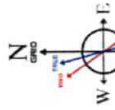


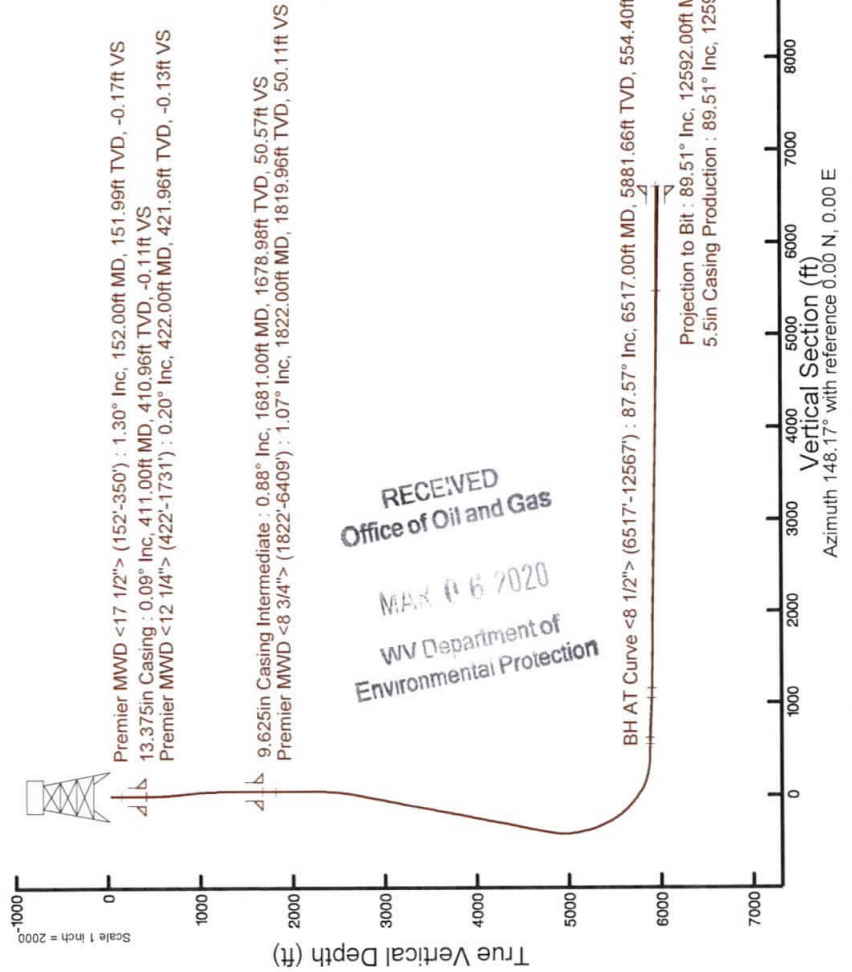
SOUTHWESTERN ENERGY

Location: Brooke County, WV
 Slot: Slot #10
 Well: Linda Greathouse BRK 10H
 Field: Brooke
 Facility: Linda Greathouse BRK PadWellbores: Linda Greathouse BRK 10H PWB

Plot reference wellpath is Linda Greathouse BRK 10H PWP Rev-A.0	Grid System: NAD83 / UTM Zone 17 North, US feet
True vertical depths are referenced to SDC 41 (KB)	North Reference: Grid north
Measured depths are referenced to SDC 41 (KB)	Scale: True distance
SDC 41 (KB) to Mean Sea Level: 1165.2 feet	Depths are in feet
Mean Sea Level to Ground level (At Slot: Slot #10): -1139.2 feet	Created by: atenjen on 2019-10-23
Coordinates are in feet referenced to Slot	Database: WA_MPL_EASTERNUS_Defn



User specified Dip: 67.47° Field: 52460 nT
 Magnetic North is 8.20 degrees West of True North (at 21/Oct/2019)
 Grid North is 0.25 degrees East of True North
 To correct azimuth from True to Grid subtract 8.45 degrees
 To correct azimuth from Magnetic to Grid subtract 8.45 degrees



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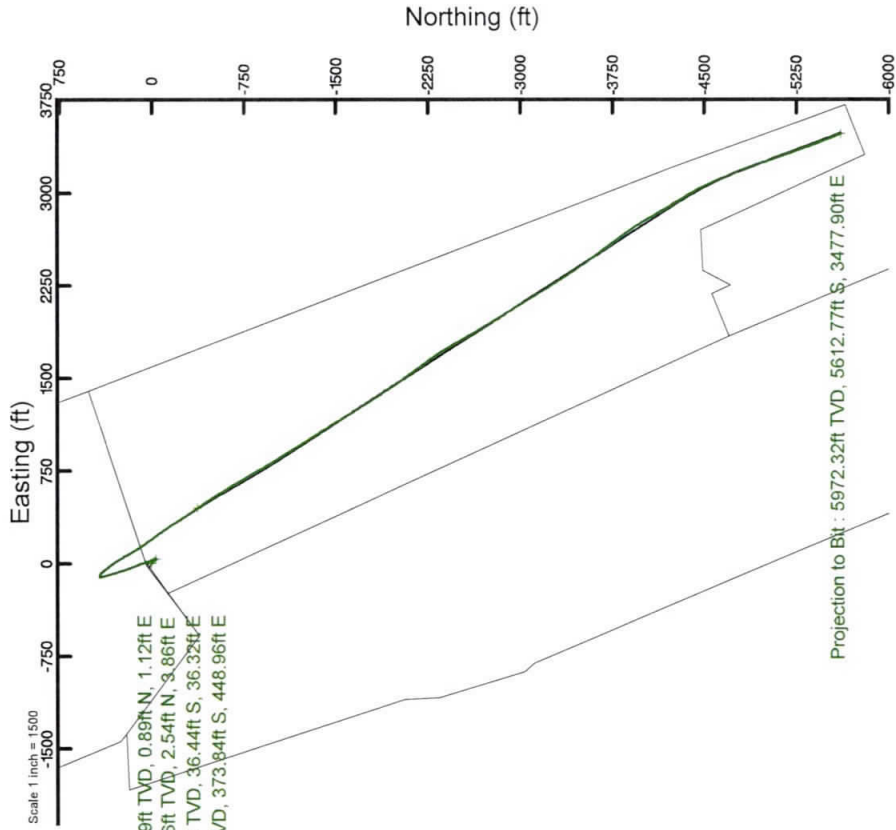
Location Information

