.09	971.18	-45.59	-1832.88	1762753.73	14605434.27	40°12'55.059"N	80°33'42.418"W	1833.45	268.575	4.53	3.08	3.32
7083.00	90.490	348.510	6012.32	1057.41	45.57	-1851.30	1762735.33	14605525.39	40°12'55.960"N	80°33'42.649"W	1851.86	271.410	0.15	0.03	-0.15
7175.00	90.370	348.010	6011.63	1142.91	135.64	-1870.02	1762716.61	14605615.43	40°12'56.851"N	80°33'42.885"W	1874.93	274.149	0.56	-0.13	-0.54
7268.00	90.430	345.500	6010.98	1230.20	226.16	-1891.32	1762695.32	14605705.91	40°12'57.747"N	80°33'43.154"W	1904.80	276.819	2.70	0.06	-2.70
7361.00	90.520	344.070	6010.21	1318.54	315.89	-1915.73	1762670.92	14605795.61	40°12'58.635"N	80°33'43.463"W	1941.60	279.363	1.54	0.10	-1.54
7453.00	90.520	344.810	6009.37	1406.11	404.52	-1940.41	1762646.25	14605884.20	40°12'59.512"N	80°33'43.775"W	1982.12	281.776	0.80	0.00	0.80
7546.00	90.460	346.740	6008.58	1493.94	494.66	-1963.26	1762623.41	14605974.31	40°13'00.404"N	80°33'44.064"W	2024.61	284.142	2.08	-0.06	2.08
7639.00	91.260	348.380	6007.18	1580.76	585.46	-1983.29	1762603.39	14606065.08	40°13'01.302"N	80°33'44.316"W	2067.90	286.446	1.96	0.86	1.76
7731.00	91.380	348.050	6005.06	1666.27	675.50	-2002.07	1762584.61	14606155.08	40°13'02.193"N	80°33'44.553"W	2112.96	288.644	0.38	0.13	-0.36
7824.00	91.290	346.290	6002.89	1753.30	766.15	-2022.72	1762563.97	14606245.69	40°13'03.089"N	80°33'44.813"W	2162.95	290.745	1.89	-0.10	-1.89
7916.00	91.260	344.360	6000.85	1840.40	855.12	-2046.02	1762540.68	14606334.63	40°13'03.970"N	80°33'45.108"W	2217.52	292.682	2.10	-0.03	-2.10
8009.00	91.290	338.810	5998.78	1930.18	943.30	-2075.38	1762511.33	14606422.78	40°13'04.842"N	80°33'45.481"W	2279.69	294.443	5.97	0.03	-5.97
8102.00	91.350	336.370	5996.63	2021.44	1029.25	-2110.82	1762475.90	14606508.69	40°13'05.694"N	80°33'45.932"W	2348.38	295.994	2.62	0.06	-2.62
8194.00	91.320	337.440	5994.49	2111.93	1113.85	-2146.90	1762439.84	14606593.26	40°13'06.531"N	80°33'46.392"W	2418.64	297.421	1.16	-0.03	1.16
8287.00	91.390	337.250	5992.29	2203.27	1199.65	-2182.71	1762404.04	14606679.03	40°13'07.381"N	80°33'46.848"W	2490.66	298.794	0.22	0.08	-0.20
8380.00	91.320	333.670	5990.09	2295.11	1284.21	-2221.32	1762365.45	14606763.56	40°13'08.218"N	80°33'47.340"W	2565.82	300.034	3.85	-0.08	-3.85
8472.00	91.350	334.200	5987.95	2386.33	1366.83	-2261.73	1762325.05	14606846.15	40°13'09.037"N	80°33'47.856"W	2642.66	301.146	0.58	0.03	0.58
8565.00	91.260	338.640	5985.83	2477.92	1452.02	-2298.91	1762287.88	14606931.31	40°13'09.880"N	80°33'48.330"W	2719.08	302.277	4.77	-0.10	4.77
8657.00	91.260	342.470	5983.80	2567.17	1538.74	-2329.53	1762257.28	14607017.99	40°13'10.739"N	80°33'48.719"W	2791.85	303.446	4.16	0.00	4.16
8750.00	91.290	345.680	5981.73	2655.83	1628.14	-2355.04	1762231.78	14607107.35	40°13'11.624"N	80°33'49.042"W	2863.04	304.658	3.45	0.03	3.45
8843.00	90.550	350.320	5980.24	2742.38	1719.07	-2374.36	1762212.46	14607198.25	40°13'12.523"N	80°33'49.286"W	2931.35	305.905	5.05	-0.80	4.99
8935.00	90.800	354.740	5979.16	2825.09	1810.26	-2386.32	1762200.51	14607289.40	40°13'13.425"N	80°33'49.434"W	2995.25	307.184	4.81	0.27	4.80
9028.00	90.920	354.210	5977.76	2907.28	1902.81	-2395.27	1762191.56	14607381.93	40°13'14.340"N	80°33'49.544"W	3059.09	308.464	0.58	0.13	-0.57
9121.00	90.800	350.430	5976.36	2991.03	1994.95	-2407.70	1762179.14	14607474.03	40°13'15.251"N	80°33'49.698"W	3126.79	309.644	4.07	-0.13	-4.06
9214.00	91.630	344.730	5974.39	3077.80	2085.72	-2427.69	1762159.16	14607564.76	40°13'16.149"N	80°33'49.950"W	3200.61	310.667	6.19	0.89	-6.13
9306.00	90.430	341.360	5972.74	3166.01	2173.69	-2454.51	1762132.35	14607652.70	40°13'17.019"N	80°33'50.290"W	3278.65	311.528	3.89	-1.30	-3.66
9399.00	90.460	337.620	5972.01	3256.64	2260.78	-2487.08	1762099.78	14607739.75	40°13'17.882"N	80°33'50.705"W	3361.06	312.271	4.02	0.03	-4.02
9492.00	90.400	338.820	5971.32	3347.73	2347.13	-2521.59	1762065.29	14607826.07	40°13'18.737"N	80°33'51.144"W	3444.92	312.948	1.29	-0.06	1.29
9584.00	90.430	341.720	5970.65	3437.11	2433.72	-2552.64	1762034.25	14607912.63	40°13'19.594"N	80°33'51.539"W	3526.90	313.634	3.15	0.03	3.15
9677.00	90.400	342.080	5969.98	3526.80	2522.12	-2581.54	1762005.37	14608000.99	40°13'20.469"N	80°33'51.906"W	3609.07	314.333	0.39	-0.03	0.39