Facility Name	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
Linda Greathouse BRK Pad	1750140.330	14601304.930	40°12'14.82"1"N	80°36'25.304"W
Slot	Local N (ft)	Local E (ft)	Grid North (US ft)	Grid North (US ft)
Slot #10	-23.44	34.29	1750174.607	14601281.502
Slot #10			40°12'14.588"N	80°36'24.864"W

Comment: slot 3 on plat
 SDC 41 (KB) to Ground level (At Slot: Slot #10) : 26ft
 Mean Sea Level to Ground level (At Slot: Slot #10) : -1139.2ft
 SDC 41 (KB) to Mean Sea Level : 1165.2ft

Comments

API: 47-009-00274-0000
 BH Job #: 110060931A
 Rig: SDC 41
 Duration: 10/21/2019 - 10/23/2019



Projection to Bit : 89.51° Inc, 12592.00ft MD, 5972.32ft TVD, 6602.95ft VS
 5.5in Casing Production : 89.51° Inc, 12592.00ft MD, 5972.32ft TVD, 6602.95ft VS

Scale 1 inch = 2000

Vertical Section (ft)
 Azimuth 148.17° with reference 0.00 N, 0.00 E

REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

REPORT SETUP INFORMATION

Projection System	NAD83 / UTM Zone 17 North, US feet	Software System	WellArchitect® 5.1
North Reference	Grid	User	Atenjen
Scale	0.999614	Report Generated	10/23/2019 at 2:46:49 PM
Convergence at slot	0.25° East	Database/Source file	WA_MPL_EASTERNUUS_Defn/Linda_Greathouse_BRK_10H_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	-23.44	34.29	1750174.61	14601281.50	40°12'14.588"N	80°36'24.864"W
Facility Reference Pt			1750140.33	14601304.93	40°12'14.821"N	80°36'25.304"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 (KB) to Facility Vertical Datum	1165.20ft
Horizontal Reference Pt	Slot	SDC 41 (KB) to Mean Sea Level	1165.20ft
Vertical Reference Pt	SDC 41 (KB)	SDC 41 (KB) to Ground Level at Slot (Slot #10)	26.00ft
MD Reference Pt	SDC 41 (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	148.17°

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (144 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	51.440	0.00	0.00	0.00	0.00	1750174.61	14601281.50	40°12'14.588"N	80°36'24.864"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	51.440	26.00	0.00	0.00	0.00	1750174.61	14601281.50	40°12'14.588"N	80°36'24.864"W	0.00	0.000	0.00	0.00	0.00
152.00	1.300	51.440	151.99	-0.17	0.89	1.12	1750175.72	14601282.39	40°12'14.597"N	80°36'24.849"W	1.43	51.440	1.03	1.03	40.83
213.00	1.080	51.920	212.98	-0.31	1.68	2.11	1750176.72	14601283.18	40°12'14.605"N	80°36'24.836"W	2.70	51.542	0.36	-0.36	0.79
303.00	0.600	68.220	302.97	-0.32	2.37	3.22	1750177.82	14601283.88	40°12'14.611"N	80°36'24.822"W	4.00	53.561	0.59	-0.53	18.11
350.00	0.520	82.770	349.96	-0.19	2.49	3.66	1750178.26	14601283.99	40°12'14.613"N	80°36'24.817"W	4.43	55.715	0.35	-0.17	30.96
422.00	0.200	273.480	421.96	-0.13	2.54	3.86	1750178.46	14601284.04	40°12'14.613"N	80°36'24.814"W	4.62	56.604	1.00	-0.44	-235.13
512.00	0.950	130.610	511.96	0.49	2.07	4.26	1750178.87	14601283.57	40°12'14.608"N	80°36'24.809"W	4.74	64.158	1.24	0.83	-158.74
603.00	3.390	139.420	602.89	3.87	-0.47	6.59	1750181.19	14601281.03	40°12'14.583"N	80°36'24.779"W	6.60	94.074	2.70	2.68	9.68
695.00	4.900	132.120	694.64	10.34	-5.17	11.27	1750185.87	14601276.33	40°12'14.537"N	80°36'24.719"W	12.40	114.641	1.74	1.64	-7.93
788.00	5.920	132.140	787.23	18.76	-11.05	17.77	1750192.37	14601270.45	40°12'14.478"N	80°36'24.635"W	20.93	121.874	1.10	1.10	0.02
881.00	5.450	140.810	879.77	27.75	-17.69	24.12	1750198.72	14601263.82	40°12'14.412"N	80°36'24.554"W	29.92	126.260	1.05	-0.51	9.32
974.00	5.000	161.710	972.40	36.08	-24.97	28.19	1750202.78	14601256.55	40°12'14.340"N	80°36'24.502"W	37.65	131.533	2.09	-0.48	22.47
1066.00	3.300	176.810	1064.15	42.30	-31.42	29.59	1750204.19	14601250.10	40°12'14.276"N	80°36'24.484"W	43.16	136.714	2.18	-1.85	16.41
1159.00	2.240	168.950	1157.04	46.35	-35.87	30.09	1750204.68	14601245.64	40°12'14.232"N	80°36'24.478"W	46.82	140.012	1.21	-1.14	-8.45
1251.00	1.010	160.090	1249.01	48.82	-38.40	30.71	1750205.30	14601243.12	40°12'14.207"N	80°36'24.470"W	49.17	141.350	1.36	-1.34	-9.63
1344.00	0.430	89.500	1342.00	49.80	-39.17	31.34	1750205.93	14601242.35	40°12'14.200"N	80°36'24.462"W	50.16	141.338	1.03	-0.62	-75.90
1437.00	0.550	69.990	1435.00	50.08	-39.01	32.11	1750206.70	14601242.51	40°12'14.201"N	80°36'24.452"W	50.52	140.547	0.22	0.13	-20.98
1530.00	0.460	90.890	1527.99	50.37	-38.86	32.90	1750207.49	14601242.65	40°12'14.203"N	80°36'24.442"W	50.92	139.753	0.22	-0.10	22.47
1622.00	0.850	60.410	1619.99	50.60	-38.53	33.86	1750208.45	14601242.98	40°12'14.206"N	80°36'24.430"W	51.30	138.693	0.55	0.42	-33.13
1731.00	0.910	46.020	1728.97	50.45	-37.53	35.19	1750209.78	14601243.98	40°12'14.216"N	80°36'24.412"W	51.45	136.848	0.21	0.06	-13.20
1822.00	1.070	45.820	1819.96	50.11	-36.44	36.32	1750210.91	14601245.08	40°12'14.226"N	80°36'24.398"W	51.45	135.097	0.18	0.18	-0.22
1913.00	0.990	46.260	1910.94	49.77	-35.30	37.49	1750212.09	14601246.21	40°12'14.238"N	80°36'24.383"W	51.50	133.277	0.09	-0.09	0.48
2006.00	1.030	62.590	2003.93	49.67	-34.36	38.82	1750213.41	14601247.15	40°12'14.247"N	80°36'24.366"W	51.84	131.518	0.31	0.04	17.56
2098.00	0.890	37.850	2095.92	49.48	-33.42	39.99	1750214.58	14601248.10	40°12'14.256"N	80°36'24.350"W	52.11	129.886	0.47	-0.15	-26.89
2190.00	1.070	59.110	2187.90	49.25	-32.41	41.16	1750215.75	14601249.10	40°12'14.266"N	80°36'24.335"W	52.39	128.218	0.44	0.20	23.11
2283.00	1.210	47.630	2280.89	49.08	-31.31	42.63	1750217.22	14601250.21	40°12'14.277"N	80°36'24.316"W	52.89	126.289	0.29	0.15	-12.34
2376.00	2.970	337.540	2373.83	46.53	-28.42	42.44	1750217.03	14601253.10	40°12'14.305"N	80°36'24.318"W	51.07	123.806	3.01	1.89	-75.37
2468.00	5.380	325.700	2465.58	39.86	-22.65	39.10	1750213.69	14601258.86	40°12'14.363"N	80°36'24.361"W	45.18	120.085	2.77	2.62	-12.87
2560.00	7.040	333.120	2557.04	29.94	-14.06	34.12	1750208.71	14601267.45	40°12'14.448"N	80°36'24.425"W	36.90	112.394	2.00	1.80	8.07