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Actual Wellpath Report

Worthley BRK 201H AWP Proj: 12314'MD
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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Worthley BRK 201H
Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

WELLPATH DATA (149 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]
9770.00	90.520	339.670	5969.23	3616.92	2609.98	-2612.00	1761974.91	14608088.81	40°13'21.338"N	80°33'52.293"W	3692.50	314.978	2.59	0.13	-2.59
9863.00	90.550	341.060	5968.36	3707.24	2697.56	-2643.25	1761943.68	14608176.37	40°13'22.205"N	80°33'52.690"W	3776.72	315.583	1.49	0.03	1.49
9955.00	90.430	339.190	5967.57	3796.68	2784.07	-2674.53	1761912.41	14608262.85	40°13'23.062"N	80°33'53.088"W	3860.59	316.150	2.04	-0.13	-2.03
10048.00	90.460	338.450	5966.85	3887.56	2870.79	-2708.12	1761878.83	14608349.53	40°13'23.920"N	80°33'53.515"W	3946.56	316.670	0.80	0.03	-0.80
10141.00	90.370	343.050	5966.18	3977.71	2958.56	-2738.78	1761848.19	14608437.27	40°13'24.789"N	80°33'53.905"W	4031.62	317.209	4.95	-0.10	4.95
10234.00	90.460	343.490	5965.50	4066.79	3047.62	-2765.55	1761821.43	14608526.30	40°13'25.671"N	80°33'54.245"W	4115.37	317.778	0.48	0.10	0.47
10327.00	90.430	344.650	5964.78	4155.49	3137.05	-2791.07	1761795.91	14608615.69	40°13'26.555"N	80°33'54.568"W	4198.95	318.340	1.25	-0.03	1.25
10419.00	90.460	345.350	5964.07	4242.78	3225.91	-2814.88	1761772.11	14608704.51	40°13'27.435"N	80°33'54.869"W	4281.36	318.893	0.76	0.03	0.76
10512.00	90.430	346.610	5963.34	4330.50	3316.14	-2837.41	1761749.59	14608794.70	40°13'28.327"N	80°33'55.154"W	4364.36	319.448	1.36	-0.03	1.35
10605.00	90.340	347.530	5962.72	4417.62	3406.77	-2858.22	1761728.79	14608885.31	40°13'29.224"N	80°33'55.417"W	4446.97	320.004	0.99	-0.10	0.99
10698.00	90.400	347.930	5962.12	4504.36	3497.65	-2877.98	1761709.03	14608976.15	40°13'30.123"N	80°33'55.666"W	4529.50	320.551	0.43	0.06	0.43
10791.00	90.830	348.400	5961.12	4590.84	3588.67	-2897.06	1761689.97	14609067.13	40°13'31.023"N	80°33'55.906"W	4612.10	321.087	0.68	0.46	0.51
10883.00	90.830	349.240	5959.79	4675.99	3678.91	-2914.89	1761672.14	14609157.34	40°13'31.916"N	80°33'56.130"W	4693.72	321.609	0.91	0.00	0.91
10976.00	90.710	348.050	5958.54	4762.18	3770.08	-2933.20	1761653.84	14609248.47	40°13'32.818"N	80°33'56.360"W	4776.73	322.116	1.29	-0.13	-1.28