Actual Wellpath Report

Linda Greathouse BRK 10H AWP Proj: 12592'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (144 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]
2653.00	9.120	336.130	2649.11	16.96	-2.23	28.56	1750203.15	14601279.27	40°12'14.565"N	80°36'24.496"W	28.65	94.472	2.28	2.24	3.24
2744.00	10.690	339.910	2738.76	1.55	12.29	22.74	1750197.34	14601293.79	40°12'14.709"N	80°36'24.570"W	25.85	61.612	1.87	1.73	4.15
2837.00	12.160	342.480	2829.91	-16.39	29.73	16.83	1750191.43	14601311.22	40°12'14.881"N	80°36'24.645"W	34.16	29.510	1.67	1.58	2.76
2930.00	11.660	341.180	2920.91	-35.03	47.97	10.85	1750185.45	14601329.45	40°12'15.062"N	80°36'24.721"W	49.18	12.743	0.61	-0.54	-1.40
3022.00	10.370	339.060	3011.21	-52.22	64.50	4.89	1750179.49	14601345.98	40°12'15.225"N	80°36'24.797"W	64.69	4.335	1.47	-1.40	-2.30
3115.00	10.920	339.690	3102.61	-69.07	80.58	-1.16	1750173.45	14601362.05	40°12'15.384"N	80°36'24.874"W	80.59	359.175	0.60	0.59	0.68
3208.00	11.760	338.010	3193.79	-87.04	97.63	-7.77	1750166.84	14601379.09	40°12'15.553"N	80°36'24.958"W	97.94	355.452	0.97	0.90	-1.81
3301.00	10.780	335.510	3285.00	-105.01	114.33	-14.92	1750159.69	14601395.79	40°12'15.719"N	80°36'25.050"W	115.30	352.565	1.18	-1.05	-2.69
3393.00	10.210	341.130	3375.46	-121.49	129.88	-21.12	1750153.49	14601411.33	40°12'15.872"N	80°36'25.129"W	131.59	350.762	1.27	-0.62	6.11
3486.00	10.740	342.790	3466.91	-137.91	145.96	-26.35	1750148.26	14601427.40	40°12'16.032"N	80°36'25.195"W	148.32	349.765	0.66	0.57	1.78
3579.00	11.670	342.380	3558.14	-155.41	163.20	-31.77	1750142.85	14601444.64	40°12'16.202"N	80°36'25.264"W	166.26	348.986	1.00	1.00	-0.44
3671.00	10.360	338.620	3648.44	-172.56	179.77	-37.60	1750137.02	14601461.20	40°12'16.366"N	80°36'25.338"W	183.66	348.187	1.62	-1.42	-4.09
3764.00	10.840	338.920	3739.86	-189.38	195.72	-43.79	1750130.83	14601477.14	40°12'16.524"N	80°36'25.417"W	200.56	347.388	0.52	0.52	0.32
3857.00	11.760	339.580	3831.05	-207.26	212.76	-50.24	1750124.38	14601494.18	40°12'16.693"N	80°36'25.499"W	218.61	346.713	1.00	0.99	0.71
3950.00	12.010	343.640	3922.06	-225.88	230.92	-56.28	1750118.35	14601512.34	40°12'16.873"N	80°36'25.576"W	237.68	346.304	0.94	0.27	4.37
4042.00	10.820	342.640	4012.24	-243.46	248.35	-61.55	1750113.08	14601529.76	40°12'17.045"N	80°36'25.643"W	255.86	346.081	1.31	-1.29	-1.09
4134.00	11.060	338.890	4102.57	-260.50	284.83	-67.30	1750107.33	14601546.23	40°12'17.208"N	80°36'25.716"W	273.24	345.741	0.82	0.26	-4.08
4226.00	11.880	343.190	4192.73	-278.31	282.12	-73.22	1750101.41	14601563.52	40°12'17.379"N	80°36'25.791"W	291.47	345.451	1.29	0.89	4.67
4319.00	11.480	344.460	4283.81	-296.44	300.20	-78.47	1750096.17	14601581.59	40°12'17.558"N	80°36'25.858"W	310.29	345.352	0.51	-0.43	1.37
4412.00	11.700	345.400	4374.91	-314.33	318.25	-83.32	1750091.31	14601599.62	40°12'17.737"N	80°36'25.920"W	328.97	345.328	0.31	0.24	1.01
4503.00	12.360	344.710	4463.91	-332.48	336.57	-88.22	1750086.42	14601617.94	40°12'17.918"N	80°36'25.982"W	347.94	345.312	0.74	0.73	-0.76
4596.00	11.540	341.950	4554.90	-351.06	355.02	-93.73	1750080.92	14601636.38	40°12'18.100"N	80°36'26.051"W	367.18	345.211	1.07	-0.88	-2.97
4689.00	11.940	348.170	4645.95	-369.13	373.28	-98.58	1750076.06	14601654.63	40°12'18.281"N	80°36'26.113"W	386.07	345.206	1.43	0.43	6.69
4782.00	11.020	346.890	4737.09	-386.59	391.35	-102.57	1750072.08	14601672.70	40°12'18.460"N	80°36'26.163"W	404.57	345.314	1.03	-0.99	-1.38
4874.00	10.240	343.600	4827.51	-402.80	407.76	-106.87	1750067.78	14601689.10	40°12'18.622"N	80°36'26.212"W	421.53	345.313	1.07	-0.85	-3.58
4967.00	4.930	17.350	4919.71	-413.40	419.52	-108.02	1750066.63	14601700.86	40°12'18.738"N	80°36'26.232"W	433.20	345.561	7.22	-5.71	36.29
5060.00	8.000	102.890	5012.28	-411.45	421.89	-100.50	1750074.15	14601703.23	40°12'18.762"N	80°36'26.135"W	433.70	346.601	9.74	3.30	91.98
5152.00	12.500	120.660	5102.81	-398.11	415.38	-85.68	1750088.96	14601696.72	40°12'18.697"N	80°36'25.944"W	424.13	348.345	5.92	4.89	19.32
5245.00	15.130	137.000	5193.14	-377.26	401.37	-68.74	1750105.89	14601682.71	40°12'18.557"N	80°36'25.727"W	407.21	350.281	5.03	2.83	17.57
5337.00	19.160	143.230	5281.04	-350.43	380.48	-51.51	1750123.12	14601661.84	40°12'18.350"N	80°36'25.506"W	383.95	352.291	4.81	4.38	6.77

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (144 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]
5430.00	22.880	143.730	5367.84	-317.19	353.67	-31.67	1750142.95	14601635.03	40°12'18.084"N	80°36'25.252"W	355.08	354.883	4.00	4.00	0.54
5523.00	28.670	141.760	5451.55	-276.96	321.54	-7.14	1750167.47	14601602.92	40°12'17.766"N	80°36'24.937"W	321.62	358.728	6.29	6.23	-2.12
5614.00	34.510	149.100	5529.06	-229.43	282.23	19.64	1750194.24	14601563.62	40°12'17.376"N	80°36'24.595"W	282.91	3.981	7.67	6.42	8.07
5707.00	43.080	150.610	5601.48	-171.25	231.86	48.81	1750223.40	14601513.27	40°12'16.877"N	80°36'24.221"W	236.94	11.888	9.27	9.22	1.62
5800.00	47.860	150.560	5666.68	-105.03	174.13	81.37	1750255.94	14601455.56	40°12'16.305"N	80°36'23.805"W	192.20	25.047	5.14	5.14	-0.06
5893.00	52.660	147.520	5726.13	-33.56	112.87	118.20	1750292.76	14601394.33	40°12'15.698"N	80°36'23.334"W	163.44	46.322	5.74	5.16	-3.26
5986.00	57.160	144.560	5779.58	42.45	49.81	160.74	1750335.28	14601331.29	40°12'15.073"N	80°36'22.789"W	168.28	72.782	5.49	4.84	-3.18
6032.00	60.440	143.410	5803.41	81.69	17.99	183.87	1750358.41	14601299.49	40°12'14.758"N	80°36'22.493"W	184.75	84.411	7.44	7.13	-2.50
6079.00	67.090	143.430	5824.18	123.68	-15.84	208.98	1750383.51	14601265.67	40°12'14.422"N	80°36'22.171"W	209.58	94.334	14.13	14.13	0.04
6125.00	72.370	144.120	5840.11	166.68	-50.64	234.47	1750408.99	14601230.88	40°12'14.077"N	80°36'21.845"W	239.88	102.187	11.59	11.50	1.50
6171.00	75.780	145.410	5852.73	210.83	-86.77	259.98	1750434.49	14601194.77	40°12'13.719"N	80°36'21.518"W	274.08	108.456	7.89	7.41	2.80
6216.00	78.580	146.130	5862.72	254.67	-123.04	284.66	1750459.16	14601158.51	40°12'13.360"N	80°36'21.202"W	310.11	113.376	6.41	6.22	1.60
6263.00	80.890	147.020	5871.09	300.89	-161.64	310.13	1750484.62	14601119.93	40°12'12.977"N	80°36'20.876"W	349.73	117.528	5.26	4.91	1.89
6309.00	86.760	147.880	5876.04	346.60	-200.17	334.73	1750509.20	14601081.41	40°12'12.595"N	80°36'20.561"W	390.01	120.880	12.90	12.76	1.87
6356.00	89.230	148.240	5877.68	393.57	-240.03	359.57	1750534.04	14601041.57	40°12'12.200"N	80°36'20.243"W	432.33	123.724	5.31	5.26	0.77
6409.00	89.050	146.580	5878.48	446.56	-284.68	388.12	1750562.57	14600996.94	40°12'11.758"N	80°36'19.878"W	481.33	126.259	3.15	-0.34	-3.13
6517.00	87.570	144.800	5881.66	554.40	-373.84	448.96	1750623.39	14600907.81	40°12'10.874"N	80°36'19.099"W	584.23	129.783	2.14	-1.37	-1.65
6609.00	87.600	146.530	5885.54	646.23	-449.74	500.80	1750675.22	14600831.94	40°12'10.122"N	80°36'18.435"W	673.10	131.925	1.88	0.03	1.88
6702.00	87.690	148.760	5889.36	739.14	-528.23	550.53	1750724.92	14600753.48	40°12'09.344"N	80°36'17.799"W	762.96	133.816	2.40	0.10	2.40
6795.00	87.690	149.150	5893.11	832.06	-607.84	598.45	1750772.83	14600673.90	40°12'08.555"N	80°36'17.186"W	853.00	135.446	0.42	0.00	0.42
6887.00	87.260	149.250	5897.16	923.95	-686.79	645.51	1750819.87	14600594.98	40°12'07.773"N	80°36'16.584"W	942.53	136.775	0.48	-0.47	0.11
6979.00	88.950	150.580	5900.21	1015.85	-766.35	691.60	1750865.94	14600515.45	40°12'06.985"N	80°36'15.994"W	1032.28	137.935	2.34	1.84	1.45
7072.00	89.010	149.860	5901.86	1108.78	-847.05	737.79	1750912.11	14600434.78	40°12'06.185"N	80°36'15.404"W	1123.31	138.944	0.78	0.06	-0.77
7164.00	89.110	149.900	5903.37	1200.73	-926.62	783.95	1750958.25	14600355.24	40°12'05.397"N	80°36'14.814"W	1213.75	139.768	0.12	0.11	0.04
7257.00	88.890	148.340	5904.99	1293.70	-1006.42	831.67	1751005.95	14600275.47	40°12'04.606"N	80°36'14.203"W	1305.59	140.431	1.69	-0.24	-1.68
7345.00	88.770	147.750	5906.79	1381.68	-1081.07	878.23	1751052.50	14600200.85	40°12'03.867"N	80°36'13.607"W	1392.84	140.911	0.68	-0.14	-0.67
7438.00	88.710	149.590	5908.04	1474.65	-1160.49	926.58	1751100.82	14600121.47	40°12'03.080"N	80°36'12.989"W	1485.02	141.395	1.98	-0.06	1.98
7531.00	88.710	148.060	5910.93	1567.61	-1240.03	974.70	1751148.93	14600041.95	40°12'02.291"N	80°36'12.373"W	1577.26	141.832	1.64	0.00	-1.65
7624.00	88.950	146.840	5912.83	1660.59	-1318.41	1024.73	1751198.94	14599963.61	40°12'01.515"N	80°36'11.733"W	1669.81	142.144	1.34	0.26	-1.31
7716.00	88.920	147.530	5914.54	1752.56	-1395.71	1074.58	1751248.77	14599886.33	40°12'00.749"N	80°36'11.095"W	1761.46	142.407	0.75	-0.03	0.75