11069.00	90.800	346.680	5957.31	4849.12	3860.82	-2953.54	1761633.51	14609339.18	40°13'33.716"N	80°33'56.617"W	4861.00	322.584	1.48	0.10	-1.47
11161.00	90.650	343.880	5956.15	4936.25	3949.78	-2976.91	1761610.14	14609428.11	40°13'34.596"N	80°33'56.913"W	4945.99	322.995	3.05	-0.16	-3.04
11254.00	90.740	339.690	5955.02	5025.98	4038.10	-3005.98	1761581.09	14609516.39	40°13'35.470"N	80°33'57.282"W	5034.09	323.336	4.51	0.10	-4.51
11347.00	90.740	340.460	5953.82	5116.40	4125.52	-3037.67	1761549.41	14609603.78	40°13'36.335"N	80°33'57.685"W	5123.22	323.635	0.83	0.00	0.83
11439.00	90.680	341.470	5952.68	5205.52	4212.48	-3067.67	1761519.42	14609690.70	40°13'37.196"N	80°33'58.066"W	5211.10	323.937	1.10	-0.07	1.10
11532.00	90.770	343.250	5951.50	5295.01	4301.10	-3095.85	1761491.25	14609779.29	40°13'38.073"N	80°33'58.424"W	5299.41	324.254	1.92	0.10	1.91
11625.00	90.680	341.840	5950.33	5384.41	4389.81	-3123.74	1761463.37	14609867.96	40°13'38.951"N	80°33'58.778"W	5387.78	324.565	1.52	-0.10	-1.52
11718.00	90.550	340.950	5949.33	5474.32	4477.94	-3153.41	1761433.71	14609956.06	40°13'39.823"N	80°33'59.155"W	5476.86	324.846	0.97	-0.14	-0.96
11810.00	90.430	343.700	5948.54	5562.86	4565.59	-3181.34	1761405.80	14610043.67	40°13'40.691"N	80°33'59.509"W	5564.66	325.131	2.99	-0.13	2.99
11903.00	90.310	344.300	5947.94	5651.60	4654.98	-3206.97	1761380.17	14610133.03	40°13'41.576"N	80°33'59.834"W	5652.74	325.436	0.66	-0.13	0.65
11996.00	90.370	345.310	5947.39	5739.93	4744.73	-3231.35	1761355.81	14610222.75	40°13'42.464"N	80°34'00.143"W	5740.56	325.744	1.09	0.06	1.09
12089.00	90.310	343.540	5946.84	5828.46	4834.31	-3256.32	1761330.85	14610312.29	40°13'43.350"N	80°34'00.459"W	5828.73	326.036	1.90	-0.06	-1.90
12181.00	90.340	341.940	5946.31	5916.83	4922.16	-3283.61	1761303.56	14610400.11	40°13'44.219"N	80°34'00.805"W	5916.90	326.292	1.74	0.03	-1.74
12274.00	90.370	341.670	5945.74	6006.56	5010.51	-3312.65	1761274.53	14610488.42	40°13'45.094"N	80°34'01.174"W	6006.57	326.530	0.29	0.03	-0.29
12314.00	90.370	341.670	5945.48	6045.19	5048.48	-3325.23	1761261.96	14610526.38	40°13'45.470"N	80°34'01.334"W	6045.19	326.629	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: Worthley BRK 201H AWB Ref Wellpath: Worthley BRK 201H AWP Proj: 12314'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]
20in Conductor	26.00	380.00	354.00	26.00	379.99	0.00	0.00	0.05	2.32