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Actual Wellpath Report

Linda Greathouse BRK 10H AWP Proj: 12592'

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (144 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]
7809.00	89.540	149.530	5915.79	1845.54	-1475.02	1123.12	1751297.29	14599807.05	40°11'59.963"N	80°36'10.474"W	1853.94	142.713	2.25	0.67	2.15
7902.00	89.020	148.430	5916.96	1938.52	-1554.72	1171.04	1751345.20	14599727.39	40°11'59.173"N	80°36'09.861"W	1946.40	143.012	1.31	-0.56	-1.18
7994.00	88.980	148.080	5918.56	2030.51	-1632.94	1219.44	1751393.57	14599649.20	40°11'58.398"N	80°36'09.242"W	2038.02	143.248	0.38	-0.04	-0.38
8087.00	88.950	147.570	5920.24	2123.49	-1711.64	1268.96	1751443.07	14599570.52	40°11'57.618"N	80°36'08.608"W	2130.72	143.448	0.55	-0.03	-0.55
8178.00	89.080	147.380	5921.81	2214.47	-1788.36	1317.88	1751491.97	14599493.84	40°11'56.858"N	80°36'07.982"W	2221.49	143.613	0.25	0.14	-0.21
8271.00	88.950	147.320	5923.30	2307.45	-1866.65	1368.04	1751542.12	14599415.57	40°11'56.082"N	80°36'07.340"W	2314.29	143.763	0.06	0.00	-0.06
8364.00	88.950	147.290	5924.90	2400.42	-1944.91	1418.27	1751592.33	14599337.35	40°11'55.306"N	80°36'06.698"W	2407.11	143.900	0.14	-0.14	-0.03
8454.00	88.950	144.790	5926.55	2490.34	-2019.54	1468.54	1751642.57	14599262.75	40°11'54.567"N	80°36'06.054"W	2497.02	143.977	2.78	0.00	-2.78
8546.00	89.020	144.290	5928.18	2582.14	-2094.46	1521.90	1751695.92	14599187.85	40°11'53.824"N	80°36'05.371"W	2589.01	143.997	0.55	0.08	-0.54
8638.00	88.950	144.180	5929.81	2673.91	-2169.10	1575.66	1751749.66	14599113.24	40°11'53.084"N	80°36'04.682"W	2680.99	144.005	0.14	-0.08	-0.12
8731.00	88.950	143.920	5931.51	2766.65	-2244.37	1630.25	1751804.22	14599038.00	40°11'52.338"N	80°36'03.983"W	2773.97	144.006	0.28	0.00	-0.28
8824.00	88.890	145.920	5933.27	2859.48	-2320.46	1683.69	1751857.64	14598961.94	40°11'51.583"N	80°36'03.299"W	2866.94	144.036	2.15	-0.06	2.15
8916.00	89.350	148.800	5934.68	2951.45	-2397.92	1733.30	1751907.23	14598884.52	40°11'50.816"N	80°36'02.664"W	2958.77	144.139	3.17	0.50	3.13
9009.00	89.230	149.990	5935.83	3044.42	-2477.95	1780.64	1751954.56	14598804.51	40°11'50.023"N	80°36'02.059"W	3051.38	144.299	1.29	-0.13	1.28
9102.00	89.290	150.610	5937.03	3137.35	-2558.73	1826.71	1752000.61	14598723.77	40°11'49.222"N	80°36'01.470"W	3143.88	144.476	0.67	0.06	0.67
9193.00	89.230	149.060	5938.21	3228.30	-2637.40	1872.44	1752046.32	14598645.13	40°11'48.443"N	80°36'00.885"W	3234.48	144.627	1.70	-0.07	-1.70
9286.00	89.320	149.450	5939.38	3321.28	-2717.32	1919.97	1752093.84	14598565.24	40°11'47.651"N	80°36'00.277"W	3327.18	144.756	0.43	0.10	0.42
9379.00	89.200	147.970	5940.59	3414.26	-2796.78	1968.27	1752142.11	14598485.80	40°11'46.864"N	80°35'59.659"W	3419.96	144.864	1.60	-0.13	-1.59
9472.00	89.350	147.670	5941.76	3507.25	-2875.49	2017.80	1752191.62	14598407.13	40°11'46.084"N	80°35'59.026"W	3512.83	144.942	0.36	0.16	-0.32
9564.00	89.260	148.560	5942.88	3599.25	-2953.60	2066.39	1752240.19	14598329.05	40°11'45.310"N	80°35'58.404"W	3604.68	145.023	0.97	-0.10	0.97
9657.00	89.260	148.370	5944.08	3692.24	-3032.86	2115.03	1752288.81	14598249.82	40°11'44.524"N	80°35'57.782"W	3697.51	145.109	0.20	0.00	-0.20
9750.00	89.020	148.790	5945.48	3785.22	-3112.22	2163.50	1752337.27	14598170.49	40°11'43.738"N	80°35'57.162"W	3790.33	145.194	0.52	-0.26	0.45
9842.00	88.950	148.680	5947.11	3877.20	-3190.84	2211.24	1752384.99	14598091.90	40°11'42.959"N	80°35'56.551"W	3882.15	145.278	0.14	-0.08	-0.12
9935.00	89.080	147.820	5948.70	3970.19	-3269.91	2260.17	1752433.90	14598012.86	40°11'42.175"N	80°35'55.925"W	3975.01	145.348	0.94	0.14	-0.92
10028.00	88.920	146.520	5950.33	4063.16	-3348.05	2310.58	1752484.29	14597934.76	40°11'41.401"N	80°35'55.280"W	4067.95	145.389	1.41	-0.17	-1.40
10120.00	89.320	146.120	5951.74	4155.10	-3424.59	2361.60	1752535.29	14597858.24	40°11'40.642"N	80°35'54.627"W	4159.93	145.410	0.61	0.43	-0.43
10213.00	89.350	145.530	5952.82	4248.02	-3501.53	2413.83	1752587.50	14597781.33	40°11'39.880"N	80°35'53.959"W	4252.92	145.419	0.64	0.03	-0.63
10306.00	89.320	145.100	5953.90	4340.89	-3578.00	2466.75	1752640.40	14597704.89	40°11'39.122"N	80°35'53.281"W	4345.91	145.417	0.46	-0.03	-0.46
10398.00	89.350	143.150	5954.97	4432.65	-3652.54	2520.66	1752694.29	14597630.38	40°11'38.383"N	80°35'52.591"W	4437.88	145.390	2.12	0.03	-2.12
10491.00	89.260	143.960	5956.10	4525.34	-3727.34	2575.90	1752749.51	14597555.61	40°11'37.641"N	80°35'51.883"W	4530.82	145.352	0.88	-0.10	0.87