HOLE & CASING SECTIONS - Ref Wellbore: Worthley BRK 201H AWB Ref Wellpath: Worthley BRK 201H AWP Proj: 12314'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]
17.5in Open Hole	380.00	592.00	212.00	379.99	591.98	0.05	2.32	-0.28	4.56
13.375in Casing	26.00	592.00	566.00	26.00	591.98	0.00	0.00	-0.28	4.56
12.25in Open Hole	592.00	1758.00	1166.00	591.98	1743.40	-0.28	4.56	-95.42	-126.53
9.625in Casing	26.00	1758.00	1732.00	26.00	1743.40	0.00	0.00	-95.42	-126.53
8.75in Open Hole	1758.00	6625.00	4867.00	1743.40	5984.22	-95.42	-126.53	-396.93	-1740.30
8.5in Open Hole	6625.00	12314.00	5689.00	5984.22	5945.48	-396.93	-1740.30	5048.48	-3325.23

TARGETS									
Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape	
Worthley BRK 201H BHL Rev-2	5957.71	5059.28	-3336.85	1761250.35	14610537.18	40°13'45.577"N	80°34'01.483"W	point	
Worthley BRK 201H LP Rev-3	6013.00	-24.20	-1815.60	1762771.01	14605455.65	40°12'55.269"N	80°33'42.194"W	point	

WELLPATH COMPOSITION - Ref Wellbore: Worthley BRK 201H AWB Ref Wellpath: Worthley BRK 201H AWP Proj: 12314'MD					
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	
26.00	6537.00	OWSG MWD rev2 - Standard	01_Premier MWD <8.75">(163'-6537')	Worthley BRK 201H AWB	
6537.00	12274.00	BHI AutoTrak Curve (Short)	02_BH AT Curve <8.5">(6619'-12274')	Worthley BRK 201H AWB	
12274.00	12314.00	Blind Drilling (std)	Projection to bit	Worthley BRK 201H AWB	

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REFERENCE WELLPATH IDENTIFICATION			
Operator	SOUTHWESTERN ENERGY	Slot	Slot #201H
Area	Brooke County, WV	Well	Worthley BRK 201H
Field	Brooke	Wellbore	Worthley BRK 201H AWB
Facility	Worthley BRK Pad		

COMMENTS
<p>Wellpath general comments API: 47-009-00226-0000 BH Job #: 9217345 Rig: SDC 41 Duration: 06/20/2018 - 06/21/2018</p>