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

WELLPATH DATA (144 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]
10584.00	89.350	143.030	5957.22	4618.03	-3802.09	2631.22	1752804.81	14597480.89	40°11'36.900"N	80°35'51.175"W	4623.77	145.315	1.00	0.10	-1.00
10677.00	89.380	144.920	5958.25	4710.77	-3877.30	2685.91	1752859.48	14597405.71	40°11'36.154"N	80°35'50.475"W	4716.73	145.289	2.03	0.03	2.03
10769.00	89.290	147.730	5959.32	4802.71	-3953.85	2736.92	1752910.46	14597229.19	40°11'35.395"N	80°35'49.822"W	4808.70	145.308	3.06	-0.10	3.05
10862.00	89.450	149.570	5960.34	4895.69	-4033.26	2785.30	1752958.82	14597249.81	40°11'34.608"N	80°35'49.203"W	4901.54	145.372	1.99	0.17	1.98
10955.00	89.750	150.100	5960.99	4988.65	-4113.66	2832.03	1753005.53	14597169.44	40°11'33.812"N	80°35'48.606"W	4994.26	145.455	0.65	0.32	0.57
11048.00	89.720	149.400	5961.42	5081.61	-4194.00	2878.88	1753052.37	14597089.13	40°11'33.016"N	80°35'48.007"W	5087.00	145.533	0.75	-0.03	-0.75
11140.00	89.780	148.740	5961.83	5173.60	-4272.92	2926.16	1753099.63	14597010.25	40°11'32.234"N	80°35'47.402"W	5178.83	145.596	0.72	0.07	-0.72
11233.00	89.750	149.080	5962.21	5266.59	-4352.56	2974.19	1753147.64	14596930.64	40°11'31.445"N	80°35'46.788"W	5271.67	145.654	0.37	-0.03	0.37
11322.00	89.690	151.740	5962.64	5355.51	-4429.94	3018.13	1753191.56	14596853.28	40°11'30.678"N	80°35'46.226"W	5360.36	145.733	2.99	-0.07	2.99
11411.00	89.690	155.320	5963.12	5444.11	-4509.60	3057.79	1753231.21	14596773.66	40°11'29.889"N	80°35'45.720"W	5448.54	145.860	4.02	0.00	4.02
11511.00	89.660	156.620	5963.69	5543.18	-4600.93	3098.51	1753271.92	14596682.36	40°11'28.985"N	80°35'45.200"W	5547.01	146.042	1.30	-0.03	1.30
11604.00	89.600	157.370	5964.29	5635.08	-4686.53	3134.86	1753308.25	14596596.79	40°11'28.137"N	80°35'44.737"W	5638.34	146.221	0.81	-0.06	0.81
11696.00	89.660	157.770	5964.89	5725.84	-4771.57	3169.96	1753343.33	14596511.79	40°11'27.295"N	80°35'44.290"W	5728.57	146.402	0.44	0.07	0.43
11789.00	89.720	159.620	5965.39	5817.27	-4858.20	3203.75	1753377.11	14596425.18	40°11'26.438"N	80°35'43.859"W	5819.46	146.597	1.99	0.06	1.99
11882.00	89.750	161.510	5965.82	5908.10	-4945.90	3234.69	1753408.04	14596337.52	40°11'25.570"N	80°35'43.466"W	5909.75	146.815	2.03	0.03	2.03
11974.00	89.600	161.500	5966.34	5997.62	-5033.15	3263.87	1753437.21	14596250.31	40°11'24.706"N	80°35'43.095"W	5998.79	147.038	0.16	-0.16	-0.01
12067.00	89.380	160.670	5967.17	6088.26	-5121.12	3294.02	1753467.35	14596162.37	40°11'23.835"N	80°35'42.712"W	6089.04	147.250	0.92	-0.24	-0.89
12160.00	89.480	160.370	5968.09	6179.10	-5208.79	3325.03	1753498.35	14596074.73	40°11'22.968"N	80°35'42.317"W	6179.59	147.448	0.34	0.11	-0.32
12248.00	89.420	160.290	5968.94	6265.12	-5291.65	3354.65	1753527.95	14595991.90	40°11'22.148"N	80°35'41.940"W	6265.40	147.627	0.11	-0.07	-0.09
12338.00	89.480	159.670	5969.80	6353.21	-5376.21	3385.46	1753558.75	14595907.38	40°11'21.311"N	80°35'41.548"W	6353.35	147.801	0.69	0.07	-0.69
12431.00	89.380	158.470	5970.73	6444.53	-5463.07	3418.68	1753591.96	14595820.55	40°11'20.451"N	80°35'41.125"W	6444.57	147.962	1.29	-0.11	-1.29
12524.00	89.420	158.370	5971.70	6536.04	-5549.55	3452.88	1753626.15	14595734.11	40°11'19.595"N	80°35'40.690"W	6536.04	148.110	0.12	0.04	-0.11
12567.00	89.510	158.430	5972.10	6578.35	-5589.52	3468.71	1753641.97	14595694.15	40°11'19.199"N	80°35'40.488"W	6578.35	148.177	0.25	0.21	0.14
12592.00	89.510	158.430	5972.32	6602.95	-5612.77	3477.90	1753651.16	14595670.91	40°11'18.969"N	80°35'40.371"W	6602.96	148.216	0.00	0.00	0.00

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REFERENCE WELLPATH IDENTIFICATION

Operator	SOUTHWESTERN ENERGY	Slot	Slot #10
Area	Brooke County, WV	Well	Linda Greathouse BRK 10H
Field	Brooke	Wellbore	Linda Greathouse BRK 10H AWB
Facility	Linda Greathouse BRK Pad		

HOLE & CASING SECTIONS - Ref Wellbore: Linda Greathouse BRK 10H AWB Ref Wellpath: Linda Greathouse BRK 10H 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]
17.5in Open Hole	126.00	423.00	297.00	125.99	422.96	0.56	0.70	2.54	3.85
13.375in Casing	26.00	411.00	385.00	26.00	410.96	0.00	0.00	2.54	3.88
12.25in Open Hole	423.00	1686.00	1263.00	422.96	1683.98	2.54	3.85	-38.00	34.66
9.625in Casing Intermediate	26.00	1681.00	1655.00	26.00	1678.98	0.00	0.00	-38.04	34.60
8.75in Open Hole	1686.00	6479.00	4793.00	1683.98	5880.23	-38.00	34.66	-342.69	427.24
8.5in Open Hole	6479.00	12592.00	6113.00	5880.23	5972.32	-342.69	427.24	-5612.77	3477.90
5.5in Casing Production	26.00	12592.00	12566.00	26.00	5972.32	0.00	0.00	-5612.77	3477.90

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
Linda Greathouse BRK 10H TP Rev-3	5968.99	-4272.44	2912.99	1753086.46	14597010.72	40°11'32.239"N	80°35'47.572"W	point
Linda Greathouse BRK 10H BHL Rev-4	5992.95	-5611.01	3483.44	1753656.69	14595672.67	40°11'18.986"N	80°35'40.300"W	point

WELLPATH COMPOSITION - Ref Wellbore: Linda Greathouse BRK 10H AWB Ref Wellpath: Linda Greathouse BRK 10H AWP Proj: 12592'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment
26.00	350.00	OWSG MWD rev2 + HRGM	01 Premier MWD <17-1/2">(152'-350')
350.00	4731.00	OWSG MWD rev2 + HRGM	02 Premier MWD <12-1/4">(422'-1731')
1731.00	6409.00	OWSG MWD rev2 + HRGM	03 Premier MWD <8-3/4">(1822'-6409')
6409.00	12567.00	BHI AutoTrak Curve (Short)	04 BH AT Curve <8-1/2">(6409')(6517'-12567')
12567.00	12592.00	Blind Drilling (std)	Projection to bit

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REFERENCE WELLPATH IDENTIFICATION

Operator	Slot	Slot #10
SOUTHWESTERN ENERGY	Well	Linda Greathouse BRK 10H
Brooke County, WV	Wellbore	Linda Greathouse BRK 10H AWB
Brooke		
Linda Greathouse BRK Pad		

COMMENTS

Wellpath general comments
 API: 47-009-00274-0000
 BH Job #: 110060931A
 Rig: SDC 41
 Duration: 10/21/2019 - 10/23/2019

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